Form DEPLW0105-B2003 Revised December 23, 2008 Updated February 22, 2018



Maine Department of Environmental Protection

General Application for Waste Discharge License (WDL) / Maine Pollutant Discharge Elimination System (MEPDES) Permit

Regulatory requirements for the preparation and filing of applications may be found in Chapters 2, 521 and 522 of the Department's rules.

GENERAL INSTRUCTIONS

- 1. This general form is to be used to make application for the discharge of pollutants to the surface waters of the State, from all source except from privately owned discharges subject to the Over Board Discharge Program requirements.
- 2. Applicants are responsible for publishing public notice of their application at the time it is filed with the Department. See pages 7 and 8.
- 3. For a proposed new discharge of wastewater of more than 25,000 gallons per day or a project involving licenses from more than two bureaus in DEP, an applicant must conduct a public informational meeting before submitting an application to the Department. See page 7.
- 4. In some circumstances an applicant must have a pre-application or pre-submission meeting with the Department prior to filing of an application. See page 9.
- 5. At the time an application is filed with the Department, a copy must be provided to the municipal office and notice provided to all abutters by certified mail. See page 7.
- 6. Application fees must be paid at the time an application for a **new** discharge or permit is filed. Contact the Department for additional information and calculation of the fee amount. For existing discharges, fees are charged on an annual basis and application fees are not required with an application for permit renewal.
- 7. Attach additional sheets as necessary in answering specific questions. Be sure to number each sheet to identify the question to which it pertains.
- 8. Failure to fully complete all required forms or to pay necessary application fees will result in the application being returned.
- 9. After completing the application, submit 2 copies to:

Maine Department of Environmental Protection Bureau of Water Quality Division of Water Quality Management State House Station 17 Augusta, Maine 04333-0017

 Please read the entire application form before furnishing any information. If you need any assistance in filling out the form or required attachments, please contact the Department at the above address or by calling (207) 287-7688.

This application is for a: □New discharge □Renewal □Increased discharge □Transfer of owner □Modification □Other:

If assigned: MEPDES#: ME

WDL #: W -

- - -

FACILITY AND APPLICANT INFORMATION

1. Facility Information (911 Address):			
Facility Name:	Receiving Water Name(s):		
Town:	State:	Zip:	
Global Positioning System (GPS) reference data if ava	ilable	1 I	
Facility Type: Federal State Other Public		□ Other	
2. Applicant Information:			
Name:	Telephone	:	
Address:	e-mail:		
Town:	State:	Zip:	
3. Owner Information (if different from Applicant):			
Name:	Telephone		
Address:	e-mail:		
Town:	State:	Zip:	
4. Operator Information (if different from Applicant/Owner):			
Name:	Telephone	:	
Address:	e-mail:		
Town:	State:	Zip:	
NOTE: If a wastewater treatment facility is operated under a services must be reviewed and approved by the Depart		third party, the contract for	
5. Cognizant Official (Person to whom correspondence regard	ling this applic	cation should be sent):	
Name:	Telephone	:	
Address:	e-mail:		
Town:	State:	Zip:	
6. Person in responsible charge of the treatment facility operation	tions:		
Name:	Telephone:		
Operator's license #: Grade: Note that upon commencement of operations Nordic Aquafarms will have hire charge of the treatment facility.	Profession d a licensed opera	al Engineer? tor who will take over responsible	
7. Briefly describe nature of business and activities requiring	WDL /MEPD	ES Permit:	

ELECTRONICALLY SIGNED DECISIONS

8. Electronically signed decision options. To expedite processing of applications and reduce paper usage, all final decisions on an application will be electronically signed by the Commissioner (or his/her designee) and will be sent to the respective e-mail addresses provided for the Applicant and the Cognizant Official listed on this application, unless the "opt out" signature block is signed below.

I hereby <u>decline</u> to receive an electronically signed decision on the WDL/MEPDES permit via e-mail and choose to receive manually signed (hand written) decision via regular (U.S. Postal) mail.

Sign to DECLINE only

(Applicant):

Date:

SUPPORTING MATERIALS AND REQUIRED ATTACHMENTS

9. For **new and transfer applications only** from privately-owned facilities, include:

□ A Certificate of Good Standing issued by the Maine Secretary of State. See Attachment 1.

□ Proof of Title, Right or Interest (TRI) in the property on which the treatment system and outfall pipes and structures are or will be located. See Chapter 2 of the Department's rules for TRI criteria. See Attachments 2 through 6.

- 10. For transfer applications only, answer the following then skip to the Certification on page 6.
 - A. Name of current/former owner:
 - B. Describe any planned changes in the current discharge:
 - C. Provide a statement describing the technical and financial capacity to comply with the current permit conditions and applicable laws and rules. (use a separate sheet)
- 11. Unless submitted previously and there have been no changes, provide a topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source, depicting the facility and each of its intake and discharge structures See Attachment 7.
- 12. If modification of an existing permit is being requested, attach a statement describing the nature of the modification and the reasons or circumstances necessitating the change. Include any relevant modified process flow schematics available.

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and of the reports of qualification of foreign business corporations in this State and annual reports filed by the same.

I further certify that NORDIC AQUAFARMS INC., a DELAWARE corporation, is a duly qualified foreign business corporation under the laws of the State of Maine and that the application for authority to transact business in this State was filed on February 21, 2018.

I further certify that said foreign business corporation has filed annual reports due to this Department, and that no action is now pending by or on behalf of the State of Maine to forfeit the authority to transact business in this State and that according to the records in the Department of the Secretary of State, said foreign business corporation is a legally existing business corporation in good standing under the laws of the State of Maine at the present time.



In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this tenth day of September 2018.

Matthew Dunlap Secretary of State

OPTIONS AND PURCHASE AGREEMENT

This Options and Purchase Agreement, dated as of this \mathcal{D} day of \mathcal{M} day of \mathcal{M} and \mathcal{M} day of \mathcal{M} and \mathcal{M} and \mathcal{M} day of \mathcal{M} and \mathcal{M} day of \mathcal{M} and \mathcal{M} day of \mathcal{M} day of \mathcal{M} and \mathcal{M} day of \mathcal{M} d

TERMS AND CONDITIONS:

1. <u>Property Descriptions</u>.

Premises. Seller owns the land depicted on Exhibit A hereto as the a. "Realty" together with any improvements thereon and appurtenances thereto, located in Belfast, Maine, containing approximately 18 acres, such land being a portion of the land identified on the City of Belfast Tax Map 29 as Lot 39 and specifically excluding the Lower Dam (hereinafter defined) (the "Realty"). Seller also owns the land located in Belfast, together with any improvements thereon and appurtenances thereto, northerly of the Cassida Property (as such term is defined in the Evaluation Agreement by and between the parties dated substantially herewith (the "Evaluation Agreement")) and easterly of the Waterfront Parcel (hereinafter defined), such land being depicted on Exhibit A in yellow dots above the lot marked "Cassida Property" and is marked "Additional Parcel", such land being a portion of the land identified on the City of Belfast Tax Map 29 as Lot 39 and containing approximately 12 acres (the "Additional Parcel"). The Realty and Additional Parcel, together with all right, title and interest of Seller in and to any land lying in the bed of any street, road, avenue, lane or other way (opened or proposed) adjacent to or abutting or adjoining such premises, together with all rights, privileges, rights of way and easements appurtenant to such premises, and all other appurtenances and rights associated with the property, including subterranean rights, air rights, water rights, riparian and littoral rights, rights in submerged lands, all sewer and utility rights allocated to the Realty and all rights and entitlements to the development of the Property is hereinafter referred to as the "Real Property"). All buildings, fixtures and other improvements located thereon is hereinafter referred to as the "Improvements", and, together with the Real Property, the "Premises".

b. <u>Lower Dam</u>. Seller owns the dam structure located on the southeasterly portion of the Realty, which dam separates Belfast Reservoir Number One on Little River from Belfast Bay, and all appurtenances, rights, privileges and easements pertaining thereto including any flowage rights and access over the remaining land of Seller (the "<u>Lower Dam</u>").

c. <u>Waterfront Parcel</u>. Seller owns (i) the portion of City of Belfast Tax Map 29, Lot 39 which runs along the northerly shore of Little River, such land being depicted on <u>Exhibit A</u> as inside the red lines which are outside of the yellow lines and marked

"Waterfront Parcel", (ii) the entirety of the Town of Northport Tax Map U1, Lot 6, which lot runs along the southerly shore of Little River between the Northport/Belfast town line and Route 1, (iii) the entirety of the City of Belfast Tax Map 4, Lot 23-C, which lot runs along the southwesterly shore of Little River northerly of the Northport/Belfast town line being approximately 3 acres, and Seller may have (iv) right, title and interest over the land (Tax Map 4, Lot 10) owned by a third-party for access to "Perkins Road" running from the northerly bound of the BWD premises on Lot 29, Map 39 to said Perkins Road (collectively (i) to (iv), with all appurtenances, rights, privileges and easements pertaining thereto, the "Waterfront Parcel").

2. <u>Options; Terms; Purchase Prices</u>. Seller hereby grants to NAF the following options to purchase (collectively, the "<u>Options</u>", and individually, an "<u>Option</u>"):

a. <u>Premises Option</u>. NAF shall have an option to purchase the Premises for twelve (12) months from the date hereof, provided, however, NAF shall have the right to extend this Option for an additional six (6) months by giving written notice of and payment for the extension to Seller on or before three hundred thirty (330) days from the date hereof (the "<u>Premises Option</u>"). At NAF's election, on the Closing Date (as hereinafter defined) for the Premises Option, assuming Seller has the legal right to do so, Seller shall also grant to NAF an easement(s) appurtenant to the Premises over both the land owned by a third-party and the Waterfront Parcel for access to "Perkins Road," a public right-of-way existing generally to the north of the Premises, which easement(s) shall be in a location and upon dimensions as NAF and the City may mutually agree. The total purchase price for the Premises is ONE MILLION FIFTY NINE THOUSAND and 00/100 Dollars (\$975,000.00) for the Realty and EIGHTY FOUR THOUSAND and 00/100 Dollars (\$84,000.00) for the Additional Parcel) (the "<u>Premises Purchase Price</u>").

b. <u>Lower Dam Option</u>. NAF shall have an option to purchase the Lower Dam for a term ending on the earlier to occur of the following: two (2) years from the date of Closing on the Premises or, if NAF does not exercise its Premises Option, upon the expiration of the Premises Option (the "<u>Lower Dam Option</u>"). The total purchase price for the Lower Dam shall be ONE and 00/100 Dollars (\$1.00) (the "<u>Lower Dam Purchase Price</u>").

3. <u>Waterfront Parcel Agreement</u>. Seller agrees to sell and the City agrees to buy, upon the terms and conditions hereinafter set forth and upon NAF closing on the purchase of the Premises, the Waterfront Parcel subject to easements necessary for the infrastructure related to NAF's land-based aquaculture facility on the Premises and related improvements project (the "<u>Project</u>") so long as such easements do not unreasonably interfere with the nature path located on the Waterfront Parcel. At the City's election, assuming Seller has the legal right to do so, Seller shall also grant to the City an easement(s) appurtenant to the Waterfront Parcel over the land owned by a third-party for access to "Perkins Road," a public right-of-way existing generally to the north of the Premises, which easement(s) shall be in a location and upon dimensions as NAF and the City may mutually agree. The total purchase price for the Waterfront Parcel shall be up to ONE HUNDRED THOUSAND and 00/100 Dollars (\$100,000.00) in the sole

2

discretion of BWD (the "<u>Waterfront Parcel Purchase Price</u>"). It shall be a condition to the Premises Option Closing that the City is contemporaneously purchasing the Waterfront Parcel from Seller on the terms and conditions herein. It shall be a condition precedent to the closing on the Waterfront Parcel that NAF is contemporaneously purchasing the Premises from Seller on the terms and conditions herein. The City agrees that the use of the Waterfront Parcel shall be restricted to conservation and passive recreation uses, subject to easements necessary for the Project as aforesaid.

4. <u>Option Consideration</u>. For the Options, NAF shall pay to Seller an option consideration of THIRTY THOUSAND DOLLARS and 00/100 (\$30,000.00) at the time of execution of this Agreement for the initial option term. If NAF decides to extend its option for any property for the additional six (6) months set forth above then NAF shall pay to Seller an additional option consideration of FIFTEEN THOUSAND DOLLARS and 00/100 (\$15,000.00) (collectively, together with interest earned thereon, if any, the "<u>Options Consideration</u>"). The Options Consideration shall be deemed paid to Seller when delivered to NAF's attorney described in Section 15 below ("<u>Escrow Agent</u>"). The Options Consideration shall be deemed according to the terms of this Agreement.

If NAF (a) does not exercise an Option or (b) fails to close on a purchase once it has exercised the Option for it, in either case due to a reason other than (y) a default by NAF or Seller as described below or (z) a failure to fulfill the title condition precedent described in Section 5b below, then all Options Consideration paid to Seller shall be retained by Seller, as liquidated damages and Seller's sole and exclusive remedy for any such breach. Further, if Seller, having the right, terminates the Evaluation Agreement pursuant to Sections 2A or 2B thereof, then all Options Consideration paid to NAF. If NAF exercises an Option, the relevant Options Consideration shall be applied to the Purchase Price (hereinafter defined), as set forth below.

5. <u>Exercise of Option/Purchase and Sale Agreement</u>. NAF shall exercise its Options, if at all, as to the Premises or the Lower Dam at any time during the relevant Option term by delivering written notice to Seller of its intent to do so (the "<u>Notice of Election to Purchase</u>"). Upon any exercise of an Option as aforesaid, the following terms and provisions shall apply to conveyance of the relevant property:

a. <u>Purchase Price</u>. The Premises Purchase Price, Lower Dam Purchase Price and Waterfront Parcel Purchase Price are individually each referred to as a "<u>Purchase Price</u>" hereinafter and shall be paid as follows:

i. <u>Premises</u>. Subject to any adjustments and prorations hereafter described, at the Closing NAF shall pay the Premises Purchase Price to Seller or its agent as follows:

- 1. NAF shall receive a credit for all Options Consideration paid to Seller; and
- 2. NAF shall pay the balance to Seller in lawful currency of the

United States of America in immediately available funds by wire transfer to an account designated by Seller in writing.

ii. <u>Lower Dam</u>. Subject to any adjustments and prorations hereafter described, at the Closing NAF shall pay the Lower Dam Purchase Price of ONE and 00/100 Dollar (\$1.00) to Seller in immediately available funds by wire transfer to an account designated by Seller in writing.

iii. <u>Waterfront Parcel</u>. Subject to any adjustments and prorations hereafter described, at the Closing the City shall pay the Waterfront Parcel Purchase Price to Seller or its agent in lawful currency of the United States of America in immediately available funds by wire transfer to an account designated by Seller in writing.

b. <u>Deed</u>. The relevant property shall be conveyed by Seller in fee simple absolute, by a good and sufficient quitclaim deed with covenant in accordance with the Short Form Deeds Act, 33 M.R.S.A. §761, *et seq.* (each a "<u>Deed</u>"), running to NAF or the City, as applicable, or their nominee or designee in accordance with Section 17 below. A Deed shall convey a good and clear record and marketable title to the Premises or Waterfront Parcel, as applicable, insurable on the current ALTA Standard Owners Form at standard rates, with standard printed exceptions for parties in possession and mechanics' liens deleted, free from all mortgages and monetary liens and all other encumbrances except: (i) those matters listed on <u>Exhibit B</u> attached hereto, and (ii) any matters listed on <u>Exhibit B</u> attached hereto, and (ii) hose matters listed on <u>Exhibit B</u> attached hereto, and (ii) any matters listed on <u>Exhibit B</u> attached hereto, acknowledged and delivered by Seller at the Closing.

It shall be a condition precedent to all Closings that the relevant buyer has obtained a title commitment in form and substance acceptable to it, with such endorsements as it may require, and if it is unable to obtain such a title commitment, NAF may, at its option, (i) rescind the Notice of Election to Purchase as though the Notice of Election to Purchase had not been delivered, or (ii) extend the sixty (60) day time period provided for the Option Closing by no more than sixty (60) days in order to obtain such title commitment.

c. <u>Closing</u>. Unless extended pursuant to the terms of this Agreement, the closing of the transactions contemplated hereunder (each individually a "<u>Closing</u>" occurring on a "<u>Closing Date</u>") shall take place as follows:

i. <u>Premises Closing Date</u>. The Closing of the Premises shall occur at 10:00 a.m. on the thirtieth (30th) day following the receipt by Seller of the_Notice of Election to Purchase the Premises, or such earlier date as may be mutually agreed upon by the parties (such date, as the same may be extended pursuant to the terms of this Agreement, the "<u>Premises Closing Date</u>").

ii. <u>Waterfront Parcel Closing Date</u>. The Closing of the Waterfront Parcel shall occur on the same day and immediately after the closing on the Premises (such date, as the same may be extended pursuant to the terms of this Agreement, the "<u>Waterfront Parcel Closing Date</u>").

iii. <u>Lower Dam Closing</u>. The Closing of the Lower Dam shall occur at 10:00 a.m. on the thirtieth (30th) day following the receipt by Seller of the Notice of Election to Purchase the Lower Dam or such earlier date as may be mutually agreed upon by the parties (such date, as the same may be extended pursuant to the terms of this Agreement, the "Lower Dam Closing Date").

Each Closing shall occur at the offices of the City's attorney described in Section 15 below. If a Closing Date shall fall on a Saturday, Sunday or legal holiday, the Closing Date shall automatically be extended to the next business day. The Closing may be conducted in the customary manner of an escrow closing by the parties making delivery of all closing documents and funds to the Title Company on or prior to the Closing Date, and in such event the attendance of the parties at Closing shall not be required. Time is of the essence in this Agreement.

Each Closing shall not be deemed to be completed until all documents and payments as aforesaid have been properly delivered (and recorded where appropriate) to the satisfaction of all parties.

Seller may, at the relevant Closing, use the relevant Purchase Price, or any portion thereof, to clear the title of any and all encumbrances or interests provided that all such instruments so procured are recorded simultaneously with the delivery of the relevant Deed.

d. <u>Seller Closing Deliverables</u>. At each Closing, Seller shall deliver the following documents, reasonably satisfactory in form and substance to the relevant buyer, properly executed and acknowledged as required:

i. A Deed;

ii. Evidence reasonably satisfactory to NAF and to the Title Company or the City and its attorney of Seller's authority and the authority of the signatory on behalf of Seller to convey the relevant property pursuant to this Agreement;

iii. As to the Premises and Waterfront Parcel, affidavits sufficient for the Title Company orNAF's or the City's attorney to delete any exceptions for parties in possession and mechanics' or materialmen's liens from the owner's title insurance policy (the "<u>Title Insurance</u>"); iv. Such other instruments as the relevant buyer may reasonably request consistent with the terms of this Agreement, so long as said documents do not create any new or continuing obligations on behalf of Seller.

e. <u>Buyer Closing Deliverables</u>. At each Closing, the relevant buyer shall deliver, or cause to be delivered, the following payment and documents, reasonably satisfactory in form and substance to Seller, properly executed and acknowledged as required:

i. The relevant Purchase Price, as adjusted in accordance with the terms hereof;

ii. A closing statement setting forth the Purchase Price and the closing adjustments and prorations as further described below (the "<u>Closing Statement</u>");

iii. The Federal and State of Maine tax certificate and disclosures; and

iv. Such other instruments as Seller may reasonably request consistent with the terms of this Agreement.

f. <u>NAF's Conditions to Closing</u>. Without limiting any other conditions to NAF's obligations to close set forth in this Agreement, the obligations of NAF under this Agreement are subject to the satisfaction at the time of each Closing of each of the following conditions (any of which may be waived in whole or in part by NAF at or prior to Closing):

i. There shall be no final judgment materially affecting the ability of Seller to perform its obligations rendered against Seller, or if, within thirty (30) days after entry thereof, such judgment shall have been discharged or execution thereof stayed, or if, within thirty (30) days after the expiration of any such stay, such judgment shall have been discharged.

ii. All of the representations by Seller set forth in this Agreement or any Exhibit attached hereto shall be true and correct in all material respects. With respect to any representation made to the best of Seller's knowledge, the condition to Closing shall be not only that such representation still be true to the best of Seller's knowledge, but that the specific fact or condition that was the subject of the representation also be true.

iii. Seller shall have performed, observed and complied with all material covenants and agreements required by this Agreement to be performed by Seller at or prior to Closing.

iv. Subject to the provisions of Sections 5(k) and 7 hereof, the physical and environmental condition of the Premises shall not have changed

adversely after the date hereof, reasonable wear and tear and acts caused by NAF excepted.

If any of NAF's foregoing conditions is not fully satisfied on or before the Closing Date and it is susceptible to cure by Seller, Seller shall use reasonable efforts to satisfy such condition, in which event Seller shall have a period not exceeding thirty (30) days after the Closing Date to satisfy such condition, and the Closing Date shall be extended accordingly. If (despite Seller's reasonable efforts to cure where applicable), any such condition is not fully satisfied on or before the extended Closing Date, NAF shall have the option to either (x) terminate this Agreement by notice to Seller, in which event this Agreement shall terminate and all obligations of the parties hereto shall cease without further recourse or remedy of the parties hereunder, except for those obligations which are stated herein to survive the termination of this Agreement and the Options Consideration paid to Seller shall be returned to NAF forthwith, (y) waive such condition and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement, or (z) if any such condition is susceptible of being cured by NAF, then NAF shall have the right, but not the obligation, to take such actions and incur such costs and expenses as necessary to satisfy such condition and any and all costs and expenses incurred by NAF shall be deducted from the relevant Purchase Price at Closing. Notwithstanding the foregoing, in the event that the failure to satisfy any condition precedent to Closing is caused by a breach by Seller of its obligations set forth in this Agreement, Seller shall be deemed to be in default hereunder, in which event the foregoing cure period and NAF's option shall not be applicable and the provisions of Section 12 below shall apply.

g. <u>The City's Conditions to Closing</u>. Without limiting any other conditions to the City's obligations to close set forth in this Agreement, the obligations of the City under this Agreement are subject to the satisfaction at the time of the Closing on the Waterfront Parcel of each of the following conditions (any of which may be waived in whole or in part by the City at or prior to Closing):

i. There shall be no final judgment materially affecting the ability of Seller to perform its obligations rendered against Seller, or if, within thirty (30) days after entry thereof, such judgment shall have been discharged or execution thereof stayed, or if, within thirty (30) days after the expiration of any such stay, such judgment shall have been discharged.

ii. All of the representations by Seller set forth in this Agreement or any Exhibit attached hereto shall be true and correct in all material respects. With respect to any representation made to the best of Seller's knowledge, the condition to Closing shall be not only that such representation still be true to the best of Seller's knowledge, but that the specific fact or condition that was the subject of the representation also be true. iii. Seller shall have performed, observed and complied with all material covenants and agreements required by this Agreement to be performed by Seller at or prior to Closing.

iv. Subject to the provisions of Sections 5(k) and 7 hereof, the physical and environmental condition of the Premises shall not have changed adversely after the date hereof, reasonable wear and tear and acts caused by the City excepted.

If any of the City's foregoing conditions is not fully satisfied on or before the Closing Date and it is susceptible to cure by Seller, Seller shall use reasonable efforts to satisfy such condition, in which event Seller shall have a period not exceeding thirty (30) days after the Closing Date to satisfy such condition, and the Closing Date shall be extended accordingly. If (despite Seller's reasonable efforts to cure where applicable), any such condition is not fully satisfied on or before the extended Closing Date, the City shall have the option to either (x) terminate this Agreement by notice to Seller, in which event this Agreement shall terminate and all obligations of the parties hereto shall cease without further recourse or remedy of the parties hereunder, except for those obligations which are stated herein to survive the termination of this Agreement, (y) waive such condition and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement, or (z) if any such condition is susceptible of being cured by the City, then the City shall have the right, but not the obligation, to take such actions and incur such costs and expenses as necessary to satisfy such condition and any and all costs and expenses incurred by the City shall be deducted from the Waterfront Parcel Purchase Price at Closing. Notwithstanding the foregoing, in the event that the failure to satisfy any condition precedent to Closing is caused by a breach by Seller of its obligations set forth in this Agreement, Seller shall be deemed to be in default hereunder, in which event the foregoing cure period and the City's option shall not be applicable and the provisions of Section 12 below shall apply.

h. <u>Seller's Conditions to Closing</u>. Without limiting any other conditions to Seller's obligations to close set forth in this Agreement, the obligations of Seller under this Agreement are subject to the satisfaction at the time of each Closing of each of the following conditions (any of which may be waived in whole or in part by Seller at or prior to Closing):

i. NAF and Seller shall have entered into a water supply agreement pursuant to which NAF will have the right to purchase, and Seller will commit to supply to NAF, water for use in connection with the Project (the "<u>Water Supply</u> <u>Agreement</u>").

ii. NAF and Seller shall enter into a license agreement pursuant to which Seller shall have the irrevocable right to occupy the office and garage facilities existing on the Realty as of the date hereof for a period ending on the earlier to occur of the following: (y) on the first (1st) anniversary of the Premises Closing Date, or (z) Seller is able to move its offices, equipment and vehicles into and provide services to the public from its new headquarters and associated operations facilities (the "License Agreement"), such agreement to be on commercially reasonable terms mutually agreeable to NAF and Seller and to (a) provide that Seller pay taxes, utilities and other occupancy costs and expenses but no license or rental fee, and (b) include a holdover penalty/damages provision.

iii. Seller has acquired an MPUC Order/Opinion, subject to and in accordance with Section 2A of the Evaluation Agreement.

iv. As to the Premises Closing, the City shall be contemporaneously closing on the purchase of the Waterfront Parcel.

If any of Seller's foregoing conditions is not fully satisfied on or before a Closing Date, Seller shall have the option to either (y) terminate this Agreement by notice to the other parties, in which event this Agreement shall terminate and the Options Consideration shall be retained by Seller (unless the failure of condition results from a breach or default of Seller, in which event the Options Consideration shall be returned to NAF forthwith) and all obligations of the parties hereto shall cease without further recourse or remedy of the parties hereunder, except for those obligations which are stated herein to survive the termination of this Agreement, or (z) waive such condition and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement.

i. Apportionment of Taxes and Other Charges. All normal and customarily proratable items, including, without limitation, real estate taxes and assessments (if applicable), utility bills (except as hereinafter provided) and collected rents and other income (if any), shall be prorated as of a relevant Closing Date, Seller being charged and credited for all of the same relating to the period up to the Closing Date and the relevant buyer being charged and credited for all of the same relating to the period on and after the Closing Date. If the amount of any such item is not known at the time of the delivery of the relevant Deed, such item shall be apportioned on the basis of the comparable period of the prior year or a current estimate, with a reapportionment within ninety (90) days of the Closing Date or as soon thereafter as the amount of the item is actually determined. Final readings and final billings for utilities will be made if possible as of the Closing Date, in which event no proration shall be made at the Closing with respect to utility bills. Otherwise a proration shall be made based upon the parties' reasonable good faith estimate, and a readjustment made within thirty (30) days after Closing or such later date as shall be necessary so that such readjustment may be based upon actual bills for such utilities. Seller shall be entitled to receive a return of all deposits presently in effect with the utility providers, and the relevant buyer shall be obligated to make its own arrangements for deposits with the utility providers. The provisions of this Section shall survive the Closing for a period of twelve (12) months, and in the event of any error in performing the prorations contemplated by this Agreement or if information becomes available subsequent to the Closing indicating that the prorations performed at Closing

were not accurate, the parties hereto shall be obligated to re-prorate the closing adjustments to correct such errors and to reflect such new information. A detailed statement shall setting forth the manner of computation of the aforesaid pro-ration adjustments shall be included on the Closing Statement.

j. <u>Closing Costs</u>. Each of Seller and the relevant buyer shall be responsible for preparing such documents as it is obligated to deliver pursuant to Sections 5d and 5e hereof and for its own legal expenses. Seller and the relevant buyer agree to allocate closing costs as follows:

i. Transfer/conveyance taxes (if applicable) shall be divided evenly between Seller and the relevant buyer.

ii. A buyer's title insurance expenses and premiums shall be paid by that buyer.

iii. The cost of an update to the most recent survey of the Premises or of a new survey and any related surveyor's certificate shall be paid by NAF.

iv. The cost of preparation and recordation of any releases and termination statements required to clear title to the Premises shall be paid by Seller.

v. The cost of preparation of each Deed shall be paid by Seller.

vi. The costs of performing each Closing and drafting any other closing documents not described in Sections 5d and 5e hereof, and any escrow charges shall be paid by the relevant buyer.

k. <u>Condition of Premises at Closing and Closing Inspection</u>. At a Closing, but without limiting any of the other conditions to Closing hereunder and except as may be provided in the License Agreement, full possession of the relevant property, free of all tenants and occupants and of all personal property located on the relevant property and owned by Seller is to be delivered to the relevant buyer at the Closing, the relevant property to be then in the same condition as on the date hereof, reasonable use and wear excepted, and excepting the removal of any buildings and/or fixtures by Seller; provided such removal does not create and unsafe condition, nuisance or other violation of law. NAF and the City and their agents, employees, representatives or independent contractors shall be entitled to an inspection of the relevant property prior to the Closing in order to determine whether the condition thereof complies with the terms of this Section.

6. <u>Entire Agreement Herein</u>. The parties understand and agree that their entire agreement is contained herein, in the Water Supply Agreement and Evaluation Agreement that no warranties, guarantees, statements, or representations shall be valid or binding on a party unless set forth in this Agreement. It is further understood and agreed that all prior understandings and agreements heretofore had between the parties are merged in this Agreement

which alone fully and completely expresses their agreement and that the same is entered into after full investigation, neither party relying on any statement or representation not embodied in this Agreement. This Agreement may be changed, modified, altered or terminated only by a written agreement signed by the parties hereto.

7. <u>Condemnation</u>. If all or a material part of the Realty or Additional Parcel is taken by condemnation, eminent domain or by agreement in lieu thereof, or any proceeding to acquire, take or condemn all or part of the Realty or Additional Parcel is threatened or commenced, NAF may either terminate this Agreement (in which event NAF shall be entitled to a return of the Options Consideration paid to Seller), or purchase the Realty or Additional Parcel in accordance with the terms hereof, without reduction in the relevant Purchase Price, together with an assignment of Seller's rights to any award paid or payable by or on behalf of the condemning authority. Otherwise NAF shall complete the transaction and shall receive an assignment of Seller's rights to the award therefor at Closing. If Seller has received payments from the condemning authority and if NAF elects to purchase the Realty or Additional Parcel, Seller shall credit the amount of said payments against the relevant Purchase Price at the Closing. For the purposes hereof, a part of the Realty or Additional Parcel shall be deemed "material" if in NAF's judgment the taking thereof would adversely affect NAF's ability to pursue the proposed Project as such term is defined in the Evaluation Agreement.

8. <u>Representations of Seller</u>. In order to induce the buyers to enter into this Agreement and to consummate the purchase of the Premises, Seller hereby represents to each as of the date of this Agreement and as of each Closing Date that the following representations of Seller are true and correct in all material respects:

a. Seller has the power and authority to enter into this Agreement and complete the transactions contemplated herein, all action necessary to authorize the execution and delivery of this Agreement has occurred, the individual executing this Agreement and all documents to be executed by Seller are duly authorized, and this Agreement and all such documents that are to be executed by Seller and delivered to the relevant buyer at the relevant Closing are duly authorized, executed and delivered by Seller and enforceable against Seller in accordance with its terms.

b. There are no leases, licenses or other forms of occupancy agreements affecting the Premises or Waterfront Parcel or any maintenance, management or other contracts affecting either of these that will survive the Closing.

c. There is not now pending nor, to Seller's best knowledge, has there been threatened, any action, suit or proceeding against or affecting the Premises or Waterfront Parcel or Seller with respect thereto, whether before or by any federal or state court, commission, regulatory body, administrative agency or other governmental body, domestic or foreign, or otherwise.

d. Seller has not received notice of any pending or threatened proceeding for a taking or condemnation of the Premises or Waterfront Parcel.

e. Seller has not received notice of any assessment for public improvements applicable to the Premises or Waterfront Parcel.

f. Seller has not received notice of any proposal for or pending moratorium, rezoning, overlay, or other change to the land use classification or restrictions affecting the Premises or Waterfront Parcel.

g. Seller's rights, title and interest in and to and ownership of the Premises or Waterfront Parcel and all portions thereof and rights appurtenant thereto have never been challenged or questioned.

9. <u>Representations of Buyer</u>. NAF and the City hereby represent and warrant to Seller as of the date hereof and as of each Closing Date that the following representations of it are true and correct in all material respects:

a. It has the power and authority to enter into this Agreement and complete the transactions contemplated herein, all action necessary to authorize the execution and delivery of this Agreement has occurred, the individual executing this Agreement and all documents to be executed by it are duly authorized, and this Agreement and all such documents that are to be executed by it and delivered to Seller at the Closing are duly authorized, executed and delivered by it and enforceable against it in accordance with its terms.

b. There are no proceedings pending or, to its knowledge, threatened against it in any court or before any governmental authority or any tribunal which, if adversely determined, would have a material adverse effect on its ability to purchase the relevant property or to carry out its obligations under this Agreement, the Water Supply Agreement (as to NAF only), or the Evaluation Agreement.

10. <u>Maintenance; New Leases or Agreements, Etc.</u> Between the date hereof and the Closing:

a. Seller shall maintain all of its property subject to this Agreement in at least the same condition as the same is in at the date hereof, reasonable wear and tear and the consequences of any taking by eminent domain excepted. Seller shall maintain insurance on the Premises as currently insured.

b. Seller shall not enter into any lease, license or other occupancy agreement of all or any part of its property subject to this Agreement or any other agreement affecting such property without the relevant buyer's prior written consent (which the relevant buyer may withhold in its sole and absolute discretion).

c. Seller shall not make any commitments or representations to any other Governmental Authorities, any adjoining property owners, and civic association or interest groups concerning its property subject to this Agreement that would be binding upon the relevant buyer in any manner. d. Seller shall promptly deliver to the relevant buyer copies of any notices or other correspondence it receives from any other Governmental Authorities (as such terms is defined in the Evaluation Agreement) regarding its property subject to this Agreement.

11. <u>Broker</u>. Each party represents hereby to the other that it dealt with no broker in the consummation of this Agreement and each party shall indemnify and save the other harmless from and against any claim arising from the breach of such representation by the indemnifying party. The provisions of this Section shall survive the Closing or, if applicable, the termination of this Agreement.

12. <u>Default; Remedies</u>. Either party shall be in default hereunder if they fail to fulfill its obligations as set forth in this Agreement, Water Supply Agreement or Evaluation Agreement.

a. In the event of a material default by Seller hereunder, then the relevant buyer shall deliver to Seller a written notice of such material breach, which notice shall set forth complete information describing the nature of the material breach. In the case of a non-monetary default, Seller shall use its reasonable efforts to cure any such breach, default or failure and in such event the Closing Date shall be extended by a written notice from Seller to the other parties for a period of up to thirty (30) days as specified in said notice. If, despite Seller's reasonable efforts, Seller fails to cure any such breach, default or failure on or before the extended Closing Date, each buyer shall have the right to exercise any one of the following remedies:

i. terminate this Agreement by written notice to Seller, in which event the Options Consideration paid to Seller for all purchases that have not yet closed shall be paid (or repaid, as the case may be) to NAF, and (except for those obligations which are stated herein to survive the termination of this Agreement) all obligations of the parties under this Agreement shall terminate; provided, however, if such default is as a result of a willful breach by Seller, in addition to a return of the Option Consideration, NAF and the City shall each be entitled to immediate payment from Seller of all reasonable out of pocket costs incurred by that party in connection with this Agreement and the Project (including under and pursuant to the Evaluation Agreement); or

ii. seek specific performance of this Agreement; or

iii. if any default by Seller is susceptible of being cured by NAF or the City, then NAF and the City shall have the right, but not the obligation, to take such actions and incur such costs and expenses as necessary to cure such default and any and all costs and expenses incurred by it shall be deducted from the relevant Purchase Price at the Closing; or

iv. waive the default and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement.

13

The foregoing remedies shall be NAF's and the City's sole and exclusive remedies and each waives consequential damages against Seller, except in the event of fraud or intentional default by Seller.

In the event of a material default by NAF or the City hereunder, then b. Seller shall deliver to the other parties a written notice of such material breach, which notice shall set forth complete information describing the nature of the material breach. In the case of a non-monetary default, the defaulting party shall use its reasonable efforts to cure any such breach, default or failure and in such event the Closing Date shall be extended by a written notice from the defaulting party to Seller for a period of up to thirty (30) days as specified in said notice. If, despite the defaulting party's reasonable efforts, the defaulting party fails to cure any such breach, default or failure on or before the extended Closing Date, Seller shall have the right to exercise any one of the following remedies: terminate this Agreement by written notice to the other parties, in which event the Options Consideration paid to Seller for all purchases that have not yet closed shall be given to Seller as its sole remedy, at law or in equity, and (except for those obligations which are stated herein to survive the termination of this Agreement) all obligations of the parties under this Agreement shall terminate; provided, however, if such default is as a result of a willful breach by NAF or the City, in addition to retaining the Option Consideration, Seller shall each be entitled to immediate payment from the breaching party of all reasonable out of pocket costs incurred by Seller after the date the applicable Option was exercised pursuant to a Notice of Election to Purchase.

13. <u>Continuation and Survival of Representations, Indemnifications and Covenants</u>. All provisions, covenants, representations, warranties, indemnifications and covenants of the parties contained herein or made in writing pursuant to this Agreement are intended to be and shall remain true and correct as of the time of Closing, shall be deemed to be material, shall survive the execution and delivery of this Agreement, and shall survive the Closing (unless and to the extent otherwise provided herein).

14. <u>Recording</u>. It is agreed hereby that this Agreement shall not be filed for recording with the Register of Deeds for the County of Waldo or with any other governmental body but that a memorandum of this Agreement may be recorded at any party's request.

15. <u>Notices.</u> Any notice or communication which may be or is required to be given pursuant to the terms of this Agreement shall be in writing (from either a party hereto or its counsel) and shall be sent to the respective party at the address set forth in the first paragraph of this Agreement, by hand delivery, by postage prepaid certified mail, return receipt requested, by a nationally recognized overnight courier service that provides tracing and proof of receipt of items mailed, or to such other address as either party may designate by notice similarly sent. Notices shall be effective upon receipt or attempted delivery if delivery is refused or the party no longer receives deliveries at said address and no new address has been given to the other party pursuant to this paragraph. A copy of any notice to NAF shall also be simultaneously sent to Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C., One Financial Center, Boston, Massachusetts 02111, Attention: Daniel O. Gaquin, Esq. A copy of any notice to the City shall

i

14

understandings between the parties, including those contained in any letter of intent and any extensions or modifications thereof, and represents the full and complete understanding of the parties hereto in conjunction with the Water Supply Agreement or in the Evaluation Agreement. It being the intent of the parties that all obligations of the parties are contained only in this Agreement, and the entire agreement of the parties is fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Options and Purchase Agreement as an instrument under seal as of the day and year first written above.

SELLER:

BELFAST WATER DISTRICT

By:

Name: Keith Pooler Title: Superintendent Hereunto Duly Authorized

BUYERS:

By:

NORDIC AQUAFARMS, INC.

Name: Erik Heim Title: President Hereunto Duly Authorized

CITY OF BELFÁST By: Name: Joseph Slocum Title: City Manager Hereunto Duly Authorized

EXHIBIT A

DEPICTION OF REAL PROPERTY

{EP - 02663681 - v12 }

1.

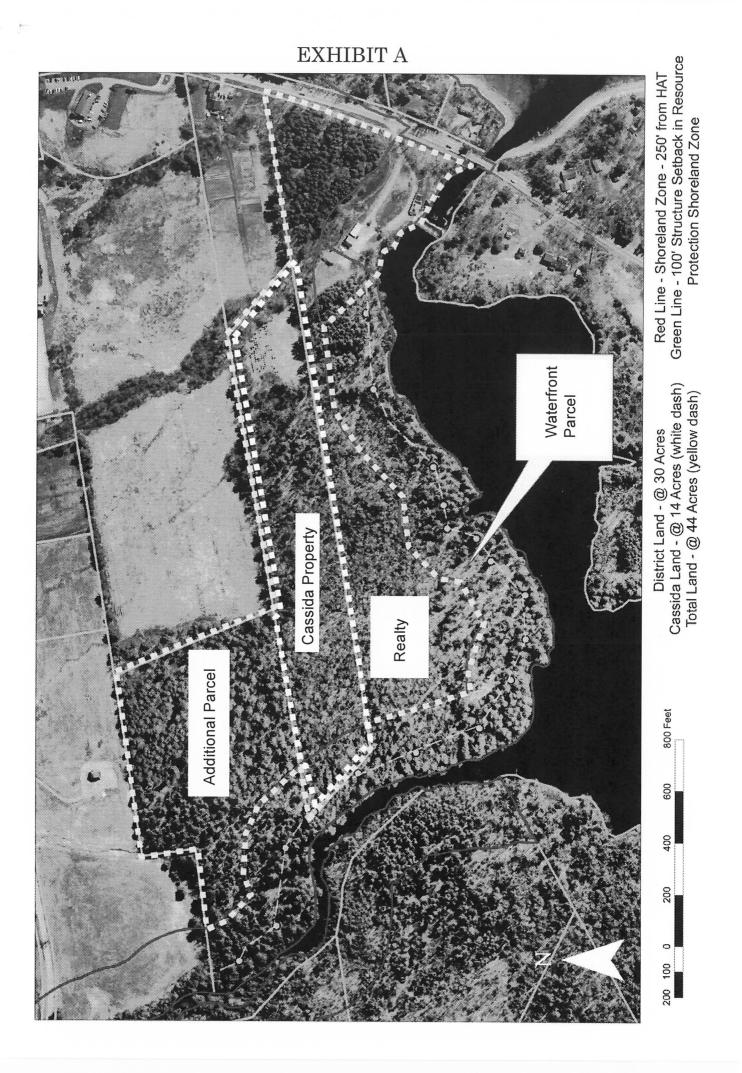


EXHIBIT B

PERMITTED ENCUMBRANCES

1. meter vault

- 2. water supply line for Northport Village Corporation
- 3. access and utility easements benefiting Seller's remaining land including the Additional Parcel and Lower Dam

SC

LEASE

This Lease (this "Lease") is made and entered into as of January 22 2018 (the "Effective Date") by and between Samuel E. Cassida, an individual resident of the State of Maine, having an address of 271 Northport Avenue, Belfast, Maine 04915 ("Landlord"), and Nordic Aquafarms, Inc., a Delaware corporation, having an address care of Nordic Aquafarms AS Øraveien 2, 1630 Gml Fredrikstad, Norway ("Tenant").

ARTICLE ONE Demised Premises

Section 1.1 Landlord, for and in consideration of the rents and additional rents hereinafter reserved, and upon and subject to the terms, conditions, covenants and agreements hereinafter set forth, by these presents does hereby GRANT, DEMISE AND LEASE unto Tenant the following described real property:

Approximately 12.2 acres, Northport Avenue (Rear Land), City of Belfast Tax Map 4, Lot 104 (the "Land"), TOGETHER WITH any and all improvements presently on the Land and those buildings and improvements hereafter erected on the Land by Tenant (it being understood that Tenant has no obligation to erect any buildings or other improvements on the Land); TOGETHER with all and singular the appurtenances, rights, privileges and easements now or hereafter appertaining thereto; ALL of said property * excepting the 3D' wide S casement described in Waldo Registry BK 4153 Pg 74 being hereinafter collectively called the "Demised Premises."

ARTICLE TWO Term; Habendum

Section 2.1 TO HAVE AND TO HOLD the Demised Premises for a term of thirty (30) years commencing on the Commencement Date (as defined in <u>Rider A</u> attached hereto and incorporated herein by reference) and expiring at midnight on the thirtieth (30th) anniversary of the Commencement Date, unless this Lease shall sooner end and terminate or be extended (as may be extended or earlier terminated, the "Term"). For the purpose hereof, a "Lease Year" shall be each successive period of twelve (12) calendar months during the Term, with the first Lease Year commencing on the Commencement Date and expiring on the last day of the calendar month following the one year anniversary of the Commencement Date.

Section 2.2 Tenant shall have the option to extend the Term for four (4) additional five (5) year periods upon written notice to Landlord given not less than three months (3) prior to the expiration of the then-current Term.

ARTICLE THREE Use of Demised Premises

Section 3.1 Tenant may use, develop, alter and operate the Demised Premises for a land-based aquaculture facility and related improvements and any use or purpose allowed by applicable law (any such use, the "Project"), including any use or purpose for which Tenant may obtain any Governmental Approval (hereinafter defined).

Section 3.2 Tenant may pursue any application, approval, authorization, permit, special permit, site plan approval, waiver, zoning change, variance or relief from zoning or other land use law, ordinance, rule or regulation as Tenant may deem necessary or desirable (collectively, "Governmental Approvals"). Landlord shall cooperate with Tenant, and not contest or otherwise interfere with, any proposed use of the Demised Premises, including by executing upon request any documentation required by the applicable Governmental Authority (hereinafter defined) related to Tenant's development, use or occupancy of the Demised Premises. Landlord acknowledges that Tenant may integrate the Demised Premises or parts thereof into a development project involving adjacent property not owned or controlled by Landlord and Landlord irrevocably consents thereto.

Section 3.3 Landlord and Tenant agree that if any Governmental Authority shall require the execution and delivery of any instrument to evidence or consummate the dedication of any street or right of way adjoining the Demised Premises, and/or if any Governmental Authority or any public utility company shall require the execution and delivery of any rights of way, easements and grants, in, over, under, through or adjoining the Demised Premises to provide any necessary or desirable utility, service or facility for the benefit of the Demised Premises, then both such parties will execute, acknowledge and deliver, any such instrument or document as may be required. Landlord also agrees to execute, acknowledge and deliver such instruments or documents as Tenant may reasonably request in connection with any tax contests or other proceeding relating to the use, operation, or ownership of the Demised Premises.

ARTICLE FOUR Annual Rent

Section 4.1 Tenant covenants and agrees to pay to Landlord rent ("Annual Rent") in the amount set forth herein, in annual installments, in advance, on the first day of each Lease Year commencing on the Commencement Date. Annual Rent for the first Lease Year shall be in the amount of On the first day of the second (2nd) Lease Year, and on the first day of each Lease Year thereafter (each such date being referred to herein as a "Change Date"), the Annual Rent shall be increased by the lesser of (i) the percentage increase in the Consumer Price Index for All Urban Consumers - All Items as published by the Bureau of Labor Statistics for the U.S. Department of Labor for the Boston-Brockton-Nashua, MA-NH-ME-CT metropolitan area (base year 1982-84=1001) (the "Index") from the Change Date to the current Change Date, and (ii) three percent (3%). The Annual Rent as so increased shall remain in effect until the next succeeding Change Date. If the Index has not been published as of the applicable Change Date, then Tenant shall continue to pay the Annual Rent at the rate for the preceding Lease Year until such time as the applicable Index is published, and the parties shall make an adjustment, retroactive to the Change Date, and the shortfall, if any, shall be due and payable with Tenant's next succeeding payment of Annual Rent. Notwithstanding the foregoing, Tenant shall pay to Landlord the sum of upon the execution of this Lease as an advance payment of Annual Rent, which sum (i) shall be non-refundable if this Lease is terminated pursuant to Rider A, and (ii) shall be credited to the Annual Rent for the first Lease Year upon the Commencement Date.

Section 4.2 All amounts payable under <u>Section 4.1</u>, as well as all other amounts payable by Tenant to Landlord under the terms of this Lease ("<u>Additional Rent</u>" and collectively with Annual Rent, the "<u>Rent</u>"), shall be paid at the address of Landlord set forth in <u>Section 13.2</u>, or at such other place as Landlord may designate by notice to Tenant.

ARTICLE FIVE Taxes, Insurance and Other Charges

Section 5.1 Tenant agrees that it will pay and discharge, or cause to be paid and discharged, punctually as and when the same shall become due and payable without penalty, all real estate taxes, personal property taxes and all other governmental impositions and charges of every kind and nature whatsoever (collectively, "Tax" or "Taxes") which, at any time during the Term, shall be or become due and payable and which shall be levied, assessed or imposed upon or against the Demised Premises or any improvements thereon. Tenant acknowledges that the Demised Premises has been assessed as "tree growth" property and a penalty or catch-up payment may result when the Demised Premises is removed from such status. Tenant shall be responsible for any such penalty or catch-up payment, provided Landlord shall cooperate with Tenant to minimize or reduce the same.

Section 5.2 Nothing contained in this Lease shall require Tenant to pay any estate, inheritance, succession, capital levy or transfer tax of the Landlord, or any income, excess profits or revenue tax or any other tax, assessment, charge or levy upon the Rent payable by Tenant under this Lease.

Section 5.3 Any Tax relating to a fiscal period of the taxing authority which is partly within the Term and partly subsequent to the Term shall, whether or not such Tax shall be assessed, levied, imposed or become a lien upon the Demised Premises or shall become payable during the Term, be apportioned between Landlord and Tenant as of the expiration of the Term, so that Landlord shall pay the portion of such Tax applicable to the period after the expiration of the Term, and Tenant shall pay the remainder thereof.

Section 5.4 Tenant shall have the right to contest the amount or validity, in whole or in part, of any Tax, or to seek a reduction in the valuation of the Demised Premises as assessed for real estate or personal property tax purposes. Any contest as to the validity or amount of any Tax, or assessed valuation upon which such Tax was based, whether before or after payment, may be made by Tenant in the name of Landlord and/or of Tenant, as Tenant shall determine, and Landlord agrees that it will, at Tenant's expense, cooperate with Tenant in any such contest. Tenant shall be entitled to any refund of any such Tax and penalties or interest thereon.

Section 5.5 During the Term, Tenant shall maintain commercial general liability insurance, identifying Landlord as an additional insured, against claims for personal injury, death and property damage occurring upon, in or about the Demised Premises.

ARTICLE SIX Repairs and Maintenance

Section 6.1 Tenant shall have no maintenance or repair obligations under this Lease, but Tenant shall be responsible for any and all maintenance or repairs required or desired to be made by Tenant to the Demised Premises or any improvements thereon.

Section 6.2 Landlord shall not be required to make any alterations, repairs, additions or improvements, or to furnish any services or facilities of any kind, to the Demised Premises or any improvements thereon.

ARTICLE SEVEN Public Utilities and Services

Section 7.1 Tenant agrees to pay or cause to be paid all charges for utilities or services provided to the Demised Premises and any improvements thereon throughout the Term. Tenant expressly agrees that Landlord is not required to furnish to Tenant or any other occupant of the Demised Premises any utilities or services of any kind. Landlord, upon Tenant's request and at Tenant's sole expense, will join with Tenant in any application for obtaining or continuing any of the foregoing utilities or services.

ARTICLE EIGHT

Tenant's Improvements and Alterations

Section 8.1 Tenant shall have the right at any time during the Term to make, at its cost and expense, any repairs, replacements, additions, betterments, changes, or restorations to the Demised Premises, including any improvements thereon, and to demolish or raze any such improvements.

Section 8.2 Landlord agrees that at the request of Tenant, Landlord will, at Tenant's sole cost and expense, either (a) file any applications or petitions, in which Tenant will join if required, or (b) join in any applications or petitions filed by Tenant, to obtain all approvals, licenses and permits required from any town, city, county, state and federal governments and of each and every department, entity, bureau and duly authorized official thereof and of any successor or future governmental authority, department, entity, bureau and duly authorized official thereof, and of the local board of fire underwriters having jurisdiction and/or any other corporation, body or organization possessing similar authority and exercising similar functions (collectively, "Governmental Authorities") for any alterations and will actively support such applications and petitions. Tenant shall be solely responsible for the preparation, filing and processing of all such applications or petitions.

Section 8.3 Title to all improvements shall vest in Tenant until the expiration or earlier termination of this Lease, whereupon title to the improvements shall vest in Landlord.

ARTICLE NINE

Casualty

Section 9.1 Should the whole or any part of the improvements then on the Demised Premises be partially or wholly damaged by a casualty after the Commencement Date, Tenant shall have the option to terminate this Lease, in which event the parties shall have no further rights or obligations hereunder, other than those that are expressly stated to survive the expiration or termination hereof. Whether or not Tenant elects to terminate the Lease, Tenant shall not be required to restore or rebuild the damaged improvements.

ARTICLE TEN Condemnation

Section 10.1 In the event that the Demised Premises, or any part thereof, shall be taken in condemnation proceedings or by exercise of any right of eminent domain or by agreement between Landlord, Tenant and those authorized to exercise such right (any such matters being herein referred as a "Taking"), Landlord, Tenant and any leasehold mortgagee shall have the right to participate in any Taking proceedings or agreement for the purpose of protecting their interests hereunder. Each party so participating shall pay its own expenses therein.

Section 10.2 In the event of a Taking, Tenant shall have the option to terminate this Lease on the date of such Taking, in which event the parties shall have no further rights or obligations hereunder, other than those that are expressly stated to survive the expiration or termination hereof. Whether or not Tenant elects to terminate the Lease, Tenant shall not be required to restore or rebuild any affected improvements.

Section 10.3 In the event of a Taking, any award, compensation or insurance proceeds to which Landlord and Tenant may become entitled shall be allocated in the following order of priority: (i) to Tenant, for its interest in any improvements on the Demised Premises; (2) to Tenant, for the value of its leasehold interest in the Demised Premises; and (iii) to Landlord, for the value of its fee interest in the Demised Premises.

<u>ARTICLE ELEVEN</u> Assignment, Leasing and Mortgages

Section 11.1 Without Tenant's prior written approval, which may be withheld in Tenant's sole and absolute discretion, Landlord shall not (a) directly or indirectly cause or permit any mortgage, deed of trust, lien, assessment lien, assessment, obligation, interest, encumbrance or encroachment or liability whatsoever to be placed against (whether recorded or not) the Demised Premises or take any other action that could adversely affect title to the Demised Premises, or (b) enter into any agreement or commitment to do any of the foregoing.

Section 11.2 Tenant shall have the right, without the consent of the Landlord, at any time and from time to time, to assign its interest in this Lease, or to sublet the whole or any portion or portions of the Demised Premises for the use and purposes permitted under this Lease.

ARTICLE TWELVE Event of Default

Section 12.1 If Tenant shall default in the payment of Rent when and as the same shall be due and payable and such default shall continue for a period of thirty (30) days after receipt by Tenant of written notice thereof from Landlord, Landlord may terminate the Lease upon thirty (30) days' prior written notice to Tenant; provided, however, Tenant may void such termination by curing the Rent default prior to the expiration of such thirty (30) day period.

<u>ARTICLE THIRTEEN</u> Miscellaneous Provisions

Section 13.1 Invalidity of Particular Provisions. If any term or provision of this Lease or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this Lease shall be valid and be enforced to the fullest extent permitted by law.

Section 13.2 Notices. All notices and other communications required or permitted hereunder (collectively, "<u>Notices</u>") shall be in writing and shall be sent by registered or certified mail, or overnight delivery by a nationally recognized public or private carrier, return receipt requested, postage prepaid, addressed to the party to receive such Notice at the address set forth below:

If to Landlord, to:	Samuel E. Cassida 271 Northport Avenue Belfast, Maine 04915
With a copy to:	Lee Woodward, Jr. Law Offices 56 Main Street Belfast, ME 04915 Attn: Lee Woodward, Jr. Email: woodward@lwoodwardlaw.com
If to Tenant, to:	Nordic Aquafarms AS Øraveien 2, 1630 Gml Fredrikstad Norway
With a copy to:	Mintz, Levin, Cohn, Ferris, Glovsky & popeo, P.C. One Financial Center Boston, MA 02111 Attn: Daniel O. Gaquin

Email: dogaquin@mintz.com

Either party may, by Notice given as aforesaid, change its address or add any additional addresses for all subsequent Notices. Notices given by mail shall be deemed given three (3) days after mailing in accordance with the requirements of the United States Postal Service, and all other Notices shall be deemed given or the date of delivery.

Section 13.3 Quiet Enjoyment. Landlord covenants that Tenant shall quietly have and enjoy the Demised Premises during the term of this Lease, without hindrance or molestation by anyone claiming by, through or under Landlord; subject, however, to the exceptions, reservations and conditions of this Lease.

Section 13.4 Confidentiality. Each party agrees that it shall keep confidential the terms of this Lease, the documents and information supplied by the other party to it and all information, surveys, reports, tests and studies relating to the Demised Premises obtained by either party before or after the Effective Date (collectively, the "<u>Confidential Information</u>"). Disclosure of Confidential Information by either party shall not be prohibited if that disclosure is information that is or becomes a matter of public record or public knowledge from sources other than the other party or its agents, employees, contractors, consultants or attorneys. Notwithstanding the foregoing, either party may disclose otherwise Confidential Information where disclosure (i) is required by applicable law or by an order of a court or other Governmental Authority having jurisdiction after giving reasonable notice to the other party with, to the extent practicable, adequate time for such other party to seek a protective order; (ii) is reasonably necessary and is made to that party's or its affiliate's employees, officers, directors, attorneys, accountants or other advisors who are advised of the confidential nature of such information; or (iii) is required to enforce the rights and remedies under this Agreement of either Tenant or Landlord. Nothing contained herein shall prohibit or restrict Tenant from disclosing information as may be required in connection with Tenant's application to obtain any Governmental Approvals to develop and operate the Project. In addition, within five (5) days of the Effective Date, Landlord and Tenant shall execute a notice of lease, in substantially the form attached hereto as <u>Exhibit A</u> and incorporated herein by reference, and either party shall be entitled to record the same.

Section 13.5 Entire Agreement. This Lease and the documents referred to herein contain the entire agreement between the parties pertaining to the subject matter hereof, and any executory agreement hereafter made shall be ineffective to change, modify or discharge it in whole or in part unless such executory agreement is in writing and signed by the party against whom enforcement of the change, modification or discharge is sought. This Lease cannot be changed or terminated orally.

Section 13.6 Brokers. Each party hereby represents and warrants to the others that it has not dealt with any broker or agent in connection with this Lease and covenants to pay, hold harmless and indemnify the other party from and against any and all costs, expense or liability (including legal fees incurred in defending against any claim) for any compensation, commission and charges claimed by any broker or agent with respect to this Lease or the negotiation hereof or otherwise arising from a breach of the foregoing warranty.

Section 13.7 Successors and Assigns. The covenants, conditions and agreements in this Lease shall bind and inure to the benefit of Landlord and Tenant and their respective legal representatives, successors and permitted assigns.

Section 13.8 No Merger. It is the intent and purpose of the parties hereto that this Lease shall remain in full force and effect until duly terminated and shall not be deemed to have merged with the interest of Landlord created by virtue of any lien upon the Demised Premises or any other interest therein or any portion thereof held by Landlord.

Section 13.9 Governing Law. This Lease shall be construed in accordance with and shall be governed by the laws of the State of Maine.

Section 13.10 Estoppel Certificate. Landlord shall, without charge, at any time and from time to time, within ten (10) days after Tenant's request, certify by written instrument duly executed and acknowledged in recordable form and deliver to Tenant or to any leasehold mortgagee or assignee or any proposed mortgagee or assignee, or any other person interested in this Lease specified by Tenant such usual and customary matters included in estoppel certificates.

ARTICLE FOURTEEN Option to Purchase

Section 14.1 Landlord hereby grants to Tenant the exclusive option to purchase the Demised Premises (the "<u>Purchase Option</u>") on the terms and conditions set forth in this <u>Article 14</u>. Tenant may exercise the Purchase Option at any time during the Term (and any extension thereof) by delivering notice to Landlord of its intent to do so (the "<u>Notice of Election to Purchase</u>"). In the event Tenant delivers the Notice of Election to Purchase, the purchase price of the Demised

Premises shall be

LESS any Annual Rent paid by Tenant to paid by Tenant to Landlord

Landlord under this Lease up to (together with closing costs payable in accordance with Section 14.3), and the consummation of the sale (the "Closing") shall occur no more than sixty (60) days following the receipt by Landlord of the Notice of Election to Purchase, unless such sixty (60) day period is extended pursuant to Section 14.2. As an example, if Tenant exercises the Purchase Option during the third Lease Year, having paid in Annual Rent, the Purchase Price payable at Closing is

Section 14.2 Landlord shall convey to Tenant the Demised Premises free and clear of all liens, encumbrances, charges and restrictions, other than liens, encumbrances, charges and restrictions acceptable to Tenant. It shall be a condition precedent to the Closing that Tenant has obtained a title commitment in form and substance acceptable to Tenant, with such endorsements as Tenant may require, and if Tenant is unable to obtain such a title commitment, Tenant may, at its option, (i) rescind the Notice of Election to Purchase and continue its lease of the Demised Premises pursuant to the terms of this Lease as though the Notice of Election to Purchase had not been delivered, or (ii) extend the thirty (30) day time period provided for Closing by no more than sixty (60) days in order to obtain such title commitment.

Section 14.3 At Closing, Landlord shall execute and deliver to Tenant a good and sufficient quitclaim deed with covenants running to Tenant or Tenant's nominee or designee. Landlord and Tenant shall execute and deliver such additional documents or instruments as are necessary and customary to cause the transfer of the Demised Premises from Landlord to Tenant. All recording fees, all costs relating to the preparation of a survey and all title insurance premiums incurred in connection with the purchase of the Demised Premises by Tenant shall be paid by Tenant, and all transfer taxes, recordation taxes, stamp taxes, documentary taxes or similar impositions shall be paid as is customary for property similar to the Demised Premises in the jurisdiction in which the Demised Premises is located. If the Purchase Option has not been exercised prior to the expiration of the Term, the Purchase Option shall, without further action of any party, automatically terminate and thereafter shall be null and void and of no further force or effect, and neither party shall have any further rights or obligations with respect to the Purchase Option. If the Closing occurs, this Lease shall automatically terminate effective as of the Closing and the parties shall have no further rights or obligations hereunder, other than those that are expressly stated to survive the expiration or termination of this Lease.

[Signatures on following page]

IN WITNESS WHEREOF, the parties hereto have duly executed this instrument under seal as of the day and year first above written.

.

.

LANDLORD:

٢ 10

Samuel E. Cassida,, individually

TENANT:

NORDIC AQUAFARMS, INC.

2 By:_ X 1 7

Name: Erik Heim Title: President

Exhibit A

NOTICE OF LEASE AND OPTION TO PURCHASE

Memorandum of Lease and Option to Purchase

PREPARED BY AND RETURN TO:

MEMORANDUM OF LEASE AND OPTION TO PURCHASE

This Memorandum of Lease (this "<u>Memorandum</u>") is entered into as of January 29, 2018, by and between Samuel E. Cassida, an individual resident of the State of Maine, having an address of 271 Northport Avenue, Belfast, Maine 04915 ("<u>Landlord</u>"), and Nordic Aquafarms, Inc., a Delaware corporation ("<u>Tenant</u>"). Landlord and Tenant have entered into that certain Lease dated January 29, 2018 (the "<u>Lease</u>") with respect to the Property (as defined below). It is the desire of the parties hereto to enter into this Memorandum for the purpose of recording the same and giving notice of the existence of the Lease and the option to purchase (as described below), as more particularly described in this Memorandum.

Parties to Lease Agreement	Landlord:	Samuel E. Cassida 271 Northport Avenue Belfast, Maine 04915	
	Tenant:	Nordic Aquafarms, Inc., Nordic Aquafarms AS Øraveien 2, 1630 Gml Fredrikstad, Norway	
Date of Lease	January 28, 20	018	
Description of Property	The property	described on Exhibit A attached hereto (the "Property")	
Term	Thirty (30) years commencing on the Commencement Date (as defined in the Lease) and expiring on the thirtieth (30th) anniversary of the Commencement Date, subject to any extensions provided in the Lease		
Option to Purchase		ncludes an option to purchase the Property effective upon the ent Date and terminating upon the expiration of the Term	
Purpose of Memorandum	fact of execution provided for the second se	indum is executed for the purpose of giving record notice of the tion of the above described Lease and the option to purchase as therein in lieu of recording the Lease itself and is not intended to or otherwise alter the terms, conditions and provisions of the Lease	

This Memorandum shall extend to and be binding upon the parties hereto and their legal representatives, heirs, successors and assigns.

[Signatures on following page]

Exhibit A-1

Executed as a sealed instrument as of the date first above written.

LANDLORD:

Samuel E. Cassida, individually

TENANT:

NORDIC AQUAFARMS, INC.

By:_

Name: Erik Heim Title: President

STATE OF MAI	NE	:	
COUNTY OF	WALDO	:	SS

On this, the _____ day of ______, 2018, before me, the undersigned notary public, personally appeared Samuel E. Cassida, proved to me through satisfactory evidence of identification, which was ___ photographic identification with signature issued by a federal or state government, or ___ personal knowledge of the undersigned, to be the person whose name is signed on the preceding document, and acknowledged to me that he signed it voluntarily for its stated purpose

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

:

Notary Public

STATE: _____

COUNTY OF : ss

On this, the _____ day of ______, 2018, before me, the undersigned notary public, personally appeared ______, proved to me through satisfactory evidence of identification, which was ___ photographic identification with signature issued by a federal or state government, or ____ personal knowledge of the undersigned, to be the person whose name is signed on the preceding document, and acknowledged to me that he signed it voluntarily as an authorized President of Nordic Aquafarms, Inc., a Delaware corporation, for its stated purpose.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

Rider A

ARTICLE ONE

Conditions to Lease

Section 1.1 Landlord shall deliver, and Tenant shall accept, possession of the Demised Premises upon the earlier of (x) the fulfillment of each of the conditions set forth in items (a) – (d) below (collectively, the "Conditions") to the satisfaction of Tenant, in Tenant's sole discretion, or (y) thirty (30) days after the expiration of the Permitting Period (the "Commencement Date"). If at any time prior to the Commencement Date, any Conditions remain unfulfilled, Tenant shall have the right to waive any such unfulfilled Conditions by written notice to Landlord and take possession of the Demised Premises, whereupon the Commencement Date shall be deemed to have occurred. Upon the occurrence of the Commencement Date, Landlord and Tenant shall execute a written instrument stating the date thereof and the expiration of the Term. Notwithstanding the foregoing or anything else to the contrary, Tenant shall have no obligation to accept possession of the Demised Premises unless the Conditions have been fulfilled to Tenant's satisfaction, in Tenant's sole discretion.

(a) The Diligence Period (as defined below) shall have expired and Tenant shall not have terminated the Lease in accordance with <u>Section 2.6</u> below.

(b) The Permitting Period (as defined below) shall have expired and Tenant shall not have terminated the Lease in accordance with <u>Sections 3.3</u> below.

(c) Tenant shall close on the purchase of immediately adjacent real property owned by the Belfast Water District (the "<u>BWD</u>"), which real property is generally located to the south of the Demised Premises (the "<u>BWD Property</u>").

(d) The City of Belfast (the "<u>City</u>") shall close on the purchase of real property owned by the BWD, which real property is immediately adjacent to and generally located to the south of the BWD Property (the "<u>City Property</u>").

ARTICLE TWO

Due Diligence

Section 2.1 Commencing on the Effective Date and continuing for a period of three (3) months thereafter, unless further extended by Tenant as hereinafter provided or until the Lease is earlier terminated (as may be extended or earlier terminated, the "Diligence Period"), Tenant and its agents and representatives (together with the equipment or machinery of any such party) shall have a license for access to the Demised Premises at all reasonable times for the purpose of conducting inspections and tests of the Demised Premises, including surveys; architectural, engineering, water quality and capacity, geotechnical, environmental and hydrogeological inspections and tests (including test pits, sampling, borings and drilling); and any other due diligence investigations, tests or analyses that Tenant may deem necessary or desirable for Tenant's development and operation of the Project (collectively, the "Due Diligence"); provided that all such Due Diligence shall be conducted by Tenant in compliance with Tenant's responsibilities set forth in Section 2.2 below. Such license shall include the right of Tenant and its agents and representative to remove trees, construct roads and alter terrain (collectively, "Terrain Work") to accommodate any equipment or machinery of such party; provided that any such Terrain Work shall be conducted in consultation with Landlord. If after the expiration of the Diligence Period, Tenant has been unable to complete any Due Diligence (3) month periods, in each case by written notice to Landlord prior to the expiration of the then-current Diligence Period.

Section 2.2 In conducting any Due Diligence of the Demised Premises, Tenant and its agents and representatives shall: (i) comply with all applicable laws; (ii) promptly pay when due the costs of all Due Diligence done with regard to the Demised Premises; (iii) not permit any liens to attach to the Demised Premises by reason of the exercise of its rights hereunder; and (iv) promptly repair any damage to the Demised Premises and restore any areas disturbed resulting directly from any Due Diligence substantially to their condition prior to the performance of such Due Diligence; provided, however that such repair and restoration obligation shall not apply to any Terrain Work.

Section 2.3 Except for Landlord's negligence, gross negligence or willful misconduct or any matter arising from the mere discovery of a pre-existing condition at the Demised Premises, Tenant hereby agrees to indemnify and hold Landlord harmless from, all third-party claims, liabilities, damages, losses, costs, expenses (including, without limitation, reasonable attorneys' fees), actions and causes of action arising out of personal injury and/or property damage directly caused by any

entry onto the Demised Premises by, or any Due Diligence performed by, Tenant, its agents, independent contractors, servants and/or employees. The provisions of this <u>Section 2.3</u> shall survive the termination of the Lease.

Section 2.4 During the Diligence Period, Tenant shall obtain and maintain, at its expense: (i) statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than \$1,000,000.00, which insurance must contain a waiver of subrogation; (ii) Commercial General Liability coverage with available limits of not less than \$2,000,000.00 in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement; (iii) business automobile liability insurance with available limits of not less than \$1,000,000 combined single limit for bodily injury and/or property damage per occurrence; and (iv) such other insurance as Landlord may reasonably require. Such policy(s) shall provide primary (and not merely contributory coverage) to Landlord. Tenant shall provide Landlord with evidence of such insurance policies upon the request of Landlord.

Section 2.5 In order to facilitate Tenant's Due Diligence, Landlord will promptly, but in any event no later than ten (10) days after the date hereof, supply Tenant with any and all information relating to the Demised Premises (including, without limitation, title information, surveys, environmental reports, engineering studies, tax bills, legal notices, permits, approvals and such other information as Tenant may reasonably request) in Landlord's possession or under Landlord's control.

Section 2.6 Tenant may, for any reason or for no reason, terminate the Lease at any time prior to the expiration of the Diligence Period.

ARTICLE THREE

Permitting

Section 3.1 For a period six (6) months after the expiration of the Diligence Period, unless further extended by Tenant as hereinafter provided or until the Lease is earlier terminated (as may be extended or earlier terminated, the "<u>Permitting Period</u>"), Tenant shall diligently pursue all final, unappealable Governmental Approvals from any Governmental Authorities necessary or desirable for the development and operation of the Project. The process, sequence and schedule for pursuing the Governmental Approvals shall be determined by Tenant; provided that Tenant shall, in Tenant's good faith reasonable business judgment, commence pursuit of the Governmental Approvals and file the necessary applications therefor as soon as reasonably practicable. For the avoidance of doubt, Tenant shall have the right, but not the obligation, to pursue any Governmental Approvals during the Diligence Period.

Section 3.2 If prior to the expiration of the Permitting Period, Tenant has applied for and is awaiting such Governmental Approvals from the Governmental Authorities, Tenant shall have the right to extend the Permitting Period for up to two (2) consecutive three (3) month periods, in each case by written notice to Landlord prior to the expiration of the then-current Permitting Period. If Tenant is diligently pursuing or defending any legal appeals of the Governmental Approvals, the Permitting Period shall toll until the final resolution of such appeals.

Section 3.3 If, after having used commercially reasonable efforts to do so, Tenant has not obtained the Governmental Approvals from the Governmental Authorities prior to the expiration of the Permitting Period, then Tenant may terminate the Lease by written notice to Landlord prior to the expiration of the Permitting Period, whereupon all obligations of the parties hereto shall cease and the Lease shall be terminated and the parties shall have no further rights or obligations under the Lease, other than those that are expressly stated to survive the expiration or termination thereof. For the purposes hereof, commercially reasonable efforts shall not require Tenant to continue its permitting efforts if Tenant determines in its good faith judgment that all Governmental Approvals for the Project cannot reasonably be obtained on terms which make the Project feasible. For the purposes hereof, "obtained" shall mean the applicable Governmental Approval has been issued in final form, with terms and conditions acceptable to Tenant in its sole discretion (including any offsite requirements), and all applicable appeal periods have expired without an appeal having been filed or any such appeal has been finally resolved to Tenant's satisfaction.

Section 3.4 It shall be Tenant's responsibility to obtain, and to pay for, all Governmental Approvals necessary or desirable for the development and operation of the Project. Landlord shall cooperate with Tenant as reasonably necessary (including signing applications in a timely manner) to obtain such Governmental Approvals; provided that Tenant shall promptly reimburse Landlord for all reasonable costs incurred by Landlord in connection with Landlord's cooperation.

74799914v.7

4 N

PURCHASE AND SALE AGREEMENT

This Purchase and Sale Agreement (this "Agreement") is made this <u>22**</u> day of August, 2018 (the "Effective Date") by and among **Goldenrod Properties**, LLC, a Maine limited liability company with a mailing address of P.O. Box 345, Belfast, ME 04915 ("Seller"), and **Nordic Aquafarms**, Inc. a Delaware corporation having an address of c/o Nordic Aquafarms AS, Øraveien 2, 1630 Gml Fredrikstad, Norway, or its assignee ("Buyer");

WHEREAS, the Buyer is pursuing permits and approvals from the City of Belfast and State of Maine, including where applicable its agencies, and the acquisition of real property in connection therewith, for the purpose of permitting, constructing and operating an aquafarm in the City of Belfast, Maine (the "Project"), which includes real property owned by the Seller as described herein.

NOW, THEREFORE, in consideration of One Dollar and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, and the mutual covenants contained herein, the parties agree as follows:

1. <u>PURCHASE AND SALE</u>. Seller agrees to sell and Buyer agrees to buy (a) a portion of the Seller's land located on Perkins Road, in the City of Belfast, in the State of Maine, containing approximately 14.62 acres as bounded by the existing ditch/swale on the east side and as bounded by the previously established property lines on the other 3 sides, to be more particularly described by a survey to be completed and agreed to by Seller and Buyer and generally depicted on <u>Exhibit A</u> hereto (the "Fee Interest"); and (b) a lease of certain property during the construction by Buyer of the Project on a portion of the remainder of the Seller's property for parking, storage, and other construction needs (the "Construction Lease") (the Fee Interest and Construction Lease may be referred to collectively as the "Premises").

TITLE; DEED. The Fee Interest will be conveyed at the closing of the transactions 2. contemplated by this Agreement (the "Closing") by a good and sufficient quitclaim deed with covenant running to Buyer and the deed shall convey good and marketable title to the land described therein, free from encumbrances and liens of any type whatsoever, except those encumbrances and liens that are satisfactory to Buyer in accordance with Section 5(C) below. The Construction Lease shall be for a term of forty eight (48) months with an option to renew for an additional twelve (12) months and conveyed by a separate, unrecorded lease agreement and shall be limited to the portions of property owned by Seller to be more fully described therein as necessary for the permitted construction activity of Buyer in connection with the Project and shall include access to the Premises from Perkins Road. The terms of the Construction Lease shall include the right by Buyer to use travel ways from Perkins Road across the Seller's property on the east driveway entrance and behind existing warehouse "B", to perform any necessary topsoil removal and stockpiling onsite and provide any gravel surfacing for Buyer's needs in connection with construction of the Project. During the term of the Construction Lease, Buyer will maintain adequate dust control, sweeping and repair of construction caused road debris and/or damage. Any signage or other incidentals for construction related to this road and

lot will be provided, maintained and removed by Buyer. Upon the termination of the Construction Lease, Buyer will leave any stockpiled topsoil and any installed gravel surface for the benefit and ownership of Seller, but otherwise completely vacate the premises subject to the Construction Lease in an acceptable manner. Rent under the Construction Lease shall be per month for one term of not less than four (4) years with an option

by Buyer to extend the Construction Lease for one (1) additional year upon the same terms and conditions, including the payment of rent in an amount equal to per month. The term shall commence upon the beginning of the construction of the Project. The parties will coordinate the traffic patterns and other details to best accommodate each party's needs.

3. <u>PURCHASE PRICE; DEPOSIT; ESCROW AGENT</u>.

A. <u>Purchase Price</u>. The agreed purchase price for the Fee Interest is (the "Purchase Price") payable as follows (subject to the prorations and other adjustments provided in this Agreement):

i.	A deposit in the amount of
	shall be paid by Buyer on the date hereof as a non-
	refundable deposit and shall effectively act as an option fee (the
	"Initial Deposit"). This Initial Deposit will be applied to the
	Purchase Price at the Closing; and
ii.	A deposit in the amount of shall shall
	be paid by Buyer as a refundable deposit (subject to the terms and
	conditions in this Agreement) within three days after receipt by
	Buyer of approval of Buyer's environmental permit application for
	the Project (the "Second Deposit"); and
iii.	shall be paid by Buyer
	to Seller at the Closing by immediately available funds.

4. <u>TIME FOR PERFORMANCE; DELIVERY OF DEED</u>. The Closing shall occur at such time (during normal business hours) and on such a business day (the "Closing Date") selected by Buyer by written notice given at least thirty (30) business days prior thereto (the "Closing Notice") at the offices of Drummond Woodsum in Portland, Maine or Buyer's preferred location, but in no event shall the Closing shall take place later than August 1, 2019 (the "Outside Closing Date").

5. <u>CONTINGENCIES</u>. The obligations of Buyer hereunder are conditioned upon each of the following, any of which may be waived by Buyer in whole or in part:

A. <u>Inspections</u>. Within six (6) months of the Effective Date, Buyer may, in its discretion, cause to be performed the following inspections, the results of which must be satisfactory to Buyer:

a. Feasibility Study

- b. Water Quality
- c. Wetlands
- d. Environmental
- e. Land Use
- f. Zoning
- g. Survey
- h. Permits and approvals

All inspections will be performed by inspectors chosen and paid for by Buyer. Buyer shall promptly commence its due diligence investigation of the Premises and shall promptly inform Seller of any results that are unsatisfactory to Buyer.

B. <u>Title Commitment</u>. Within six (6) months of the Effective Date, Buyer shall have obtained a title insurance commitment with respect to the Premises satisfactory to Buyer in its sole discretion.

C. <u>Survey</u>. Upon execution of this Agreement, Buyer shall engage a surveyor to prepare a plan and legal description of the Premises, to be prepared within one hundred twenty (120) days following the date hereof. Once the survey and proposed legal description has been prepared, the Buyer shall transmit the same to Seller for its review and approval. The Seller shall have thirty (30) days to review and approve of the survey, which approval shall not be unreasonably withheld. If the Seller does not respond within such thirty (30) day period, the survey and proposed legal description shall presumptively describe the Premises. If the Seller objects to the proposed survey and legal description of the Premises, then the Seller shall specify the basis for its objection and Buyer shall have ten (10) days following receipt of such objections to submit a revised survey and legal description, then each of Buyer and Seller agree to submit such dispute to mediation with a mutually agreed mediator.

If Buyer does not obtain satisfaction of one or more of the contingencies referenced in paragraphs A and B above and so notifies Seller in writing of its intent to terminate this Agreement, the Second Deposit, if already made, shall be returned to Buyer, this Agreement shall terminate and the parties shall be relieved of all further obligations hereunder.

6. <u>CLOSING DOCUMENTS</u>. At the Closing:

A. <u>Purchase Price</u>. Buyer shall deliver to Seller that portion of the Purchase Price payable at the Closing, as adjusted pursuant to the terms hereof;

B. <u>Deed and Lease</u>. Seller shall execute, acknowledge and deliver to Buyer the deed as provided herein and Buyer and Seller shall each execute and deliver the Construction Lease;

C. <u>Title Affidavits</u>. Seller shall deliver to Buyer executed originals of such customary certificates, evidence of authority, affidavits or letters of indemnity as the title insurance company issuing the title insurance policy on the Premises shall require in order to issue such policy and to omit therefrom all exceptions for unfiled mechanics', materialmen's or similar liens and parties in possession and brokers' liens;

D. <u>Nonforeign Person Affidavit</u>. Seller shall deliver to Buyer such affidavits and certificates, in form and substance reasonably satisfactory to Buyer, as Buyer shall deem necessary to relieve Buyer of any obligation to deduct and withhold any portion of the Purchase Price pursuant to Section 1445 of the Internal Revenue Code;

E. <u>Notification to Buyer of Withholding Tax Requirement</u>. Buyer shall deliver to Seller an executed original certificate in form and substance reasonably satisfactory to Seller acknowledging receipt of notification of the withholding tax requirements of the State of Maine;

F. <u>Maine Resident Affidavit</u>. Seller shall deliver to Buyer such executed affidavits and certificates, in form and substance reasonably satisfactory to Buyer, as Buyer shall deem necessary, to inform Buyer of its obligation, if any, to deduct and withhold a portion of the Purchase Price pursuant to 36 M.R.S.A. § 5250-A;

G. <u>Underground Oil Storage Tank Certification</u>. Seller shall deliver to Buyer a written notice, in form and substance reasonably satisfactory to Buyer, which written notice shall certify the registration numbers of the underground oil storage facilities located on the Premises, the exact location of the facilities, whether or not they have been abandoned in place, and that the facilities are subject to regulation by the Maine Board of Environmental Protection;

H. <u>Real Estate Transfer Tax Declaration</u>. Seller and Buyer shall execute a Real Estate Transfer Tax Declaration in the form required to be recorded with the deed and the real estate transfer tax imposed by the State of Maine shall be paid by the Seller and Buyer in accordance with law;

I. <u>Prorations.</u> Subject to Section 12 below, real estate taxes assessed by the City of Belfast, Maine and water and sewer use charges shall be paid by Seller as of the Closing Date;

J. <u>Other Documents</u>. Seller and Buyer shall execute, acknowledge and deliver such other documents and items as Seller's and/or Buyer's attorney may reasonably require.

K. <u>Corporate Documents</u>. Seller shall deliver to Buyer a copy of Seller's Articles of Organization, By-Laws, resolutions authorizing this Agreement and the transactions contemplated by this Agreement and an incumbency certificate of any

officer of Seller executing this Agreement and any documents contemplated herein, all certified by the appropriate officer of Seller as being true, correct and in full force and effect on the date of the execution of this Agreement and the Closing.

7. <u>ACCESS TO PREMISES</u>. Seller hereby agrees that Buyer, its agents and subcontractors, may enter upon the Premises, at reasonable times, with all necessary equipment for all purposes reasonably associated with the purchase of the Premises, including, without limitation, conducting Buyer's due diligence investigations on the Premises and adjacent properties which may be part of the Project and Seller shall cooperate with Buyer in connection with permitting such access. All surveys, inspections or tests conducted on behalf of Buyer shall remain the property of Buyer.

8. <u>POSSESSION AND CONDITION OF PREMISES</u>. Except as provided in this Section 8, full possession of the Premises shall be delivered to Buyer at the Closing (or, if applicable, after Seller's possession of the Premises after the Closing), the Premises to be at such time (a) in the same condition as they now are (or as contemplated to be improved hereunder), reasonable wear thereof excepted, and (b) in compliance with all laws, including without limitation, all environmental, building and zoning laws. Buyer or its agent may inspect the Premises at any time prior to the Closing and again prior to Seller's vacation of the Premises in order to determine whether the condition thereof complies with the terms of this paragraph.

9. EXTENSION TO PERFECT TITLE OR MAKE PREMISES CONFORM. Seller hereby agrees that it shall not voluntarily permit any encumbrance not existing on the Effective Date to affect the Premises without obtaining the prior written consent of Buyer, which consent shall not be unreasonably withheld or delayed. If Seller shall be unable to give title or to make conveyance, or to deliver possession of the Premises, all as herein stipulated, or, if at the time of Closing the Premises do not conform with the provisions of this Agreement, then Seller shall remove any defects in title, or to deliver possession as provided herein, or to make the Premises conform to the provisions of this Agreement, as the case may be, in which event Seller shall give written notice thereof to Buyer at or before the time for performance hereunder, and thereupon the time for performance hereof shall be extended until the thirtieth (30th) day after such notice, but in no event later than the Outside Closing Date. Any and all encumbrances affecting the Premises created by Seller from and after the Effective Date shall be removed by Seller prior to or at the Closing.

10. <u>FAILURE TO PERFECT TITLE OR MAKE PREMISES CONFORM</u>. Subject to Section 11 below, if at the expiration of such extension of time, Seller shall have failed to remove any defects in title, deliver possession, or make the Premises conform, as the case may be, all as agreed in this Agreement, then at Buyer's option (i) the Deposit made under this Agreement shall be forthwith refunded to Buyer or (ii) Buyer shall have the right to specifically enforce the terms and provisions of this Agreement. Upon a refund by Seller pursuant to clause (i) above, all other obligations of all parties hereto shall cease, this Agreement shall be void without recourse of the parties hereto, and neither party shall be in default under this Agreement.

11. <u>BUYER'S ELECTION TO ACCEPT TITLE AND CONDITION</u>. Buyer shall have the election, at either the original or any extended time for performance, to accept such title to the Premises in its then condition as Seller can deliver and to pay therefor the Purchase Price with appropriate deduction therefrom, in which case Seller shall convey such title or deliver the Premises in such condition.

12. <u>ADJUSTMENT OF UNASSESSED AND ABATED TAXES</u>. If the amount of real estate taxes referred to above is not known at the time of the Closing, they shall be apportioned on the basis of the real estate taxes assessed for the immediately preceding year, with a reapportionment as soon as the new tax rate and valuation can be ascertained. If the taxes which are to be apportioned shall thereafter be reduced by abatement, the amount of such abatement, less the reasonable cost of obtaining the same, shall be apportioned between the parties, provided that neither party shall be obligated to institute or prosecute proceedings for an abatement unless herein otherwise agreed.

13. <u>BROKERAGE</u>. Seller and Buyer each represent and warrant to the other that no brokers, agents or consultants have been employed with respect to this transaction by either of them, and Seller and Buyer agree to indemnify and hold the other harmless from any claim by any other broker or agent claiming compensation in respect of this transaction, or alleging an agreement with Seller or Buyer, as the case may be.

14. <u>BUYER'S DEFAULT</u>. In the event Buyer fails to consummate the purchase of the Premises, in accordance with the provisions of this Agreement, for any reason other than those reasons specified in this Agreement as giving rise to a right in Buyer to terminate the transaction contemplated by this Agreement, Seller shall retain the Initial Deposit as liquidated damages in full and complete satisfaction of all claims against Buyer, and not as a penalty, whereupon all obligations of the parties to one another shall cease and this Agreement shall be null and void without recourse to the parties hereto and shall not be the subject matter of any litigation between the parties.

15. <u>SELLER'S DEFAULT</u>. In the event that Seller is in default or fails to comply with any of the terms and conditions of this Agreement, Seller shall return to Buyer the Deposit, and Buyer may terminate this Agreement and pursue all remedies available at law and equity, including, without limitation, an action for specific performance, it being agreed that no adequate remedy at law exists and the Property is of unique importance and value to the Buyer.

16. WARRANTIES, REPRESENTATIONS AND INDEMNIFICATION.

A. <u>By Seller</u>. Seller represents and warrants as of this date and as of each date through and including the Closing that:

i. Seller holds good and marketable title to the Premises.

ii. Seller is not a "foreign person" within the meaning of Section 1445 of the Internal Revenue Code.

iii. Seller is a limited liability company duly formed and validly existing under the laws of the State of Maine.

iv. Seller is in good standing in the State of Maine and has all necessary corporate authority to execute and deliver this Agreement and to consummate the transactions contemplated by this Agreement. This Agreement has been duly authorized by all necessary corporate action on the part of Seller, has been executed by a duly authorized representative of Seller and is the binding obligation of Seller enforceable in accordance with its terms.

v. This Agreement and the performance hereof by Seller will not contravene any law, judgment, order, injunction, decree or any contractual restriction or arrangement binding on Seller or by which any of Seller's assets or properties may be affected.

vi. No consent, approval, order or authorization of any court or other governmental entity is required to be obtained by Seller in connection with the execution and delivery of this Agreement or the performance hereof by Seller.

vii. There is no pending or, to the best of Seller's knowledge, threatened action or proceeding (including, but not limited to, any condemnation or eminent domain action or proceeding) before any court, governmental agency or arbitrator relating to or arising out of the ownership of the Premises or any portion thereof, or which may adversely affect Seller's ability to perform this Agreement, or which may affect the Premises or any portion thereof.

viii. The Premises are in compliance with all statutes, ordinances, rules, regulations, orders and requirements of all federal, state and local authorities and any other governmental entity having jurisdiction over the Premises (including, without limitation, environmental, land use and zoning laws and ordinances), and Seller has not received any notice from any such governmental entity of any violation of any of such statutes, ordinances, rules, regulations, orders and requirements.

ix. Seller does not know of, and have not received written notice of, any default or breach by Seller under any of the covenants, conditions, restrictions, rights-of-way or easements, if any, affecting the Premises or any portion thereof, and, to the best of Seller's knowledge, no such default or breach now exists, and no event has occurred and is continuing which, with notice or the passage of time, or both, would constitute a default thereunder.

x. Seller has not received any notice of assessment for benefits or betterments which affects the Premises and do not have knowledge that any such assessment is pending or threatened.

Seller has no knowledge that any portion of the Premises has ever xi. been used as a landfill or as a dump to receive refuse or waste, and, except in accordance with all applicable laws and regulations, there are and have been no Hazardous Materials (as hereinafter defined) used, generated, manufactured, disposed of, or stored in, on, under, or about the Premises. Seller has no knowledge that any asbestos containing materials or waste oil are on the Premises. The Premises meet and satisfy all federal, state and local environmental standards. As used herein, the term "Hazardous Materials" shall mean inflammables, oils, petroleum, explosives, radioactive materials and hazardous waste, including, without limitation, substances defined as "hazardous substances", "hazardous materials", "hazardous matter", or "toxic substances" in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), the Hazardous Materials Transportation Act, the Toxic Substances Control Act, the Clean Air Act, the Clean Water Act and the Resources Conservation and Recovery Act, or any similar state or local law, or in any regulations promulgated pursuant thereto, or in any other applicable law.

xii. Seller states that there are no underground oil storage facilities on the Premises.

xiii. There are no lead-based paint or lead-based paint hazards on the Premises.

xiv. No work has been performed or is in progress at, and no materials have been furnished to, the Premises or any portion thereof which may give rise to mechanic's, materialmen's or other liens against the Premises or any portion thereof.

xv. Seller has no knowledge of any Disclosable Matter (as hereinafter defined) which has not been disclosed to Buyer in writing and which could have a material adverse effect on the ownership or operation of the Premises subsequent to the Closing. As used herein, a Disclosable Matter shall mean any fact or condition known to Seller relating to the Premises other than (i) any fact or condition relating to the present real estate and financial markets in the area where the Premises are located or elsewhere, (ii) any fact in the public domain or which has been the subject of a public disclosure, (iii) any fact or condition actually known by Buyer, or (iv) any facts or conditions disclosed in the written reports obtained by Buyer in connection with this transaction.

xvi. Seller shall deliver to Buyer within ten (10) days of the execution of this Agreement, copies of all surveys, soils, water, engineering and environmental reports concerning the Premises, if any, including water quality tests, in its possession or control and Seller further agrees to make available to the Buyer, after the date hereof, any such documents which Seller hereafter acquires, whether generated by the Seller or others.

xvii. Seller shall deliver to Buyer within ten (10) days of the execution of this Agreement, copies of all municipal, state and federal approvals for the development of the Premises, together with any applicable permits for the Premises, if any, in its possession or control and Seller further agrees to make available to the Buyer, after the date hereof, any such documents which Seller hereafter acquires, whether generated by the Seller or others.

B. <u>Survival.</u> Buyer's performance under this Agreement is conditioned upon the truth and accuracy of Seller's warranties and representations expressed herein as of the Closing. All warranties, representations, covenants and agreements expressed herein shall survive the Closing and any termination of this Agreement. Seller agrees to indemnify and hold harmless Buyer, its designee and their respective successor and assigns from and against any liability, cost, damage, loss, claim, expense or cause of action (including, but not limited to, attorneys' fees and court costs and costs of enforcement of this indemnity) incurred by or threatened against such other party as a result of any breach by Seller of any of the covenants, warranties or representations contained in this Agreement. This Agreement to indemnify and hold harmless shall survive the Closing and shall include, but not be limited to, the presence of any Hazardous Materials located on the Premises on or before the Closing Date.

17. <u>WITHHOLDING TAX REQUIREMENT</u>. Any other provision of this Agreement notwithstanding, Buyer shall, unless an exemption applies, be entitled to withhold at the Closing all amounts required to be withheld under 36 M.R.S.A. §5250-A or any other applicable federal or state law, and any such withheld amounts shall be credited against the Purchase Price as if paid to Seller at Closing.

18. <u>SPECIAL TERMINATION RIGHT</u>. In the event any Hazardous Materials, asbestos containing materials or waste oil are discovered at the Premises any time prior to the Closing, Buyer may, at its option, terminate this Agreement by written notice to Seller, whereupon Seller the Initial Deposit and Second Deposit shall be promptly returned to Buyer.

19. MISCELLANEOUS.

A. This Agreement shall be binding upon and inure to the benefit of the heirs, successors and assigns of the parties hereto. No party shall have the right to assign this Agreement without the prior consent of the other party, except that Buyer may assign this Agreement to any entity in which Buyer owns a majority of the equity interests without Seller's consent.

B. Any notice relating in any way to this Agreement shall be in writing and shall be sent by registered or certified mail, return receipt requested, or by a nationally recognized overnight courier, addressed as follows:

To Seller:

To Buyer:

and such notice shall be deemed delivered two (2) days after so posted. Either party may, by such manner of notice, substitute person or addresses for notice other than those listed above.

C. This Agreement may not be modified, waived or amended except in a writing signed by the parties hereto. No waiver of any breach or term hereof shall be effective unless made in writing, signed by the party having the right to enforce such a breach, and no such waiver shall be construed as a waiver of any subsequent breach. No course of dealing or delay or omission on the part of any party in exercising any right or remedy shall operate as a waiver thereof or otherwise be prejudicial thereto.

D. Any and all prior and contemporaneous discussions, undertakings, agreements and understandings of the parties are merged in this Agreement, which alone fully and completely expresses the entire agreement of the parties. All terms and conditions of this Agreement shall survive the Closing.

E. This Agreement shall be governed by and construed and enforced in accordance with the laws in effect in the State of Maine.

F. Unless otherwise expressly provided, whenever a provision of this Agreement refers to a matter being satisfactory, it shall mean satisfactory in such party's sole discretion.

G. Time shall be of the essence hereunder.

H. This Agreement may be executed in one or more counterparts, all of which shall collectively constitute a single instrument.

I. Any dates in this Agreement may be extended, at Buyer's option, in the event of any governmental action, including, without limitation, a moratorium on development, imposed, declared or otherwise instituted by a municipality or any other similar governmental authority for a number of days equal to the days such moratorium or similar government action is pending.

J. <u>Disclosure</u>. Except as and to the extent required by law, without the prior written consent of the other party, neither the Buyer nor the Seller nor its brokers, representatives or employees, and each shall instruct its representatives not to, directly or indirectly, make any public comment, statement or communication with respect to, or otherwise disclose or permit the disclosure of the existence of discussions regarding, a transaction between the parties, or any of the terms, conditions or other aspects of the

transactions proposed in this letter of intent, except that the Buyer and its representatives are hereby authorized to disclose any aspect of this transaction in connection with the conduct of its due diligence.

K. <u>Confidentiality</u>. Except as and to the extent required by law, the Seller will not disclose or use, and it shall cause its representatives not to disclose or use and Confidential Information with respect to the Buyer furnished, or to be furnished, by the Buyer in connection herewith at any time or in any manner except in connection with the transaction discussed in this letter of intent or in furtherance of its due diligence review or efforts to secure financing for this transaction. For purposes of this letter of intent, "Confidential Information" means any information concerning the Buyer's identity, assets, or the Property; provided that it does not include information that the Seller can demonstrate (i) is generally available to or known by the public other than as a result of improper disclosure by the Seller or (ii) is obtained by the Seller from a source other than the Buyer or its representatives, provided that such source was not bound by a duty of confidentiality to the Buyer with respect to such information.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed or caused this instrument to be executed as of the date and year first above written.

WITNESS:

By:

SELLER: GOLDENROD PROPERTIES, LLC

SCOTT L. HAWTHORNE Name:

Title:

Name: Title: SCOTT L. HAWTHORN MANAGER

BUYER: NORDIC AQUAFARMS, INC.

10

By:

ENIU HEIM LED

12

EASEMENT PURCHASE AND SALE AGREEMENT

This Easement Purchase and Sale Agreement (this "Agreement"), dated as of this ______ the day of August, 2018, is by and between **RICHARD AND JANET ECKROTE**, 42 Grandview Avenue, Lincoln Park, New Jersey 07035 (the "Seller"), and **NORDIC AQUAFARMS, INC**., a Delaware corporation having an address of c/o Nordic Aquafarms AS, Oraveien 2, 1630 Gml Fredrikstad, Norway (the "Buyer").

RECITALS

A. Seller is the owner of approximately 2.78 acres of land located at 282 Northport Avenue, Belfast, Maine, identified on the City of Belfast Tax Map 29 as Lot 36, and the building and improvements thereon, and all rights and interests appurtenant thereto (the "Premises").

B. Seller desires to sell and Buyer desires to purchase a perpetual, subsurface easement (the "Easement") under a portion of the Premises for the purpose of constructing, maintaining, owning and operating water pipes and related equipment (the "Utilities") on the terms and subject to the conditions set forth herein. The portion of the Premises that will be burdened by the Easement is referred to herein as the "Easement Area."

C. Accordingly, for the consideration hereinafter named, and for other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, the parties do hereby agree as follows:

AGREEMENT

1. <u>Purchase Price</u>. Buyer shall pay to Seller the sum of , as follows:

a. **Solution** as security for Buyer's performance hereunder (together with all interest earned thereon, the "**Deposit**") within three (3) business days after the full execution of this Agreement to Seller's counsel, Lee Woodward, Jr. ("**Escrow Agent**"), who shall deposit it in a federally insured interest-bearing money market account and disburse it according to the terms of this Agreement. The Deposit shall be non-refundable to Buyer, except in the event of Seller's default hereunder, and shall be applied in reduction of the Purchase Price payable at the Closing or as otherwise provided under this Agreement.

b. **\$** cash proceeds on the Closing Date, in lawful currency of the United States of America in immediately available funds by certified funds or by wire transfer to an account or accounts designated by Seller.

c. In addition to the foregoing cash consideration, Buyer shall, at Buyer's expense, perform the various improvements listed in Section 3(b) below.

In addition to the Deposit, within three (3) business days after the full execution of this Agreement, Buyer shall also pay to Seller (or directly to Lee Woodward, Jr., for Seller's benefit), the sum of the sum of the seller seller seller as reimbursement for legal fees incurred by Seller in connection with the transaction memorialized by this Agreement.

2. <u>Closing</u>. The Closing shall occur on August 16, 2019 or such earlier date as shall be mutually agreed by the parties hereto (the "Closing Date"), at Law Offices of Lee Woodward Jr., 56 Main Street, Belfast, Maine 04915, or such other location as mutually agreed by the parties. Buyer shall have the right to accelerate the Closing to an earlier date upon not less than ten (10) business days prior written notice to Seller.

Grant of Easement. (a) Easement Agreement. Seller shall convey the Easement 3. to Buyer or its nominee or designee pursuant to mutually acceptable, commercially reasonable easement agreement (the "Easement Agreement") containing usual and customary terms for perpetual, subsurface utility easements, which shall include, without limitation, the right of Buyer and its contractors and agents to access the Premises with men, equipment and machinery, as reasonably necessary for the initial installation of the Utilities and related construction activities, (x) provided Buyer shall communicate with Seller and coordinate Buyer's activities so as to avoid unreasonable interference with Seller's use of the Premises (particularly to the extent any activities are undertaken during summer months when Seller and its guests or invitees are using the Premises); and (y) subject to Buyer's obligation to restore any portions of the Premises disturbed by such construction and to perform the improvements set forth in Section 3(b) below. The Easement Agreement shall convey a good and clear record and marketable title to the Easement, insurable on the current ALTA Standard Owners Form at standard rates, with standard printed exceptions for parties in possession and mechanics' liens deleted, free from all mortgages and monetary liens and all other encumbrances prohibiting or making unfeasible Buyer's use of the Easement for its intended purposes, and shall be in proper form for recording and shall be duly executed, acknowledged and delivered by Seller at the Closing. Seller shall obtain any third party consents that may be required to grant the Easement to Buyer, such as the consent of any mortgage lender. Buyer's counsel shall prepare the Easement Agreement for review and comment by Seller and Seller's counsel.

(b) <u>Improvements to Seller's Premises</u>. Buyer covenants to perform the following improvements to the Premises, at Buyer's cost and expense, either after the Closing and contemporaneously with Buyer's construction activities or during Buyer's diligence activities as Buyer deems expedient:

a. Install a new underground water pipe running from Route 1 along the Premises' existing drive way to the existing camp building on the Premises.

b. Install a new underground electrical conduit running from Route 1 along the Premises' existing drive way to the existing camp building on the Premises.

c. Unearth and "reset" the two (2) existing drainage pipes under the existing driveway on the Premises.

d. Remove the large oak tree overhanging the camp and thin out dead trees in the pine grove in the northwest part of the Premises.

e. Place large, excavated stones to strengthen existing retaining walls, to the extent feasible and practicable.

f. Dismantle the boathouse on the Premises and, upon Seller's request, and to the extent feasible and practicable, salvage old barn boards from the boathouse. In the event Seller elects to retain any salvaged barn boards, Seller shall be responsible to removing such boards from the Premises, and/or storing and securing such boards on Premises ty from Buyer, and acceptance of such boards by Seller shall be deemed a waiver of any claims against Buyer related thereto.

g. Perform test bores in front of the garage on the Premises to determine the feasibility of installing a basement or septic system is feasible. Any reports produced in connection therewith shall be promptly delivered to Seller.

h. Plant a reasonable amount of shrubbery on the new easement area after the installation and related work is complete.

i. Add fresh gravel at the driveway entrance when the Buyer's construction is complete.

Notwithstanding anything to the contrary, if any of the foregoing improvements to be performed by Buyer for the benefit of Seller requires any governmental or regulatory approvals (including, without limitation, those related to work upon or impacting any wetlands), Seller shall be responsible for obtaining any such approval, at Seller's cost and expense. Seller and Buyer shall communicate, cooperate and coordinate so as to cause such work to be performed expeditiously and efficiently without interfering with Seller's use of the Premises or the pursuit of Buyer's installation of the Utilities in the Easement Area to facilitate Buyer's Project and/or Buyer's Project more generally.

4. Location of Easement Area. A drawing of the proposed location of the permanent Easement Area and a temporary construction easement area is attached hereto as Exhibit A. Seller and Buyer acknowledge and agree that the final location of the Easement Area (and corresponding temporary construction easement area) may be subject to adjustment based on the result of Buyer's inspections and to Buyer's receipt of all applicable governmental and regulatory approvals necessary for Buyer's use of the Easement for its intended purposes, provided Buyer agrees that the Easement Area shall be located to the south of the old barn and existing driveway entrance. If Buyer determines that it is impractical or not feasible to locate the Easement south of the old barn and existing driveway entrance, and the parties are unable to agree on another, mutually acceptable location, this Agreement shall terminate and the Deposit shall be retained by Seller.

5. Buyer's Inspections.

a. Seller acknowledges the Buyer intends to conduct certain investigations of the Premises to determine the suitability for Buyer's purposes, including title searches; obtaining a survey; geotechnical, environmental and hydrogeological tests (including geotechnical borings, sampling, and drilling); and determining the compliance of the Easement Area with all applicable laws, rules, codes and regulations. Buyer and Buyer's agents and contractors shall have the rights to enter onto the Premises with vehicles, equipment and machinery to conduct such inspections as Buyer deems appropriate, including for Buyer's engineering inspection(s), site evaluations, and such other inspections and investigations as Buyer deems appropriate.

b. Buyer shall provide reasonable notice of any such entry and coordinate the same with Seller so as to schedule its testing activities to the extent practical and feasible for times Seller and its invitees or guests are not using the Premises, and in all cases to avoid unreasonable interference with the use of the Premises by Seller, and its invitees or guests.

c. In conducting any inspections, Buyer and its agents and representatives: (i) (together with the equipment or machinery of any such party) shall have a license to access the Premises at all reasonable times for the purpose of conducting such inspections; (ii) not unreasonably interfere with Seller's use of the Premises and endeavor to schedule its testing activities for times Seller and its invites and guest are not using the Premises; (iii) comply with all applicable laws; (iv) promptly pay when due the costs of all inspections and tests, (v) not permit any liens to attach to the Premises by reason of the exercise of its rights hereunder; and (vi) promptly repair any damage to the Premises not resulting from the actions of Seller or its invitees or guests, and restore any areas disturbed resulting directly from any such inspections, investigations or tests substantially to their condition prior to the performance of such due diligence.

d. In order to facilitate Buyer's due diligence, Seller will promptly upon Buyer's request therefor, supply Buyer with any and all information relating to the Premises (including, without limitation, title information, surveys, environmental reports, engineering studies, tax bills, legal notices, permits, approvals and such other information as Buyer may reasonably request) in Seller's possession or under Seller's control.

e. Except as arising from Seller's negligence, gross negligence, or willful misconduct or any matter arising from the mere discovery of a pre-existing condition at the Premises, Buyer hereby agrees to indemnify and hold Seller harmless from, all third-party claims, liabilities, damages, losses, costs, expenses (including, without limitation, reasonable attorneys' fees), actions, and causes of action arising out of personal injury and/or property damage directly caused by any entry onto the Premises by, or any inspections or tests performed by Buyer, its agents, independent contractors, servants and/or employees.

f. Buyer shall obtain and maintain, at its expense: (i) statutory Worker's Compensation and Employers Liability Insurance with available limits of not less than \$1,000,000.00, which insurance must contain a waiver of subrogation; (ii) Commercial General Liability coverage with available limits of not less than \$2,000,000.00 in combined single limits for bodily injury and property damage and covering the contractual liabilities assumed under this Agreement; (iii) business automobile liability insurance with available limits of not less than \$1,000,000 combined single limit for bodily injury and/or property damage per occurrence; and (iv) such other insurance as Seller may reasonably require. Such policy(s) shall provide primary (and not merely contributory coverage) to Seller. Buyer shall provide Seller with evidence of such insurance policies upon the request of Seller.

6. Conditions to Closing

a. <u>Buyer's Conditions to Closing</u>. Without limiting any other conditions to Buyer's obligations to close set forth in this Agreement, the obligations of Buyer under this Agreement are subject to the satisfaction at or before the time of Closing of each of the following conditions (any of which may be waived in whole or in part by Buyer, in writing, at or prior to Closing):

i. There shall be no final judgment materially affecting the ability of Seller to perform its obligations rendered against Seller, or if, within thirty (30) days after entry thereof, such judgment shall have been discharged or execution thereof stayed, or if, within thirty (30) days after the expiration of any such stay, such judgment shall have been discharged.

ii. Seller shall have performed, observed and complied with all material covenants and agreements required by this Agreement to be performed by Seller at or prior to Closing.

iii. Buyer shall have obtained all permits necessary or desirable for the development and operation of the land-based aquaculture facility that Buyer intends to construct across the public right-of-way from the Premises (the "Project"), and Buyer shall have determined, in its sole discretion, that the Easement Area is suitable for use in connection with the Project.

If any of Buyer's foregoing conditions is not fully satisfied on or before the Closing Date, Buyer shall have the option to either (x) terminate this Agreement by notice to Seller, in which event this Agreement shall terminate and all obligations of the parties hereto shall cease without further recourse or remedy of the parties hereunder, and the Deposit shall be retained by Seller, or (y) waive such condition and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement. Notwithstanding the foregoing, in the event that the failure to satisfy any condition precedent to Closing is caused by a breach by Seller of its obligations set forth in this Agreement, Seller shall be deemed to be in default hereunder, in which event the provisions of Section 9 below shall apply.

b. <u>Seller's Conditions to Closing</u>. Without limiting any other conditions to Seller's obligations to close set forth in this Agreement, the obligations of Seller under this Agreement are subject to the satisfaction at the time of the Closing of each of the following conditions (any of which may be waived in whole or in part by Seller at or prior to Closing):

i. There shall be no final judgment materially affecting the ability of Buyer to perform its obligations rendered against Buyer, or if, within thirty (30) days after entry thereof, such judgment shall have been discharged or execution thereof stayed, or if, within thirty (30) days after the expiration of any such stay, such judgment shall have been discharged.

ii. Buyer shall have performed, observed and complied with all material covenants and agreements required by this Agreement to be performed by Buyer at or prior to Closing.

If any of Seller's foregoing conditions is not fully satisfied on or before the Closing Date, Seller shall have the option to either (x) terminate this Agreement by notice to Buyer, in which event the Deposit shall be retained by Seller, and this Agreement shall terminate and all obligations of the parties hereto shall cease without further recourse or remedy of the parties hereunder, or (y) waive such condition and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement. Notwithstanding the foregoing, in the event that the failure to satisfy any condition precedent to Closing is caused by a breach by Buyer of its obligations set forth in this Agreement, Buyer shall be deemed to be in default hereunder, in which event the provisions of Section 10 below shall apply.

c. <u>Closing Costs</u>. Each of Seller and Buyer shall be responsible for their own legal expenses incurred in connection with this Agreement. Seller and Buyer agree to allocate closing costs as follows:

i. Transfer/conveyance taxes (if applicable) shall be divided evenly between Seller and Buyer.

ii. Buyer's title insurance expenses and premiums shall be paid by Buyer.

iii. If applicable, the cost of an update to the most recent survey of the Easement Area or of a new survey and any related surveyor's certificate shall be paid by Buyer.

iv. The cost of preparation and recordation of any releases and termination statements as may be required in connection with the title policy described in Section 3 hereof shall be paid by Seller.

v. The cost of preparation of the Easement Agreement shall be paid by Buyer.

vi. The costs of performing Closing and of any escrow charges shall be paid by Buyer.

d. <u>Condition of Premises at Closing and Closing Inspection</u>. At Closing, but without limiting any of the other conditions to Closing hereunder, full possession of the Easement Area, free of all tenants and occupants and of all personal property located on Easement Area and owned by Seller is to be delivered to Buyer at the Closing, the Premises to be then in the same condition as on the date hereof, reasonable use and wear excepted. Buyer and its agents, employees, representatives or independent contractors shall be entitled to an inspection of the Easement Area prior to the Closing in order to determine whether the condition thereof complies with the terms of this Section.

7. <u>Entire Agreement Herein</u>. The parties understand and agree that their entire agreement is contained herein, and that no warranties, guarantees, statements, or representations shall be valid or binding on either party unless set forth in this Agreement. It is further understood and agreed that all prior understandings and agreements heretofore had between the parties are merged in this Agreement which alone fully and completely expresses their agreement and that the same is entered into after full investigation, neither party relying on any statement or representation not embodied in this Agreement. This Agreement may be changed, modified, altered or terminated only by a written agreement signed by the parties hereto.

8. <u>Condemnation</u>. If all or a material part of the Easement Area is taken by condemnation, eminent domain or by agreement in lieu thereof, or any proceeding to acquire, take or condemn all or part of the Premises is threatened or commenced, Buyer may either terminate this Agreement (in which event Buyer shall be entitled to a return of the Deposit), or purchase the Easement Area (as may be relocated or adjusted pursuant the mutual agreement of Buyer and Seller) in accordance with the terms hereof, without reduction in the Purchase Price, together with an assignment of Seller's rights to any award paid or payable by or on behalf of the condemning authority. Otherwise Buyer shall complete the transaction and shall receive an assignment of Seller's rights to the award therefor at Closing. If Seller has received payments from the condemning authority and if Buyer elects to purchase the Easement Area, Seller shall credit the amount of said payments against the Purchase Price at the Closing. For the purposes hereof, a part of the Premises shall be deemed "material" if in Buyer's judgment the taking thereof would adversely affect the Easement Area's usefulness with respect to the Project and/or the Buyer's ability to pursue the Project.

9. <u>Maintenance; New Leases or Agreements, Etc</u>. Between the date hereof and the Closing:

a. Seller shall maintain the Easement Area in at least the same condition as the same is in at the date hereof, reasonable wear and tear and the consequences of any taking by eminent domain excepted. Seller shall maintain insurance on the Premises as currently insured.

b. Seller shall not enter into any lease, license or other occupancy agreement of all or any part of the Easement Area or any other agreement affecting the Easement Area, without Buyer's prior written consent (which Buyer may withhold in its sole and absolute discretion).

c. Seller shall not make any commitments or representations to any governmental authorities, any adjoining property owners, and civic association or interest groups concerning the Easement Area to this Agreement that would be binding upon Buyer in any manner.

d. Seller shall promptly deliver to Buyer copies of any notices or other correspondence it receives from any governmental authorities regarding the Premises.

10. <u>Default; Remedies</u>. Either party shall be in default hereunder if they fail to fulfill their obligations as set forth in this Agreement.

a. In the event of a material default by Seller hereunder, Buyer shall have the right to exercise any one of the following as its sole and exclusive remedies:

i. terminate this Agreement by written notice to Seller, in which event the Deposit shall be returned to Buyer, and all obligations of the parties under this Agreement shall terminate;

ii. seek specific performance of this Agreement; or

iii. waive the default and proceed to consummate the transaction contemplated hereby in accordance with the provisions of this Agreement.

b. In the event of a material default by Buyer hereunder, Seller shall have the right to terminate this Agreement by written notice to Buyer, in which event the Deposit shall paid to Seller as its sole remedy, at law or in equity, and all obligations of the parties under this Agreement shall terminate.

11. <u>Continuation of Representations, Indemnifications and Covenants</u>. All provisions, covenants, representations, warranties, indemnifications and covenants of the parties contained herein are intended to be and shall remain true and correct as of the time of Closing.

12. <u>Recording</u>. It is agreed hereby that this Agreement shall not be filed for recording with the Register of Deeds for the County of Waldo or with any other governmental body but that a memorandum of this Agreement may be recorded at any party's request.

13. Notices. Any notice or communication which may be or is required to be given pursuant to the terms of this Agreement shall be in writing (from either a party hereto or its counsel) and shall be sent to the respective party at the address set forth in the first paragraph of this Agreement, by hand delivery, by postage prepaid certified mail, return receipt requested, by a nationally recognized overnight courier service that provides tracing and proof of receipt of items mailed, or to such other address as either party may designate by notice similarly sent. Notices shall be effective upon receipt or attempted delivery if delivery is refused or the party no longer receives deliveries at said address and no new address has been given to the other party pursuant to this paragraph. A copy of any notice to Buyer shall also be simultaneously sent to Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C., One Financial Center, Boston, Massachusetts 02111, Attention: Daniel O. Gaquin, Esq. A copy of any notice to Seller shall also be simultaneously sent to Lee Woodward, Jr., Esquire, 56 Main Street, Belfast, ME 04915. Notices by any party may be sent by such party's counsel.

14. <u>Broker</u>. Each party represents hereby to the other that it dealt with no broker in the consummation of this Agreement and each party shall indemnify and save the other harmless from and against any claim arising from the breach of such representation by the indemnifying party. The provisions of this Section shall survive the Closing or, if applicable, the termination of this Agreement.

15. <u>Captions</u>. The captions in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit or prescribe the scope or intent of this Agreement or any part hereof.

16. <u>Successors and Assigns</u>.

a. This Agreement shall be binding upon the parties hereto and their respective successors and assigns.

b. Buyer may not assign this Agreement and the rights or benefits hereof, except that Buyer may assign this Agreement, without Seller's consent, to an entity that directly or indirectly controls, is controlled by or is under common control with Buyer or any institutional investor partner of Buyer. The term "control" means the power to direct the management of such entity through voting rights, ownership or contractual obligations.

17. <u>Governing Law</u>. The laws of the State of Maine shall govern the validity, construction, enforcement and interpretation of this Agreement.

18. <u>Title Matters</u>. Any matter or practice arising under or relating to this Agreement which is the subject of a title standard or practice standard of the Maine State Bar Association shall be governed by such standard to the extent applicable.

19. Multiple Counterparts. This Agreement may be executed in any number of

identical counterparts. If so executed, each of such counterparts shall constitute this Agreement. In proving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have executed this Easement Purchase and Sale Agreement as an instrument under seal as of the day and year first written above.

SELLER: AR 8/6/18 RICHARD ECKROTE Dalet Echrote 8/6/18 HANET ECKROTE SELLER:

JANET ECKROTE

BUYER:

NORDIC AQUAFARMS, INC.

By:	the particular	
Name:		
Title:		

IN WITNESS WHEREOF, the parties hereto have executed this Easement Purchase and Sale Agreement as an instrument under seal as of the day and year first written above

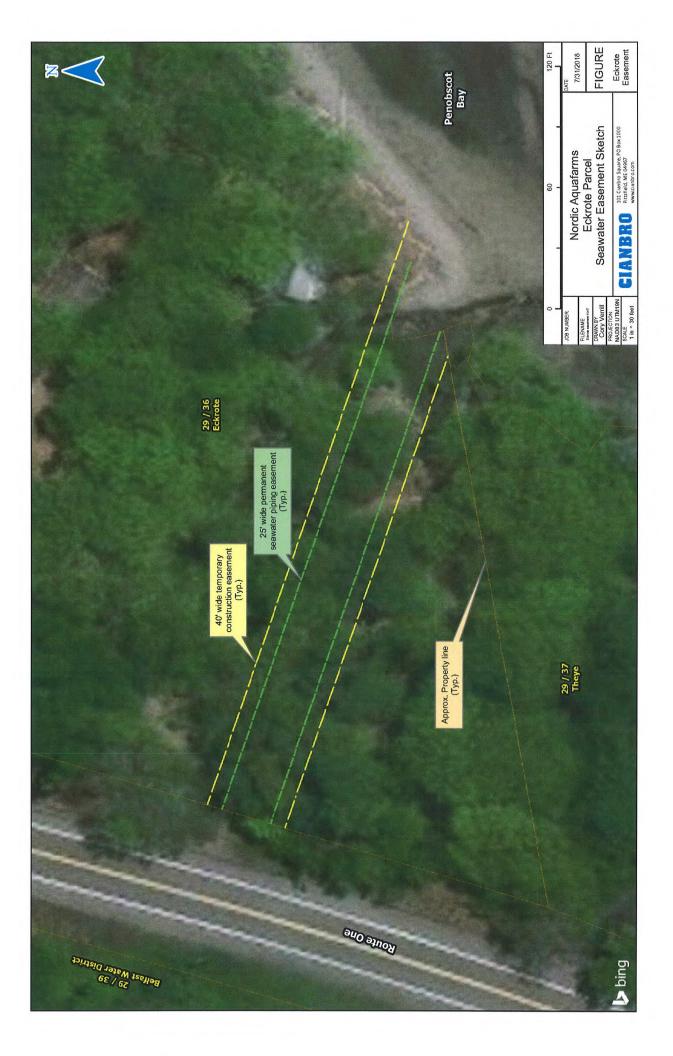
RICHARD ECKROTE JALET ECHROTE 8/6/18 JANET ECKROTE BUYER:

NORDIC AQUATABMS, INC.

7 By d Name Chih HEIM Title. CEO

Exhibit A

Proposed Easement Area



General Application WDL/MEPDES Permit Question #9 Attachment 6



PAUL R. LEPAGE

GOVERNOR

STATE OF MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY BUREAU OF PARKS & LANDS 22 STATE HOUSE STATION AUGUSTA, MAINE 04333

WALTER E. WHITCOMB COMMISSIONER

October 10, 2018

Joanna Tourangeau, Esq. Drummond Woodsum 84 Marginal Way, Suite 600 Portland ME 04101

RE: Submerged Lands Application - Nordic Aquafarms, Inc.

Dear Ms. Tourangeau:

The Bureau of Parks and Lands (Bureau), within the Maine Department of Agriculture, Conservation and Forestry, has received your client's Submerged Lands Application to install pipes at its property in Belfast. Pursuant to Title 12 M.R.S.A., Section 1801 & 1862, the Bureau of Parks and Lands serves as trustee of submerged lands for the State of Maine. Submerged lands include all land below the mean low-water mark seaward to the 3-mile territorial state boundary, including all land below the mean low-water mark of tidal rivers upstream to the farthest natural reaches of the tides.

Because the proposal will involve new structures over 500 square feet in size on submerged lands, a lease from the Bureau is required. The lease gives your client the right to use submerged lands as proposed in the application for a term not exceeding 30 years. There is a 30-day review and public comment period to determine if the proposed use <u>will not</u>:

- unreasonably interfere with customary or traditional public access ways to, or public trust rights (fishing, fowling, recreation, and navigation) in, on or over the submerged lands;
- unreasonably interfere with fishing or other existing marine uses of the area;
- unreasonably diminish the availability of services and facilities necessary for commercial marine activities; and
- unreasonably interfere with ingress and egress of riparian owners

The public comment period ends on **November 9**, **2018.** The request for a lease may be granted, granted with conditions, or denied. If the application is approved, a lease will be sent to your client for signature and payment. If we receive comments in opposition or the application is denied, we will issue our preliminary decision and there will be a 30-day reconsideration period.



Phone: (207)287-3821 Fax: (207)287-6170 WWW.MAINE.GOV/DACF/ Annual rent is charged for a lease and the minimum amount is \$150.00 per year. The submerged lands lease year runs from January 1st to December 31st with payment due February 1st of each year. Pro-rated rent for the current year is due and payable upon execution of the lease. Please note that any approval will be conditional upon the Bureau receiving proof of title, right or interest in the upland property. The Purchase and Sale agreement is adequate for processing of the application.

The lease fee for the proposed 15-foot-wide pipe corridor is calculated at a base rate of \$0.05/square foot (sf) of leased area plus an adjustment factor derived from the municipally assessed value of the adjacent upland lot. Based on this information, the estimated annual lease fee would be \$4,517.69 for 83,550 square feet of submerged lands. The lease fee may be adjusted once in every five-year period if the upland is reassessed by the municipality or to conform to applicable regulations and laws.

Additional information about the Submerged Lands Program is available on our website at <u>www.maine.gov/dacf/publiclands</u>. If you have any questions, please feel free to contact me at (207) 287-4922 or by email to <u>carol.dibello@maine.gov</u>. Thank you.

Sincerely,

Caul DiBello

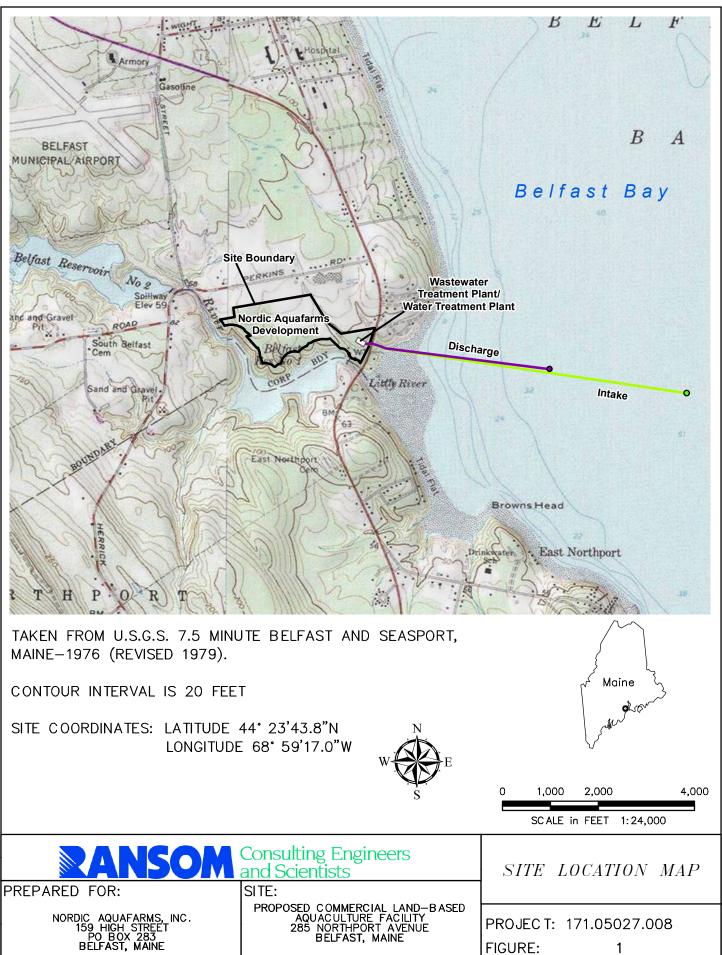
Carol DiBello Submerged Lands Coordinator

cc: Erik Heim (via email)

SLM.mxd

NAF-F1

PM File:



13. Attachments for specific activities and circumstances. For each specific question, check 'Yes' or 'No' to indicate if the statement is applicable to a discharge or activity described in this application. Where 'Yes' is checked, attach the applicable form.

Specific Question	Yes	No	Applicable Form
A. Is this facility a publicly owned treatment			DEP Form: Publicly Owned
works treating sanitary wastewaters?			Treatment Facilities (DEPLW0106)
B. Does this application seek authorization to			DEP Form: Disposal of Septage
introduce septage into treatment works?			and Holding Tank Wastes in Wastewater
			Treatment Facility (DEPLW0507-A2004)
C. Is this application for a subsurface wastewater			DEP Form: Application for
disposal system?			Subsurface Wastewater Disposal System
			(DEPLW0313-B2005)
D. Is this application for a land surface (including			DEP Form: Application for
spray irrigation) wastewater disposal system?			Surface Wastewater Disposal System
			(DEPLW0450-B2005)
E. Is this a food processing facility or POTW that			DEP Form: Food Processing
treats food processing wastewaters?			Facilities (DEPLW1999-19)
F. Is this an existing discharge of industrial			EPA Form: 2C
process wastewater?			
G. Is this to be a new discharge of industrial			EPA Form: 2D
process wastewater?			
H. Is this a discharge of non-contact cooling water?			EPA Form: 2E
I. Is this discharge of storm water associated			EPA Form: 2F
with an industrial activity?			
J. Is this a discharge of non-process wastewater?			EPA Form 2E
K. Is this application for an Atlantic salmon			DEP Form: Supplemental Information for
net pen facility?			Atlantic Salmon Aquaculture Net Pen (for
			Individual Permit) (DEPLW0956)
L. Is this a fish hatchery or rearing facility?			DEP Form: Fish Rearing
			Facilities (DEPLW1999-18)
M. Does this application involve a new			DEP Form: Outfall Information
or modified outfall structure?			(DEPLW1999-17)
N. Is this application for a waste snow dump?			DEP Form: Supplemental Information for
			Snow Dumps (DEPLW0249)

OUTFALL AND TREATMENT INFORMATION

Use attachments as necessary to provide details for each discharge point and treatment system.

14. Describe each discharge location. Include all combined sewer overflow (CSO) points, bypasses, emergency discharge points, at pump stations, etc.

<u>Outfall Number/Name</u> Description, Volume Discharged and Receiving Water One 36" diameter pipe discharging 7.7 million gallons per day (mgd) to Belfast Bay. The outfall will be located approximately 3300 feet (1000 meters) from shore in approximately 35 feet (10.7 meters) of water at mean low tide.

If any of the above-listed discharges (other than CSOs) are intermittent or seasonal, please describe the nature, circumstances and duration of each.

15. Briefly describe current treatment facilities or methods for each discharge.

16. If this is a renewal application, please describe all significant modifications to the treatment facilities (and collection system if applicable) since the last permit application was filed.

17. Are new or expanded treatment facilities or outfall structures being proposed? If so, please include a construction schedule. Plans and specifications must be submitted to the Department for review and approval prior to construction of the facilities. See Attachment 9.

18. If this application is for a new or increased discharge, include a statement that:

- A. describes in detail the nature of and reason for the requested increase in pollutant loading to the receiving water;
- B. if the Department determines that the discharge will diminish the remaining assimilative capacity of the receiving water, demonstrates that alternative methods to reduce or eliminate the increased discharge are not feasible. Include engineering and economic analyses that consider alternative methods of production, process controls, wastewater minimization methods, improved wastewater treatment methods and alternate disposal sites; and
- C. if the Department determines that the discharge will diminish the remaining assimilative capacity of the receiving water, demonstrates that the increased pollutant load will result in important social and economic benefits to the State.

See Attachments 10 through 14 for a statement addressing subsections A through C above, reports utilizing CORMIX and ADCIRC software to model effluent discharge dilution in Belfast Bay, a review of the technical CORMIX and ADCIRC reports, and a summary of water quality data collected from Belfast Bay.

Maine Department of Environmental Protection General Application for WDL/MEPDES Permit

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Additionally, by signing below, I certify that

(1) Notice of this application has been made by publication in **The Bangor Daily News** newspaper circulated in the area where the project site is located on or about **September 21, 2018** (a copy of advertising form is included in this application; (2) notice has been sent by certified mail or Certificate of mailing to owners of land abutting the discharge site (a copy of the list of abutters is included in this application); and (3) notice and a copy of this application have been provided to the clerk of the municipality(ies) where the discharge is located. (4) Further, if this is a new discharge over 25,000 gallons per day, a public meeting attended by approximately **175-200 members** of the public was held on **October 4, 2018**.

The forgoing steps have been taken in accordance with the instructions attached to this application and the provisions of Chapters 2 and 522 of the Department's rules.

By:

Signature: Date: Printed Name: Joanna B. Tourangeau Telephone: 207-772-1941 Title: Counsel for Nordic Aquafarms

Assisting parties. If the applicant has been assisted in preparing this application, the person assisting must sign below.

Signature:	Date:	
Printed Name: Elizabeth Ransom	Telephone:	207-772-2891
Affiliation: Ransom Consulting, Inc.		
Address: 400 Commercial Street, Suite 404		8
Town: Portland State: Maine	Zip: 0410	1
Professional Certification: Professional Geologist, License #505		

See following pages for requirements on public notice, public meeting, pre-applications meetings and presubmission meetings.

See Attachment 15 for a letter authorizing Joanna B. Tourangeau and Elizabeth Ransom to act as agents on behalf of Nordic Aquafarms, Inc. and Attachment 16 for documentation of notifications.

Instructions for providing notices of the application. For all applications, the first 3 items must be completed. If the application is for a new discharge, you must also complete item 4.

1. *Publication of Public Notice*. Applicants for waste discharge permits are required to publish a public notice that the application is being file with the Department of Environmental Protection. The notice must be published within 30 days prior to the application being sent to the Department. The notice should be published in the legal advertisement section of a daily or weekly newspaper having general circulation in the area where the discharge will occur. If the public notice is not published at the proper time or if the application is returned because it is incomplete, you may be asked to have the notice published a second time.

Using the form on the next page, fill in the blanks with the appropriate information. Strike out all of the items (CSO, multiple discharge sources, etc.) in the second paragraph that do not apply to your discharge. The form may then be sent to the newspaper that is to publish the notice. Additionally, include a copy of the form with the application filed with the Department.

2. *Notice to Abutters.* Applicants are also required to send a copy of the public notice by certified mail or Certificate of Mailing to all abutting property owners within 30 days prior to the application being filed with the Department. For the purposes of public notice of this application, an "abutter" is any person who owns property that is both (1) adjoining and (2) within 1 mile of the delineated project boundary, including owners of property directly across a public or private right of way. Additionally, include a copy of the form with the application filed with the Department.

3. *Notice to Municipal Office*. Applicants are required to send a copy of the public notice by certified mail to the town or city clerk of each municipality where the discharge is located within 30 days prior to the application being filed with the Department. Applicants must also file a duplicate copy of the application with each municipality.

4. *Public Meeting*. Where the application is for a new discharge of greater than 25,000 gallons per day, you must hold a public meeting in accordance with Chapter 2, Section 8, of the Department's rules. Notice of the meeting must be sent to abutters and the clerk of the municipality(ies) where the discharge is located at least 10 days prior to the meeting. Notice of the meeting must be published in the same newspaper used to publish the notice of filing.

After all required notices have been made, sign the statement on the Certification page of the application.

NOTICE OF INTENT TO FILE MAINE WASTE DISCHARGE LICENSE / MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION

Please take note that, pursuant to	38 MRSA, Sections 413	and 414-A,	of
intends to f	ile a wastewater discharg	ge permit application with	the Department of
Environmental Protection (DEP).	The application is for the	he discharge of	of
	to the	in	, Maine.
* * * * * * * *			

Include as applicable:

CSO: Included in this application is the discharge from _____ Combined Sewer Overflows to _____.

Multiple industrial point sources: The application includes ______

associated with the primary activity described above.

Antidegradation: The application proposes a new or increased discharge that may lower existing receiving water quality within its legal classification, and the application contains a statement regarding important social and economic benefits resulting from the activity causing the discharge, pursuant to 38 MRSA, Section 464.

Mixing Zone: The application includes a request for establishment of a mixing zone in the ______, inside of which classifications standards and uses not need to be met, pursuant to 38 MRSA, Section 451.

The application will filed on or about ______ and will be available for public inspection at DEP's Augusta office during normal business hours. A copy may also be seen at the municipal offices in

A request for a public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing, or 30 days from the date of this notice, whichever is longer. Requests shall state the nature of the issue(s) to be raised. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information.

During the time specified above, persons wishing to receive copies of draft permits and supporting documents, when available, may request them from DEP. Persons receiving a draft permit shall have 30 days in which to submit comments or to request a public hearing on the draft.

Public comment will be accepted until a final administrative action is taken to approve, approve with conditions or deny this application. Written public comments or requests for information may be made to

Maine Department of Environmental Protection Division of Water Quality Management Department of Environmental Protection State House Station #17 Augusta, Maine 04333-0017 Telephone (207) 287-7688

Pre-application and pre-submission meetings

Pre-application meetings. Pre-application meetings between the applicant and the Department are an opportunity for the applicant to determine the statutory and regulatory requirements that apply to a specific project and to identify a Project Manager for the application. The purpose of these meetings is to identify issues, processing times, fees and the types of information and documentation necessary for the Department to properly assess the project. The applicant shall consult the appropriate bureau Permit Assistance Coordinator to determine what information the applicant must provide before or during a pre-application meeting. Any applicant may request a pre-application meeting. The Department shall make a date available for the meeting as expeditiously as possible, but no later than 30 days from receipt of a written request and receipt of all information required for a pre-application meeting by the bureau. The Department shall prepare a written summary of all pre-application meetings.

For waste discharge permits, pre-application meetings are <u>required</u> prior to submission to or acceptance by the Department of an application for the following:

New wastewater discharge license for a discharge greater than 25,000 gallons per day (38 M.R.S.A. Sections 413, et seq.);

Projects requiring new or amended licenses involving more than two bureaus.

Pre-submission meetings. Pre-submission meetings between the applicant and the Department occur after the applicant has finished preparing the application for submission. These meetings are an opportunity to review the assembled application to ensure that the necessary information has been included prior to filing the application with the Department. An applicant may request a pre-submission meeting by contacting the Project Manager, or the Permit Assistance Coordinator for the bureau if no Project Manager has been identified. The Department shall make a date available for the meeting as expeditiously as possible, but no later than 20 days from receipt of a written request.

For waste discharge permits, a pre-submission meeting is <u>required</u> prior to submission to or acceptance by the Department of an application for the following:

Any application for which a pre-application meeting was held; or

Any application that has been previously rejected by the Department (see Chapter 2, Section 7-B of the Department's rules).

Waivers. The requirement of a pre-application or pre-submission meeting may be waived by written notice from the Department and agreement by the applicant. The Department will agree to waive a pre-application or pre-submission meeting if the Department is satisfied that such a meeting would be of no value in achieving the purposes noted above.

Note: The waiver of a pre-application or pre-submission meeting does not waive the public informational meeting required for new discharges of more than 25,000 gallons per day.

See Attachment 17 for pre-submission meeting waiver.

General Application for WDL/MEPDES Permit Question #15 Attachment 8



WASTEWATER TREATMENT



NORDIC AQUAFARMS RAS PROJECT

MAINE, USA Sept 11th 2018

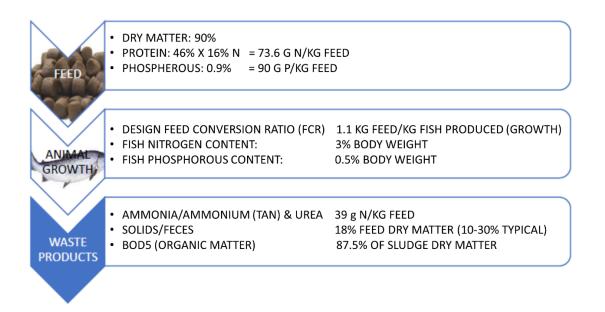
In relation to the planned aquaculture project by Nordic Aquafarms Inc. in Maine, USA, we hereby provide an overview of the Effluent/Wastewater treatment plant technology.

INTRODUCTION & BACKGROUND

The project concerns a land-based production of Atlantic salmon from eggs to market size, using proven state-of-the-art Recirculation Aquaculture System (RAS) technologies for maintaining optimal water quality for fish production with minimal water exchange.

PRODUCTION & POLLUTANTS

As with any animal production, nutrients are generated from the feed and animal metabolism. The exact composition varies with nutritional requirements for species and size as well as manufacturer, but essentially consists of proteins, lipids, carbohydrates, phosphorous and minerals. Of importance when considering environmental impact, is the BOD, total N and P.



TOTAL PARAMETERS FOR NORDIC AQUAFARMS, MAINE:

Wastewater treatment is undertaken in two steps:

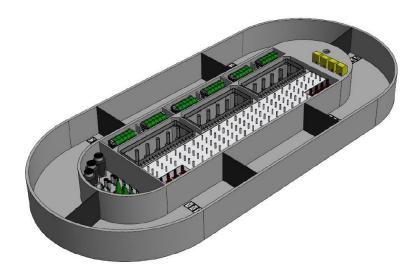
1. Primary internal water treatment system (Recirculating Aquaculture System)

Function: Mechanical, biological and gas balancing in order to maintain a high level of water quality suitable for culturing Atlantic Salmon

2. Effluent/Wastewater Treatment Plant

Function: Mechanical, biological and chemical treatment of final discharge

1. RAS DESCRIPTION



Water Flow in a D-ended RAS

The total tank volume in a production unit is 8500 m³. Water circulation is 2 x tank volumes per hour or 17,000 m³ / hour. The water flows from the tank by gravity through several outlets at the bottom of the tank effectively removing feces/feed residues from the tank to the water treatment units, where it is mechanically treated by drum filters with 60 μ m mesh size. In order to backwash the drum-filters, spray water is taken from the Denitrification MBBR (ref. below) where total N concentrations are lowest.

From the drum filters the water is led by gravity to the aerobic Moving Bed Bio-Reactors (MBBRs) for biological treatment of ammonium to nitrate and reduction of organic matter.

A side-stream of approx. 8% of the recirculating flow is diverted on a loop after aerobic biological treatment through a second MBBR, operating under anoxic conditions for denitrification of nitrate to free nitrogen.

After mechanical / biological cleaning, the water passes over the central CO2 degassing unit mounted above the pump. The CO2 degassing unit consists of a countercurrent flow cascade based on a water distribution with "Crown Nozzles" and dimensioned at an air / water rate of 8:1. The suction effect by the ventilation in the cascade forms a small vacuum, which also removes any N2 gas supersaturation. Alkalinity / pH control is done automatically via the SCADA system which uses duplicate sensors to measure pH in the pump sump. If the values produced by the two sensors do not match, an alarm is triggered, and the dose is stopped. This ensures optimal levels of pH and alkalinity for the fish and nitrifying bacteria in the bioreactors.

The water is from the pump sump pumped back to the tank with Lykkegaard propeller pumps. Oxygen is added partly into the main water supply line and partly with high pressure oxygen cones.

WATER QUALITY PARAMETERS IN CULTURE TANK AT MAXIMUM FEEDING

PARAMETER	VALUE	UNITS
Oxygen	≥ 95%	Saturation
Total Ammonium (TAN)	≤ 1.5	mg NH4-N/I
Nitrite	≤ 0.5 /	mg NO2-N/I
Nitrate	≤ 100	mg NO3-N/I
CO2 (free)	≤ 15	mg CO2/l
Turbidity	≥ 5 - ≤ 0.7	NTU
Suspended matter	≤ 10	mg/l

Waste Water Treatment Process Overview

All water discharge pipework from the RAS come directly from the internal water treatment system's mechanical filters and (to a lesser extent) system overflow pipes.

The pipes will all lead to the central Waste Water Treatment Plant (WWTP).

The WWTP is designed for peak flow capacity of the rinse/backwash water from internal mechanical filtration in the RAS as indicated on the attached P&ID.

All water used for backwashing the rotating drum filters is taken directly from the internal RAS denitrification bio-reactor where the Total Nitrogen (TN) level is lowest. The denitrification unit is designed to maintain NO3-N levels between 10-30 mg NO3-N/l.

Design specifications Waste Water Treatment Plant (WWTP)

WWTP SEQUENCE OF TREATMENT:

- 1. Aerobic Moving bed bio-reactor (MBBR)
- 2. Chemical precipitation of total P
- 3. Micro-Filtration (0.4 µm pore size) in Membrane Bio-Reactors (MBR)
- 4. Sludge Dewatering, decanter centrifuges, supernatant returned to biological treatment
- 5. Final liquid effluent UV-C sterilization prior to discharge

BIOLOGICAL PRE-TREATMENT

All wastewater from the RAS units is lead directly to an equalization tank/pump station and into the primary biological treatment for additional total nitrogen (TN) removal.

The biological treatment is based on proven Moving Bed Bio-Reactor (MBBR) technology. The designs are based on practical experience from the engineering team over many years and consistent with common design practices (Metcalf & Eddy and ASCE 5th Edition "Design of Municipal Wastewater Treatment Plants").

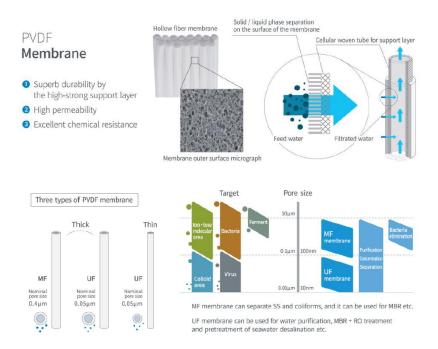
 4 x Aerobic MBBR in parallel: Soluble BOD oxidation Volume/aerobic MBBR: 150 m³/tank Total Volume: 600 m³ HRT: 30 min (peak) Peak Loading: 20,160 kg BOD/day Carrier Fill Fraction: 50% Carrier Elements: bulk surface area: 800 m²/m³ Total Carrier Surface: 240.000 m² Total BOD carrier loading rate: 84 g COD/m²/day Soluble BOD removal rate: 30 g BOD/m²/day Aeration Requirement: 3000 Nm³/hr, coarse bubble

The biological treatment is installed with capacity for variable recirculation flow from the aerobic to the pre-anoxic MBBR for N removal.

Biological phosphorous removal will occur in practice via aerobic/anoxic MBBRs used. and will be designed for removal only by chemical precipitation/MBR removal below.

BIOLOGICAL/MECHANICAL POLISHING TREATMENT

For final polishing, water from the biological treatment is passed through STERAPORE Hollow Fiber Membrane Bio-Reactors from world-renowned Mitsubishi with in-line addition of FeCl for phosphorus precipitation.



Here, fine solids removal takes place with 0.4 µm mesh membranes (Micro Filtration) These effectively remove and allow for additional aerobic biological polishing. Outlet TSS is maintained at a constant level of 1.5% (Ref. Mitsubishi design requirement) and measured with in-line real-time TSS measurement.

The MBR units are equipped with automatic Clean-In-Place (CIP) systems.

Membrane Modules:	56M2400FF
Design Flow:	1218 m³/hr (peak)
Membrane surface/module:	2400 m ²
Membrane Tank Volumes:	4 x 200 m ³ (800 m ³ total) in parallel
Total number of modules:	24
Total membrane Surface:	24 x 2400 m ² = 57.600 m ²
Membrane surface area: total	2400 m ² per module x 4 modules x 4 treatment trains = 28.800 m ²
Design Flux: 0.3 m/day avg.	0.5 m/d peak
Design MLSS concentration:	10.000 mg/l

The permeate is drawn by lobe pumps through UV-C sterilization to discharge and the retentate is pumped to the sludge thickening unit.

SLUDGE THICKENING

Captured sludge from the MBR treatment is pumped to the sludge thickening unit for reduction of sludge volume.

Sludge thickening consists of decanter centrifuges, provided by Alfa Laval.

Separation takes place in a horizontal, cylindrical bowl equipped with a screw conveyor. The sludge enters the bowl through a stationary inlet tube and is accelerated smoothly by an inlet distributor. The centrifugal force that results from the rotation then causes sedimentation of the solids on the wall of the bowl.

The conveyor rotates in the same direction as the bowl, but slightly slower, moving the solids towards the conical end of the bowl. The cake leaves the bowl through the solids discharge openings into the casing. Separation takes place throughout the entire length of the cylindrical part of the bowl, and the clarified liquid leaves the bowl by flowing over adjustable plate dams into the casing.

Decanter Centrifuge:	3 x Aldec 45 Decanter Centrifuge
Design Flow:	40 m ³ /hr, 1.5% DS in feed/unit
Thickened Sludge:	10 – 20% DS in outlet cake

Liquid fraction: Return to MBBR

Comments on the technology and design criteria:

The processes in the design of the WWTP and associated technologies/equipment have all been proven in domestic and industrial wastewater treatment industries as well as in RAS facilities. The chosen suppliers of the MBR and sludge thickening are both well-known and respected internationally for quality and performance.

The level of treatment prior to discharge is, however, unprecedented in aquaculture to our knowledge. Common requirements for RAS projects are typically limited to BOD/TSS removal > 70%. Due to increased legislation and increase in the industry in general, more measures are now being installed to reduce nitrogen loads and, to some extent, phosphorous.

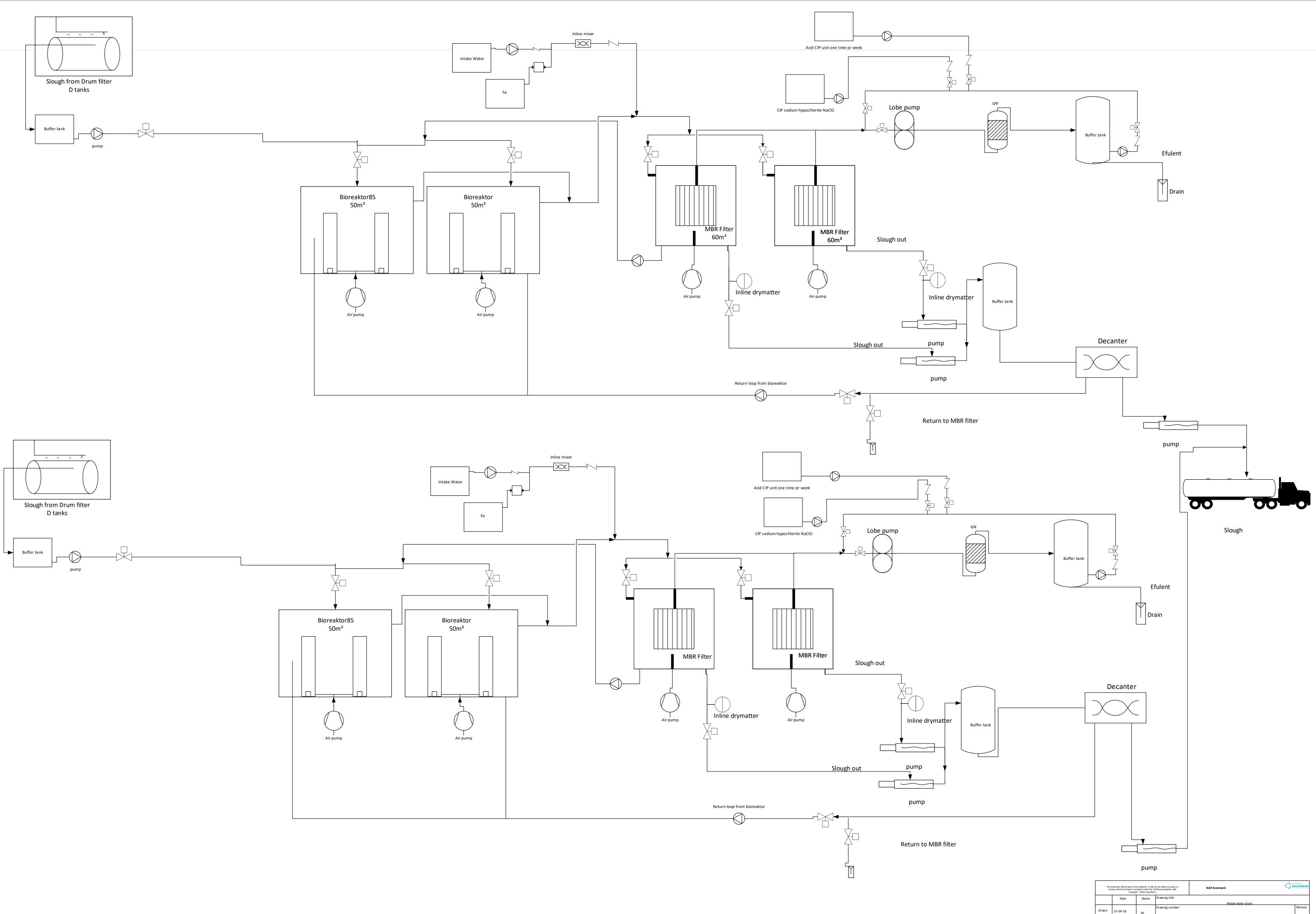
The performances of the Membrane Filters with precipitation of total P as well as the dewatering have been confirmed by the suppliers (Mitsubishi and Alfa Laval, respectively) and biological treatment performance is deemed well within safety in design criteria.

The WWTP operations and removal efficiencies exceed standard practices for municipal and industrial wastewater.

With kind regards,

Simon Declan Dunn

Senior Engineer, Nordic Aquafarms



NAF WWTP US

Construction Schedule

This schedule will commence upon final receipt of all necessary permits and approvals for the project.

- 1. Construction start within 1-3 months of completion of permitting. To include infrastructure connection to site, landscaping, smolt facility and waste water treatment plant.
- 2. Construction start of grow-out modules and processing facility approximately 6-9 months after initial construction phase. Final steps in Phase 1 construction is expected to be complete in 12-15 months.
- 3. Timeline for Phase 2 expansion (additional smolt and grow-out modules), will be decided once Phase 1 development is complete.



Overall Project Development and Discharge Summary

Nordic Aquafarms Inc is planning to construct a land-based salmon farm in Belfast, Maine based on know-how and designs developed and implemented in Norway and Denmark. The facility value chain will include a hatchery that receives delivery of salmon eggs and spans the entire process with output of head-on gutted fish and filets. The hatchery will be subject to quarantine measures to ensure biosecurity. The facility will not include brood stock. Local planning and construction will be managed by our local US team and Maine construction partners, in partnership with our Norwegian engineering team.

Any fish farm will have a primary discharge of nutrients related to feed metabolism. In this case, feces, feed particles and dissolved nutrients will be key discharge factors to manage. With scaling up of land-based farms, the need to employ environmental technologies increases. We are also of the opinion that this industry as a whole must raise its environmental standards in the years to come. Today, we see very few farms internationally that reduce nitrogen and phosphorous discharge because they have not had incentives to do so.

For this reason, Nordic Aquafarms has pursued significant development related to efficient discharge treatment. Nordic Aquafarms is employing tried and proven technologies to significantly reduce nutrients, including nitrogen and phosphorous. Our waste water treatment infrastructure involves investments to minimize local environmental impact. The joint conclusion from us and our US consultants, is that the residual discharge will have minimal environmental impact due to the high level of nutrient removal and the chosen discharge point off shore.

CORMIX and ADCIRC modelling has also been conducted by our US partner Ransom Consulting to evaluate potential impact in local waters, and to assess the best possible position for the discharge point. This modelling shows that the facility discharge will not impact eelgrass beds or other potential sensitive receptors. The modelling shows that the residual nutrients being discharged are sufficiently treated and diluted to be protective of Belfast Bay. See separate attachments for CORMIX and ADCIRC modeling.

With nutrient removal rates at 99 percent for many key discharge parameters, we are not familiar with any larger smolt or grow-out facilities that are even close to these removal rates. Our analysis of back-ground water quality parameters in the bay also show that our discharge

of particles (TSS) is lower than existing values in the bay. In our experience, our removal rates are also higher than most other industries treating a discharge.

In conclusion, Nordic Aquafarms is applying state of the art technologies and standards that go well beyond current industry standards. Further discharge reductions are not feasible with current available technologies. Actual residual discharge figures are included in the application.





400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248

Byfield, Massachusetts 🛛 Portsmouth, New Hampshire 🖓 Hamilton, New Jersey 🖓 Providence, Rhode Island www.ransomenv.com

Date:	September 27, 2018
To:	Nordic Aquafarms
From:	Nathan Dill, P.E.
Subject:	Near-field Dilution of Proposed Discharge

This memorandum provides a summary of estimated initial dilution of wastewater discharge from the proposed Nordic Aquafarms Recirculating Aquaculture System into Belfast Bay, Maine. This memorandum focuses on dilution of the effluent that would occur within the near-field region. That is, the region near the discharge port where mixing is dominated by forces of the discharge itself, and thus can be influenced by the outfall design.

Understanding the near-field dilution of a wastewater discharge is typically important when there is a need to assess impacts of toxic pollutants on aquatic organisms near the outfall. However, in this case, the proposed discharge for Nordic Aquafarms does not contain any toxic components, and there is no need to define a mixing zone. As such, the information in this memorandum is provided primarily to elucidate near-field mixing processes and aid in outfall design.

To aid in understanding near-field mixing process and outfall design, dilution has been evaluated for a variety of possible conditions, including a single-port or multi-port diffuser, and for a range of conditions representative of seasonal and tidal variations in ambient conditions. Dilution values and associated information provided in this memorandum are representative of the dilution that would occur within the plume after 15 minutes of travel time along the plume centerline from the point of discharge.

DILUTION MODELING WITH CORMIX

The <u>Cor</u>nell <u>Mixing</u> Zone Expert system (CORMIX)¹ is a series of software subsystems for the analysis, prediction, and design of aqueous toxic or conventional discharges into diverse water bodies. CORMIX utilizes a rule-based, expert systems approach to determine the relative importance of various physical processes, and then applies the appropriate numerical modules to simulate mixing, dilution, and plume trajectory in both near-field and far-field regions. The result is a qualitative and quantitative description of the discharge as it evolves from a near-field jet dominated by effluent characteristics and port geometry to a far-field plume transported and

¹Doneker, R.L. and G.H. Jirka. CORMIX1: An Expert System for Mixing Zone Analysis of Conventional and Toxic Single Port Aquatic Discharges. 1990, USEPA: Athens, GA.

dispersed by ambient conditions. The expert system methodology reduces the potential for user input error, resulting in a reliable system for jet/plume analysis. CORMIX is supported by the U.S. Environmental Protection Agency (USEPA) and is widely applied and accepted by the environmental community. CORMIX version 11.0 was used for the analysis documented in this report.

EFFLUENT AND DISCHARGE

CORMIX requires specification of various parameters that describe the physical characteristics of the effluent, as well as the geometry of the outfall and discharge port. The following effluent and discharge port characteristics have been assumed based on information provided by Nordic Aquafarms:

- Flow rate of 0.337 m³/s (7.7 mgd)
- Effluent Density 1014.8 kg/m³ (representative of a 2:1 mixture of seawater:freshwater at approximately 13 degrees C)
- Discharge port diameter 0.762 m (2.5 feet), or 0.381 m (1.25 feet)
- Discharge port oriented 20 degrees above horizontal, perpendicular to ambient flow direction 1.5 meter (5 feet) above bottom
- Alternative multi-port diffuser with three 0.3 meter (1 foot) diameter ports, spaced 15 m (50 feet) apart, oriented perpendicular to ambient flow. Discharge ports oriented 20 degrees above horizontal and perpendicular to ambient flow direction.
- Outfall located at depth of 8 meters, 500 meters from the shoreline; or depth of 15 meters, 1000 meters from the shoreline.

AMBIENT CONDITIONS

Ambient conditions have been characterized using information from available literature.^{2,3,4} It is noteworthy that none of the available data used to approximate ambient tidal current velocity conditions were collected specifically in the area of the proposed discharge in Belfast Bay. Although an attempt has been made to use information that is relevant to the Belfast Bay region in northwestern Penobscot Bay, the available tidal current velocity data were collected in locations that generally farther offshore and in deeper water than the proposed discharge locations.

² Burgund, H.R. 1995. The Currents of Penobscot Bay, Maine, Observations and a Numerical Model. Senior thesis presented to the faculty of the Department of Geology and Geophysics, Yale University.

³ Normandeau, 1978. An Oil Pollution Prevention Abatement & Management Study for Penobscot Bay, Maine. Volume II, Chapters 6-7. Prepared for the State of Maine Department of Environmental Protection

Division of Oil Conveyance Services under Contract No. 907313.

⁴ Fandel, C. L., T.C. Lippmann, J.D. Irish, L.I.Brothers. 2016. Observations of Pockmark Flow Structure in Belfast, Bat, Maine. Part 1: Current-induced Mixing. Geo-Mar Lett.

The following assumptions have been made to describe the depth averaged tidal current range and seasonal stratification at the proposed discharge location within Belfast Bay:

- Tidal currents of 0.05 m/s for slack tide, 0.2 m/s for flood and ebb tide.
- Ambient density stratification for winter, spring, summer, and fall seasons as illustrated in Figure 1 and Figure 2 for the deep and shallow discharge location, respectively.

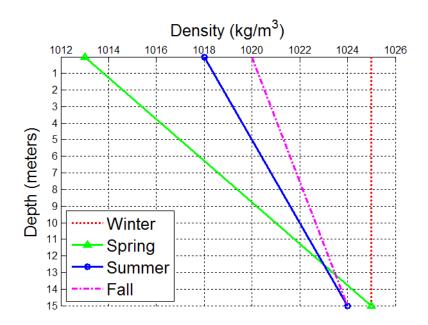


Figure 1. Assumed seasonal density profiles at deep discharge location

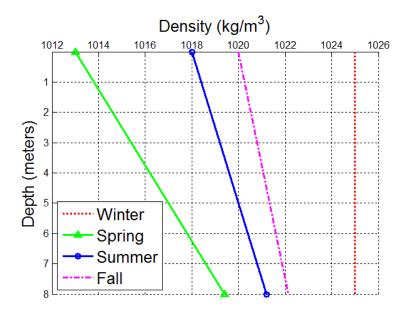


Figure 2. Assumed seasonal density profiles at shallow discharge location

RESULTS AND DISCUSSION

The range of ambient conditions and discharge locations results in a total of 32 unique CORMIX simulations for consideration with a single port discharge, or 16 unique simulations for the multiport diffuser. The results describing the predicted CORMIX flow class and near-field dilution for the single port discharges are listed in Table 1. Results for the multiport diffuser are listed in Table 2. Important plume characteristics given in Table 1 and Table 2 include the distance from the discharge port at 15 minutes travel time⁵, dilution at 15 minutes travel time, and the associated percent of initial concentration excess.

The dilution is the proportion of ambient water to effluent entrained in the plume. For example, if 1 liter of effluent is mixed with enough ambient water to make 10 liters of mixed water, the resulting dilution is 10. The percent initial concentration excess is related to the dilution by the following equation; it allows for easy estimation of the concentration of a specific wastewater constituents when the effluent concentration and background concentrations are known. For example, if the excess concentration (i.e. effluent concentration minus background concentration) is 100 mg/l, a 10% initial concentration excess would mean the concentration at the end of the near-field region is predicted to be 10 mg/l (above background).

$$C = Cs + \frac{1}{S}(Cd - Cs)$$

⁵ This distance is calculated along the portion of the plume centerline downstream from the discharge port. where upstream intrusion is predicted the length of the plume may approach twice this distance. Upstream intrusion is generally predicted when the ambient current speed is low relative to the influence of buoyancy. This tends to occur during simulations representative of slack tide conditions.

Where *C* is the concentration corresponding to dilution, *S*. *Cs* is the background concentration, and *Cd* is the effluent concentration⁶.

CORMIX input files, session reports and prediction files are available upon request.

Shallow Discharge Location

At the shallow discharge location CORMIX predicts the possibility of 3 different flow classifications for the range discharge and ambient configurations (classes H2, H4-90, and S3 for single port discharge, and MU6, MS1, MS4, and MU1V for the multi-port diffuser). It is likely that the discharge jet-plume will evolve through these different flow classes within the tidal cycle and throughout the seasons.

Shallow Single Port

For the single port discharge the H2 class occurs when the current speed is relatively high and discharge port is large, while the H4-90 class occurs for the smaller port size and at slack tides. In general, the "H" classes describe a jet/plume that is dominated by buoyancy in a relatively uniform ambient layer. This results in a plume that rises quickly after the discharge port and forms a layer at the water surface. For the H4-90 class, the plume may become attached to the bottom at times because the depth becomes relatively small when compared to the length of the initial jet, and the discharge is nearly horizontal. The S3 class, which describes a plume that becomes trapped below the surface within the ambient stratification, is only predicted during slack tides in the spring season when the stratification is strong, and currents are weak.

Shallow Multi-Port

The MU6 flow class is predicted for the multi-port diffuser at the shallow discharge location during the winter season for both slow and fast current speed. MU6 is also predicted during spring, summer, and fall when the current speed is low. MU6 describes a plume that becomes vertically mixed throughout the water column within the near field region as turbulence from the discharge jet dominates the relative unimportance of the stratification. In contrast, "MS" classes are predicted with stratification dominates resulting in buoyant plume that quickly rises after the point of discharge and becomes trapped below the surface within the ambient stratification. This occurs for both current speeds during the spring, and when currents are faster in the summer and fall. The MS4 class, which occurs in spring during slow currents, differs from the MS1 class in that significant upstream intrusion of the plume may occur. During the summer and fall when the current is faster, upstream intrusion of the trapped plume is prevented by the speed of the current.

Deep Discharge Location

Deep Single Port

At the deep discharge location CORMIX predicts the possibility of 6 flow classes (H1, H2, H4-90, S1, S3, S4, and S5). In general, the "H" classes describe a jet/plume that is dominated by

⁶ Fischer, H.B., E.J. List, R.C.Y. Koh, J.Imberger, N.H.Brooks, 1979. Mixing in Inland and Coastal Waters. Academic Press Inc., New York, NY. 483 p.

buoyancy in a relatively uniform ambient layer. This results in a plume that rises quickly after the discharge port and forms a layer at the water surface. At the deep discharge location these conditions primarily occur during the winter season when there is no stratification, and in the fall when stratification is weak and the smaller discharge port is used. In general, "S" classes describe a near-bottom discharge of buoyant plume that becomes trapped in the ambient stratification. The behavior can be qualitatively described by considering that a less dense effluent discharged into the ambient water will entrain ambient water lowering the density of the plume while it rises in the water column until it forms a stable layer where the density of the ambient water above the layer is less than the density of the plume. More detail of the behavior is elucidated by considering whether the plume is more jet like or plume like, and whether the ambient current dominates the jet/plume. In the S1 or S3 class the plume has a more jet like behavior, while S4 or S5 indicate a more plume like behavior. The more jet like conditions occur with the smaller port diameter, which tends to increase the dilution. The S1 or S4 classes occur when currents are stronger during flood or ebb tides indicating that the plume will be strongly deflected increasing dilution. The S3 or S5 classes occur during slack tide when some buoyant upstream intrusion of the plume is expected, tending to reduce dilution somewhat.

Deep Multi-Port

In general buoyancy is more important at the deep discharge location and plume behavior will be more stable because of the greater depth. When current speeds are fast during flooding or ebbing tides the deep multi-port diffuser is plume is classified the same as it is for the shallow discharge location. That is, a fully vertically mixed near-field plume during winter, and a trapped buoyant plume in the spring, summer, and fall seasons that is strongly deflected by the ambient current. When current speeds are low significant upstream intrusion is predicted. During slack tides in winter the plume is predicted to rise to the surface and intrude upstream (MU1V), while during slack tides in the other seasons the upstream intruding plume is expected to become trapped within the ambient stratification.

Location	Current (m/s)	Season	Port Diameter (m)	CORMIX Flow Class	Distance From Port [*] (m)	Dilution	% Initial Conc. Excess
Shallow	0.2	Winter	0.761	H2	182.2	51.5	2.0
Shallow	0.2	Winter	0.381	H4-90	183.9	51.1	2.0
Shallow	0.2	Spring	0.761	H2	182.0	73.5	1.4
Shallow	0.2	Spring	0.381	H4-90	185.9	83.0	1.2
Shallow	0.2	Summer	0.761	H2	182.6	60.7	1.7
Shallow	0.2	Summer	0.381	H4-90	187.9	72.8	1.4
Shallow	0.2	Fall	0.761	H2	182.6	60.2	1.7
Shallow	0.2	Fall	0.381	H4-90	184.8	56.9	1.8
Shallow	0.05	Winter	0.761	H4-90	46.3	7.7	13.0
Shallow	0.05	Winter	0.381	H4-90	83.9	48.7	2.1
Shallow	0.05	Spring	0.761	S3	47.5	7.3	13.9
Shallow	0.05	Spring	0.381	S3	48.7	14.8	6.8
Shallow	0.05	Summer	0.761	H4-90	66.3	24.1	4.2
Shallow	0.05	Summer	0.381	H4-90	82.6	32.8	3.0
Shallow	0.05	Fall	0.761	H4-90	46.5	7.2	13.9
Shallow	0.05	Fall	0.381	H4-90	83.6	38.7	2.6
Deep	0.2	Winter	0.761	H1	186.1	96.9	1.0
Deep	0.2	Winter	0.381	H2	187.0	116.4	0.9
Deep	0.2	Spring	0.761	S4	182.3	47.4	2.1
Deep	0.2	Spring	0.381	S1	184.8	79.6	1.3
Deep	0.2	Summer	0.761	S4	183.3	58.8	1.7
Deep	0.2	Summer	0.381	S1	186.1	97.3	1.0
Deep	0.2	Fall	0.761	S4	184.2	68.4	1.5
Deep	0.2	Fall	0.381	H2	187.4	106.8	0.9
Deep	0.05	Winter	0.761	H4-90	48.8	16.4	6.1
Deep	0.05	Winter	0.381	H4-90	91.3	104.9	1.0
Deep	0.05	Spring	0.761	S5	47.5	9.3	10.8
Deep	0.05	Spring	0.381	S 3	49.1	16.4	6.1
Deep	0.05	Summer	0.761	S5	48.6	13.0	7.8
Deep	0.05	Summer	0.381	S 3	50.9	20.6	4.9
Deep	0.05	Fall	0.761	S5	48.6	12.6	8.0
Deep	0.05	Fall	0.381	S3	52.2	24.0	4.2

 Table 1. CORMIX Results for Single Port Discharge at 15 minutes Travel Time

*straight line distance to plume centerline at 15 minutes travel time from port. In some cases, the plume may be significantly wider than this distance and may include upstream intrusion.

Location	Current (m/s)	Season	CORMIX Flow Class	Distance From Port [*] (m)	Dilution	% Initial Conc. Excess
Shallow	0.2	Winter	MU6	180.2	212.2	0.5
Shallow	0.2	Spring	MS1	190.5	50.3	2.0
Shallow	0.2	Summer	MS1	194.7	66.8	1.5
Shallow	0.2	Fall	MS1	197.6	80.9	1.2
Shallow	0.05	Winter	MU6	47.5	43.9	2.3
Shallow	0.05	Spring	MS4	53.5	13.5	7.5
Shallow	0.05	Summer	MU6	47.5	43.6	2.3
Shallow	0.05	Fall	MU6	47.5	43.7	2.3
Deep	0.2	Winter	MU6	180.6	350.1	0.3
Deep	0.2	Spring	MS1	192.2	56.9	1.8
Deep	0.2	Summer	MS1	195.5	72.1	1.4
Deep	0.2	Fall	MS1	197.8	84.3	1.2
Deep	0.05	Winter	MU1V	69.2	61.5	1.6
Deep	0.05	Spring	MS4	55.1	17.5	5.7
Deep	0.05	Summer	MS4	55.8	19.3	5.2
Deep	0.05	Fall	MS4	58.1	24.0	4.2

 Table 2. Summary of CORMIX Results for Diffuser at 15 minutes Travel Time

RECOMMENDATIONS

- In general, the results indicate that a reduced port size will lead to higher outlet velocity and increased initial dilution. It is recommended that the smaller port size be considered in design of the outfall, for either the single port or multi-port diffuser.
- The multi-port diffuser yields similar initial dilution as the single port with smaller outlet diameter. However, the behavior of the multi-port diffuser is more consistent at the different depths in terms of CORMIX flow classifications. This suggests the plume behavior from a multi-port diffuser may be less sensitive to the outfall location.
- The results presented here assume the discharge is occurring at full capacity. Discharge at a reduced rate at facility start up may require design modifications to achieve similar initial dilution at reduced discharge rates. The use of duckbill type check valves on the outfall ports may be considered to help maintain outlet velocities under a range of discharge flow rates. Furthermore, the use of a multi-port diffuser may facilitate a scaling up of the discharge flow rate as ports may be initially closed and then opened in sequence as the discharge capacity is increased.

- Site specific ambient conditions data should be collected during facility operations to evaluate whether observations are significantly different than model assumptions and predictions.
- The application of the CORMIX model in tidal environments is limited by an assumption of steady-state conditions. This precludes the ability of CORMIX to estimate long term dilution when it is possible for reversing tidal currents to recirculate the plume past the discharge location. Evaluation of the 2-dimensional far-field behavior of the plume and the potential for recirculation of discharged water and build up of effluent in the receiving water body is discussed in an additional memo that accompanies the Maine Pollutant Discharge Elimination System (MEPDES) Permit Application.





400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891, Fax (207) 772-3248

Byfield, Massachusetts 🛛 Portsmouth, New Hampshire 🖓 Hamilton, New Jersey 🖓 Providence, Rhode Island

www.ransomenv.com

Date:	October 2, 2018
To:	Nordic Aquafarms
From:	Nathan Dill, P.E.
Subject:	Far-field Dilution of Proposed discharge

This memorandum provides a summary of the estimated far-field plume behavior and dilution of wastewater discharge from the proposed Nordic Aquafarms Recirculating Aquaculture System (RAS) into Belfast Bay, Maine. Far-field transport, dispersion, and dilution of the RAS wastewater has been investigated through a combination of two-dimensional hydrodynamic modeling with the ADvanced CIRCulation Model (ADCIRC)¹ and numerical particle tracking with the Maureparticle² particle tracking model. Initial near-field dilution of the discharge was investigated with the <u>Cornell Mixing Zone Expert system</u> (CORMIX) model and is described in a separate memorandum³.

FAR-FIELD DILUTION APPROACH

Near-field dilution modeling performed with CORMIX assumes a steady-state for the RAS wastewater discharge and ambient conditions. In tidal environments where the ambient current may change significantly within a few hours, the steady-state assumption is only valid for near-field mixing processes on relatively short time scales (e.g. less than an hour or so). Furthermore, the near-field modeling with the steady-state assumption may overestimate long-term dilution because it does not consider the potential for recirculation of the discharge plume with tidal reversals. For example, a plume that develops during an ebbing tide may reverse direction and travel past the outfall during the following flood tide, effectively increasing the background concentration achieves a dynamic equilibrium condition where the rate of wastewater discharge is in balance with the flushing characteristics of the receiving waterbody and dispersion of the plume. To better understand far-field behavior of the wastewater plume, a two-dimensional hydrodynamic

¹ Luettich, R.A., J.J. Westering, N.W.Scheffner, 1992. "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts, and Estuaries, Report 1, Theory and Methodology of ADCIRC-2DDI and ADCIRC-3DL". Technical Report DRP-92-6, Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station

² Dill, N. L., 2007. "Hydrodynamic modeling of a hypothetical river diversion near Empire, Louisiana". LSU Master's Theses. 660. https://digitalcommons.lsu.edu/gradschool_theses/660

³ Ransom Consulting, 2018. Near-field Dilution of Proposed Discharge Update, Memorandum to Nordic Aquafarms, September 17, 2018.

modeling and particle tracking approach is employed. A numerical hydrodynamic model is used to estimate time-dependent and spatially variable depth averaged currents. The current velocity field from the hydrodynamic model is then used to drive a particle tracking model that is in turn applied to estimate dilution and concentrations.

TWO-DIMENSIONAL HYDRODYNAMIC MODELING

An existing ADCIRC model, previously developed by Ransom⁴, has been used to simulate tidal circulation in Belfast Bay to aid in evaluation of the far-field behavior of the effluent plume. ADCIRC is a state-of-the-art numerical model that solves the Generalized Wave Continuity Equation (GWCE) form of the Shallow Water Equations (SWE). The SWE are set of mathematical equations that govern the motion of fluid in the ocean and coastal areas through laws of conserved mass and momentum. ADCIRC employs the finite element method on an unstructured triangular computational grid that allows for high spatial resolution in coastal areas. ADCIRC's capabilities include simulation of water level and current velocity driven by astronomical tides, and wind and atmospheric pressure. ADCIRC has been applied in the 2-Dimensional Depth Integrated (2DDI) mode and has been forced with astronomic tides on the open ocean boundary and 280 cubic meters per second inflow at the Penobscot River Boundary. No wind forcing was included in the model simulation for this effort, which is generally considered to be conservative with respect to mixing processes. Figure 1 shows the extent of the model domain and inset detail of the model's triangular unstructured grid near the proposed outfall location.

ADCIRC Model Validation

The ADCIRC model was used to simulate tides during the period from June 20, 1999 to August 4, 1999 to provide a representative data set of tidal current velocities for this effort. This time period was selected because water level observations are available at the nearby National Oceanic and Atmospheric Administration National Ocean Service (NOAA NOS) station at Fort Point, Maine. The relative location of the Fort Point tide station and proposed outfall location is shown in Figure 2. A comparison of observed water levels to modeled water levels at the Fort Point Station is shown in Figure 3. In addition, a comparison of modeled water levels to harmonically predicted high and low tides at the subordinate NOS tide station at Belfast is shown in Figure 4. Visual inspection of the water level time series suggests good agreement between model results and observations. Although specific observations of tidal currents are not available in the vicinity of the proposed outfall location, the simulation of accurate water levels suggests that depth averaged current velocities are reasonable.

⁴ Ransom Consulting, Inc. 2017. Present and Future Vulnerability to Coastal Flooding at Grindle Point and the Narrows. Report prepared for the Town of Islesboro, Maine, August 21, 2017.

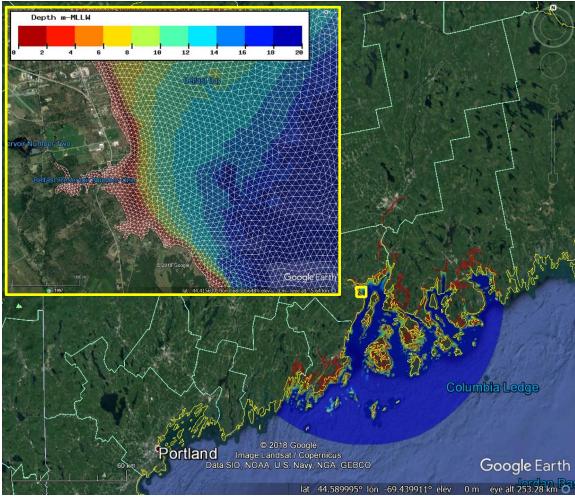


Figure 1. Penobscot Bay ADCIRC model domain and detail in Belfast Bay.



Figure 2. Location of NOAA NOS stations at Belfast (8415191) and Fort Point (8414721), and approximate location of proposed outfall.

NOAA 8414721 Fort Point

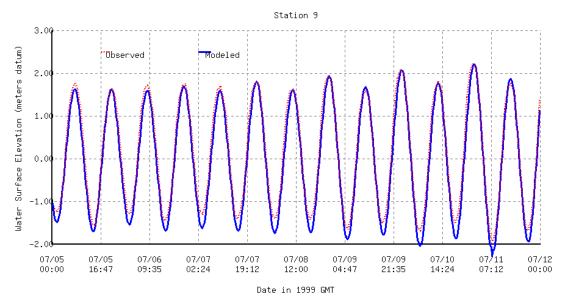


Figure 3. Comparison of modeled water level and observed hourly water level at NOS station 8414712 at Fort Point, Maine during a portion of the simulation period.

NOAA 8415191 Belfast

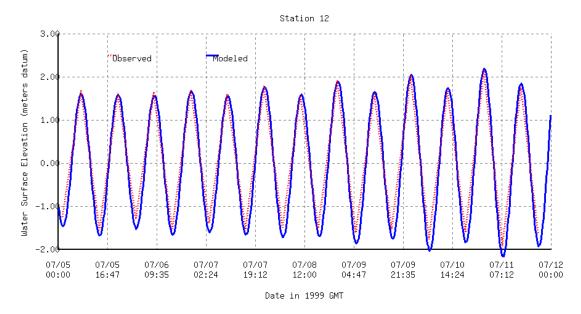


Figure 4. Comparison of modeled water level and harmonically predicted high-low tide data at NOS station 8415191 at Belfast, Maine during a portion of the simulation period.

PARTICLE TRACKING FAR-FIELD DILUTION

The particle tracking model was run with the following configuration and assumptions:

- Particles are released at a constant rate from the outfall location. Initial particle locations were randomly generated along a 50-meter line that extends east from -68.972526 degrees Longitude and 44.395004 degrees latitude. This release configuration is consistent with effluent discharge and initial dilution from the multi-port diffuser considered in the CORMIX modeling.
- Particles are released at a rate of 1 per 30 seconds over a period of 28 days, resulting in a total of 80640 particles that are tracked during the simulation.
- An effluent flow rate of 0.338 m³/s is assumed such that each particle represents the mass of effluent constituents (e.g. Total Nitrogen) contained within 10 m³ of effluent.
- A horizontal eddy diffusivity of $2 \text{ m}^2/\text{s}$ is simulated through random walk displacement.
- Particles are tracked using the 2nd order Runge-Kutta method to integrate the dynamic depth averaged current velocity field.
- For dilution calculations it is assumed that the plume will become well mixed within upper portion of the water column in far-field timescales, which is assumed to have a 10-meter thickness. This assumption is reasonable during stratified conditions in the warmer seasons of the year, and conservative during winter months when CORMIX predicts full vertical mixing.
- Dilution is calculated by counting the number of particles within each model grid element and dividing the effluent volume associated with the particles by the sum of ambient volume in the upper layer and effluent volume within grid element.

• Effluent Concentrations may be calculated using the following equation using initial and background concentrations listed in Table 1; where *C* is the concentration corresponding to dilution, *S*. *Cs* is the background concentration, and *Cd* is the effluent concentration⁵.

$$C = Cs + \frac{1}{S}(Cd - Cs)$$

- The effects of wind and/or waves on the mixing and current velocity field is neglected. Winds and waves tend to enhance turbulence, increasing mixing and dilution. Neglecting the effect of wind and waves tends to produce conservative estimates of dilution and plume concentrations.
- No uptake or decay of nutrients is considered, which is also considered to be conservative, as some level of uptake or decay is likely.

	Total Suspended Solids (TSS)	Biochemical Oxygen Demand (BOD)	Total Nitrogen (TN)	Ammonium Nitrogen (NH4)	Phosphorus (P)
Daily Discharge (kg)	185	162	673	0.07	5.8
Concentration (mg/l)	6.33	5.55	23.02	0.0024	0.20
Assumed Background Concentration (mg/l)	17	2.0	$0.17^{\dagger\pm}$	0.075^{\dagger}	0.013

Table 1. Effluent Concentrations for proposed discharge and background concentrations.

†Not detected at the reporting limit for all samples

±Background concentration as per communication with MEDEP

RESULTS AND DISCUSSION

Dilution of the proposed RAS wastewater was determined at hourly intervals throughout the 28day particle tracking simulation. Visualization of the model results show that after approximately 14 days of continuous release a dynamic equilibrium condition is reached where the rate of discharge is effectively balanced by diffusion and dispersion rates. Figure 5 shows a sequence of snapshots of the base 10 logarithm of the dilution throughout a typical tidal cycle near the end of the particle tracking simulation after the plume has had sufficient time to reach a dynamic equilibrium state. Although it varies somewhat throughout the tidal cycle and with neap and spring tidal phases, the minimum dilution near the center of the plume is approximately 30. The maximum dilution shown in the figure is approximately 300 at the edge of the colored area shown in Figure 5. Outside this area the dilution is greater. The dilution results may be used to estimate the concentration of RAS wastewater constituents using the above equation given effluent and background concentrations.

⁵ Fischer, H.B., E.J. List, R.C.Y. Koh, J.Imberger, N.H.Brooks, 1979. Mixing in Inland and Coastal Waters. Academic Press Inc., New York, NY. 483 p.

It is our understanding from communication with Maine DEP that there are no specific regulatory criteria for nutrient concentrations in Belfast Bay. However, recent investigations in the Great Bay Estuary by the New Hampshire Department of Environmental Services (NHDES) suggest that nitrogen may act as a limiting nutrient with respect to undesirable macroalgae and phytoplankton growth. NHDES also found correlation between nitrogen and dissolved oxygen concentrations suggesting a threshold above which nitrogen concentrations may lead to hypoxic conditions. Data from the Great Bay suggest that median total N concentrations should be less than 0.34-0.38 mg/l to prevent the replacement of eelgrass habitat with macroalgae growth. Furthermore, correlation of median total N concentrations with dissolved oxygen measurement suggests that total N should be less than or equal to 0.45 mg/l to prevent hypoxic conditions with dissolved oxygen concentrations less than 5 mg/l⁶. Although characteristics of the Great Bay Estuary are different than the Belfast Bay - with respect to temperature, freshwater input, tidal prism, and stratification, for example – the Great Bay criteria may be considered as guidance in the absence of specific criteria for Belfast Bay.

The State of Maine has identified two locations near the proposed outfall location where eelgrass beds are present. The location of eelgrass beds, the proposed outfall, and the median total N concentration are shown in Figure 6. The median total N concentration was determined by calculating total N concentration from hourly dilution snapshots over the final 14 days of the simulations. Values for each snapshot were then rank ordered and the 50th percentile was taken as the median.

Overall, the results indicate that the eelgrass beds will not be impacted by concentration greater than 0.3 mg/l and that the bay will not generally be exposed to total N concentrations greater than about 0.4 mg/l. However, it is important to understand that the model results are only an approximation based on numerous simplifying assumptions listed above. Actual conditions may vary from these assumptions such that actual concentrations are different than predicted. For the most part, conservative assumptions have been made so that the predicted concentrations will tend to be greater than concentrations influenced by real world conditions. For example, the model neglects the effects of wind and waves on the current velocity and mixing. These effects would tend to increase turbulence leading to increased diffusion and dispersion of the plume, and the reduce concentrations. Also, real world conditions will lead to uptake and decay of nutrients, which would tend to reduce concentrations compared to the model results where no decay has been assumed.

The information presented here is based entirely upon numerical modeling with limited knowledge of the in-situ conditions at the proposed outfall site. It is important to understand that hydrodynamic modeling is not an exact science. As such, any predictions presented here should be considered only as estimates of the proposed dilution and plume behavior. Numerous assumptions and simplifications have been made in this analysis, which contribute to significant uncertainty in the modeling results. In general, these simplifications and assumptions are reasonably conservative, such that errors would tend to over-predict negative impacts. However, it is possible that predictive error could under-estimate impacts. Thus, it is recommended that a

⁶ New Hampshire Department of Environmental Services. 2009. Numeric Nutrient Criteria for the Great Bay Estuary. Prepared by Philip Trowbridge, P.E., June 2009. 73 pages.

field data collection program be designed and implemented to provide site specific data for further analysis, and to validate the accuracy of model results.

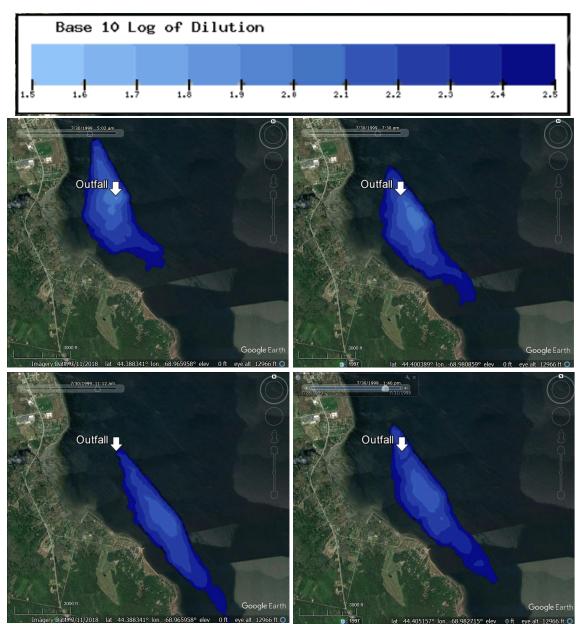


Figure 5. Snapshots of plume dilution throughout a typical tidal cycle. high slack (upper left), mid-ebb (upper right), low slack (lower left), mid-flood (lower right).



Attachment 13

RAMBOLL

ENVIRONMENT & HEALTH

MEMO

Project name	Belfast Bay Surface Water Discharge Assessment
Project no.	1690008668
Client	Nordic Aquafarms
То	Erik Heim (Nordic Aquafarms)
From	Derek Pelletier, Richard Wenning, Kyle Fetters

At the request of Nordic Aquafarms Inc. (NAF), Ramboll reviewed two technical memoranda prepared by Ransom Consulting Engineers and Scientists (Ransom) describing near-field and far-field dispersion modeling of discharge water from NAF's proposed salmon Recirculating Aquaculture System (RAS) facility in Belfast, Maine. Ransom's Near-field Dilution of Proposed Discharge memo was dated September 27, 2018, and the Far-field Dilution of Proposed discharge memo was dated October 2, 2018. This memorandum conveys Ramboll's findings.

Context for this Work

NAF is proposing to construct and operate the salmon RAS facility in two phases, with the first phase expected to be operational in approximately two years. During Phase 1, the facility is anticipated to produce 15,000 metric tons of salmon per year. Five years following completion of Phase 1, salmon production is expected to double during Phase 2 operation to approximately 30,000 metric tons annually. The anticipated volume of water discharged daily to Belfast Bay during Phase 1 operations is 3.85 million gallons per day (mgd) and NAF expects for that volume to double to 7.7 mgd during Phase 2 operations.

Water management is an important consideration for Phase 1 and 2 commercial operations. To achieve the optimal growth conditions for Atlantic salmon in their growth tanks, NAF proposes to draw ocean water from Belfast Bay and blend with a freshwater supply. A filtration system will manage water quality in the continuously circulating tanks by removing food debris and fish feces and adjusting important water quality parameters. The filtration system is designed to maintain water quality at optimal growth conditions such that the majority of the water used in the RAS can be recycled indefinitely. The RAS is not a completely closed water circulation system; some RAS fish tank water will be discharged – after filtration and treatment – in a controlled manner to Belfast Bay through an outfall located offshore from the Belfast facility.

Date October 16, 2018

Ramboll 136 Commercial Street Suite 402 Portland, ME 04101 USA

T +1 207 347 4413 F +1 207 347 4384 www.ramboll.com



As part of the permitting process for NAF's proposed facility, Ransom was tasked by NAF to conduct an analysis of the anticipated consequences associated with the release of water from the facility to Belfast Bay. Ransom's work addressed two important aspects – characterize the initial dispersion of discharge water in the immediate vicinity of the outfall (referred to as the near-field condition), and characterize the potential dispersion of nutrients (specifically, total nitrogen) in Belfast Bay, further away from the outfall (referred to as the far-field condition). Near-field dispersion of the discharge water was examined using the Cornell Mixing Zone Expert system (CORMIX) model. Far-field dispersion of discharge water from the outfall was examined using a combination of two-dimensional hydrodynamic modeling with the ADvanced CIRCulation Model (ADCIRC) and numerical particle tracking with the Maureparticle particle tracking model.

Focus of Ramboll's Review

Ramboll's experts in water quality modeling and US Clean Water Act compliance reviewed Ransom's two technical memoranda, focusing on evaluating the application and assumptions of the near-field and far-field models used to examine the potential influence of nitrogen¹ in the discharge water released to Belfast Bay during Phase 1 and 2 RAS operations. Ramboll focused on the following questions:

- Were the models used by Ransom the appropriate tools for their work objectives?
- Do the model assumptions appropriately reflect anticipated RAS operations?
- Were the characteristics of the Belfast Bay aquatic environment considered appropriately in the model?
- Are the model results pertaining to nitrogen applicable to the thresholds for protection of eelgrass beds and dissolved oxygen that were identified by the Maine Department of Environmental Protection (DEP)?

Ramboll did not independently replicate or validate Ransom's near-field and far-field model calculations for this review. Ramboll understands that Ransom's work was developed in consultation with Maine DEP; Ramboll did not participate in technical discussions between Ransom and Maine DEP regarding the development of model scenarios and selection of model assumptions.

Findings

1. Were the models used by Ransom the appropriate tools for their work objectives?

The ADCIRC and CORMIX models are appropriate for evaluating the questions of dispersion and transport of substances released from outfalls into an open water bay or ocean environment. Both models are commonly used to evaluate surface water discharges from outfalls.^{2,3} CORMIX is an appropriate tool to optimize outfall port design and discharge depth for rapid mixing of discharge waters with ambient surface waters. ADCIRC is an appropriate tool to examine the influence of tides and wind-driven water circulation on near shore activities that involve interaction with the marine environment.

¹ Ramboll's review focuses on total nitrogen discharges because nitrogen is typically the limiting nutrient in estuarine waters and is the primary cause of anthropogenic eutrophication and hypoxia in coastal waters (Howarth and Marino 2006).

² <u>http://www.cormix.info/applications.php</u>

³ <u>https://adcirc.org/</u>



2. Do the model assumptions appropriately reflect anticipated RAS operations?

The estimated discharge rates and effluent concentrations used in Ransom's modeling work are consistent with the estimates that we have been provided by NAF.

3. Were the characteristics of the Belfast Bay aquatic environment considered appropriately in the models?

The CORMIX model used to estimate near-field dispersion incorporated information on ambient conditions in Penobscot Bay and Belfast Bay from the available literature. Ransom acknowledges that "none of the available data to approximate ambient current conditions were collected specifically in the area of the proposed discharge in Belfast Bay." Given these constraints, Ransom's use of the closest available data is reasonable and appropriate.

The ADCIRC model used to examine far-field dispersion of discharge water appropriately characterized tidal conditions and water circulation patterns in Belfast Bay (shown in Ransom's Figures 3 and 4). The eelgrass beds located closest to the proposed outfall locations (Ransom's Figure 6) are consistent with those mapped by the Maine Department of Marine Resources based on aerial photos from 2001-2010.⁴ Finally, ambient water quality data are reportedly based on measured data recommended by Maine DEP (Ransom's Table 1). While the state of knowledge regarding the behavior of surface water in Belfast Bay and northern Penobscot Bay is limited (as acknowledged above by Ransom), the assumptions used in Ransom's modeling work are sufficiently conservative to capture reasonable and plausible worst-case aquatic conditions in the Bay.

4. Are the model results pertaining to nitrogen applicable to the thresholds for protection of eelgrass beds and dissolved oxygen that were identified by Maine DEP?

Ramboll finds that it is appropriate to compare ADCIRC model results describing total nitrogen to the thresholds for protection of eelgrass beds and dissolved oxygen⁵ that were identified by Maine DEP because both sets of values are representative of average conditions. Ransom calculated the estimated time averaged median concentrations of total nitrogen near the proposed outfall over the final 14 days of the model simulations. This is a reasonable and appropriate approach for calculating the central tendency of the predicted total nitrogen concentrations over time. The thresholds that Maine DEP identified to be protective of eelgrass beds and dissolved oxygen were derived from work conducted in southern New England coastal marine waters and based on average nitrogen concentrations (NHDES 2009, Benson et al. 2013). As such, the model results depicted in Figure 6 of Ransom's far-field memorandum are comparable to the threshold limits specified by Maine DEP.

The total nitrogen thresholds for the protection of eelgrass beds and dissolved oxygen conditions specified by Maine DEP as applicable to Belfast Bay are similar to the numeric thresholds used by Maine DEP to assess permits for water discharges from the City of Portland and City of South Portland wastewater treatment facilities (MEPDES Permit ME0102075 and Draft Permit ME0100633, respectively). The total nitrogen thresholds are based on environmental monitoring work conducted

⁴ <u>https://www.maine.gov/dmr/science-research/species/documents/6-upperpenbay.pdf</u>

⁵ Potential effluent impact on DO as defined by Maine DEP determined by a correlation of data from Great Bay, New Hampshire (NHDES 2009).



in Great Bay, NH, and in southern Massachusetts estuaries. Average surface water nitrogen concentrations at specific locations were correlated with eelgrass habitat metrics and dissolved oxygen conditions (NHDES 2009; Benson et al. 2013). The impacts associated with nitrogen loads in those ecosystems, however, are influenced by site-specific factors such as tidal exchange rates, freshwater flow rates, water depth, and stratification, among others. The embayments of southern Massachusetts and Great Bay, for example, are shallower and likely to have lower tidal exchange rates than in Belfast Bay. Estuaries with lower exchange rates (i.e., higher residence times) and shallow mixing depths tend to be more sensitive to total nitrogen loading than deep, well mixed estuaries (Evans and Scavia 2013). Extrapolating numeric threshold limits derived from one location to another is not an unusual regulatory approach, particularly where limits derived from examination of sensitive environmental conditions are applied to an environment with less sensitive environmental conditions. Still, while the application of nitrogen loads is conservative (i.e., protective), there is uncertainty associated with the numeric total nitrogen threshold.

Conclusion

Ramboll finds the analyses presented in Ransom's modeling memoranda are scientifically defensible; nitrogen concentrations and dissolved oxygen conditions associated with water releases from NAF's proposed offshore outfall during salmon RAS production are predicted to have minimal impacts on dissolved oxygen conditions and eelgrass beds in Belfast Bay. While modeled results are estimates, Ransom's work is sound and reflects reasonable and plausible worst-case conditions.

Ramboll agrees with Ransom's recommendation for field data collection to generate data to validate the model results. In addition, it would be reasonable to conduct baseline monitoring of water quality and eelgrass conditions at the two eelgrass bed locations identified in the far-field dispersion memo (Figure 6)⁶. After installation and operation of the outfall, monitoring could continue periodically until the influence of the discharge water has been sufficiently characterized.

References

- Benson, J.L., D. Schlezinger and B.L. Howes. 2013. Relationship between nitrogen concentration, light, and *Zostera marina* habitat quality and survival in southeastern Massachusetts estuaries. Journal of Environmental Management 131: 129–137.
- Evans, M., and D. Scavia. 2013. Exploring estuarine eutrophication sensitivity to nutrient loading. Limnology and Oceanography 58(2): 569–578.
- Howarth, R.W., and R. Marino. 2006. Nitrogen as the limiting nutrient for eutrophication in coastal marine ecosystems: Evolving views over three decades. Limnology and Oceanography 51(1): 364-376.

⁶ Any monitoring program should also include nearby reference sites for comparison because numerous factors can influence eelgrass health.



Maine Pollutant Discharge Elimination System (MEPDES). 2017. Proposed Draft Permit Number ME0100633. <u>https://www.epa.gov/sites/production/files/2017-</u> <u>08/documents/draftme0100633permit.pdf</u>

Maine Pollutant Discharge Elimination System (MEPDES). 2017. Final Permit Number ME0102075.

New Hampshire Department of Environmental Services (NHDES). 2009. Numeric Nutrient Criteria for the Great Bay Estuary. R-WD-09-12. June. <u>https://www.des.nh.gov/organization/divisions/water/wmb/wqs/documents/20090610_estuary_criteria.pdf</u>

General Application for WDL/MEPDES Permit Question #18 Attachment 14



Maine Aquaculture Water Quality Summary Belfast Bay Belfast, Maine

> Submitted By Normandeau Associates, Inc. 25 Nashua Road Bedford, NH 03110-5500 603.472.5191 www.normandeau.com

> > October 16, 2018

Normandeau Associates, Inc. • Corporate: 25 Nashua Rd., Bedford, NH 03110 • 603.472.5191



October 16, 2018 Project No. 23631.001

Elizabeth Ransom Ransom Environmental Pease International Tradeport 112 Corporate Drive Portsmouth, NH 03801

Electronically sent via email to elizabeth.ransom@ransomenv.com and drew.fuchs@ransomenv.com

Re: Water Quality Summary Belfast Bay Belfast, Maine

Dear Ms. Ransom:

Normandeau Associates, Inc. (Normandeau) is pleased to present the results of water quality sampling conducted in Belfast Bay at the proposed Nordic Aquaculture facility intake and discharge locations. Site visits were completed on August 23, 2018 and August 24, 2018 and again on September 7, 2018 consistent with our proposed scopes of work. Water quality data were collected by discrete depth samples submitted for laboratory analysis of multiple parameters as well as in-situ measurements with a YSI water quality data sonde. Samples and measurements were collected from the two proposed intake stations on August 23-24 and from the two proposed discharge stations on September 7. An additional water sample was also collected on September 7 and submitted for laboratory analysis from a location on the Little River below the lower reservoir dam. This report presents our methods for data collection, sampling locations, and results summaries. Original laboratory reports can provided upon request.

Thank you for the opportunity to work with you on this important project, please let me know if you have any questions or wish to discuss this further.

Sincerely,

Normandeau Associates, Inc.

Joel M Detty Project Manager



Introduction and Methods

Water quality data were collected in Belfast Bay at the proposed Nordic Aquaculture facility intake and discharge locations on August 23-24, 2018 and September 7, 2018. Samples and in-situ measurements were collected from two intake stations and two discharge stations along the proposed submerged intake/discharge pipe route Options 1 and 2A. Samples and in-situ measurements were collected at low tide and high tide at each station and consisted of water column profile measurements using a YSI 6920 water quality data sonde and water sample collection for laboratory analysis. Water samples were collected at discrete depths using a Kemmerer water sampler. Intake location sample were collected August 23-24, 2018 and discharge location samples were collected on September 7, 2018. A single water sample was also collected from the Little River below the lower reservoir dam at low tide on September 7, 2018.

A YSI 6920 multiparameter data sonde was used to record water quality profile readings and was calibrated before and after each sampling event as per manufacturer recommendations. A Kemmerer water sampler was used for collection of water samples and was cleaned with distilled water between each sample as per standard protocol for water quality sampling. As the Kemmerer sampler was unable to collect sufficient sample volume to fill all sample bottles with a single "grab", multiple samples had to be collected from each depth and composited in a clean plastic compositing container. Once the container was full, it was distributed into the individual sample containers which were then preserved and stored as per laboratory instructions. The compositing container was reused for all samples and was cleaned using the same protocol as the Kemmerer water sampler. Nitrile gloves were used during sample collection and were changed after each sample. Laboratory samples were transferred to Alpha Analytical Laboratory in Portsmouth, NH at the end of each sample day within the recommended hold times for all analytes.

Garmin and Trimble GPS units were used to navigate to each station and to mark the location where data collection occurred.

Intake Stations

Two intake stations, Station 1 (intake/discharge pipe Option 1) and Station 2 (intake/discharge pipe Option 2A) were located at the terminus of the proposed pipe routes (See Figure 1). Water quality data was collected from both stations on August 23, 2018 during low tide and on August 24, 2018 at high tide. Before water quality data could be collected, a depth of at least 55 ft. was required at each station. During high tide, a depth of 56 feet was reached at both stations; however, during the low tide samples the observed depth at both stations was approximately 50 ft. Once anchored on station for sampling, a GPS point was recorded to mark the sampling location.

Water Quality Profile Readings

Water quality profile readings were recorded during low tide at Station 2 on August 23, 2018 at 14:36 and at Station 1 at 15:31. The predicted low tide in Belfast Bay on August 23, 2018 was at 15:48. High tide water quality profiles were recorded at Station 2 on August 24, 2018 at 10:00 and at 11:35 at Station 1. The predicted high tide in Belfast Bay on August 24, 2018 was at 10:35. A duplicate reading was also taken at Station 2 at 10:21 as quality control field duplicate. The duplicate reading consisted



of restarting the YSI after the initial profile reading then repeating the standard water quality profile procedure to perform a duplicate measurement. Profile readings were recorded beginning at 0.5 meters below the surface of the water and then repeated every meter down through the profile where the following parameters were recorded: Temperature, Turbidity, pH, Depth, Dissolved oxygen (mg/L and % saturation), Salinity (not recorded on August 23), and Specific Conductance. At both Station 1 and 2 during low tide, YSI readings were recorded to a depth of 15 meters and during high tide to a depth of 17 meters. YSI profile readings for both intake stations are presented in Tables 1 and 2.

Sample Collection

After water quality profiles were complete, water samples were collected for laboratory analysis. Using a Kemmerer water sampler, a total of four samples were collected throughout the water column at each station. In addition, one field duplicate sample was collected as a quality control. At both stations, the upper samples were collected at a depth of 0.5 meters and the bottom samples were collected approximately 10 feet (3 meters) above the bed surface with two samples collected at equal intervals in between the upper and lower samples. During low tide on August 23, 2018 (predicted low tide at 15:48), samples were collected at 14:59 from Station 2 and at 16:00 from Station 1 at the following depths: 0.5 meters, 4.0 meters, and 12 meters. During high tide on August 24, 2018 (predicted high tide at 10:35), samples were collected at 10:59 from Station 2 and at 12:00 from Station 1 at the following depths: 0.5 meters, 4.0 meters, 8.0 meters, 8.0 meters, and 12 meters. A duplicate sample was collected at Station 2 at 5.0 meters. Samples were analyzed for total suspended solids, nitrogen-ammonia, nitrogen-nitrate/nitrite, total nitrogen, nitrogen-TKN, total phosphorus, chemical oxygen demand and BOD 5-day. Sample collection data and results for both intake stations are presented in Tables 4 and 5.



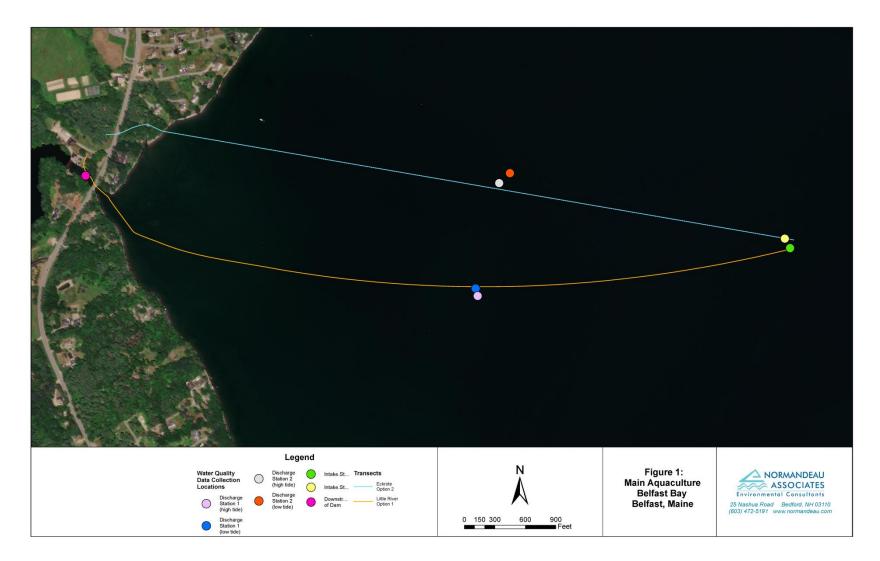


Figure 1. Sampling stations map



Discharge Stations

Two discharge stations, Station 1 (intake/discharge pipe Option 1) and Station 2 (intake/discharge pipe Option 2A) were located along the proposed pipe routes (See Figure 1) closer to shore and in shallower water than the intake stations. Water quality data were collected from both discharge stations on September 7, 2018 during low and high tide conditions. Before water quality data could be collected at high tide, a depth of at least 40 feet was required at each station and 30 feet at each station during low tide. During high tide, a depth of 42 feet was measured at Station 1 and 44 feet at Station 2, while at low tide a depth of 32 feet was measured at Station 1 and 35 feet at Station 2. Once anchored on station, a GPS point was recorded to mark the sampling location. For the discharge stations, 4 GPS points were recorded to mark the sampling locations – i.e. 1 point for each station at high tide and low tide (See Figure 1).

Water Quality Profile Readings

Water quality profile readings were recorded during high tide on September 7, 2018 at Station 1 at 9:00 and at Station 2 at 11:16. The predicted high tide in Belfast Bay on September 7, 2018 was at 9:12. Before water quality profiles were recorded at Station 1, the dissolved oxygen probe was replaced due to an equipment failure and the YSI meter was recalibrated. During low tide on September 7, 2018, YSI profile readings were recorded at Station 1 at 14:39 and at 15:42 at Station 2. The predicted low tide in Belfast Bay on August 23, 2018 was at 15:14. A field duplicate reading was also taken at Station 1 at 14:52. As mentioned previously, this was done by restarting the YSI sonde after the initial profile readings were recorded beginning at 0.5 meters below the surface of the water and then repeated every meter down through the water column with the following parameters measured and recorded: Temperature, Turbidity, pH, Depth, Dissolved oxygen (mg/L and % saturation), Salinity, Specific Conductance. At Station 1 during high tide, YSI readings were recorded to a bottom depth of 13 meters and during low tide to a bottom depth of 9 meters while at Station 2, readings were recorded to a bottom depth of 9 meters while at Station 2, readings were quality profile readings for both intake stations are presented in Table 3.

Sample Collection

After water quality profiles were complete, water samples were collected for laboratory analysis. Using a Kemmerer water sampler, a total of four samples were collected throughout the water column at each station. In addition, one field duplicate sample was collected as a quality control. At both stations, the upper samples were collected at a depth of 0.5 meters and the bottom samples were collected approximately 10 feet (3 meters) from the bed surface with two samples collected at equal intervals in between the upper and lower samples. During high tide on September 7, 2018 (predicted high tide at 9:12), samples were collected at 9:42 from Station 1 and at 11:35 from Station 2 at the following depths: 0.5 meters, 4.0 meters, 7.0 meters, and 10.0 meters. During low tide on September 7, 2018 (predicted low tide at 15:14), samples were collected at 15:08 from Station 1 and at 16:11 from Station 2 at the following depths: 0.5 meters, 3.0 meters, 5.0 meters, and 7.0 meters. A duplicate



sample was collected at Station 1 at 5.0 meters. Samples were analyzed for total suspended solids, nitrogen-ammonia, nitrogen-nitrate/nitrite, total nitrogen, nitrogen-TKN, total phosphorus, chemical oxygen demand and BOD 5-day. Sample collection data and results for both discharge stations are presented in Table 6.

Little River Sample

One sample was collected from the Little River immediately below the lower reservoir dam located off Route 1 during ebb conditions at 13:26 on September 7, 2018 (predicted low tide was at 15:14). The sample was collected approximately 50 feet downstream from the dam in a small channel of running water flowing towards Belfast Bay. As it was an ebbing tide, there did not appear to be any inflow from the bay. The sample was analyzed for nitrogen-nitrate/nitrite, total nitrogen, nitrogen-TKN, and total phosphorus. These results are presented in Table 6.



Table 1. Summary of Water Quality Readings Taken at Intake Locations on August 23, 2018 in Belfast Bay,Belfast, Maine

STATION 1	<u>Temperature</u> (°C)	<u>Specific</u> <u>Conductivity</u> (μmhos/cm)	<u>рН</u> (units)	<u>DO</u> (mg/L)	<u>DO</u> (%)	<u>Turbidity</u> (ntu)
15:31, Low Tide, depth in meters						
0.5	18.96	44,586	8.18	9.02	113.7	0.00
1.0	18.90	44,645	8.17	9.11	116.4	0.00
2.0	18.75	44,696	8.17	9.29	116.8	0.00
3.0	18.41	44,893	8.18	9.61	121.9	0.00
4.0	15.40	47,702	8.07	9.01	108.1	0.00
5.0	15.06	47,765	8.04	8.76	108.9	0.00
6.0	14.65	48,151	8.02	8.76	104.2	0.00
7.0	14.06	48,588	7.98	8.68	97.3	0.00
8.0	12.57	49,040	7.82	7.56	86.5	0.00
9.0	11.69	49,349	7.71	6.02	70.5	0.00
10.0	11.29	49,483	7.71	6.00	67.1	0.00
11.0	11.25	49,517	7.70	6.09	68.1	0.00
12.0	11.29	49,557	7.75	6.01	67.9	0.00
13.0	11.31	49,572	7.77	6.33	71.0	0.00
14.0	11.33	49,583	7.77	6.32	70.8	0.00
15.0	11.35	49,596	7.79	6.17	71.1	0.00



STATION 2	<u>Temperature</u> (°C)	<u>Specific</u> <u>Conductivity</u> (μmhos/cm)	<u>рН</u> (units)	DO (mg/L)	<u>DO</u> (%)	<u>Turbidity</u> (ntu)
14:36, Low Tide, depth in meters						
0.5	18.84	44,544	8.14	9.19	113.5	0.00
1.0	18.84	44,537	8.13	9.23	118.3	0.00
2.0	18.79	44,607	8.13	9.12	120.3	0.00
3.0	18.13	44,800	8.14	8.83	111.6	0.00
4.0	17.90	45,018	8.15	9.77	123.1	0.00
5.0	15.19	47,511	8.01	9.35	109.5	0.00
6.0	14.99	47,834	8.02	8.26	107.9	0.00
7.0	13.75	48,333	7.90	7.58	98.6	0.00
8.0	12.63	48,902	7.8	7.25	84.1	0.00
9.0	11.47	49,362	7.68	6.23	66.4	0.00
10.0	11.50	49,379	7.69	6.16	69.6	0.00
11.0	11.25	49,470	7.72	6.44	72.8	0.00
12.0	11.25	49,500	7.73	6.18	69.0	0.00
13.0	11.29	49,532	7.75	6.22	68.8	0.00
14.0	11.30	49,550	7.77	6.15	69.0	0.00
15.0	11.31	49,555	7.76	6.43	71.6	0.00



Table 2. Summary of Water Quality Readings Taken at Intake Locations on August 24, 2018 in Belfast Bay,Belfast, Maine

STATION 1	<u>Temperature</u> (°C)	<u>Specific</u> <u>Conductivity</u> (μmhos/cm)	<u>pH</u> (units)	<u>DO</u> (mg/L)	<u>DO</u> (%)	<u>Turbidity</u> (ntu)
11:35, High Tide, depth in meters						
0.5	18.73	44,301	8.11	9.42	119.6	0.00
1.0	19.26	44,192	8.10	9.49	119.5	0.00
2.0	18.01	44,511	8.09	9.49	121.3	0.00
3.0	17.70	44,712	8.08	9.23	115.9	0.00
4.0	16.71	45,597	8.00	8.96	107.8	0.00
5.0	15.18	46,999	7.96	8.81	105.6	0.00
6.0	14.02	47,412	7.86	7.89	93.5	0.00
7.0	13.31	48,235	7.86	7.87	91.4	0.00
8.0	13.00	48,385	7.84	7.26	79.8	0.00
9.0	12.87	48,450	7.83	7.25	83.6	0.00
10.0	12.25	48,532	7.77	7.00	79.8	0.00
11.0	11.84	48,649	7.73	6.63	74.6	0.00
12.0	11.48	48,819	7.75	6.51	72.9	0.00
13.0	11.46	48,815	7.76	6.37	71.3	0.00
14.0	11.41	48,835	7.76	6.15	68.8	0.00



15.0	11.41	48,835	7.76	6.34	70.9	0.00
16.0	11.42	48,847	7.77	6.32	69.9	0.00
17.0	11.42	48,848	7.77	6.38	71.4	0.00
STATION 2	<u>Temperature</u>	<u>Specific</u> <u>Conductivity</u>	<u>pH</u>	DO	DO	Turbidity
	(°C)	(µmhos/cm)	(units)	(mg/L)	(%)	(ntu)
10:00, High Tide, depth in meters						
0.5	18.26	44,366	8.10	7.64	96.3	0.00
1.0	18.17	44,401	8.13	7.56	95.1	0.00
2.0	18.00	44,440	8.15	7.77	97.7	0.00
3.0	17.85	44,538	8.15	7.86	99.0	0.00
4.0	17.49	45,028	8.13	7.66	95.3	0.00
5.0	15.10	46,832	7.96	7.28	87.1	0.00
6.0	14.76	47,255	7.98	6.72	80.1	0.00
7.0	13.51	47,659	7.88	6.06	70.6	0.00
8.0	12.92	48,748	7.87	6.10	72.0	0.00
9.0	11.91	48,639	7.78	5.64	63.7	0.00
10.0	11.52	48,810	7.77	5.58	62.2	0.00
11.0	11.51	44,818	7.77	5.23	58.6	0.00
12.0	11.47	48,812	7.78	5.41	61.4	0.00
13.0	11.47	48,849	7.79	5.60	62.8	0.00
14.0	11.43	48,855	7.78	5.56	61.3	0.00



15.0	11.43	48,867	7.78	5.49	61.0	0.00
16.0	11.43	48,812	7.79	5.38	60.3	0.00
17.0	11.43	48,880	7.79	5.48	61.4	0.00
10:21, High Tide,						
depth in meters			-			
0.5 (duplicate)	18.39	44,393	8.14	7.33	92.7	0.00
1.0 (duplicate)	18.45	44,440	8.14	7.30	92.1	0.00
2.0 (duplicate)	18.02	44,521	8.15	6.76	84.8	0.00
3.0 (duplicate)	17.91	44,590	8.14	7.07	89.1	0.00
4.0 (duplicate)	17.70	44,692	8.14	6.59	82.5	0.00
5.0 (duplicate)	15.67	46,477	8.00	6.83	82.4	0.00
6.0 (duplicate)	14.65	47,149	7.98	6.62	78.6	0.00
7.0 (duplicate)	13.31	47,767	7.87	5.82	67.4	0.00
8.0 (duplicate)	12.64	48,571	7.85	5.35	61.3	0.00
9.0 (duplicate)	12.05	48,605	7.77	5.15	58.2	0.00
10.0 (duplicate)	11.52	48,818	7.77	4.99	56.2	0.00
11.0 (duplicate)	11.48	48,801	7.79	5.27	60.5	0.00
12.0 (duplicate)	11.48	48,821	7.79	5.09	57.3	0.00
13.0 (duplicate)	11.44	48,864	7.78	5.12	57.4	0.00
14.0 (duplicate)	11.42	48,871	7.79	5.09	56.9	0.00
15.0 (duplicate)	11.42	48,881	7.79	5.17	56.2	0.00
16.0 (duplicate)	11.43	48,859	7.79	5.25	58.7	0.00
17.0 (duplicate)	11.43	48,869	7.79	5.17	57.9	0.00



Table 3. Summary of Water Quality Readings Taken at Discharge Locations on September 7, 2018 in BelfastBay, Belfast, Maine

STATION 1	<u>Temperature</u> (°C)	<u>Specific</u> <u>Conductivity</u> (μmhos/cm)	<u>рН</u> (units)	<u>DO</u> (mg/L)	<u>DO</u> (%)	<u>Turbidity</u> (ntu)
9:00, High Tide, depth in meters						
0.5	18.23	44,242	7.95	8.78	110.1	0.00
1.0	18.15	44,271	7.94	8.67	108.9	0.00
2.0	18.14	44,260	7.93	8.63	108.5	0.00
3.0	18.13	44,280	7.92	8.61	108.3	0.00
4.0	18.13	44,325	7.92	8.59	107.9	0.00
5.0	18.11	44,322	7.92	8.55	107.4	0.00
6.0	17.98	44,409	7.91	8.48	106.7	0.00
7.0	16.02	46,307	7.81	8.34	101.5	0.00
8.0	15.71	46,436	7.78	7.95	96.0	0.00
9.0	15.17	46,779	7.76	7.81	93.6	0.00
10.0	14.60	47,072	7.73	7.65	90.7	0.00
11.0	13.87	47,465	7.64	7.10	82.4	0.00
12.0	13.39	47,701	7.64	6.35	73.4	1.20
13.0	13.05	47,840	7.62	6.03	69.5	2.50



14:39, Low Tide, depth						
in meters			T	ſ	1	
0.5	18.75	44,302	7.91	8.71	110.9	0.00
1.0	18.77	44,294	7.91	8.71	110.7	0.00
2.0	18.28	44,327	7.92	8.83	111.3	0.00
3.0	17.91	44,718	7.89	8.75	109.4	0.00
4.0	17.52	45,375	7.88	8.71	108.5	0.00
5.0	16.91	45,892	7.86	8.69	107.0	0.00
6.0	16.50	45,967	7.80	8.10	99.4	0.00
7.0	16.12	46,245	7.78	7.95	96.8	0.00
8.0	15.63	46,527	7.75	7.79	94.1	0.00
9.0	14.56	47,117	7.69	7.53	89.1	0.00
14:52, Low Tide, depth						
in meters						
0.5 (duplicate)	18.78	44,311	7.96	8.55	108.8	0.00
1.0 (duplicate)	18.74	44,316	7.93	8.61	109.6	0.00
2.0 (duplicate)	18.31	44,350	7.93	8.75	110.4	0.00
3.0 (duplicate)	17.88	44,762	7.90	8.68	108.7	0.00
4.0 (duplicate)	17.39	45,485	7.89	8.68	108.1	0.00
5.0 (duplicate)	17.05	45,844	7.89	8.69	107.5	0.00
6.0 (duplicate)	16.49	46,006	7.81	8.30	100.7	0.00
7.0 (duplicate)	16.04	46,322	7.78	7.93	96.4	0.00
8.0 (duplicate)	15.45	46,681	7.75	7.72	92.7	0.00



9.0 (duplicate)	14.45	47,191	7.68	7.25	85.8	0.00
STATION 2	<u>Temperature</u> (°C)	<u>Specific</u> <u>Conductivity</u> (μmhos/cm)	<u>pH</u> (units)	<u>DO</u> (mg/L)	<u>DO</u> (%)	<u>Turbidity</u> (ntu)
11:16, High Tide, depth in meters			, ,			
0.5	18.72	44,329	7.94	8.64	109.6	0.00
1.0	18.58	44,334	7.94	8.62	109.3	0.00
2.0	18.36	44,327	7.95	8.65	109.2	0.00
3.0	18.28	44,334	7.95	8.65	109.1	0.00
4.0	18.20	44,370	7.95	8.66	109.1	0.00
5.0	18.15	44,435	7.94	8.63	108.4	0.00
6.0	16.97	45,632	7.88	8.42	103.9	0.00
7.0	16.76	45,915	7.88	8.38	103.3	0.00
8.0	16.65	46,046	7.89	8.40	103.4	0.00
9.0	15.93	46,435	7.85	8.35	101.2	0.00
10.0	15.57	46,608	7.85	8.22	99.3	0.00
11.0	14.3	47,312	7.73	7.62	89.1	0.00
12.0	13.61	47,601	7.64	6.71	77.2	0.60
13.0	12.85	48,005	7.61	6.23	71.5	1.80
14.0	12.83	47,817	7.44	5.98	68.5	no data
15:42, Low Tide, depth in meters						



0.5	18.59	44,359	7.93	8.72	110.6	0.00
1.0	18.59	44,361	7.93	8.73	110.7	0.00
2.0	18.57	44,360	7.93	8.73	110.7	0.00
3.0	18.12	44,584	7.93	8.83	111.1	0.00
4.0	17.83	45,061	7.90	8.72	109.3	0.00
5.0	17.60	45,663	7.92	8.76	109.7	0.00
6.0	17.24	45,895	7.91	8.79	109.3	0.00
7.0	15.89	46,047	7.80	8.09	98.1	0.00
8.0	15.35	46,785	7.79	8.02	96.8	0.00
9.0	15.93	46,954	7.71	7.53	89.1	0.00
10.0	13.99	47,407	7.59	6.59	76.0	0.00
11.0	13.60	47,593	7.57	6.32	73.4	1.40



Table 4. Summary of Results of Laboratory Analyses of Water Quality Samples Collected from Intake Locations onAugust 23, 2018 in Belfast Bay, Belfast, Maine

STATION 1	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxygen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
16:00, Low Tide								
0.5 meters	10.0	<0.024	<0.033	<0.30	0.195	0.012	1200	<2.0
4.0 meters	14.0	<0.024	<0.033	<0.30	0.225	0.012	640	<2.0
8.0 meters	13.0	<0.024	<0.033	<0.30	0.196	0.009	900	<2.0
12 meters	12.0	<0.024	<0.033	<0.30	0.172	0.014	1200	<2.0
STATION 2	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxtgen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
14:59, Low Tide								
0.5 meters	11.0	<0.024	<0.033	<0.30	0.221	0.013	1200	<2.0
4.0 meters	45.0	0.031	<0.033	<0.30	0.242	0.012	680	<2.0
8.0 meters	17.0	0.025	<0.033	<0.30	0.273	0.017	1200	<2.0
12 meters	13.0	<0.024	<0.033	<0.30	0.192	0.013	750	<2.0



Table 5. Summary of Results of Laboratory Analyses of Water Quality Samples Collected from Intake Locationson August 24, 2018 in Belfast Bay, Belfast, Maine

STATION 1	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxygen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
12:00, High Tide (AM)								
0.5 meters	9.6	<0.024	0.090	<0.30	0.185	0.012	790	<2.0
5.0 meters	8.6	<0.024	<0.033	<0.30	0.191	0.012	960	<2.0
9.5 meters	11.0	<0.024	<0.033	<0.30	0.188	0.021	900	<2.0
14.0 meters	11.0	<0.024	0.11	<0.30	0.183	0.019	1300	<2.0
STATION 2	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxtgen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
10:59, High Tide (AM)		•						
0.5 meters	10.0	0.039	0.095	<0.30	0.194	0.012	1000	<2.0
5.0 meters	9.2	<0.024	0.10	<0.30	0.235	0.013	810	<2.0
5.0 meters (duplicate)	9.4	<0.024	<0.033	<0.30	0.223	0.013	750	<2.0
9.5 meters	8.5	<0.024	<0.033	<0.30	0.202	0.017	1200	<2.0
14.0 meters	11.0	0.045	0.097	<0.30	0.182	0.024	770	<2.0



Table 6. Summary of Results of Laboratory Analyses of Water Quality Samples Collected from DischargeLocations and Dam on September 7, 2018 in Belfast Bay, Belfast, Maine

STATION 1	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxygen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
9:42, High Tide (AM)								
0.5 meters	8.5	<0.024	< 0.033	0.42	0.418	0.013	1100	<2.0
4.0 meters	8.8	0.024	< 0.033	0.78	0.780	0.009	1000	<2.0
7.0 meters	8.6	<0.024	<0.033	0.53	0.531	0.016	1400	<2.0
10 meters	9.0	<0.024	0.046	0.32	0.321	0.015	1100	<2.0
15:08, Low Tide (PM)								
0.5 meters	7.5	<0.024	<0.033	<0.30	0.195	0.015	670	<2.0
3.0 meters	7.8	<0.024	0.034	<0.30	0.238	0.014	860	<2.0
5.0 meters	6.9	<0.024	<0.033	<0.30	0.198	0.012	660	<2.0
5.0 meters (duplicate)	9.5	<0.024	<0.033	<0.30	0.204	0.010	800	<2.0
7.0 meters	10.0	<0.024	<0.033	<0.30	0.142	0.016	750	<2.0
STATION 2	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxtgen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
11:35, High Tide (AM)								



0.5 meters	7.7	<0.024	<0.033	<0.30	0.259	0.010	1400	<2.0
4.0 meters	9.4	<0.024	0.052	<0.30	0.153	0.014	720	<2.0
7.0 meters	7.4	<0.024	<0.033	<0.30	0.274	0.010	720	<2.0
10 meters	9.4	<0.024	< 0.033	0.33	0.333	0.016	800	<2.0
16:11, Low Tide (PM)								
0.5 meters	7.2	<0.024	0.036	<0.30	0.226	0.011	770	<2.0
3.0 meters	7.1	<0.024	< 0.033	<0.30	0.247	0.011	690	<2.0
5.0 meters	9.0	<0.024	< 0.033	0.48	0.476	0.009	1000	<2.0
7.0 meters	9.3	0.034	<0.033	0.38	0.376	0.014	900	<2.0
BELOW DAM	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Total Nitrogen	Nitrogen, Total Kjeldahl	Phosphorus, Total	Chemical Oxtgen Demand	BOD 5- day
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
13:26, Ebbing Tide (PM)								
Downstream	No data	No data					No data	No data
side of dam	collected	collected	0.036	0.48	0.480	0.021	collected	collected

General Application for WDL/MEPDES Permit Public Notice Certification Attachment 15



Nordic Aquafarms Inc 511 Congress Street Portland, ME 04101

www.nordicaquafarms.com

October 16, 2018

Mr. Kevin Martin Commissioner's Office Maine Department of Environmental Protection 17 State House Station Augusta, ME 04333-0017

Dear Mr. Martin:

This letter authorizes Attorney Joanna B. Tourangeau of Drummond Woodsum and Elizabeth Ransom of Ransom Consulting to act as agents on behalf of Nordic Aquafarms, Inc. in connection with any applications being filed with the Department of Environmental Protection for Nordic Aquafarms project in Belfast, Maine. These applications include, but are not limited to applications pursuant to Maine statutes implementing the MEPDES Program, the Site Law, and the Natural Resource Protection Act and any other related applications that may be required for this project.

Thank you for your attention to this matter.

Sincerely,

Éric Heim President



General Application for WDL/MEPDES Permit Public Notice Certification Attachment 16

Todd McLeod | Print Sales Manager

September 24, 2018 AFFIDAVIT OF PUBLICATION

This is to certify the advertising

OF: Drummond Woodsum

RE: Notice of Intent to File - Nordic Aquafarms

ON: September 21, 2018

Signed:

Todd McLeod Print Sales Manager

Then personally appeared the above named Todd McLeod, Print Sales Manager, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me.

bue

Barbara G. Mower Notary Public My commission expires November 9, 2024

bangordailynews.com P.O. Box 1329 | Bangor, ME 04402-1329 | 207-990-8000 | 800-432-7964

> BARBARA G. MOWER Notary Public State of Maine My Commission Explres November 9, 2024

Legal Notices NOTICE OF INTENT TO FILE MAINE WASTE DISCHARGE LICENSE/MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION AND NOTICE OF PUBLIC INFORMATIONAL MEETING

Please take note that, pursuant to 38 MRSA, Sections 413 and 414-A, Nordic Aquafarms intends to file a wastewater discharge permit application with the Department of Environmental Protection (DEP). This application is for the discharge of up to 7.7 million gallons per day of wastewater from land based aquaculture to Penobscot Bay in Belfast, Maine. The application will be filed on or about October 19, 2018 and will be available for public inspection at DEP's Augusta office during normal business hours. A copy may also be seen at the municipal offices in Belfast, Maine.

Please take note that, pursuant to Chapter 2 of the Department of Environmental Protection Rules, Nordic Aquafarms intends to hold a **Public Informational Meeting on October 4, 2018 at 6:00 p.m. at the Troy A. Howard Middle School, 173 LincoInville Ave, Belfast, ME 04915.** The applicant will inform the public of the project and its anticipated environmental impacts, along with information about opportunities for public comments on the project.

A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing, or 30 days from the date of this notice, whichever is longer. Requests shall state the nature of the issue(s) to be raised. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is conflicting technical information.

During the time specified above, persons wishing to receive copies of draft permits and supporting documents, when available, may request them from DEP. Persons receiving a draft permit shall have 30 days in which to submit comments or to request a public hearing on the draft.

Public comment will be accepted until a final administrative action is taken to approve, approve with conditions or deny this application. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 043330017. Telephone: (207) 287-3901.

Sept. 21, 2018

Legal Notices

NOTICE OF INTENT TO FILE MAINE WASTE DISCHARGE LICENSE/MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION AND NOTICE OF PUBLIC INFORMATIONAL MEETING

Please take note that, pursuant to 38 MRSA, Sections 413 and 414-A, Nordic Aquafarms intends to file a wastewater discharge permit application with the Department of Environmental Protection (DEP). This application is for the discharge of up to 7.7 million gallons per day of wastewater from land based aquaculture to Penobscot Bay in Belfast, Maine. The application will be filed on or about October 19, 2018 and will be available for public inspection at DEP's Augusta office during normal business hours. A copy may also be seen at the municipal offices in Belfast, Maine.

Please take note that, pursuant to Chapter 2 of the Department of Environmental Protection Rules, Nordic Aquafarms intends to hold a Public Informational Meeting on October 4, 2018 at 6:00 p.m. at the Troy A. Howard Middle School, 173 LincoInville Ave, Belfast, ME 04915. The applicant will inform the public of the project and its anticipated environmental impacts, along with information here the statement for a statement of the statement o about opportunities for public comments on the project.

A request for public hearing or request that the Board of Environmental Protection assume jurisdiction over this application must be received by the DEP, in writing, no later than 20 days after the application is found acceptable for processing, or 30 days from the date of this notice, whichever is longer. Requests shall state the nature of the issue(s) to be raised. Unless otherwise provided by law, a hearing is discretionary and may be held if the Commissioner or the Board finds significant public interest or there is confliction technical information. conflicting technical information.

During the time specified above, persons wishing to receive copies of draft permits and supporting documents, when available, may request them from DEP. Persons receiving a draft permit shall have 30 days in which to submit comments or to request a public hearing on the draft.

Public comment will be accepted until a final administrative action is taken to approve, approve with conditions or deny this application. Written public comments or requests for information may be made to the Division of Water Quality Management, Department of Environmental Protection, State House Station #17, Augusta, ME 043330017. Telephone: (207) 287-3901.

Sept. 21, 2018

Legal Notices

TOWN OF PITTSFIELD PUBLIC HEARING NOTICE

The Pittsfield Town Council will hold a Public Hearing on Tuesday, October 2, 2018 at 6:30 pm in the Pittsfield Mu-nicipal Building Council Chambers to consider the following:

ORDINANCE 18-03: (Public Hearing) That the Town Council hereby Ordains that Chapter 2B General Assistance Ordinance, Appendices A-D be re-scinded and the new Appendices A-D be adopted to reflect the revised maximums for the period of October 01, 2018 - September 30, 2019. And to continue to use Appendices E-F set forth and filed with the Department of Health and Human Services (DHHS) until any new appendices are ap proved.

Sept. 21, 2018

Legal Notices

PUBLIC HEARING

BY ORDER of the Hermon Planning Board, a Public Hearing has been scheduled for Tuesday, October 2, 2018 at 6:30pm, in the Public Safety Meeting Room, for the purpose of reviewing an amendment to Lot 32 of Skyway Valley Country Estates, Map 50 Lot 37.

Sept. 21, 2018

PAPA GAMBINO'S has permanent FT/ PT positions for delivery drivers and/or counter help. Always room for ad-vancement. Good or no work history, refs. & want to work. Must have clean ME drivers lic. to deliver. Apply at: 622 Hagnmond St. or 271 State St., Bangor.

Legal Notices INVITATION TO BID TOWN OF PITTSFIELD SEWER RECONSTRUCTION

The Town cordially invites bids for The Town cordially invites bids for sever reconstruction of portions of Madawaska Avenue. Sealed bids will be received by the Owner at their of-fices until 10:00 am prevailing local time, October 12, 2018. Work must be completed by June 15, 2019. The work generally consists of the follow-ing which is not an all-inclusive list: Provision of sewer reconstruction ac-tivities for approximately 1,434 feet, including but not limited to sewer main, manholes, services to the right-of-way and trench/curb/sidewalk remain, manholes, services to the right-of-way and trench/curb/sidewalk re-pair. This project is partially funded by the Northern Border Regional Commission (NBRC) including some federal funding, so all federally man-dated Davis-Bacon Wage Rates, Equal Opportunity, and Disadvantaged Busi-ness opportunities must be addressed by bids and performance of work. A copy of the NBRC manual for grant administration, compliance and moniadministration, compliance and moni toring is available upon request. The pre-bid site visit and conference will take place at 10:00 am on October 5, 2018 at the Town Offices. Plans and specifications are available for a fee by contacting Plymouth Engineering, Inc, P.O. Box 46, Plymouth, ME 04969 or 207-257-2071.

Sept. 21, 2018

Apts. Furnished

BANGOR 1 BR's, F/P, hdwd firs, clean, quiet. coin-op, near EMMC. No smoke/ pets. \$975-\$1025, utils. incl. 949-4646

211

NOTICE O Notice is hereby given that in accorda

Lega

Notice is hereby given that in accorda closure and Order of Sale entered Au gage Research Center, LLC d/b/a Vete ed Liability Company v. John W. Koch District Court, Division of Bangor, Dc judged the foreclosure of a mortgage Koch, who acquired title as Jenifer L. Systems, Inc. acting solely as nomine Veterane United Home Loace its gue Veterans United Home Loans, its suc 26, 2015 and recorded in the Penobsc at Page 280, should the period of red of the property by the mortgagors, a mortgage will be conducted on

October 26, 2018 commencing at 10:3/ age LLP, 190 U.S. Route One, 2nd Floc

The property is located at 105 Eaton Maine, reference as described in said

The sale will be by public auction. All make a deposit of \$5,000.00 in cash, public sale made payable to Shechtm non-refundable as to the highest bidd be paid within thirty (30) days of the j tive of Mortgage Research Center, Li Missouri Limited Liability Company is this notice, no sale shall be deemed t ule a subsequent sale are reserved.

Additional terms will be announced at

Mortgage Besearch Center, LLC d/b/a Mortgage Research Center, LLC WU/a Limited Liability Company, By its attorneys, Shechtman Halperin 1 John Michael Ney, Jr., Esq. 1080 Main Street, Pawtucket, RI 02860 (2011) 274 4400 (401) 272-1400

Sept. 21, 28, Oct. 5, 2018

Legal NOTICE OF PUBLIC

By virtue of and in execution of a Jud the Penobscot County Superior Count No. RE-2013-139 brought by Federal Moffat A.C. and Beatrice Arras Gardner Trus Acc. and beatine Arras Gardner Hu mortgage recorded in the Penobscot Page 215, the statutory ninety (90) of without redemption, notice is hereby October 16, 2018 at 4:00 PM at 2 Gorge October 16, 2018 at 4:00 PM at 2 Gorge the premises described in said mortga buildings thereon, situated in the to State of Maine, described in said mor enue. TERMS OF SALE The property sale, who shall pay a deposit of Ten T in cash, certified check or funds accep of sale. The successful bidder shall be Agreement with said Federal National. Ten Thousand and No/100 Dollars (\$10 terest bearing deposit thereon providi terest bearing deposit thereon providi-the date of the public sale, at which tir and payable in cash or certified funds sociation as aforesaid, which will their The sale shall be made subject to: [a] reveal, (b) any unpaid taxes or assess and (c) any facts which an accurate : property shall be sold "as is" and "whi expressed, implied or otherwise. Other ed: S/John A. Doonan, Esq., Bar No. 5746 Attorney for Federal National A Longoria, LLC 100 Cummings Center, 2670 2670

Sept. 7, 14, 21, 2018

ORONO 2 BR spacious apt. Near UMO \$965, H/HW incl. Ask about our August/ September special. 207-866-2658



Abutters – Nordic Aquafarm Project

Name	Map/Lot	Property Address	Mailing Address
City of Belfast			131 Church Street
			Belfast, ME 04915
Belfast Water District	Belfast: 029-039	285 Northport Ave,	285 Northport Ave
	Northport: U01-06	Belfast	Belfast, ME 04915
		Atlantic Hwy,	
		Northport	
Robert F. Prescott, Jr.	004-28-A	Herrick Road	448 Town Farm Rd
			Bucksport, ME 04416
Rosemary R. Prescott	004-28	30 Herrick Road	same
		Belfast, ME 04915	
Kyle E. Engstrom	004-23-A	20 Herrick Road	same
Heather Ross Engstrom		Belfast, ME 04915	
Debby A. Heath	004-23-D	14 Herrick Road	same
		Belfast, ME 04915	
George Flimlin	004-10	52 Perkins Road	530 E Jimmie Leeds Rd.
Larissa Flimlin			Galloway, NJ 08205
Eleanor G. Daniels	004-10-A	28 Perkins Road	Same
Donna L. Broderick		Belfast, ME 04915	
Lisa Jo Desmarteau	004-12-D	26 Perkins Road	10855 SW Visconti Way
James T. Desmarteau			Port Saint Lucie, FL 34986
Golden Rod Properties,	004-12-A	22 Perkins Road	PO Box 345
LLC			Belfast, ME 04915
R.W. & J.E. Curtis	004-12	34 Perkins Road	same
Irrevocable Trust		Belfast, ME 04915	
Samuel Cassida	029-040	271 Northport Ave	Same
Jacqueline Cassida		Belfast, ME 04915	
Jeffrey R. Mabee	029-038	290 Northport Ave	same
Judith B. Grace		Belfast, ME 04915	
Larry D. Theye	029-037	286 Northport Ave	same
Betty Becker-Theye		Belfast, ME 04915	
Richard Eckrote	029-036	282 Northport Ave	42 Grandview Ave
Janet Eckrote			Lincoln Park, NJ 07035
Lyndon W. Morgan	029-035	1 Tozier Street	same
		Belfast, ME 04915	

Voluntary notice given at the request of the following parties:

. .

Islesboro Islands Trust, c/o Stephen Miller, PO Box 182, 376 West Bay Road, Islesboro, ME 04848

Jim and Amy Grant, 67 Perkins Road, Belfast, ME 04915 (Map 004, Lot 009)



7350 0000







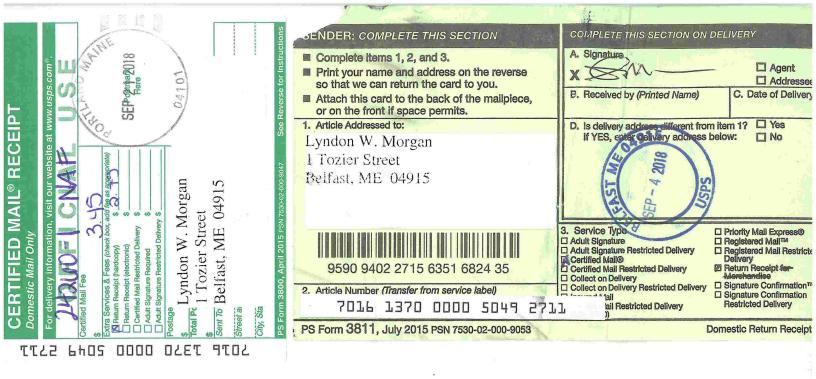
Domestic Return Receipt

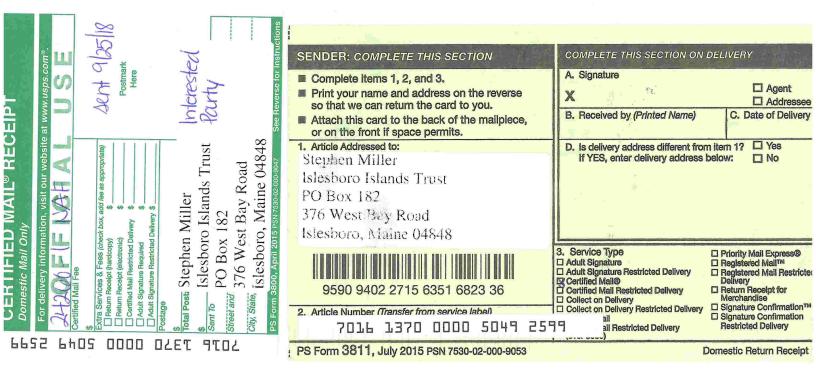


DYEL

Domestic Return Receipt







Public Information Meeting

Nordic held a Public Information Meeting regarding this application (the "PIM") on October 4, 2018 at 6:00 p.m. at the Troy A. Howard Middle School located at 173 Lincolnville Ave, Belfast, Maine 04915. The following parties represented Nordic Aquafarms and presented at the PIM: Erik Heim, President of Nordic Aquafarms, David Noyes and Carter Cyr of Nordic Aquafarms, Attorney Joanna B. Tourangeau of Drummond Woodsum, counsel to Nordic Aquafarms, Elizabeth Ransom, Principal of Ransom Consulting and Nate Dill of Ransom Consulting.

Approximately 175-200 members of the public attended the PIM. Two hundred copies of the Maine Department of Environmental Protection's Information Sheet Public Participation in the Licensing Process (copy attached) were made available to attendees. Sign in sheets, attached hereto, were available to provide an estimate of attendees.

Robin Dostie, a court reporter and Notary Public in and for the State of Maine transcribed the hearing. The transcript of the PIM is included with this application.

Copies of the PowerPoint presentation slides from the PIM are available on the City of Belfast website at <u>https://www.cityofbelfast.org/index.aspx?NID=366</u> Slides are located under "Maine Department of Environmental Protection Permit Process" heading. The PIM was broadcast live on the City of Belfast channel BEL TV and a recording can be viewed here: https://www.cityofbelfast.org/index.aspx?NID=262

We understand that the Department has received questions regarding the scope of the notice provided for the PIM. While the notice complied with the abutter notification requirements of Chapter 2 of the Department Rules, transparency is of the utmost importance to Nordic. Going forward, Nordic will continue to voluntarily provide notice of meetings and applications to entities who request it. Nordic will also voluntarily submit copies of DEP applications to the Town of Northport to assist interested parties in reviewing those applications. Finally, Nordic is increasing the size of the notice area (where notice is required by DEP) to include notice to property owners (as shown on readily available Belfast and Northport tax maps) within a one mile radius of the discharge.

Information Sheet

Public Participation in the Licensing Process

Dated: April 2018 Contact: (207) 287-7688

SUMMARY

Maine law charges the Commissioner of the Department of Environmental Protection (D.E.P.) with evaluating license applications for many different activities that affect Maine's environment. Individuals and legal entities may participate at various points during license application processing. Individuals must recognize that the Commissioner's charge may, under certain circumstances, be overtaken by the Board of Environmental Protection (Board). This INFORMATION SHEET, in conjunction with consulting statutory and regulatory provisions referred to in this document, will assist with your understanding of the potential opportunities for participation in the Commissioner's process; other specific provisions that apply to the Board are not addressed in this INFORMATION SHEET. A failure to participate during the licensing process will result in a person's only option for influence over that decision being the filing of an appeal. D.E.P.'s *Rules Concerning the Processing of Applications and Other Administrative Matters (Chapter 2)*, 06-096 C.M.R. ch. 2, was promulgated, in part, to provide guidance on this process.

- 1. **PUBLIC ACCESS TO INFORMATION**. Records submitted to D.E.P. are generally available to the public under Maine's Freedom of Access Act, 1 M.R.S. §§ 400-414. Other than portions claimed to be confidential by law when submitted to D.E.P., all license application materials are readily available for review and copying at our offices in Augusta, Portland, Bangor, and Presque Isle.
- 2. **PUBLIC NOTICE**. Maine law requires applicants to publicly make known their intent to submit an application to D.E.P. It is the responsibility of an individual who is interested in following or participating in the license decision-making process to act after seeking out that notice or, if you are an abutter, to act when noticed directly by mail.
 - A. **Public Informational Meetings**. Informational meetings are held by persons prior to submitting a licensing application to D.E.P. for the purpose of informing the public about an anticipated project. These meetings are held at a location near to a proposed project and are by design open to the public. Abutters to the anticipated project location receive notice in the mail of the meeting time and location, and notice is also published in newspapers serving the area of the project.
 - B. **Application Filing**. Prior to filing an application with D.E.P., abutters to the project location receive notice in the mail of the anticipated filing date, and it is also published in newspapers serving the area of the project.
- 3. **INTERESTED PERSONS**. Individuals can acquire materials submitted to D.E.P., attend public informational meetings, request that a public hearing be held on a filed application, request that the Board take jurisdiction over an application, and provide comments on an application or a draft decision.

- A. Maximum Participation. Participation in a D.E.P. licensing decision to the maximum extent possible requires a person to submit a written request stating his or her desire to acquire material related to an application. The individuals who do are known as "interested persons." Once a request is filed, interested persons will be provided with the opportunity to inspect and copy materials on file at D.E.P.; they also receive direct notice of public informational, pre-application and pre-submission meetings, and public hearings. The timing of an interested person's request to be part of the process will determine the number of events potentially available to him or her.
- B. **Public Informational Meetings**. Informational meetings are held to inform the public about environmental impacts that are anticipated from a project. Interested persons may ask questions at such a meeting. Questioners should be aware that answers may not be available during the meeting.
- C. **Pre-application and Pre-Submission Meetings**. D.E.P. often meets with potential applicants to identify regulatory and processing issues that need consideration. Pre-application and pre-submission meetings will typically not be attended by interested persons, in part because such a meeting is not, by law, a "public proceeding" freely open to attendance under Maine's Freedom of Access Law. Although the decision to allow individuals other than an applicant to attend is D.E.P.'s to make, interested persons invited to attend such a meeting should expect only to observe, since public input cannot be received at this time in the licensing process.
- D. Application Comments. Interested persons and any other member of the public may submit written comments, including technical information, at any time during the course of an application's processing. It is in that person's interest to submit information early in the process in order to ensure adequate time for consideration by the D.E.P. staff member evaluating the application.
- E. **Draft Order Comments**. Interested persons will receive the Commissioner's draft licensing decision at least five (5) working days prior to final action. Written comments may be submitted on that draft decision. Reasonable notice of when the Commissioner anticipates issuing a final decision on the draft order will also be provided to interested persons.
- F. Public Hearing Requests. People may request that a public hearing be held on a filed application within 20 days after its acceptance as complete for processing by D.E.P. Such a request must satisfy requirements found in Section 7 of Chapter 2. The Commissioner will typically order that a hearing be held where credible conflicting technical information appears to exist regarding a licensing criterion.
- G. BEP Jurisdiction Requests. People may request that the Board assume jurisdiction over a filed application within 20 days after D.E.P. accepts it as complete for processing. Such a request must satisfy Section 17 of Chapter 2. Board jurisdiction is not available for windpower development projects or general permits for tidal energy demonstration projects.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, contact the D.E.P. by calling (207) 287-7688. All Maine D.E.P. rules and laws are available via the internet by following the links provided at: http://www.maine.gov/dep/.

Note: D.E.P. provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs every citizen's rights.

OC/F2003/r.1-2004/r.2-2008/r.3-2018



Nordic Aquafarms Public Information Meeting October 4, 2018 Sign In Sheet

NAME	EMAIL ADDRESS	
		1
1m Samues		
Frie Cohen-Stal		
A-LOIL D.		
mapliel	×	1
Milelle Graga		
Dan Criter		
Leo Pollenting		
Throng Velleret		
Scrict Ensstan		
Logan Chipman		
in the coole		
Tharib Realter Dutch		
AND ATTA		
Martin		
David Comt		
Being tovort		
Robyn Taranting)		
ASON MIRITELL		
Se Mc Swel		
Ethan trober	NIA	
NATHANIEC BAER		
Miriam Watkins	NA	
Davy GURNID		
ANicherson		
Trime cr.		· .
Ellie Daniels		
Donna Broderick		
Fatra Whitemh		
SUZAMUE Stone		
Marion Brown		
Caprille, Gualio		
Frank Criptio		
Suzanne Store Marios Brown Camille Gualio Frank Cruglio Swnny Gualio	J.	
Rebekan Heikkila		
Rebekan Heikkila) SOUMR MOESSMILLE		<u>.</u>



Nordic Aquafarms Public Information Meeting October 4, 2018 Sign In Sheet

NAME	EMAIL ADDRESS	
CARMEN ERGTOSER		
JIM OWED		
SID BLOCK		F
MICHAGL TIPPEL		
GRETAZ GULLIAN	-	
Sadie Lloyd		
Janie Phillips		
Andy Stevenson		
Paul Porada		
Noteps and might		
Shelley Fein		
STEVEN FEIN		
Any Green		
Emmettdownes		
Tude Tobason		
CAM KENPTON		
PAUL SCRUTTER		
Namay Durand Lanson	_1	
Meledith Bruskine		
Py III's COE Tho		
15 Muppin		en,
Stephanis Guerry		
KATE HARRIS		
Babette Cchen-Solal		
Armonie cohen-solal		
KATTLEW SITAGAS		st.
chad Mills		on
Donna Bubon		
Damiel Herer		
Donna Bibron Domiel Heren Jusic & Jusif		
· · · · · · · · · · · · · · · · · · ·		



Nordic Aquafarms Public Information Meeting October 4, 2018 Sign In Sheet

NAME	EMAIL ADDRESS]
Pat Kaplan Alan Kaplan		
Fhilip Konkeling		
RED WOJSTER		
- Ilona Mattson		
eminsutruston		-
Sim Wilson		
VAUS LOSRE		
John Krueger		
Jun Gent		
Nendy Krueger	u	
JUNANIAN FULFOND		M
Estace Villia 10		e ,
Hellin A. Barrett		
Hotan Becker - Theere		-
Darry Sheye		
DONDH SHOT		
Betsy meadley		
Helen Burlinghme		1.2
Cary Slocom		
CARLTON MILLS		
Martin Block	+	
Titum (10000000 Tongte		
	+	
Patt: LeCLAIR	+	
Om LECCOIN		
JUSSIC M. Cam		
Ernie Coopert		
Debarah Carivel Larry Litch field		
Larry Litchfield		
WA CRESSET		
WA CRESSET David Whente hard KBCISET	+	
navi korior		
		-
		1
		1



<u>Nordic Aquafarms Public Information Meeting</u> <u>October 4, 2018</u> <u>Sign In Sheet</u>

NAME	EMAIL ADDRESS	
Janing Cary		
Bruce Reinimann		
Wendy REMEMON		
A. WATKEDS		
Samanthe Langlois		
Susan + Walden Cutting		
Christopher Andesin 3		
Audra Novino Mitague		
GEIR GASEIDNES		
DECLAN OCONNEL		
Paul Bernacki		
Jan Magen		
Josephielose		
Betsy Shell		
Chris Rector		
Shey Conover		
Hill Colcord		
Down thy Colcord		
Joelley Gaseidnes		
DON PERKINS		
Betnany Allgrove	_	
Jan Dodge	-	
MARY BISELOUN		
	the second secon	
· · · · ·		
· · · · · · · · · · · · · · · · · · ·		
	· · · · · · · · · · · · · · · · · · ·	



<u>Nordic Aquafarms Public Information Meeting</u> <u>October 4, 2018</u> <u>Sign In Sheet</u>

NAME	EMAIL ADDRESS	
Elizabeth Herbert Entan DUBROW SUZANNE RICO Jennifer Buttery		
ETITAN DUBROW		
SUZANNE RICO		
Jennifer Butkey		
Abigail Curtis		
Jaones Merkel Alison Feibel		~
Alison Feibel		
Alicia galero		
	· · · · · · · · · · · · · · · · · · ·	

1	NOTICE OF INTENT TO FILE MAINE WASTE DISCHARGE	1	is the MEPDES permit application public information
2	LICENSE/MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM		meeting. This is one of several information meetings
3	PERMIT APPLICATION	3	that will be held for the overall project. The
4	AND NOTICE OF PUBLIC INFORMATIONAL MEETING	4	overall project will also require a federal permit
-	AND NOTICE OF PUBLIC INFORMATIONAL MEETING		
5			under the U.S. Army Corps of Engineers for the intake
6	IN RE NORDIC AQUAFARMS, INC.	6	and outfall construction on the bottom of Belfast Bay
7		7	and for impacts to protected resources like wetland.
8	Public Meeting At The Troy A. Howard Middle School	8	We will also be applying in the future for a Site
9			Location of Development Act Permit and a Natural
10	Reported by Robin J. Dostie, a Notary Public and	10	Resources Protection Act Permit from the DEP. Under
11	court reporter in and for the State of Maine, on	11	the Natural Resources Protect Act, we will also be
12	October 4, 2018, at the Troy A. Howard Middle School,	12	required to obtain a Significant Groundwater Wells
13	173 Lincolnville Avenue, Belfast, Maine, commencing	13	
14	at 6:00 p.m.	14	level that are indicated up there will also require
15		15	that we do additional meetings like the one we're
16	REPRESENTING NORDIC AQUAFARMS, INC.	16	having tonight. So those meetings will have
17	JOANNA TOURANGEAU, ESQ., DRUMMOND WOODSUM	17	additional meetings like this where we will be
18	ERIK HEIM, NORDIC AQUAFARMS	18	answering questions about all of the other aspects of
19	ELIZABETH RANSOM, RANSOM CONSULTING	19	the project. Once we get through and into that state
20	NATE DILL, RANSOM CONSULTING	20	level and federal level process, we will also be
21	DAVID NOYES, NORDIC AQUAFARMS	21	submitting applications at the city of Belfast level
22	CARTER CYR, NORDIC AQUAFARMS	22	to comply with all of the local ordinances and there
23		23	will be a public process associated with those
24		24	applications as well, so this is the first of what
25		25	will be many opportunities for public questions
	1		3
1	TRANSCRIPT OF PROCEEDINGS		regarding our proposed project.
2	MS. TOURANGEAU: Good evening. Welcome. My	2	Tonight, we are here to talk about the
3	name is Joanna Tourangeau. I am an attorney from	3	discharge from the project that is being proposed in
4	Drummond Woodsum who is here tonight on behalf of	4	our draft application. The public information
	Nordic Aquafarms. I am an environmental permitting		meeting is required by DEP to be held in advance of
6	and compliance lawyer based out of Portland who has	6	
	been working in this field for 15, 16, 17 years,		is still in draft form. We are required to submit to
8	something like that. I stopped counting. I started		DEP a rough estimate of the number of people that are
9	in 2000.	9	here tonight, so if you haven't signed in on the
10	Also with me tonight is Erik Heim, the	10	sign-in sheet that will very much help me in terms of
11	President of Nordic Aquafarms. He's worked on three	11	counting how many folks were here tonight.
12	similar projects. He is going to give an overview of	12	We are also having a court reporter here
13	the project, the treatment systems, the discharge	13	tonight, Robin Dostie, thank you, who is making a
14	quantities and quality. To his left is Elizabeth	14	transcript of the entire hearing. This is in part
15	Ransom from Ransom Consulting. She has 30 years	15	because the main purpose of this meeting is for us to
16	experience with environmental assessments and	16	answer questions about the discharge to Belfast Bay
17	projects. She is going to give an overview of the	17	and one of the things that I will need to do is
18	discharge permit parameters and the Belfast Bay	18	create is a list of the questions about the discharge
19	background conditions. To her left is Nate Dill,	19	that were asked at tonight's meeting and ensure that
20	also from Ransom Consulting with 13 years experience	20	we provide a narrative response to those questions
21	and he is going to present modeling of conditions	21	and hopefully we will be able to answer all of the
22	with the discharge in Belfast Bay.	22	questions that are had here tonight as well and that
23	We are here tonight to talk first about the	23	will be in the transcript. To the extent there is a
رى			
23 24	overall public process for the project. I am going	24	question that comes up that we cannot answer tonight,
			question that comes up that we cannot answer tonight, we will pull that question out of the transcript and

1	then musside a normative manager in our amplication	1 and have to diamage tonight . What that magnet for
	then provide a narrative response in our application. Please understand the application is still in draft,	 we are here to discuss tonight. What that meant for Belfast is that discharges like those that were
2		3 historically associated with the chicken farms are
4		4 now illegal, so there will not be those kinds of
5	tonight in response to the comments, the questions	5 contaminants going directly into Belfast Bay.
6		6 I am going to turn it over at this point to
0 7	Belfast has also asked that there be an additional	7 Mr. Heim to start off with a general discussion of
8	public meeting following our submission of our	8 the project.
9	application to the DEP and we support that request.	9 MR. HEIM: Good evening. I am going to just
10	Copies of our application will be submitted	10 give a brief overview of the project.
11	on or around October 19 will go to the DEP's office	11 AUDIENCE MEMBER: We can't really hear you.
12	in Augusta. A copy will go to the city of Belfast.	12 MR. HEIM: You can't hear us?
13	You can review those in either location. I have been	13 AUDIENCE MEMBER: No.
14	advised by the DEP that it will also go on their	14 MR. HEIM: Okay. I understand we have to
15	website as will all comments and other written	15 have it almost in our mouth for it to work properly.
16	materials on the application under what's labeled on	16 AUDIENCE MEMBER: And if you could step back
17	their website as the major projects section, so if	17 so we can have eyesight of interpreter.
18	you wish to review it on the internet it's available	18 MR. HEIM: So yeah, can you all see the
19	there as well.	19 screen?
20	Tonight, we are hoping to keep our	20 AUDIENCE MEMBER: Maybe go behind the
21	presentation to approximately one hour. As I	21 podium.
22	mentioned earlier, we have a court reporter here, we	22 MR. HEIM: I'll go behind here. Okay. I'll
23	also have an ASL interpreter for those who require	23 hide behind here so everybody can see. I realize
24	that assistance. This meeting is also being	24 that not everybody has maybe been to our meetings, s
25	broadcast live on the regular channel that is used	25 I'm going to give just a brief overview of what we
	5	
1	for city meetings. There are 200 copies of the DEP	1 are talking about.
	for city meetings. There are 200 copies of the DEP fact sheet regarding all of the public process that	1 are talking about. 2 AUDIENCE MEMBER: Can't hear you.
	fact sheet regarding all of the public process that	
2 3	fact sheet regarding all of the public process that	2 AUDIENCE MEMBER: Can't hear you.
2 3	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in	2 AUDIENCE MEMBER: Can't hear you. 3 MR. HEIM: Can't hear you. Okay. I'm going
2 3 4 5	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in	2 AUDIENCE MEMBER: Can't hear you. 3 MR. HEIM: Can't hear you. Okay. I'm going 4 to try and speak as loud as I can. So our production
2 3 4 5 6	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also	2 AUDIENCE MEMBER: Can't hear you. 3 MR. HEIM: Can't hear you. Okay. I'm going 4 to try and speak as loud as I can. So our production 5 is dependent on clean water and that means we have a
2 3 4 5 6	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up	2 AUDIENCE MEMBER: Can't hear you. 3 MR. HEIM: Can't hear you. Okay. I'm going 4 to try and speak as loud as I can. So our production 5 is dependent on clean water and that means we have and 6 interest in keeping it clean and that's also part of
2 3 4 5 6 7	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about
2 3 4 5 6 7 8	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for	2 AUDIENCE MEMBER: Can't hear you. 3 MR. HEIM: Can't hear you. Okay. I'm going 4 to try and speak as loud as I can. So our production 5 is dependent on clean water and that means we have a 6 interest in keeping it clean and that's also part of 7 the purpose of what we're going to be talking about 8 today and how we are going to achieve that. And for
2 3 4 5 6 7 8 9	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just
2 3 4 5 6 7 8 9 10	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward.	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about.
2 3 4 5 6 7 8 9 10 11	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an
2 3 4 5 6 7 8 9 10 11 12	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call
2 3 4 5 6 7 8 9 10 11 12 13	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the
2 3 4 5 6 7 8 9 10 11 12 13 14	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going
2 3 4 5 6 7 8 9 10 11 12 13 14 15	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to take a quick	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-calle head-on gutted fish. Only fresh product only going yo road transport to Northeast region. Today most o
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9.	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have a interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 8 19	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the Clean Water Act made it illegal to discharge any	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-calle head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the Clean Water Act made it illegal to discharge any pollutant from point source into navigable waters	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad. The benefit of having all of this in one place is traceability. You can trace every step of the process, you know exactly where it comes from an
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the Clean Water Act made it illegal to discharge any pollutant from point source into navigable waters without a permit. The State of Maine regulates such	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad. The benefit of having all of this in one place is traceability. You can trace every step of the process, you know exactly where it comes from an that is something that consumers increasingly are
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the Clean Water Act made it illegal to discharge any pollutant from point source into navigable waters without a permit. The State of Maine regulates such discharges under their MEPDES program and that is the	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-calle head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad. The benefit of having all of this in one place is traceability. You can trace every step of the process, you know exactly where it comes from an that is something that consumers increasingly are concerned with. All of this is based on so-called
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	fact sheet regarding all of the public process that is required for submission of the MEPDES permit, which is what this is, that are in the back and in the front, that's where the sign-in sheets are also located. Many of you picked that up. It's the two-page flier that some of you might have picked up and that gives you all of the contact information for DEP and how to participate in the application as it goes forward. So what is this permit for? I'm going to go backwards actually. We are planning to take a bio break at 8 o'clock so that folks can have a minute. I am not going to base it on when we finish our presentation or where we are in the questions, but when it gets to be 8 o'clock I'm going to interrupt whoever is kind of up and we're going to take a quick 5 minute bio break and come back and we have the room until 9. So what is this permit for? In 1972, the Clean Water Act made it illegal to discharge any pollutant from point source into navigable waters without a permit. The State of Maine regulates such discharges under their MEPDES program and that is the	AUDIENCE MEMBER: Can't hear you. MR. HEIM: Can't hear you. Okay. I'm going to try and speak as loud as I can. So our production is dependent on clean water and that means we have at interest in keeping it clean and that's also part of the purpose of what we're going to be talking about today and how we are going to achieve that. And for those of you who haven't been to these meetings just a short explanation of what we're talking about. This is an indoor operation where we have an operation that goes from salmon eggs to what we call smolt, that would be small salmon, and then take the through the growth stage to harvest size. And this facility would basically produce filets and so-called head-on gutted fish. Only fresh product only going by road transport to Northeast region. Today most o the salmon is flown in by airplane to the U.S. from abroad. The benefit of having all of this in one place is traceability. You can trace every step of the process, you know exactly where it comes from an that is something that consumers increasingly are

5

	recirculate water in the system and clean it	1 industry and we wanted to do things differently and
	continuously and one of the benefits of that is that	2 typically a lot of the things that have been
3		3 associated with salmon production are related to sea
	using flow through systems for land-based systems.	4 pen. So a couple of the things that are important is
5	It required a lot more water than we do today. And	5 that when you're talking about discharge today we're
	the alternative is sea pen production, which is not	6 going to talk about the advance technology that's
7 8	that common in the U.S. anymore. I believe the only place left is northern Maine. Beyond that, a number	7 already been used in industrial wastewater treatment8 across the globe, but we are one of the first
o 9	of other countries do still work with sea pen	9 companies really investing in this because we believe
	production.	10 it is the future. And the other thing is a lot of
10	Okay. I am just going to explain how we	11 the things that you filter out from a discharge is
11	ended up here. We did a scientific search of the	12 high in nutrients and that's a resource. And if you
13	entire coastline from Washington D.C. up to Canada.	13 look at the industry today, the byproducts value
	We had a long list of criteria that are important in	14 added processing is a part of the future because it
15	terms of deciding a good site. In every case there	15 creates value in jobs also and that's exactly what
15	is trade-off in terms of sites. One of the reasons	16 we're doing in this project.
10		17 Everything we take in or release for water
18	water, cold water. It's excellent conditions for	18 is also treated for bacteria and pathogens. One of
10	salmon. And also the other issues that we looked at	19 the most important things for us is to prevent stuff
20	is what's a nice community for employees to move to	20 in the bay coming into our facility. That's the
20	and work in, is there power access, what's the	21 source of disease for us, so we treat that vigorously
22	proximity to larger consumer markets so we can	22 on the way in and we do the same on the way out. So
23	deliver fresh product, high quality fresh product.	23 that's also something that's different from sea pens
24	All of these considerations came together. We	24 where you're basically open to free movement of these
	probably walked 20 sites in Maine and this particular	25 things. And we also have extensive barriers to fish
	9	11
1	area and this site was the one where all these things	1 escape which has been a traditional challenge to
	area and this site was the one where all these things came together in a good way. So that means it's not	1 escape, which has been a traditional challenge to 2 some extent in sea pen operations and so that's also
2	came together in a good way. So that means it's not	2 some extent in sea pen operations and so that's also
2 3	came together in a good way. So that means it's not easy to find good sites for these kind of projects.	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have
2	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting	 2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter
2 3 4 5	came together in a good way. So that means it's not easy to find good sites for these kind of projects.	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have
2 3 4 5 6	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another
2 3 4 5 6	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private
2 3 4 5 6 7	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water
2 3 4 5 6 7 8	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water
2 3 4 5 6 7 8 9	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue
2 3 4 5 6 7 8 9 10	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great
2 3 4 5 6 7 8 9 10 11	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a
2 3 4 5 6 7 8 9 10 11 12	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed
2 3 4 5 6 7 8 9 10 11 12 13	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back
2 3 4 5 6 7 8 9 10 11 11 12 13 14 15	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've
2 3 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter.
2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18	<pre>came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture</pre>	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture of this in terms of this and look at it up against	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting, 19 that also requires engineering, so that's currently
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture of this in terms of this and look at it up against the disadvantages and what we'd be working to do is	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting, 19 that also requires engineering, so that's currently 20 ongoing. And this project is then planning on
2 2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture of this in terms of this and look at it up against the disadvantages and what we'd be working to do is minimize disadvantages and this is the first part of	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting, 19 that also requires engineering, so that's currently 20 ongoing. And this project is then planning on 21 working through all of this towards next summer where
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture of this in terms of this and look at it up against the disadvantages and what we'd be working to do is minimize disadvantages and this is the first part of the impacts that come along with that.	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting, 19 that also requires engineering, so that's currently 20 ongoing. And this project is then planning on 21 working through all of this towards next summer where 22 engineering is basically going to put us in a place
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	came together in a good way. So that means it's not easy to find good sites for these kind of projects. In terms of why should this be interesting for Maine, and more specifically Belfast, it's a matter of creating jobs. It's a lot of business for vendors, companies locally and in Maine, and that also means indirect job creation in other companies. We have a number of academic institutions in Maine who work with aquaculture and obviously there is synergies in terms of that whole academic branch in Maine, also given the political interest in growing the aquaculture sector for Maine in the future. So there is a number of things that come together and of course there is also the value creation that also means tax revenue, which is significant. I believe this project will by far be the largest taxpayer in Belfast as well. So we look at the holistic picture of this in terms of this and look at it up against the disadvantages and this is the first part of the impacts that come along with that. So I think one important thing to just go	2 some extent in sea pen operations and so that's also 3 an issue that's addressed. Typically, sea pens have 4 been treating for sea lice and parasites. We filter 5 them out before they can reach our fish, so we don't 6 use those kind of medications. That's another 7 benefit. And obviously we develop this on private 8 property while other operations are in open water 9 public space and domain. Finally, there is the issue 10 of what you give your fish. There is a great 11 variation in practices in this area. Our focus is a 12 high quality product and that means what you feed 13 your fish will determine the quality of your product 14 you get out the other end. We're going to get back 15 to that also. 16 So a little bit about the timeline. We've 17 been we started this process last winter. 18 Currently, we are working our way through permitting, 19 that also requires engineering, so that's currently 20 ongoing. And this project is then planning on 21 working through all of this towards next summer where 22 engineering is basically going to put us in a place 23 where it's possible to start construction, that's the

	going to do the permits thing?	1 some of the key nutrients that are typically
2	MS. RANSOM: Sure.	2 regulated and looked at under the MEPDES permit
3	MR. HEIM: I will get back to the specific	3 include total suspended solids, biological oxygen
4	water treatment and discharge figures after Elizabeth	4 demand, nitrogen, and phosphorous. So what are
5	is done her part.	5 those? So TSS is the amount is an actual
6	MS. RANSOM: Good evening. Am I able to be	6 measurement of the amount of solids in water that can
7	heard? Is this close enough?	7 be trapped by a .2 micron filter, so that's a really
8	MS. TOURANGEAU: Speak up too.	8 small filter. And the good thing about this is it
9	MS. RANSOM: Okay. And I apologize, folks,	9 allows us to actually take a measurement from a
10	for the thumping background. There is nothing we've	10 laboratory that is standardized and tell you, jee,
11	been able to do about that. I do apologize.	11 what kind of an impact are we having? So is my
12	So what does this permit regulate? As	12 treatment system working the way it's supposed to and
13	Joanna mentioned earlier, the reason we have a MEPDES	13 taking those solids out before we discharge something
14	permit process is due to the Clean Water Act. In the	14 to sea. Because think about it, we all know what TSS
15	early '70s there was a list of things in particular	15 or too much TSS looks like. How many go swimming in
16	that we knew we wanted to keep out of our waters	16 the bay after a storm and it kicks up a lot of stuff
10	whether it was rivers or oceans and there were	17 and we can see floaty things when we're out there in
18	various types of pollutants that were described.	18 the bay, that's TSS. That's things like
10	When we think of pollutants there are two types of	19 phytoplankton, silt, decaying plants, animal waste,
00 KT	pollutants that we can list. One are things that are	20 sewage, there is a lot of things that can go into TSS
2U 01	considered toxic and there is an actual toxic	
21	substances list that was created in 1977.	21 and that's one of the parameters that Nordic is going
22		22 to need to monitor when they have a discharge. If
23	AUDIENCE MEMBER: It's very hard to hear	23 TSS is too high, over time the solids that come out
24		24 of the TSS are obviously not good for marine life and
25	MS. RANSOM: I'm sorry, I'm not quire 13	25 can cover the benthic communities at the bottom of 15
1	Sure	1 the bay, so we want to keep TSS low.
	Sure MS. TOURANGEAU: Talk right into the mic.	1 the bay, so we want to keep TSS low. 2 So then we also want to look at something
2	MS. TOURANGEAU: Talk right into the mic.	2 So then we also want to look at something
2 3	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two	2 So then we also want to look at something 3 like biological oxygen demand. This is a general
2 3 4	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge
2 3 4 5	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your
2 3 4 5 6	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances.	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment
2 3 4 5 6 7	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals,	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the
2 3 4 5 6 7 8	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic
2 3 4 5 6 7 8 9	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water
2 3 4 5 6 7 8 9 10	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen
2 3 4 5 6 7 8 9 10 11	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available
2 3 4 5 6 7 8 9 10 11 12	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous,	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down
2 3 4 5 6 7 8 9 10 11	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really
2 3 4 5 6 7 8 9 10 11 12	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are
2 3 4 5 6 7 8 9 10 11 12 13	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep
2 3 4 5 6 7 7 8 9 10 11 12 13 14	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range.
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk about tonight. Nordic Aquafarms waste stream will	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant 20 element in the earth's atmosphere. We all need
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk about tonight. Nordic Aquafarms waste stream will discharge low levels of residual nutrients, not	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant 20 element in the earth's atmosphere. We all need 21 nitrogen for production of amino acids and the
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk about tonight. Nordic Aquafarms waste stream will discharge low levels of residual nutrients, not toxic, but that nutrients still is something that is	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant 20 element in the earth's atmosphere. We all need 21 nitrogen for production of amino acids and the 22 building blocks for protein. Plants also need it for
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk about tonight. Nordic Aquafarms waste stream will discharge low levels of residual nutrients, not toxic, but that nutrients still is something that is regulated under the MEPDES process.	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant 20 element in the earth's atmosphere. We all need 21 nitrogen for production of amino acids and the 22 building blocks for protein. Plants also need it for 23 photosynthesis. And in sea water we have a lot of
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	MS. TOURANGEAU: Talk right into the mic. MS. RANSOM: There we go. So there are two types of pollutants that are typically regulated under a discharge permit. One of those would be the types of things that we think of as toxic substances. Those are things like pesticides, heavy metals, things that we can all kind of relate to as being clearly not good for us. But it also regulates non-conventional pollutants such as nutrients and that is what this facility is producing. It's compounds like oxygen, nitrogen, and phosphorous, things that are necessary for life, but if we have too much of them they're harmful too. How many of us have been to a doctor and had somebody say you need to reduce your cholesterol and stop eating so much of X? We obviously need carbohydrates and protein to survive, but obviously too much of a great thing isn't great for us, so that's what we're here to talk about tonight. Nordic Aquafams waste stream will discharge low levels of residual nutrients, not toxic, but that nutrients still is something that is regulated under the MEPDES process. So what are those nutrients? I'm going to	2 So then we also want to look at something 3 like biological oxygen demand. This is a general 4 parameter that is commonly put onto a discharge 5 permit. I would gather that it's something that your 6 local wastewater municipal wastewater treatment 7 plant also monitors. It's a measurement of the 8 amount of dissolved oxygen needed by aerobic 9 organisms to break down the organic matter in water 10 over time. So when BOD levels are high the oxygen 11 levels decrease because the oxygen that's available 12 in the water is being consumed. So when DO goes down 13 some of our most beloved sea creatures are not really 14 happy. So those levels of DO, for example, are 15 things that lobsters don't like. So we want to keep 16 BOD low and in turn we want to keep DO in the right 17 range. 18 So another vital thing that we'll be 19 measuring is nitrogen. Nitrogen is the most abundant 20 element in the earth's atmosphere. We all need 21 nitrogen for production of amino acids and the 22 building blocks for protein. Plants also need it for 23 photosynthesis. And in sea water we have a lot of 24 different sources of nitrogen. There is agricultural

1	there is general runoff from lawns and other	1 none of those were exactly in the point of where this
2	development and then there is atmospheric deposition.	2 project is planning to discharge, so we've started to
3	In fact, the majority of the nitrogen that we have in	3 establish a dataset for this project. We've gone out
4	sea water is naturally occurring from atmospheric	4 over the past few months and started to collect some
5		5 data.
6		6 So just real briefly, a summary is the TSS
7		7 we've found to be in the range of 6.9 to 11
8	a parameter that obviously we want to make sure we	8 milligrams per liter. And, again, for those who
9	monitor going forward and that the discharge is	9 aren't used to thinking in those terms that's parts
10		10 per million. BOD is currently low. We've been at or
11	too much nitrogen being released to the bay.	11 near the laboratory detection limit of 2 milligrams
12	And another parameter that you'll commonly	12 per liter. Phosphorous has ranged from .012 to .024
13	hear when people are talking about in particular	13 milligrams per liter. And nitrogen has ranged from
13		14 .17 to .08 milligrams per liter out in the area of
	common earth element and it's found in sea water and	
15		15 the discharge. And then we've taken some additional
16	it's essential for plant life, but, again, too much	16 samples of nitrogen and phosphorous up close to the
17	of the phosphorous can also add to the potential for	17 Little River Dam because we frequently see some of
18	the algal blooms and the degradation of the water	18 these parameters are higher in fresh water than they
19	quality, so that's something we're going to be	19 are in the ocean itself and we did, in fact, find
20	looking to keep monitoring from the facility. Common	20 that the nitrogen kind of right off from the Little
21	sources of phosphorous include also things like	21 River is a little higher. It was up to a .78
22	5	22 milligrams per liter. And I don't expect everybody
23	waste.	23 to memorize those numbers, but I think you're going
24	So, again, we are primarily interested in	24 to find those ranges come in handy later as we start
25	having on the permit the things that would be coming	25 talking about what's coming from the discharge
	17	19
1	from the facility as nutrients. We're trying as a	1 itself.
	from the facility as nutrients. We're trying as a part of the process that Erik will be talking about	1 itself.
2	part of the process that Erik will be talking about	2 And with that, I think Erik is going to come
2 3	part of the process that Erik will be talking about to do a good job of treating for those and also by	2 And with that, I think Erik is going to come 3 back and tell you a little bit more about the
2 3 4	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're	2 And with that, I think Erik is going to come 3 back and tell you a little bit more about the 4 treatment process.
2 3 4 5	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before	 And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to
2 3 4 5 6	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because	 And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for
2 3 4 5 6 7	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused	 And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies
2 3 4 5 6 7 8	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled.	 And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both
2 3 4 5 6 7 8 9	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell	 And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies
2 3 4 5 6 7 8 9 10	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does,	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through
2 3 4 5 6 7 8 9 10 11	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry.	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today
2 3 4 5 6 7 8 9 10 11 12	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now?	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for
2 3 4 5 6 7 8 9 10 11 12 13	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this</pre>	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a definition of the U.S. and
2 3 4 5 6 7 8 9 10 11 12 13 14 15	<pre>part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And</pre>	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I I'm going to take you a little bit through the process in rough steps. This is the wastewater
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that have been collected over the years. There are	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have industrial companies who are discharging and applying
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that have been collected over the years. There are certain stations where data goes back, you know, you	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have industrial companies who are discharging and applying various levels of wastewater treatment. You can have
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that have been collected over the years. There are certain stations where data goes back, you know, you can look back to certain academic studies that have	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have industrial companies who are discharging and applying various levels of wastewater treatment. You can have municipal infrastructure doing the same and so are
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that have been collected over the years. There are certain stations where data goes back, you know, you	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have industrial companies who are discharging and applying various levels of wastewater treatment. You can have
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 	part of the process that Erik will be talking about to do a good job of treating for those and also by removing as much of the solids as possible we're going to keep some of those things down even before it gets into the treatment plant in some ways because a lot of those solids are things that can be reused and recycled. And Erik is now going to come up and tell you a little bit oh, actually, before he does, I've got one more very important slide. Sorry. So what are the levels out there now? That's a really important starting place, right. We have a bay that I think most of the people in this room really love and want to keep looking good. And so one of the things we need to do is we need to understand what are background conditions, how healthy is the bay now and that way we know going forward if we're having an impact. There are places in the bay where there are regular datapoints that have been collected over the years. There are certain stations where data goes back, you know, you can look back to certain academic studies that have	And with that, I think Erik is going to come back and tell you a little bit more about the treatment process. MR. HEIM: Thank you. So we're going to talk through a little bit what we are doing for treatment of the discharge and the technologies behind that. And an interesting sort of history both in the U.S. and Europe when you look at how companies generally in various industries have moved through these processes. If you look at most permits today in Maine none of them contain requirements for phosphorous and nitrogen, for example. But this is a change that's coming politically in the U.S. and we've seen in the U.S. and we've seen the same in Europe as well and it's important because all of these things do influence ecosystems. I'm going to take you a little bit through the process in rough steps. This is the wastewater treatment process and typically you would have industrial companies who are discharging and applying various levels of wastewater treatment. You can have municipal infrastructure doing the same and so are

1 talk briefly about feed afterwards, but that's really	1 water and that will pretty much take out every bug
2 the basis for the discharge and this is what contains	2 you can think about in this case, but the primary
3 the various nutrients that we're talking about.	3 strategy we have is to never let bugs in the first
4 So this is a multi-step process and the	4 place from the bay in the system. That's why we also
5 important thing is to address the issues that	5 treat the intake water and that's also why the risk
6 Elizabeth was just talking about. The first step is	6 of discharging anything of bacterial nature is very
7 nitrogen. In this case, we are one of the few	7 low in this process.
8 companies in the world who implement denitrification	8 Just a final step in terms of the treatment
9 as it's called. It's a filter system populated by	9 process. So there are solids coming out of various
10 bacteria that breakdown by nitrogen in very simple	10 parts of this treatment process. All these solids
11 terms. So in this case, this is a part actually of	11 they go through a special dewatering process and what
12 the production environment so it's continuously	12 you end up with is a sludge very high and rich in
13 reducing nitrogen in the fish tanks before discharge.	13 nutrients. And this sludge is in Maine's case going
14 This facility reduces 85 percent of nitrogen produced	14 to biogas production. Other cases we see, for
15 in the fish tanks. We are not familiar with anyone	15 example, Norway, it's used for fertilizer, other
16 doing this. That's the pretreated water and in those	16 types of projects, but in Maine we are sending it to
17 fish tanks there is also a treatment process removing	17 biogas production. And the yeah, and that
18 CO2 and other types of substances, but the pretreated	18 basically means none of this is going into the ocean.
19 water goes to the wastewater plant. So typically you	19 It's being recycled.
20 will see in lots of wastewater treatment plants	20 Just about a few words about the feed
21 potentially also drinking water in some cases are	21 profile. So any time you calculate your discharge
22 treating for P reduction and this is also the case	22 you start with parameters related to the feed. How
23 here. There is a process in the wastewater plant	23 much feed are you using, what the are nutrient
24 that reduces phosphorous by 99 percent before the	24 profiles that you're looking at for your feed and
25 water is discharged. 21	25 that's the whole basis for what we do also. And in 23
1 Then there is something that is quite unique	1 the industry today there is a wide variety of feed
1 Then there is something that is quite unique 2 to this industry, which is membrane microfiltration.	 the industry today there is a wide variety of feed ingredients you can choose from and there is also new
2 to this industry, which is membrane microfiltration.	2 ingredients you can choose from and there is also new
2 to this industry, which is membrane microfiltration.3 Now, this goes down to a mesh size of 0.4 micro.	2 ingredients you can choose from and there is also new3 ones coming into the industry on a continuous basis.
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost
 2 to this industry, which is membrane microfiltration. 3 Now, this goes down to a mesh size of 0.4 micro. 4 That means it also takes out bacteria. That gives an 5 idea how finely mesh this is. So this is part of 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. 	2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone.
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and 	2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened?
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm.
2 to this industry, which is membrane microfiltration. 3 Now, this goes down to a mesh size of 0.4 micro. 4 That means it also takes out bacteria. That gives an 5 idea how finely mesh this is. So this is part of 6 what takes out almost all particles and bacterial 7 elements that might be there in the first place. 8 And then there is a final step which is 9 called UV light dosing. UV neutralizes pathogens and 10 there is a very strong dose that basically is 11 treating every drop of water going through the 12 system. It's the same with the intake water as well.	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better.
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights?
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can.
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was take it a little bit further so you can see what this means. And an additional question is in a facility 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so
2 to this industry, which is membrane microfiltration. 3 Now, this goes down to a mesh size of 0.4 micro. 4 That means it also takes out bacteria. That gives an 5 idea how finely mesh this is. So this is part of 6 what takes out almost all particles and bacterial 7 elements that might be there in the first place. 8 And then there is a final step which is 9 called UV light dosing. UV neutralizes pathogens and 10 there is a very strong dose that basically is 11 treating every drop of water going through the 12 system. It's the same with the intake water as well. 13 So the combination of the system is really what 14 addresses some of the issues that Elizabeth was 15 talking about and what I'm going to do then is to 16 take it a little bit further so you can see what this 17 means. And an additional question is in a facility 18 like this you are dealing with live creatures, so	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so 18 we pretty much know the profile of the nutrients in
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to take it a little bit further so you can see what this means. And an additional question is in a facility like this you are dealing with live creatures, so everything in this facility has backup systems. Should the power go out, they will kick in immediately and that's also the case for this. 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so 18 we pretty much know the profile of the nutrients in 19 the feeds that we're going to be looking at, but we
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to take it a little bit further so you can see what this means. And an additional question is in a facility like this you are dealing with live creatures, so everything in this facility has backup systems. Should the power go out, they will kick in immediately and that's also the case for this. 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so 18 we pretty much know the profile of the nutrients in 19 the feeds that we're going to be looking at, but we 20 have a lot of choices in terms of ingredients. So 21 the U.S. in terms of the feed producers we are 22 talking to, all of them are highly focused on being
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to take it a little bit further so you can see what this means. And an additional question is in a facility like this you are dealing with live creatures, so everything in this facility has backup systems. Should the power go out, they will kick in immediately and that's also the case for this. Just to show you a little bit more about microfiltration. Like I was saying, 0.4 micro. It's 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so 18 we pretty much know the profile of the nutrients in 19 the feeds that we're going to be looking at, but we 20 have a lot of choices in terms of ingredients. So 21 the U.S. in terms of the feed producers we are 22 talking to, all of them are highly focused on being 23 USDA, FDA and ISO compliant in terms of anything they
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. That means it also takes out bacteria. That gives an idea how finely mesh this is. So this is part of what takes out almost all particles and bacterial elements that might be there in the first place. And then there is a final step which is called UV light dosing. UV neutralizes pathogens and there is a very strong dose that basically is treating every drop of water going through the system. It's the same with the intake water as well. So the combination of the system is really what addresses some of the issues that Elizabeth was talking about and what I'm going to do then is to take it a little bit further so you can see what this means. And an additional question is in a facility like this you are dealing with live creatures, so everything in this facility has backup systems. Should the power go out, they will kick in immediately and that's also the case for this. Just to show you a little bit more about wery, very finely meshed. And then the final step is 	 ingredients you can choose from and there is also new ones coming into the industry on a continuous basis. So this basically means that any producer can almost tailor their feed in any way they want. So in our calculations, we take in the feed types and ranges that we are interested in looking at AUDIENCE MEMBER: The slide is gone. MR. HEIM: Oh, what happened? AUDIENCE MEMBER: I hope this doesn't happen with the fish farm. AUDIENCE MEMBER: Maybe dim the lights so we can see the slides better. MR. HEIM: Can we reduce the lights? MS. RANSOM: I'm sure we can. MR. HEIM: We can try to see if we can make that happen. So when we start sourcing our feed, so we pretty much know the profile of the nutrients in the feeds that we're going to be looking at, but we have a lot of choices in terms of ingredients. So the U.S. in terms of the feed producers we are use in their feeds. So everything is following
 to this industry, which is membrane microfiltration. Now, this goes down to a mesh size of 0.4 micro. 4 That means it also takes out bacteria. That gives an 5 idea how finely mesh this is. So this is part of 6 what takes out almost all particles and bacterial 7 elements that might be there in the first place. 8 And then there is a final step which is 9 called UV light dosing. UV neutralizes pathogens and 10 there is a very strong dose that basically is 11 treating every drop of water going through the 12 system. It's the same with the intake water as well. 13 So the combination of the system is really what 14 addresses some of the issues that Elizabeth was 15 talking about and what I'm going to do then is to 16 take it a little bit further so you can see what this 17 means. And an additional question is in a facility 18 like this you are dealing with live creatures, so 19 everything in this facility has backup systems. 20 Should the power go out, they will kick in 21 immediately and that's also the case for this. 22 Just to show you a little bit more about 23 microfiltration. Like I was saying, 0.4 micro. It's 	 2 ingredients you can choose from and there is also new 3 ones coming into the industry on a continuous basis. 4 So this basically means that any producer can almost 5 tailor their feed in any way they want. So in our 6 calculations, we take in the feed types and ranges 7 that we are interested in looking at 8 AUDIENCE MEMBER: The slide is gone. 9 MR. HEIM: Oh, what happened? 10 AUDIENCE MEMBER: I hope this doesn't happen 11 with the fish farm. 12 AUDIENCE MEMBER: Maybe dim the lights so we 13 can see the slides better. 14 MR. HEIM: Can we reduce the lights? 15 MS. RANSOM: I'm sure we can. 16 MR. HEIM: We can try to see if we can make 17 that happen. So when we start sourcing our feed, so 18 we pretty much know the profile of the nutrients in 19 the feeds that we're going to be looking at, but we 20 have a lot of choices in terms of ingredients. So 21 the U.S. in terms of the feed producers we are 22 talking to, all of them are highly focused on being 23 USDA, FDA and ISO compliant in terms of anything they

	with the food products we eat ourselves. It's highly	1 Nitrogen. 85 percent removal. It's the
2	regulated in the U.S. as it is Europe. So this is	2 most difficult one to remove as all wastewater plants
3	just to let you know that this is how the process	3 know. Our benefit here is we can remove it
4	works. You start with the amount of feed, the feed	4 continuously in the production, otherwise we would
5	profile and then you get to the sort of composition	5 require a pretty large holding tank structure to
б	of feed that you're looking for.	6 reduce this. 673 kilos per day, concentration of 23
7	Just a couple of words also, medications is	7 milligrams per liter. Background measured is .17 to
8	a chemical that's also included in the application.	8 .48. Again, most of the modeling we have done that
9	Now, the way this works in the U.S. you have to list	9 you will see is based upon nitrogen because it is a
10	every conceivable substance you will ever use and	10 bit higher than the background and we want to show
11	that's why we also then list every conceivable and,	11 what that means. Important thing in nitrogen is
12	for example, some substances we will change over time	12 ammonia. It's the most harmful element in nitrogen.
13	for various reasons so we have to list alternatives	13 Total discharge per day is 0.7 kilos per day or 003
14	also. All of this will be included in the	14 milligrams per liter. The background levels in the
15	application. This is just some internal comments	15 bay are higher than this concentration.
16		16 So how much nitrogen is this really? We
17		17 have looked at studies done on the bay before that
18		18 have mapped out the various sources. I believe this
	need to use if for a short period of time for fish	19 was touched upon earlier by Elizabeth. Based upon
20		20 that study, this total discharge makes about 0.75
20		21 percent of the nitrogen coming into this bay. So
21		22 that gives you an idea of the amount in relation to
23	-	_
24	Okay. I'm going to get right into the	24 coming into the bay today.
25	actual discharge and give you the factual figures.	25 Just before we look at more of the modeling 27
1	These figures are based on the total future	1 of this, one of the important things that we do in
	These figures are based on the total future production of 33,000 metric tons. When we start	1 of this, one of the important things that we do in 2 Europe and we will be doing here it's also dependent
2	production of 33,000 metric tons. When we start	2 Europe and we will be doing here it's also dependent
2 3	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of	 Europe and we will be doing here it's also dependent on DEP requirements and what they're asking is
2 3 4	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility	 Europe and we will be doing here it's also dependent on DEP requirements and what they're asking is monitoring of this, so we have self-imposed
2 3 4 5	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the	 Europe and we will be doing here it's also dependent on DEP requirements and what they're asking is monitoring of this, so we have self-imposed monitoring programs and there will be DEP
2 3 4 5 6	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors
2 3 4 5 6 7	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on
2 3 4 5 6 7 8	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They
2 3 4 5 6 7 8 9	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And
2 3 4 5 6 7 8 9 10	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay.	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these
2 3 4 5 6 7 8 9 10 11	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains.	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in
2 3 4 5 6 7 8 9 10 11 12	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the
2 2 3 4 5 6 7 7 8 9 10 11 12 13 13 14 14 15 11 15 14 15 11 15 14 15 15 15 15 15 15 15 15 15 15 15 15 15	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive.
2 3 4 5 6 7 8 9 10 11 11 12 13 14	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step,
2 3 4 5 6 7 8 9 10 11 12 13 14 15	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being
2 3 4 5 6 7 8 9 10 11 12 13 14 15	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay.	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted 20 with the application.
2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos per day or 0.2 milligrams per liter. Background	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted 20 with the application.
2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos per day or 0.2 milligrams per liter. Background values are 0.12 to 0.24, slightly higher than the bay	2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted 20 with the application. 21 So I'm going to turn over to you.
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos per day or 0.2 milligrams per liter. Background values are 0.12 to 0.24, slightly higher than the bay	 2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted 20 with the application. 21 So I'm going to turn over to you. 22 MR. DILL: Thanks, Erik. Can you all hear
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	production of 33,000 metric tons. When we start production, Phase 1, the figures will be half of this. And TSS, as Elizabeth described, this facility reduces 99 percent of the gross discharge through the wastewater treatment. That leaves 185 kilos per day or also in the concentration as commonly used as 6.3 milligrams per liter. The background value in the bay is 6.9 to 11. That means the water we are discharging has a lower level of TSS than the bay. The next one is BOD as this one explains. This facility discharges 162 kilos per day fully developed. That's a 99 percent removal of BOD or also 5.5 milligrams per liter. The background value in the bay is approximately 2. That means our discharge at the pipe is slightly higher and as the modeling will show in the next part of the presentation that is diluted quickly to background values in the bay. Phosphorous. 99 percent removal. 5.8 kilos per day or 0.2 milligrams per liter. Background values are 0.12 to 0.24, slightly higher than the bay background values. Again, the modeling will	 2 Europe and we will be doing here it's also dependent 3 on DEP requirements and what they're asking is 4 monitoring of this, so we have self-imposed 5 monitoring programs and there will be DEP 6 requirements related to those. Most of these factors 7 are measured by sensors and also manual lab tests on 8 a regular basis. There are kept logs for this. They 9 can be audited at any time by the authorities. And 10 obviously we have a self-interest in monitoring these 11 and making sure that we comply with the law. As in 12 Europe, there is a penalty if you don't stick to the 13 permits that you receive. 14 So that leaves us really with the next step, 15 which is the modeling that has been done for the bay. 16 This has been done by Ransom. It's also being 17 quality assured independently by the Ramboll 18 Environmental, a large environmental company in the 19 U.S. Their report on that will also be submitted 20 with the application. 21 So I'm going to turn over to you. 22 MR. DILL: Thanks, Erik. Can you all hear 23 me all right?

My task has been to try to predict what's going to happen in this very, very complicated natural system. There is all sorts of factors that complicate this. There is just simply the understanding of the physics of the flow of the water, the, you know, factors like the weather that we can't predict and sort of just the chaotic nature of what happens in natural systems. And so the different than a lot of sort of other you might think of more traditional engineering where, you know, you might be able to calculate very precisely the flexion in a steel beam if you know what the load is on it. Trying to predict what's going to happen in a system like this is much more complicated. We
take a similar approach. We look at what physics says and physics, you know, we have laws of physics
like the Newton's second law, conservation of momentum, conservation of mass. We can use those to write down mathematical equations and then we can simplify those equations so that we can solve them and we use computer programs to solve them. And so what we have done here is a computer model that basically solves the equations that describe the physics of water flowing in the bay. And so, you know, it's what how is that water driven by the 31
tides, by the gravity, from the moon and the sun and how is that water forced by water that is flowing down the river and coming into the bay and then how is that water constrained by the depth, you know, and the geometry of the shoreline of the bay. And so we make, you know, sort of the best attempt that we can to be able to understand to solve those equations to be able to predict what those currents are going to be.
De. And what this is what this is showing
here is this is a computer model called ADCIRC that we ran and I think if I click, will it MS. RANSOM: I can do that.
here is this is a computer model called ADCIRC that we ran and I think if I click, will it

23 is showing, you can see there is little pink arrows 24 here and the color is indicating how fast the current 25 is flowing and the little pink arrows are indicating 32

30

1 you kind of a little bit of introduction has been to 2 come up with an assessment or prediction of what's 2 0 3 going to happen with this discharge when it goes out 3 r 4 into the bay. And I think one thing that's important 4 C 5 to understand going into this is that we've just --5υ 6 we've just learned from what Erik and Elizabeth 6 V 7 talked about that the water that is actually being 7 τ 8 discharged is really very, very clean. And so when 8 0 9 we talk about what happens after that, it's -- we're 9 0 10 looking at how that water is getting mixed with the 10 t 11 water that's in the bay and how that is even further 11 } 12 getting diluted and so any components that are in 12 13 that water the concentration of them is going to be 13 14 reduced significantly. 14 15 So to kind of start with the end result 15 16 here, I think we're looking at this figure here and 16 5 17 what this is showing you -- and I think I have a 17 18 laser here I can point to. This location right here 18 n 19 is where the outfall -- there will be a pipe that 19 V 20 extends off-shore here underneath the water and near 20 \$ 21 the bottom it will be discharging the effluent from 21 a 22 that, the wastewater from that pipe right around in 22 V 23 this area. It's about a thousand meters off-shore 23 k 24 here. And one of the things that we've looked at is 24 r 25 what are the populations that are nearby that might 25 k 29 1 be sensitive to this. And so we now from -- we know 1 t 2 from the state they have records that document in the 2 ł 3 past at least there had been some eel grass here and 3 0 4 eel grass is one of the things that's known to be 4 5 sensitive to nitrogen concentrations. So one of the 5 6 things we looked at is, you know, what's the impact 6 n 7 going to possibly be there. And so what this figure 7 8 is showing you here, this blue -- this little blue 8 k 9 area here, you know, some of the lighter blue to a 9 k 10 darker blue is an estimate of the nitrogen 10 11 concentration. I apologize, it's kind of hard to 11 ł 12 read what this shows here, but on the dark blue end 12 V 13 of it on the edge of it, which I'm kind of trying to 13 14 circle with the laser here, that's a value of about 14 15 .3 milligrams per liter of nitrogen, which is -- has 15 V 16 been shown in other estuaries, not necessarily in 16 17 Belfast Bay, but, you know, we don't really have that 17 r 18 type of information for this specific location, that 18 19 if the nitrogen concentration stays below that level 19 20 it doesn't really have any impact. And so we can see 20 ł 21 here it's not even really getting close to these 21 22 areas. So that's kind of the end of all of the work 22 23 that I did that has shown, you know, that has shown 24 this and so I'm going to try to explain how we got 25 there so you can understand a little bit.

1 what direction it's going. And so what this is	1 And once and what we've seen in this case
2 showing is this is about a two day period where you	2 after about two weeks you kind of reach this sort of
3 can see how it gives you an idea of how the	3 equilibrium where the rate that the ping pong balls
4 currents circulate around in the bay and you can see	4 are being distributed into the bay is it matches
5 it's pretty complicated. So once we've calculated	5 the rate that they're sort of disbursing and
6 that we kind of have an estimate of how that water	6 diffusing and so you kind of reach this sort of quasi
7 moves around and what we can do is we can use the	7 steady state. So that's what we're looking for and
8 computer again to go on to this next one here to kind	8 once we've done that this is another let's see.
9 of put little put little tracers that will move	9 Oops. We can use those ping pong balls to represent
10 around with that current. And so what animation	10 something like something that's in the discharge
11 showing you is just what would happen if you were to	11 water. And, you know, for example, the nitrogen
12 kind of scatter, you know, a bunch of, you know, ping	12 the amount of nitrogen. And then we can go back and
13 pong balls around the bay and watch them go during	13 after we've looked at where they've all spread out,
14 that same time period. And you can see what happens	14 we can calculate what that nitrogen concentration is
15 is let me see if I can get it to go again. If you	15 and we can estimate what it's going to be.
16 kind of keep your eye on maybe pick sort of an	16 And let's see if I can get this to oh,
17 orange one or red one from here and just kind of	17 you know what, it's really hard to see here because
18 follow it you will see they kind of move back and	18 the nitrogen concentration, this is about .5
19 forth as the tide goes and then they also kind of	19 milligrams per liter and this is that value of about
20 tend to drift. And you can see how they kind of get	20 .3 that the eel grass might be sensitive to and if
21 stirred up and you can imagine how you can kind of	21 you look really hard here
22 see now how they're getting mixed up and so what	22 MS. RANSOM: Do you want me to play it from
23 we're trying to do is predict how that mixing happens	23 your animation?
24 and we use these little, you know, numerical drifters	24 MR. DILL: Yeah. If you could play the one
25 to do that. And you can actually you can actually	25 on the USB stick, I think it might be a little better
33	35
1 see a lot about, you know, what's going on there by	1 quality.
1 see a lot about, you know, what's going on there by 2 looking at this picture. You can, you know, you can	1 quality. 2 MS. RANSOM: Yeah, it might work a little
2 looking at this picture. You can, you know, you can	
2 looking at this picture. You can, you know, you can	2 MS. RANSOM: Yeah, it might work a little
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall	2 MS. RANSOM: Yeah, it might work a little 3 bit easier for us.
 looking at this picture. You can, you know, you can get an idea of, you know, if you were to fall overboard and off of your boat and just drift with 	2 MS. RANSOM: Yeah, it might work a little 3 bit easier for us. 4 MR. DILL: That's my heart thumping that you
 looking at this picture. You can, you know, you can get an idea of, you know, if you were to fall overboard and off of your boat and just drift with the tide for a couple of days where you might end up. 	2 MS. RANSOM: Yeah, it might work a little 3 bit easier for us. 4 MR. DILL: That's my heart thumping that you 5 can all hear.
 looking at this picture. You can, you know, you can get an idea of, you know, if you were to fall overboard and off of your boat and just drift with the tide for a couple of days where you might end up. All right. So that was showing if I 	2 MS. RANSOM: Yeah, it might work a little 3 bit easier for us. 4 MR. DILL: That's my heart thumping that you 5 can all hear. 6 MS. RANSOM: There we go.
 looking at this picture. You can, you know, you can get an idea of, you know, if you were to fall overboard and off of your boat and just drift with the tide for a couple of days where you might end up. All right. So that was showing if I could I'll go back and I'm going to play this one 	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away.
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. 8 So what we're looking at here is this is about 25
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict,	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999.
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for 19 a month doing that and you can see that after about	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know MS. TOURANGEAU: I'm just going to hang out here and make it
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for 19 a month doing that and you can see that after about 20 two weeks in that simulation the, you know, they move	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know MS. TOURANGEAU: I'm just going to hang out here and make it MR. HEIM: That one next to it.
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for 19 a month doing that and you can see that after about 20 two weeks in that simulation the, you know, they move 21 with the tide, they move with the current and they	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know MS. TOURANGEAU: I'm just going to hang out here and make it MR. HEIM: That one next to it. MR. DILL: Turn repeat on. Yup. So this
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for 19 a month doing that and you can see that after about 10 two weeks in that simulation the, you know, they move 11 with the tide, they move with the current and they 22 drift and they move back and forth and you kind of	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know MR. HEIM: That one next to it. MR. DILL: Turn repeat on. Yup. So this little red dot moving up and down here is just
2 looking at this picture. You can, you know, you can 3 get an idea of, you know, if you were to fall 4 overboard and off of your boat and just drift with 5 the tide for a couple of days where you might end up. 6 All right. So that was showing if I 7 could I'll go back and I'm going to play this one 8 more time. This is kind of showing what happens if 9 you put a whole bunch of ping pong balls all over the 10 place and just let them drift around and how they mix 11 together. But in order to in order to predict, 12 you know, estimate what's going to happen with the 13 discharge that's being continuously released, instead 14 of scattering the ping pongs all over in the 15 beginning and see where they go, we kind of take ping 16 pong balls and we just kind of release them one at a 17 time after another continuously. And in this 18 simulation in this case, we ran the simulation for 19 a month doing that and you can see that after about 20 two weeks in that simulation the, you know, they move 21 with the tide, they move with the current and they 22 drift and they move back and forth and you kind of 23 the ping pong balls also kind of spread out naturally	 MS. RANSOM: Yeah, it might work a little bit easier for us. MR. DILL: That's my heart thumping that you can all hear. MS. RANSOM: There we go. MR. DILL: It looks like it's fading away. So what we're looking at here is this is about 25 days of what the tide does and this is based on a this is actually based on tidal observations from the Fort Point Tide Station for a time period in 1999. We simulated that time period because there was data collected at the tide station there and we were able to compare that to the hydrodynamic model and demonstrate that it actually reproduces the same tide level. If you I think one of these will make it play in a loop. I don't know MS. TOURANGEAU: I'm just going to hang out here and make it MR. HEIM: That one next to it. MR. DILL: Turn repeat on. Yup. So this little red dot moving up and down here is just showing you the time and what you can see here is

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	is tide range is larger, so when we have a spring tide the currents are stronger and that that tends to spread out the discharge more and so it keeps that the concentration to that below that level that below that .3 level that we can't even really see it on here. And so you'll watch as it comes back from the beginning here, we really don't see much we really don't see much going on here when the tide is big. It's just kind of getting washed out, you know, you can imagine it's kind of getting smeared out. And then when you get up here when the tide range gets a little bit smaller you start to see that you start to see the concentration show up a little bit here. And then during that neap tide you start to see the concentration because the currents	1 you know, what's happening to it is largely driven by 2 the currents. It's the the actual outfall itself, 3 the structure that the water is coming out of doesn't 4 really have any affect on the mixing. It's really 5 what's going on naturally. It's the tidal currents 6 and other factors, it's the wind, it's the waves that 7 are controlling that. So but what happens right near 8 the right near the outfall, this is where the 9 concentration is of that wastewater are highest and 10 so we used it on another model and this model is 11 called CORMIX and this is a model that's used sort 12 of a standard model that's used for wastewater 13 discharges all over the country. It's developed and 14 approved by the EPA. And what this does is this 15 model looks at the physics of what happens when that 16 water comes out of the out of the end of the pipe 17 and it's got a lot of momentum and you can kind of 18 model is interval.
18	aren't moving much, but then when it gets back to a spring tide again it spreads out more.	 envision, you know, the water coming out and it's pushing against the existing water and it's creating
19 20	And I'm going to just jump back again and	20 a whole lot of turbulence and it's mixing it all
21		21 together and so that's what this model shows. What
22	Sorry. So the information that we have on how the	22 we do what this model does is it calculates a
23	nitrogen affects things like the eel grass bed is	23 dilution and a dilution is a specific number that is
24	based on measurements that are taken over time at	24 the ratio of sort of the ratio of the amount of
25	multiple sites, but, you know, different samplings	25 one substance or one volume of water mixed in with
	37	39
1	over a period of time and some statistics that are	1 another volume of water. So you can imagine if you
2	done based on those measurements and other	2 took like a cup of orange juice, for example, and put
2 3		2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many
3 4	observations about how, you know, how wildlife is, you know, living within the water. And so those	2 took like a cup of orange juice, for example, and put
3 4 5	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep	 2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16.
3 4 5 6	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every	 2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that
3 4 5 6 7	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a
3 4 5 6 7 8	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is
3 4 5 6 7 8 9	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that
3 4 5 6 7 8 9 10	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of
3 4 5 6 7 8 9 10 11	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're
3 4 5 6 7 8 9 10 11 12	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD
3 4 5 6 7 8 9 10 11	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're
3 4 5 6 7 8 9 10 11 12 13	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small.
3 4 5 6 7 8 9 10 11 12 13 14	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100
3 4 5 6 7 8 9 10 11 12 13 14 15	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more.
3 4 5 6 7 8 9 10 11 12 13 14 15 16	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this
3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here.	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here. That's the average over that entire simulation.	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually 21 what this is a if you can imagine that you were
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here. That's the average over that entire simulation. And I'm going to just jump back ahead here.	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually 21 what this is a if you can imagine that you were 22 looking down looking down from above, this is sort
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here. That's the average over that entire simulation. And I'm going to just jump back ahead here. So what I just talked about was what happens in what	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually 21 what this is a if you can imagine that you were 22 looking down looking down from above, this is sort 23 of a plan view, a bird's eye view of what the
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here. That's the average over that entire simulation. And I'm going to just jump back ahead here. So what I just talked about was what happens in what we call a far field, so when the discharge is	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually 21 what this is a if you can imagine that you were 21 looking down looking down from above, this is sort 23 of a plan view, a bird's eye view of what the 24 discharge looks like, and you can imagine the
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	observations about how, you know, how wildlife is, you know, living within the water. And so those statistics use a median value, so if you were to keep taking samples over time, if you took a sample every day for the next hundred days or if you took a sample every hour for the next few days and you measured all those values of nitrogen because it changes all of the time, it's constantly varying from all of the other different types of sources, and were to find the value that was the median value, so an average value, we calculated that average that median value and that's what is shown here. So if you look at those the results from that animation and you were to average that over time this is the result that you'd get. And that average value is the value that we have that we actually have that we can correlate with other sorts of things that would lead to impacts. And so that's what this is showing here. That's the average over that entire simulation. And I'm going to just jump back ahead here. So what I just talked about was what happens in what	2 took like a cup of orange juice, for example, and put 3 it into an empty gallon jug and who knows how many 4 cups there are in a gallon? I think it's 16. 5 AUDIENCE MEMBER: 16. 6 MR. DILL: 16. So then if you filled that 7 jug the rest of the way up with water you'd have a 8 dilution of 16. So what we're looking at here is 9 that dilution number. Once you understand what that 10 dilution number is, if you know the concentration of 11 something, which we're already in this case if we're 12 looking at nitrogen or phosphorous or TSS or BOD 13 those concentrations are already very, very small. 14 So that orange juice has already been diluted 100 15 times or more and then you're diluting it even more. 16 And so this that dilution number really tells you 17 how much that, you know, that substance is being 18 reduced in concentration. So this what this 19 figure is showing is that just in that initial area 20 right outside the outfall and this is actually 21 what this is a if you can imagine that you were 22 looking down looking down from above, this is sort 23 of a plan view, a bird's eye view of what the

1 the tidel arreant changes so up do this with	1 will be encourse togeting to demonstrate that is stars
1 the tidal current changes, so we do this with 2 different currents flowing in different directions,	 will be ongoing testing to demonstrate that is stays that way over time. This discharge will meet the
3 but this is just one example. So the current is	3 sensitivity parameters that DEP and other
4 flowing this way and the discharge is being, you	4 organizations in New England have established for eel
	5 grass, which is a noted sensitive receptor that
	6 exists in the bay.
6 can see that the momentum from the discharge is 7 pushing it out here and it's mixing with the ambient	7 And I think with that, I'm going to turn
8 water. And then finally, the current kind of takes	8 this back to Joanna, who will start laying out some
9 over and moves it along here. And once you get out	9 ground work for questions.
10 in this area, which is only this is only this	10 MS. TOURANGEAU: So momentarily, we are
11 is like less than 10 meters away from the outfall	11 going to switch to the question and comment period
12 pipe, that dilution dilution is already more than	12 for the discharge license process. I am going to
13 20 and this is actually what's showing is this the	13 need a couple of minutes to shift things around.
14 concentration. So the concentrations here are only 5	14 We're going to move this podium back here and turn it
15 percent of what they are down here. And that's just	15 around. I'm going to ask folks that want to ask
16 within the first 10 meters of this. That's the plan	16 questions about the MEPDES licensing to form a line
10 within the first 10 meters of this. That's the plan 17 view.	17 here and be prepared to state your name and ask your
18 We can also look at it as if you were 19 standing on the bottom looking sitting on the	18 question. I am we have this space until 9 19 o'clock, so we have plenty of time for questions, but
20 bottom of the bay looking out at the pipe and so this	20 I am going to ask that we limit the discussion
	21 tonight to the purpose of this meeting for the DEP,
21 is upward, you know, the surface of the water is up 22 here. And, again, the current is going in this	22 which is to address comments to the discharge permit.
23 direction. The discharge in this case it's the	23 I understand that folks very likely have significant
24 water is a little bit fresher than sea water and so	24 additional questions about other aspects of the
25 fresh water tends to float so it wants to rise and so	25 project. Like I said earlier in the beginning of the
41	43
1 you can see it's rising up because of the buoyancy	1 meeting, there will be additional public
2 and the current is also pushing it down. And, again,	2 informational meetings to address and city meetings
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10	2 informational meetings to address and city meetings3 to address all of those issues.
2 and the current is also pushing it down. And, again,3 once we get, you know, about 10 meters away, so 104 meters off the bottom and sort of 10 meters	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight.
 2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was 	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 6 5 percent of what the concentration was that was 7 coming out of the pipe.	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 6 5 percent of what the concentration was that was 7 coming out of the pipe. 8 And, you know, I think that's all that's	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 6 5 percent of what the concentration was that was 7 coming out of the pipe. 8 And, you know, I think that's all that's 9 all I had, I think. I'll hand it back over to you,	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 6 5 percent of what the concentration was that was 7 coming out of the pipe. 8 And, you know, I think that's all that's 9 all I had, I think. I'll hand it back over to you, 10 Elizabeth.	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of
2 and the current is also pushing it down. And, again, 3 once we get, you know, about 10 meters away, so 10 4 meters off the bottom and sort of 10 meters 5 downstream those concentrations are already less than 6 5 percent of what the concentration was that was 7 coming out of the pipe. 8 And, you know, I think that's all that's 9 all I had, I think. I'll hand it back over to you, 10 Elizabeth. 11 MS. RANSOM: So what does that mean really? 12 You know, part of what we're trying to help people	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that 	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not 17 doing that, unfortunately I will interrupt you so
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not 17 doing that, unfortunately I will interrupt you so 18 that people that do have those questions can use the
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems 	2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not 17 doing that, unfortunately I will interrupt you so 18 that people that do have those questions can use the 19 time that we have set aside.
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems that are being used by Nordic Aquafarms are 	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not 17 doing that, unfortunately I will interrupt you so 18 that people that do have those questions can use the 19 time that we have set aside. 20 At this point, I am going to start moving
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the you've come to understand that the treatment systems that are being used by Nordic Aquafarms are state-of-the-art. They're proven technologies for 	 2 informational meetings to address and city meetings 3 to address all of those issues. 4 I am going to run a clean meeting tonight. 5 I am going to invite you all to be civil and 6 courteous to address your questions and to provide 7 your name so that the court reporter can get the 8 information. We will make every effort to answer 9 your questions tonight. As I also said earlier, if 10 we cannot answer your question tonight it will be 11 pulled out of the transcript and put into a list of 12 questions with narrative responses that go with our 13 application to the DEP. Please use your time not to 14 provide significant comments about other parts of the 15 project, but limit your comments to the discharge 16 licensing aspects of the project. If you are not 17 doing that, unfortunately I will interrupt you so 18 that people that do have those questions can use the 19 time that we have set aside. 20 At this point, I am going to start moving 21 things around and then we will be ready for
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems that are being used by Nordic Aquafarms are other industries that are being combined in new ways 	 informational meetings to address and city meetings to address all of those issues. I am going to run a clean meeting tonight. I am going to invite you all to be civil and courteous to address your questions and to provide your name so that the court reporter can get the information. We will make every effort to answer your questions tonight. As I also said earlier, if we cannot answer your question tonight it will be pulled out of the transcript and put into a list of questions with narrative responses that go with our application to the DEP. Please use your time not to project, but limit your comments to the discharge licensing aspects of the project. If you are not doing that, unfortunately I will interrupt you so that people that do have those questions can use the time that we have set aside. At this point, I am going to start moving things around and then we will be ready for questions. I am going to stand up and try to direct
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems that are being used by Nordic Aquafarms are state-of-the-art. They're proven technologies for other industries that are being combined in new ways 	 informational meetings to address and city meetings to address all of those issues. I am going to run a clean meeting tonight. I am going to invite you all to be civil and courteous to address your questions and to provide your name so that the court reporter can get the information. We will make every effort to answer your questions tonight. As I also said earlier, if we cannot answer your question tonight it will be pulled out of the transcript and put into a list of questions with narrative responses that go with our application to the DEP. Please use your time not to provide significant comments about other parts of the project, but limit your comments to the discharge licensing aspects of the project. If you are not doing that, unfortunately I will interrupt you so that people that do have those questions can use the time that we have set aside. At this point, I am going to start moving things around and then we will be ready for questions. I am going to stand up and try to direct traffic with the questions because we only have two
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems that are being used by Nordic Aquafarms are state-of-the-art. They're proven technologies for other industries that are being combined in new ways to make Nordic Aquafarms discharge one of the cleanest of its kind. This discharge will meet or 	 informational meetings to address and city meetings to address all of those issues. I am going to run a clean meeting tonight. I am going to invite you all to be civil and courteous to address your questions and to provide your name so that the court reporter can get the information. We will make every effort to answer your questions tonight. As I also said earlier, if we cannot answer your question tonight it will be pulled out of the transcript and put into a list of questions with narrative responses that go with our application to the DEP. Please use your time not to project, but limit your comments to the discharge licensing aspects of the project. If you are not doing that, unfortunately I will interrupt you so that people that do have those questions can use the time that we have set aside. At this point, I am going to start moving things around and then we will be ready for questions. I am going to stand up and try to direct traffic with the questions because we only have two microphones, so I am going to give one of those
 and the current is also pushing it down. And, again, once we get, you know, about 10 meters away, so 10 meters off the bottom and sort of 10 meters downstream those concentrations are already less than 5 percent of what the concentration was that was coming out of the pipe. And, you know, I think that's all that's all I had, I think. I'll hand it back over to you, Elizabeth. MS. RANSOM: So what does that mean really? You know, part of what we're trying to help people understand is that we are starting with fairly low concentrations due to the level of treatment that Erik is doing in the facility itself. And once they get there, they're going to be further diluted by the dynamics of the bay itself. So we hope that through this presentation you've come to understand that the treatment systems that are being used by Nordic Aquafarms are state-of-the-art. They're proven technologies for other industries that are being combined in new ways 	 informational meetings to address and city meetings to address all of those issues. I am going to run a clean meeting tonight. I am going to invite you all to be civil and courteous to address your questions and to provide your name so that the court reporter can get the information. We will make every effort to answer your questions tonight. As I also said earlier, if we cannot answer your question tonight it will be pulled out of the transcript and put into a list of questions with narrative responses that go with our application to the DEP. Please use your time not to provide significant comments about other parts of the project, but limit your comments to the discharge licensing aspects of the project. If you are not doing that, unfortunately I will interrupt you so that people that do have those questions can use the time that we have set aside. At this point, I am going to start moving things around and then we will be ready for questions. I am going to stand up and try to direct traffic with the questions because we only have two

1 going to pass this one around like a baton so that	1 tonight. I tried to make it light.
2 folks that are answering questions can have it.	2 MR. DILL: Okay.
3 AUDIENCE MEMBER: Are we going to be able to	3 AUDIENCE MEMBER: (Paul Bernacki.) Thank
4 go take a bathroom break?	4 you, Nate.
5 MS. TOURANGEAU: Absolutely. It's going to	5 MR. DILL: So I think the first thing that
6 take a second, so. Yup. We're going to do another	6 you mentioned to address has to do with the
7 one at 8, but this will take probably two minutes.	7 stratification in the water column. And I'm just
8 (Break.)	8 going to go through these and then I can hopefully
9 MS. TOURANGEAU: All right. It looks like	9 recall them again. The second thing has to do with
10 we have a pretty long line here, so let's start	10 seasonal changes. I guess that is in some way
11 moving back so that we can get to the questions and	11 related to the stratification. Periods of slack
12 see if we can keep on track here. So like I said a	12 tide, wind forcing and then localized tests
13 few moments ago, I am going to field questions as	13 localized observations, I think, I'll put it that
14 they come in and try to pass them off to the correct	14 way.
15 person to the best of my ability, okay. Please,	15 So to go back to the to go back to
16 please if you don't mind, state your name before you	16 stratification, so there is sort of a wealth of data
17 start and if you have a complicated name that's hard	17 in Penobscot Bay at large that demonstrates that
18 to spell, if you wouldn't mind helping out the court	18 stratification is significant in the estuary, so what
19 reporter we would very much appreciate it. All	
20 right.	20 tend to have water that varies with the season, so I
21 AUDIENCE MEMBER: Paul Bernacki, Belmont,	21 guess we'll start with the with the spring season.
22 Maine. B-E-R-N-A-C-K-I. Hi, Nate. Paul Bernacki,	22 The spring season you tend to have a lot of water
23 nice to meet you in-person.	23 coming down the river. That water is fresh water.
24 MR. DILL: Nice to meet you, Paul.	24 The fresh water is buoyant. It tends to float on top
25 AUDIENCE MEMBER: (Paul Bernacki.) My 45	25 of the denser salt water and so what happens is you 47
1 questions are for Nate about his presentation about	1 end up having multi-layers of water flowing and, you
2 tidal flow.	2 know, from other modeling and other data that I've
	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of
2 tidal flow.	2 know, from other modeling and other data that I've3 seen out there this tends to create a sort of4 circulation in the bay where water on the surface
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What 	2 know, from other modeling and other data that I've3 seen out there this tends to create a sort of4 circulation in the bay where water on the surface
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 8 to just respond to instead of grilling you in some 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing
2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 8 to just respond to instead of grilling you in some 9 way.	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 8 to just respond to instead of grilling you in some 9 way. 10 MR. DILL: Of course. 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers.
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 8 to just respond to instead of grilling you in some 9 way. 10 MR. DILL: Of course. 11 AUDIENCE MEMBER: (Paul Bernacki.) First is 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get
 2 tidal flow. 3 MR. DILL: Nice to me you too, Paul. 4 AUDIENCE MEMBER: (Paul Bernacki.) What 5 I'll do is I will as part of a sentence give you a 6 series and I know you can keep up with me. So I'll 7 give you a series of point issues that I'd like you 8 to just respond to instead of grilling you in some 9 way. 10 MR. DILL: Of course. 11 AUDIENCE MEMBER: (Paul Bernacki.) First is 12 summer, winter, thermocline, seasonal, and climate 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again,
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and the 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those affect your modeling and have you actually done any 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those affect your modeling and have you actually done any localized multi-water level drifter tests to prove 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature 20 of the water at the surface. And as you go and 21 transition into the wintertime, so this is, you know,
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those affect your modeling and have you actually done any localized multi-water level drifter tests to prove out the model as opposed to just doing a mathematical model based upon the tide station at Fort Point which 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature 20 of the water at the surface. And as you go and 21 transition into the wintertime, so this is, you know, 22 mid-winter, late winter, what happens is the water is
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those affect your modeling and have you actually done any localized multi-water level drifter tests to prove out the model as opposed to just doing a mathematical model based upon the tide station at Fort Point which is about 7 6 or 7 miles away by water and is 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature 20 of the water at the surface. And as you go and 21 transition into the wintertime, so this is, you know, 22 mid-winter, late winter, what happens is the water is 23 cold at the surface. Everything is frozen in the
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and how those affect your modeling and have you actually done any localized multi-water level drifter tests to prove out the model as opposed to just doing a mathematical model based upon the tide station at Fort Point which is about 7 6 or 7 miles away by water and is 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature 20 of the water at the surface. And as you go and 21 transition into the wintertime, so this is, you know, 22 mid-winter, late winter, what happens is the water is 23 cold at the surface. Everything is frozen in the 24 watershed, so there is not a lot of water coming down
 tidal flow. MR. DILL: Nice to me you too, Paul. AUDIENCE MEMBER: (Paul Bernacki.) What I'll do is I will as part of a sentence give you a series and I know you can keep up with me. So I'll give you a series of point issues that I'd like you to just respond to instead of grilling you in some way. MR. DILL: Of course. AUDIENCE MEMBER: (Paul Bernacki.) First is summer, winter, thermocline, seasonal, and climate variation, water solidity issues, especially in the subbay of the Little River estuary area, periods of slack tide especially during the summer when the tide ranges are a lot less and the flow is less, wind forcing such as the northeast storms and the prevailing summer southwest storms and how those affect your modeling and have you actually done any localized multi-water level drifter tests to prove out the model as opposed to just doing a mathematical model based upon the tide station at Fort Point which is about 7 6 or 7 miles away by water and is 	2 know, from other modeling and other data that I've 3 seen out there this tends to create a sort of 4 circulation in the bay where water on the surface 5 tends to be transported out of the bay towards the 6 ocean and water near the bottom tends to be 7 transported more up the bay and that creates sort of 8 a circulation, which to some extent increases mixing 9 in some ways, but also because of the stratification 10 it limits water from mixing within different layers. 11 And so as we go on into the summer season you get 12 less fresh water but the sun starts to heat up the 13 water at the surface, so warmer water like fresh 14 water is less dense than colder water and so, again, 15 you start of maintain that stratification. And then 16 as you get into the fall and, you know, the water is 17 still pretty warm, you also sort of maintain that 18 stratification, eventually you get colder weather and 19 the colder weather starts to reduce the temperature 20 of the water at the surface. And as you go and 21 transition into the wintertime, so this is, you know, 22 mid-winter, late winter, what happens is the water is 23 cold at the surface. Everything is frozen in the

 complete mixing so there is less stratification. and so what have we done to address this? In the CORK modeling where we look at the near (ideal, that initial mixing, that is in large part dependent on the stratification in the water column. a drat hat deality different that density is between the discharge we tar and the ambiert wetter. And so depending on how discrept water and the advective is not going to set and the advect and the advective is not going to be attraight between the discharge we tar and the advective is not going to be advect and the advective initial discrept wetter and the advective is not going to be advect and the advective is not going to be advect and the advective is not going to be advect and the advective is not going to be advect and the advective is not going to be advect and the advective is not going to be advect and the advective is not going to be advect and the advect it is advect the current with the denser wetter that's advect the current and the advect is is going to be advect and the advect in the current is advect the current is advect the current is advect the advect is is going to be advect and the advect is is going to be advect in the advect in the			
 1 In the COMUX modeling where we look at the near 2 In the COMUX modeling where we look at the near 3 Generation, that is in large part 3 Generation the startification in the weter colum. 3 Generation, and the density difference between the discharges 4 In the ansiter witter. And so depending on have 4 Generation, and the density witter is the additional model have and the advice weter and the advice weter is released near the bottom 1 Hans of the stress differently. And so when you have 1 Conditions - and the denser weter that's 1 Generation is a the weter in released near the bottom 1 And so it's - that weter is freebers to it's less 1 Generations and the domes wetthe's 1 Generations and the domes weter that's 1 Generations and the down weter that's 2 Generations and the down weter that's solutions and the domes weter that's solutions and the down weter the's solutions and the down weter to constant and the down weter the down weter to constant and the down	1	complete mixing so there is less stratification.	1 stratification issue and the seasonality.
 4 field, that initial mixing, that is in large part 5 dependent on the stratification in the water column 6 in the density difference thesen the discharge 9 strat math is water with the discharge 9 strat plate stratification is and haym ad hay 9 strat plate stratification is and haym ad hay 9 stratight at stratification is and haym ad hay 9 stratight at stratification is and haym ad hay 9 stratight at stratification is and haym ad hay 9 stratight at the admitty is between the effloant or the 10 mixing black differently. And so shap value 11 mixing black addresses the first math initial 12 strate with the desart water that initial 13 and hi 's that water is is frasher so it's has 14 first main in the water column. And under certain 16 cord dist, is also depends on the current 10 for times - and this also depends on the current 11 first miss also depends on the current 11 for the rise all the way up to the surface in 12 will either rise all the way up to the surface 14 first couple of hours after it's ejected from the 14 mean (Lineare in the model in the model is the couple of hours after it's ejected from the 14 first couple of hours after it's ejected from the 14 pipe. Add th add the discharge with the ide 14 that this is going to be a hourset there partially within 14 the first couple of hours after it's ejected from the 14 that this is going to be a way by to the surface 14 that this also couple the dy why the it the sping. 14 that that an alyser that's 5, 10 meters hild 14 that this is going to be a hourset the tide 14 that that an alyser that's 5, 10 meters hild 14 that this is going to be a hourset free partials 14 that couple the dy way that' that the water oblam. It may come up to the sarifon	2	And so what have we done to address this?	2 I think I'll also talk a little bit about
 s dependent on the statilitation in the water column s and the density difference between the discharge y water and the arboint water. And so depending on how s trong that stratification is and how and how y different that density is between the efficience or the discharge water and the arboint water that limital indicing behaves differencely. And so when you have i times of the strong stratification water happens is i dense, hat as it mixes with the denser water that 's i dense, hat as it mixes with the denser water that 's i dense, hat as it mixes with the denser water that 's i dense, hat as it mixes with the denser water that 's i dense, hat as it mixes with the denser vertain g aped, no it waries with the tide whelf 't's shad. i discharge that's coning out will become targed. It's i discharge and the arroged with ma layer halow. i due - looking at the COMMX results, we understatifies that - and the arrows and 's i due - looking at the COMMX results, we understatifies in the water solum. It way one up to the surface in the super layer of the water solum. It may cause upfor the model. i the link is going to be a hought discharge and that's his solut to a target hat's 5, 10 meters thick's i due - looking at the COMMX results, we understatifies the result is upfore the model. i the surface hat mean the surface. As the super hart's of the subare olume. At ways the subare olume that model we have as a significant of the took to create nore disclasses it's oping to be a hought discharge and that's oping on harts after it's oping the target hat means the surface in the super layer of the water colum. If we are to include? i docharge the disclassion from the COMMX modeling. We have and hand the consent to an and the surface in the super layer of the water colum. As the super layer of the water colum. If we are to minc	3	In the CORMIX modeling where we look at the near	3 the tidal periods here. So you mentioned slack tides
 s and the density difference between the discharge 7 water and the arbitry and so depending on the strong stratification is and how - and how afferently. And so when you have s the sterve - the water is released near the bottom is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it become strapped. It and it can also be forced with wind. In this case, we in did not force it. It can also be forced with wind. in this as edgets on the surface. And so what we're is did how force it. It can also be forced with wates. is did how force it. It can also be forced with wates. is did how force it. It can also be forced with wind. is this second with a layer bear and the and the surface in the system of the model. is did how force it. It can also be forced with wate. is did how force it. It can also be forced with wate. is did how force it. It is also the nore	4	field, that initial mixing, that is in large part	4 in the summer, that's a time when the stratification
 s and the density difference between the discharge 7 water and the arbitry and so depending on the strong stratification is and how - and how afferently. And so when you have s the sterve - the water is released near the bottom is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it becomes more and more desse as it's is around it, it become strapped. It and it can also be forced with wind. In this case, we in did not force it. It can also be forced with wind. in this as edgets on the surface. And so what we're is did how force it. It can also be forced with wates. is did how force it. It can also be forced with wates. is did how force it. It can also be forced with wind. is this second with a layer bear and the and the surface in the system of the model. is did how force it. It can also be forced with wate. is did how force it. It can also be forced with wate. is did how force it. It is also the nore			5 is strong and during slack tides there is not going
 9 where and the arbiter water. And so depending on how strong that arratilization is and how and how strong that arratilization water that initial line the density between the effluents or the strong stratification water that initial line is and the arbiter water that initial line is and the arbiter water that initial line water is freekers or it's less if a most in the water or her water is freekers or it's less if a dense, but as it mixes with the denser water that's is the water or the water or her water is freekers or it's less if a dense, but as it mixes with the denser water that's is a water or that is a degress on the current is an also be forced with wind. If the code is the con also he forced with wind is a diverse in the water algorithm of the water or line. And under carries in any conset uncertain is a layer that's 5, 10 meters thick is a construction. If way one the surface is in many cases under most conditions from the CMMM results, we understand is first couple of hours and here are on the first couple of hours and here are on the the current is now seven of the surface in the water online is forced with wind. If we wate to include strong that is a discrete thick is a single to the surface is in any case under most conditions from the CMMM results, we understand is the result in any case is the integrate if the surface is the uncert at the stratification is the uncert with leads to more mixing in the model is too-dimensional circulation. If we wave to include is that is a deph average current. So is including wind in the model we have easent that is a deph average current. So is including wind in the model is too-dimensional circulate the include is the surface in the way from the stratification is the uncert at a different deph layers in the model. And is a cose with the table way from the is and be can be a sub the define the way from the is and be calculated is that if which with different deph layers in the model. And is a sub the seasen the time stread is that it way through th	б	-	
 strong that stratification is and how - and how strong that stratification is and how - and how stifterent that density is between the effluent or the discharge water and the ablement water that initial mixing between differently. And so when you have the water - the water is released near the bottom the mater - the water is released near the bottom the mater - the water is released near the bottom the mater - and this able depends on the current second fit, it becomes more and more dense as it's the the ultimately the ping orgonal and the cases that the water oalma. And under certain the water is dinab depends on the current second fit or biological the dy this tends to vary, that and the reason for that is because wind on have a wind can have a effect on the, you have, the and the reason for that is because wind on have a wind can have a effect on the, you have, the and the reason for that is because wind on have a wind can have a effect on the, you have, the and the reason for that is because wind on have a wind can have a effect on the, you have, the and the reason for the is optical bo a hoyard discharge and that the current is going to be aboyard discharge and that the current is going to be aboyard discharge and that the current is a going have a the surface in the current is a going have a hoyard discharge and that the current is a going have a hoyard discharge and that the current is a going have a hoyard discharge and that the current is a going have a fit is is allow a discover and waves and waves the discover and that for a fifth way they the surface in the way trace in the user for its poing to then during the way that is show a discover and waves and waves that waves that waves that waves that waves that waves that waves			
 9 different that density is between the effluent or the 10 diacharge water and the arbient water that initial 11 mixing between differently. And so when you have 12 mixing between differently. And so when you have 13 the water the water is reakers so it's less 14 and so it's that water is reakers so it's less 15 dense, but as it mixes with the denser water that's 16 around it, it becomes more and more dense as it's 17 apped, so it varies with the tide whether it's shad 14 fort throughout the dup whether it's shad 14 fort throughout the dup whise traped. It's 19 and the reason for this is because wind non have a - 10 in this case, we did not apply any wind in the model 19 and the reason for this is because wind non have a - 10 this case, we did not apply any wind in the model 19 and the reason for this is because wind non have a - 10 this case, we did not apply any wind in the model 19 and the reason for this is because wind non have a - 10 this case, we did not apply any wind in the model 19 and the reason for this is because wind non have a - 10 this case, we did not apply any wind in the model 19 and the reason for this is because wind non have a - 10 this case, we did not apply any wind in the model 10 there -looking at the COMMX results, we understand 21 forth throughout the day this tager back 24 10 done looking at the COMMX results, we understand 21 forth are colum. If any case up to the surface 24 10 done looking at the COMMX results, we understand 21 forth is a layer that's 5, 10 netters thick 21 is denser and then during other time periods 21 there is mongh training atter the spice for this 21 doesn't it doesn't it	8	2 5	
 idischarge water and the ambient water that initial in discharge water and the ambient water that initial idischarge water and the ambient water that initial idischarge water the water is released near the bottom if draws, hit is it nices with the denser water that 's if draws, hit is it nices with the denser water that 's if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if conditions and this also depends on the current if charges with the sufface. And so what we're 40 if charge looking at the COMMX results, we understand if charges with miss all he way from the if bottom to the top. And so we're got to kind of if charges with the sease of it water column. Fit way from the if charges with the sease of the current time depends in that if charges with the sease of the COMMX results. We way from the if charges with the sease of we compliated if that if if charges with the sease of we compliated if that if if charges with the sease of the COMMX results. We way from the if charges with the sease of the COMMX results. We w	9	-	
11 So I'm going to nove on here to wind. Wind 11 So I'm going to move on here to wind. Wind 12 times of the storng startification what happens is 13 the water - the water is released near the bottom 14 and so it's that water is fresher so it's less 15 and so it's that water is fresher so it's less 16 and so it's that water is fresher so it's less 17 saround it, it becomes wore and now denues as it's 18 conditions and this also depends on the current 19 oped, so it varies with the tide whether it's slack 10 tothe or high tide and the tide is going back and 11 tota or high tide and the tide is going back and 11 tota or high tide and the tide is going back and 12 still be trapped within a layer barged. 14 searcase it is ull be trapped within a layer barged. 14 one looking at the COMMX results, we understand 1 the first couple of hours after it's ejected from the 9 pipe. And that alt dia currents may be storng 1 there is enough turbulence all the way through the 14 there is enough turbulence is that it's is dat		-	_
 12 times of the strong stratification what happens is 13 the water the water is released near the bottom 14 and so it's that water is freshers or is's less 15 dense, but as it mixes with the denser water that's 16 conditions and this also depends on the current 19 geed, so it varies with the tide is going back and 10 dine this pitche and the tide is going back and 11 dine trained it the way up to the surface in 12 dindarge that's coming out will become trapped. It 13 will either rise all the way up to the surface in 14 dun ultimately the pitcher is even to the totom currents, 14 dun ultimately the pitcher is even the way up to the surface in 15 what contained but near the surface. And so what we're 16 done looking at the COMMX results, we understant 17 done looking at the COMMX results, we understant 18 the first couple of hours after it's ejected from the 19 pitch. And that and then during other time periods 10 the current the tidal currents may be strong 11 there is enough turbulence in the way from the 12 there is enough turbulence in the way from the 13 were column that if might init all the way from the 14 ben we calculates a depth average ourrent. So 15 dorder it calculates a depth average our that. 16 dorder it doesn't it doesn			
 13 the water the water is released near the bottom 14 and so it's thet water is fremelier so it's less 15 dense, but as it mixes with the dense relation to it's acould the the associated the theorement arrows and it the ultimately the ping porg balls and the ones that is do and the theorement arrows and it the ultimately the ping porg balls and the ones that is our associated the theorement arrows and it the ultimately the ping porg balls and the ones that is our associated the theorement arrows and it the ultimately the ping porg balls and the ones that is our associated the ultimately the ping porg balls and the ones that is our associated the ultimately the ping porg balls and the ones that is our associated the ultimately the ping porg balls and the ones that is our associated the ultimately the ping porg balls and the ones that is our associated the under constration, is that model is a direct which is a lob perform the is going to the targed within a layer ball. And is a set the use of the during the under the upper part is of the water conductions through the searces it's going to the during the time proids is that it is going to the during the time proids is that if the first couple of hours after it's specify conducted the under of the users thick? 1 underse in the layer of the water and that is a going to then during of the time proids is that it is going to the during the time proids is that it is going to the outer and the during the users that is specified. The use is the associated the transitions from the Mark from the is charged with the define the users that is specified. 1 does it is conditions from the CMBIX modeling. We have a same that is form the upper play of the water column. It may come up to the water of the users when the upper play is intervaly is the upper layer of the water and that is used. Intervaly the upper play is the upper layer of the water and that is used. Intervaly the upper play is intervaly the upper play is the upper l			
14 and so it's that water is fresher so it's less 15 dares, but as it mixes with the denser water that's 16 dares, but as it mixes with the denser water that's 17 rising in the water colum. And under certain 18 conditions and this also depends on the current 19 speed, so it varies with the tide is gip back and 10 tide or high tide and the tide is gip back and 11 forth throughout the day this tends to vary, that 12 will either rise all the way up to the surface in 14 done looking at the OORMIX results, we understand 1 done looking at the OORMIX results, we understand 1 done looking at the OORMIX results, we understand 1 done looking at the CORMIX results, we understand 1 done looking at the CORMIX results, we understand 1 done looking at the CORMIX results, we understand 2 mitially. And we're talking just initially within 1 the current the tidal currents may be strong 1 enough, the stratification may be wake enough that 1 bot of detailed calculations from the CORMIX 1 or adva as as the tide vande in the way through the 1 bot of detailed calculations from the CORMIX 1 bot of detailed calculations from the CORMIX 1 bot of detailed calculations from the CORMIX 1 bot of detailed calculations			_
 15 dense, but as it mixes with the denser water that's 16 wound it, it becomes more and more dense as it's 17 rising in the water column. And under certain 18 conditions and this also depends on the current 19 seed, so it varies with the tide is going back and 11 forth throughout the day this tends to vary, that 21 dicharge that's coming out will become trapped. It 21 sincharge that's coming out will become trapped. It 21 dicharge that's coming out will become trapped. It 21 sourceases or it will be trapped within a layer below. 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 21 done looking at the COBMIX results, we understand 22 done this is going to tend to stay in the upper part 31 forth current the tidal currents may be strong 32 encough that and then during other time periods 33 that and then during other time periods 34 bot of detailed calculations from the QOBMIX deling. Merva at 35 bot of detailed calculations from the QOBMIX deling. Merva at 35 bot of detailed calculations from the COBMIX 35 bot of detailed calculations from the COBMIX deling. Merva at 35 bot of detailed calculations from the COBMIX deling. Merva at 36 bot of detailed calculations from the COBMIX 37 bot of detailed calculations from the COBMIX 38 bot at 1 think that kind of addresses the -1 it so canse that at auguly will tend to 39 bot at 1 think that kind of addresses the -1 it so canse that at addresses the -1 it so canse that at addresses the thereoling. No			
 16 around it, it becomes more and more dense as it's 17 rising in the water colum. And under certain 18 conditions and this also degends on the current 19 speed, so it varies this very complicated is that it 19 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 1 done looking at the COMMIX results, we understand 2 and wind also create more turbulence. So by not 3 including wind in the model is that it 9 pipe. And that and then during other time periods 10 the current the tidal calculations from the COMMIX 10 done or a full bid, the state of that beavior 16 dames it dosen't it dos			
 17 rising in the water colum. And under certain 18 conditions and this also depends on the current 19 speed, so it varies with the tide whether it's slack 10 ther conservation of the tide is going back and 11 ofth throughout the day this tends to vary, that 21 discharge that's coming out will be come trapped. It 21 sindle enter rise all the way up to the surface in 22 and it can have an effect on the, you know, 23 the surface but near the surface. And so what we've 24 24 24 25 the surface but near the surface. And so what we've 29 21 done looking at the COMMIX results, we understand 2 that this is going to be a buoyant discharge and that 4 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 31 in analy ever tailing just initially within 44 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 32 and wind also create more turbulence. So by not 33 including wind in the model we have essentially made 44 also tends to create more turbulence. So by not 45 including wind in the model we have essentially made 46 ad remain in a layer that's 5, 10 meters thick 47 indeal and then during other time periods 48 were column that it might mix all the way from the 48 bortom to the top. And so we've got to kind of 49 what makes this very complicated is that it 41 full food or a full ebb, the state of that behavior 40 full food or a full ebb, the state of that behavior 41 full food or a full ebb, the state of that behavior 42 so that 1 thing kit wind of addresses the +- 1 43 that 1 thing all the way down to the 44 subsorease of that and then is the odd the solve the problem. Because of that,			
 18 conditions and this also depends on the current 19 geed, so it varies with the tide whether it's slack 20 tide or high tide and the tide is going back and 21 forth throughout the day this tends to vary, that 22 difact gethat's coming out will become trapped. It 23 will either rise all the way up to the surface in 24 sone cases or it will be trapped within a layer below 26 the surface but near the surface. And so what we've 49 21 done looking at the COEMIX results, we understand 2 that this is going to be a buyant discharge and that 3 in many cases under most conditions through the 4 essame it's going to be a buyant discharge and that 4 some asses under most conditions through the 4 essame it's going to be a buyant discharge and that 4 essame it's going to be a buyant discharge and that 4 essame it's going to be a buyant discharge and that 4 essame it's going to be a buyant discharge and that 4 essame it's going to tend to stay in the upper part 5 of the water colum. It may cone up to the surface 6 and remain in a layer that's 5, 10 meters thick 9 injep. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be way enough that 12 there is enough turbulence all the way through the 13 understand that from the ODEMIX modeling. We have a 14 bottom of the to, be state of that behavior 15 obecause of that and that during other time periods 19 dorf detailed calculations from the ODEMIX 10 dord ar full els), the state if charges with the tide transitions from slack tide to a 11 flood or a full els), the state of that behavior 21 full flood or a full els), the state of that behavior 23 stratification or there is more less 24 that			
 19 speed, so it varies with the tide whether it's slack 10 tide or high tide and the tide is going back and 21 forth throughout the day this tends to vary, that 21 discharge that's coming out will become trapped. It 22 discharge that's coming out will be the surface in 23 will either rise all the way up to the surface in 24 some cases or it will be trapped within a layer below 25 the surface but near the surface. And so what we've 49 1 done looking at the COMMIX results, we understand 2 that this is going to be a huoyant discharge and that 3 in many cases under most conditions through the 4 sossons it's going to tend to stay in the upper part 5 of the water colum. It may cone up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 6 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 eough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 winard wakes this very complicated is that it 19 danges with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 32 increase the dispersion and mixing of the effluent. 33 of that it thick that kind of addresses the it 34 oth a sease the dispersion and mixing of the effluent. 35 that somewhat addresses the thermocline, the 		-	
 20 tide or high tide and the tide is going back and 21 forth throughout the day this tends to vary, that 22 discharge that's coming out will be come trapped. It 23 will either rise all the way up to the surface in 24 some cases or it will be trapped within a layer below 24 some cases or it will be trapped within a layer below 25 the surface but near the surface. And so what we've 49 20 thit is an actually create, you know, the 21 surface currents more so than the bottom currents, 22 that this is going to be a buoyant discharge and that 3 in may cases under most conditions through the 4 seasons it's going to be a buoyant discharge and that 3 in may cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 conderstand that from the CORMIX modeling. We have a 12 locen't it calculates a dept haverage current. So 13 to desn't it doesn't calculate the 14 current at different dept layers in the model. And 15 obtom to the top. And so we've got to kind of 16 to detailed calculations from the CORMIX 17 modeling. 18 thit fins dust this way toroghited is that it 19 dranges with the season and it changes with the tide 10 dranges with the season and it changes with the tide 11 flood or a full ebb, the state of that behavior 23 so that I think that kind of addresses the I 24 that yearen't mixing all the way down to the 24 bottom and so, you know, in some			
 1 forth throughout the day this tends to vary, that 2 discharge that 's coming out will become trapped. It 2 will either rise all the way up to the surface in 4 some cases or it will be trapped within a layer below 49 1 done looking at the CORMIX results, we understand 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons i's going to tend to stay in the upper part 5 of the water column. It may come up to the surface 4 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 horizontally. That model is two-dimensional, so it 12 doesn't it colculates a depth average current. So 13 water column that it might mix all the way from the 14 botton to the top. And so wive got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 Mat makes this very complicated is that it 19 and so as the tide transitions from slack tide to a 16 full flood or a full ebb, the state of that behavior 21 full flood or a full ebb, the state of that behavior 23 full flood or a full ebb, the state of that behavior 24 funct dimensional curve is more less 25 that I think that kind of addresses the I 25 that somewhat addresses the thermocline, the 		-	
 22 discharge that's coming out will become trapped. It 23 will either rise all the way up to the surface in 24 some cases or it will be trapped within a layer below 25 the surface but near the surface. And so what we've 49 20 the surface but near the surface. And so what we've 49 21 done looking at the COEMIX results, we understand 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 14 sourcent at different depth layers in the model. And 15 obcause of that it doesn't it calculate the 16 ot of detailed calculations from the COEMIX 16 ot of detailed calculations from the COEMIX 17 modeling. 16 what makes this very complicated is that it 19 changes with the season and it changes with the tide 10 and so as the tide transitions from slack tide to a 11 flood or a full ebb, the state of that behavior 21 full flood or a full ebb, the state of that behavior 22 is poing to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 that they aren't mixing all the way down to the 25 that we case the themocline, the 			
 23 will either rise all the way up to the surface in 24 some cases or it will be tragged within a layer below 25 thirk somewhat addresses the thermoline, the 29 but it can actually create, you know, 21 third can actually create, you know, 21 third can actually create, you know, 23 but it can actually create, you know, 24 three-dimensional circulation in cases. Wind tends 25 thirk somewhat addresses the thermoline, the 29 but it can actually create, you know, 21 three-dimensional circulation in cases. Wind tends 21 three-dimensional circulation. It tends to create more 21 three-dimensional circulation in cases. Wind tends 21 three-dimensional circulation. It tends to create more 21 three-dimensional circulation. It tends to create more 21 three-dimensional circulation. It tends to create 22 and wind also create more turbulence. So by not 23 that readily create waves and waves tend to create 24 and wind also create more turbulence. So by not 24 and remain in a layer that's 5, 10 meters tirk eiget of that the dimain of the			
 24 some cases or it will be trapped within a layer below 29 24 three-dimensional circulation in cases. Wind tends 25 to create more circulation. It tends to create more 31 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the ODEMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 11 full flood or a full ebb, the state of that behavior 21 is going to change and that atually will tend to 22 is going to change and that atually will tend to 23 that hey aren't mixing all the way down to the 24 three-dimensional circulations or there is more wertical mixing 24 three-dimensional circulation. It tends to create more transitions from slack tide to a 23 that I think that kind of adhresses the I 24 three dimensional circulation or there is more wertical mixing 			
25the surface but near the surface. And so what we've 4925to create more circulation. It tends to create more 511done looking at the CORMIX results, we understand 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water colum. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX 17 modeling.11 <th></th> <td></td> <td></td>			
49511 done looking at the CORMIX results, we understand1 turbulence in the water which leads to more mixing2 that this is going to be a buoyant discharge and that3 in many cases under most conditions through the4 seasons it's going to tend to stay in the upper part5 of the water colum. It may come up to the surface6 and remain in a layer that's 5, 10 meters thick7 initially. And we're talking just initially within8 the first couple of hours after it's ejected from the9 pipe. And that and then during other time periods10 the current the tidal currents may be strong11 enough, the stratification may be weak enough that12 there is enough turbulence all the way through the13 water column that it might mix all the way from the14 bottom to the top. And so we've got to kind of15 understand that from the CORMIX16 lot of detailed calculations from the CORMIX17 modeling.18 makes this very complicated is that it19 charges with the season and it changes with the tide11 full flood or a full ebb, the state of that behavior12 is going to change and that actually will tend13 increase the dispersion and mixing of the effluent.14 So that I think that kind of addresses the I15 think somewhat addresses the thermocline, the			
 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water column. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 21 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water conduction. If we were to include 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 9 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that model is two-dimensional, so it 12 doesn't it colculates a depth average current. So 13 it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 obleans't it doesn't calculate the 16 oth of detailed calculations from slack tide to a 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 that may dow, wing the way down to the 21 stratification is strong that's pretty reasonable	25		
 2 that this is going to be a buoyant discharge and that 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water column. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 21 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water conduction. If we were to include 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 9 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that model is two-dimensional, so it 12 doesn't it colculates a depth average current. So 13 it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 obleans't it doesn't calculate the 16 oth of detailed calculations from slack tide to a 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 that may dow, wing the way down to the 21 stratification is strong that's pretty reasonable			
 3 in many cases under most conditions through the 4 seasons it's going to tend to stay in the upper part 5 of the water column. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 Mat makes this very complicated is that it 19 changes with the season and it changes with the tide 21 funct a full ebb, the state of that behavior 21 in flood or a full ebb, the state of that behavior 22 increase the dispersion and mixing of the effluent. 23 think somewhat addresses the thermocline, the 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 9 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't and that's just a 14 obtom to the top. And so we've got to kind of 15 so because of that and that 's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculat			
 4 also tends to create more turbulence. So by not 5 of the water column. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way through the 14 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it doesn't it doesn't calculate the 14 doesn't it doesn't - it doesn't - it doesn't calculate the 15 obtat to that the season and it changes with the tide 16 danges with the season and it changes with the tide 17 modeling. 18 What makes this very complicated is that it 19 dharges with the season and it changes with the tide 10 the upper layer of the water column. So we assume 11 that they aren't mixing all the way down to the 21 bottom and so, you know, in some cases when the 22 bottom and so, you know, in some cases when the 23 stratification is strong that's pretty reasonable. 24 In other cases when there is more vertical mixing 	1	done looking at the CORMIX results, we understand	1 turbulence in the water which leads to more mixing
 5 of the water column. It may come up to the surface 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 21 full flood or a full ebb, the state of that behavior 21 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that		-	_
 6 and remain in a layer that's 5, 10 meters thick 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 10 and so as the tide transitions from slack tide to a 11 flood or a full ebb, the state of that behavior 21 increase the dispersion and mixing of the effluent. 23 othat I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 	2	that this is going to be a buoyant discharge and that	2 and wind also creates waves and waves tend to create
 7 initially. And we're talking just initially within 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 bottom and so, you know, in some cases when the 21 bottom and so, you know, in some cases when	2 3	that this is going to be a buoyant discharge and that in many cases under most conditions through the	2 and wind also creates waves and waves tend to create3 turbulence in the upper layer of the water and that
 8 the first couple of hours after it's ejected from the 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the 23 stratification or there is more less<!--</td--><th>2 3 4</th><td>that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part</td><td>2 and wind also creates waves and waves tend to create3 turbulence in the upper layer of the water and that4 also tends to create more turbulence. So by not</td>	2 3 4	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part	2 and wind also creates waves and waves tend to create3 turbulence in the upper layer of the water and that4 also tends to create more turbulence. So by not
 9 pipe. And that and then during other time periods 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 9 that that that area where those ping pong balls 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn	2 3 4 5	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface	 2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made
 10 the current the tidal currents may be strong 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 charges with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 	2 3 4 5	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include
 11 enough, the stratification may be weak enough that 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 	2 3 4 5 6 7	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally
 12 there is enough turbulence all the way through the 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 	2 3 4 5 6 7 8	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that
 13 water column that it might mix all the way from the 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 	2 3 4 5 6 7 8 9	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls
 14 bottom to the top. And so we've got to kind of 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the 23 stratification is strong that's pretty reasonable. 24 In other cases when there is more less 25 think somewhat addresses the thermocline, the 	2 3 4 5 6 7 8 9 10	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more
 15 understand that from the CORMIX modeling. We have a 16 lot of detailed calculations from the CORMIX 17 modeling. 18 What makes this very complicated is that it 19 changes with the season and it changes with the tide 20 and so as the tide transitions from slack tide to a 21 full flood or a full ebb, the state of that behavior 22 is going to change and that actually will tend to 23 increase the dispersion and mixing of the effluent. 24 So that I think that kind of addresses the I 25 think somewhat addresses the thermocline, the 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the 23 stratification is strong that's pretty reasonable. 24 In other cases when there is more less 25 stratification or there is more vertical mixing 	2 3 4 5 6 7 8 9 10 11	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it
 lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior is going to change and that actually will tend to increase the dispersion and mixing of the effluent. So that I think that kind of addresses the I think somewhat addresses the thermocline, the is done we calculated the model. It makes it easier for the model to solve the problem. Because of that, when we calculated the concentration we assume that all of the, I'll call them, ping pong balls were in that they aren't mixing all the way down to the bottom and so, you know, in some cases when the stratification is strong that's pretty reasonable. In other cases when there is more less stratification or there is more vertical mixing 	2 3 4 5 6 7 8 9 10 11 12	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So
 modeling. What makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior is going to change and that actually will tend to increase the dispersion and mixing of the effluent. So that I think that kind of addresses the I think somewhat addresses the thermocline, the the model to solve the problem. Because of that, when we calculated the concentration we assume that all of the, I'll call them, ping pong balls were in the upper layer of the water column. So we assume that they aren't mixing all the way down to the bottom and so, you know, in some cases when the stratification is strong that's pretty reasonable. In other cases when there is more less stratification or there is more vertical mixing 	2 3 4 5 6 7 8 9 10 11 12 13	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the
18What makes this very complicated is that it18when we calculated the concentration we assume that19changes with the season and it changes with the tide18when we calculated the concentration we assume that20and so as the tide transitions from slack tide to a19all of the, I'll call them, ping pong balls were in20and so as the tide transitions from slack tide to a20the upper layer of the water column. So we assume21full flood or a full ebb, the state of that behavior20that they aren't mixing all the way down to the22is going to change and that actually will tend to22bottom and so, you know, in some cases when the23increase the dispersion and mixing of the effluent.23stratification is strong that's pretty reasonable.24So that I think that kind of addresses the I24In other cases when there is more less25think somewhat addresses the thermocline, the25stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And
19 changes with the season and it changes with the tide19 all of the, I'll call them, ping pong balls were in20 and so as the tide transitions from slack tide to a20 the upper layer of the water column. So we assume21 full flood or a full ebb, the state of that behavior20 that they aren't mixing all the way down to the22 is going to change and that actually will tend to20 bottom and so, you know, in some cases when the23 increase the dispersion and mixing of the effluent.23 stratification is strong that's pretty reasonable.24 So that I think that kind of addresses the I24 In other cases when there is more less25 think somewhat addresses the thermocline, the25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 11 12 13 14 15	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a
19 changes with the season and it changes with the tide19 all of the, I'll call them, ping pong balls were in20 and so as the tide transitions from slack tide to a20 the upper layer of the water column. So we assume21 full flood or a full ebb, the state of that behavior20 that they aren't mixing all the way down to the22 is going to change and that actually will tend to20 bottom and so, you know, in some cases when the23 increase the dispersion and mixing of the effluent.23 stratification is strong that's pretty reasonable.24 So that I think that kind of addresses the I24 In other cases when there is more less25 think somewhat addresses the thermocline, the25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for
20 and so as the tide transitions from slack tide to a20 the upper layer of the water column. So we assume21 full flood or a full ebb, the state of that behavior20 the upper layer of the water column. So we assume22 is going to change and that actually will tend to21 that they aren't mixing all the way down to the23 increase the dispersion and mixing of the effluent.22 bottom and so, you know, in some cases when the24 So that I think that kind of addresses the I23 stratification is strong that's pretty reasonable.25 think somewhat addresses the thermocline, the24 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling.	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that,
21 full flood or a full ebb, the state of that behavior21 that they aren't mixing all the way down to the22 is going to change and that actually will tend to21 that they aren't mixing all the way down to the23 increase the dispersion and mixing of the effluent.22 bottom and so, you know, in some cases when the24 So that I think that kind of addresses the I23 stratification is strong that's pretty reasonable.25 think somewhat addresses the thermocline, the24 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that
22 is going to change and that actually will tend to22 bottom and so, you know, in some cases when the23 increase the dispersion and mixing of the effluent.22 bottom and so, you know, in some cases when the24 So that I think that kind of addresses the I24 In other cases when there is more less25 think somewhat addresses the thermocline, the25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it changes with the season and it changes with the tide	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in
23 increase the dispersion and mixing of the effluent.23 stratification is strong that's pretty reasonable.24 So that I think that kind of addresses the I24 In other cases when there is more less25 think somewhat addresses the thermocline, the25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. Mhat makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume
24 So that I think that kind of addresses the I24 In other cases when there is more less25 think somewhat addresses the thermocline, the25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the
25 think somewhat addresses the thermocline, the 25 stratification or there is more vertical mixing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. Mhat makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior is going to change and that actually will tend to	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the
	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior is going to change and that actually will tend to increase the dispersion and mixing of the effluent.	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the 23 stratification is strong that's pretty reasonable.
50 52	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	that this is going to be a buoyant discharge and that in many cases under most conditions through the seasons it's going to tend to stay in the upper part of the water column. It may come up to the surface and remain in a layer that's 5, 10 meters thick initially. And we're talking just initially within the first couple of hours after it's ejected from the pipe. And that and then during other time periods the current the tidal currents may be strong enough, the stratification may be weak enough that there is enough turbulence all the way through the water column that it might mix all the way from the bottom to the top. And so we've got to kind of understand that from the CORMIX modeling. We have a lot of detailed calculations from the CORMIX modeling. What makes this very complicated is that it changes with the season and it changes with the tide and so as the tide transitions from slack tide to a full flood or a full ebb, the state of that behavior is going to change and that actually will tend to increase the dispersion and mixing of the effluent. So that I think that kind of addresses the I	2 and wind also creates waves and waves tend to create 3 turbulence in the upper layer of the water and that 4 also tends to create more turbulence. So by not 5 including wind in the model we have essentially made 6 a conservative prediction. If we were to include 7 wind and we were to include sort of naturally 8 variable wind, we would see that you would that 9 that that that area where those ping pong balls 10 are moving would tend to spread out and mix more 11 horizontally. That model is two-dimensional, so it 12 doesn't it calculates a depth average current. So 13 it doesn't it doesn't it doesn't calculate the 14 current at different depth layers in the model. And 15 so because of that and that's just a 16 simplification of the model. It makes it easier for 17 the model to solve the problem. Because of that, 18 when we calculated the concentration we assume that 19 all of the, I'll call them, ping pong balls were in 20 the upper layer of the water column. So we assume 21 that they aren't mixing all the way down to the 22 bottom and so, you know, in some cases when the 23 stratification is strong that's pretty reasonable. 24 In other cases when there is more less

1 that's a conservative assumption we would tend to --MS. RANSOM: Give or take. 1 2 we would tend to over estimate the concentrations 2 MR. DILL: Yeah, 13 to 16. 3 from what you would see. MR. HEIM: 13 to 16 Celsius. 3 And I think it's also important to kind of MR. DILL: So if you multiply it by 9/5 and 4 4 5 reflect back on the fact that that vertical mixing 5 add 32. 6 and how strong that tendency to be trapped within the 6 AUDIENCE MEMBER: (Paul Bernacki.) And the 7 layer varies with the tide. So on one tide, you 7 salinity is still the stated three parts salt water 8 know, on one portion of the tide you may have the 8 to one part fresh water? MR. HEIM: Mid 20s. Mid 20s parts per 9 effluent being sort of trapped near the surface, but 9 10 then when the tide changes and the current speed 10 thousand. 11 picks up it's all going to get mixed. And so as you 11 AUDIENCE MEMBER: (Paul Bernacki.) What is 12 go further in time, if you look at a ping pong ball 12 that? 13 that was released, you know, within an hour or two we 13 MR. DILL: The salinity of the discharge 14 can see from the CORMIX modeling that it may be 14 water is about 20 parts per thousand. Mid 20s parts 15 stratified -- trapped in the stratification, but when 15 per thousand. And that's, yeah, approximately what 16 you look two days later, the tide has changed four 16 you'd get if you approximately mix one part fresh 17 times already, there's a good chance it's going to be 17 water with two parts salt water. 18 pretty well vertically mixed. 18 AUDIENCE MEMBER: (Paul Bernacki.) Two And then I guess I'll go to your final 19 parts or three parts? Two parts or three parts? 19 20 question, have we done any localized tests. I'm 20 MR. DILL: Approximately two parts salt 21 looking at where things would go and the answer is --21 water and one part fresh water. 22 the answer is -- the answer is no, not really. We 22 AUDIENCE MEMBER: (Paul Bernacki.) And so 23 have the -- we have the water level data from core 23 the -- all of the water that's going into the 24 point. We worked with the available data that we 24 various -- the smolt grow out and the grow out, all 25 have for this analysis. And so the -- and what we 25 of those water temperatures will be combined in an 53 55 1 have is water level data that was -- the closest data 1 average temperature by the time they get to the 2 that we have that we can use to validate our model 2 outflow? 3 that's sort of a standard practice with this model is 3 MR. DILL: That's my understanding, yes. 4 that you take the model results, you compare them to AUDIENCE MEMBER: (Paul Bernacki.) That's 4 5 observations and then you demonstrate that the model 5 my understanding. Okay. Thanks, Nate. 6 is able to reproduce things that were actually MR. DILL: You're welcome. 6 MS. TOURANGEAU: Mr. Bernacki, can I also 7 observed and that gives you some level of confidence 7 8 that the model is reasonably predicting other things 8 add to that to say that Nate did a wonderful job 9 in other areas where you haven't observed it. And 9 briefly summarizing two memorandums that are in that 10 that's really the -- the point of the model is to 10 draft application, one on the near field modeling, 11 provide us with information in areas where we don't 11 one on the far field modeling and a pier review that 12 have observations. It is helpful the more 12 was done by Ramboll kind of looking at both of those 13 observations you have the better confidence you can 13 modeling reports. So that will all be in the actual 14 have in your model, but also the more observations 14 application when it goes in and that will give a much 15 you have the less you need the model. So I guess 15 more fulsome answer to your very helpful questions. 16 that's -- that's my response. 16 Thank you. AUDIENCE MEMBER: (Paul Bernacki.) Just one AUDIENCE MEMBER: Hi. My name is Lawrence, 17 17 18 follow-up. 18 L-A-W-R-E-N-C-E, last name is Reichard, 19 R-E-I-C-H-A-R-D. I am from Belfast. And in the 19 MR. DILL: Sure. AUDIENCE MEMBER: (Paul Bernacki.) Can you 20 spirit of full disclosure, I am a columnist for the 20 21 tell me what the planned temperature of the outflow 21 Republican Journal newspaper here in Belfast. My 22 water will be? Range? 22 question is all of the facts and figures and the MR. DILL: I might not get this right. I'm 23 presentation that we've seen here this evening seem 23 24 going to say is it 13 centigrade, I think is the --24 to be based on best case scenarios where nothing goes 25 is that... 25 wrong. As Mr. Heim knows, I was recently in Norway 54 56

1	and Denmark and I spoke while on that trip, I	1 salmonicida. And these things would eradicate those	
2		2 diseases as effectively as the polio vaccine did for	
3	Bergen, and that's A-R-E, last name N-Y-L-A-N-D. And	3 polio in the United States. So I think if you're	
4	he said that regardless of what precautions are taken	4 concerned about that one of the things that you'll	
5	in filtering and such there is always a possibility	5 need to make sure of is that the fish are vaccinated	
6	of virus and disease in a land-based fish farm. And	6 before they go in. And of course like any other form	n
7	if and when there is an outbreak of virus or disease	7 of farmed animals, if the animal has had an accident	
8	in a land-based fish farm then those fish will	8 they go on to veterinary care and of course there	
9	those tanks the affected tanks will have to be	9 will be antibodies used in that.	
10	drained, all of the fish in them, probably hundreds	10 Now, looking at those filtration systems, I	
11	of thousands, will have to be slaughtered and then	11 don't see how they can make those comments about them	n
12	those tanks will have to be cleaned.	12 not being adequate without actually looking at the	
13	My question is and I also I also I	13 discharge rates, looking filter efficiency based on	
14	also spoke with Bent Urup, who I believe invented the	14 that science, which I don't think are available yet.	
15	RAS system that will that Nordic Aquafarms would	15 AUDIENCE MEMBER: (Lawrence Reichard.) I	
16	use here in Belfast if they're successful. And he	16 didn't say that.	
17	said that the cleaning mechanisms that Nordic intends	17 MR. BRICKNELL: Well, I thought you said	
18	to use here would not be sufficient to deal with the	18 that you were looking at the chemicals that were	
19	outbreak of a virus or disease, thus the tanks would	19 going to be cleaning it and you were saying that the	
20	have to be cleaned. My question is what chemicals	20 diseases were going to occur.	
21	will be used to clean the tanks if and when there is	21 AUDIENCE MEMBER: (Lawrence Reichard.) And	
22	an outbreak of virus or disease in the tank?	22 you said yourself that that is possible.	
23	MS. TOURANGEAU: Should I refer to Ian?	23 MR. BRICKNELL: It is, but you're going now	
24	MR. HEIM: Yeah, go ahead.	24 through a .4 micron filter. Well, that's about the	
25	MS. TOURANGEAU: So we are privileged	25 quarter of the size of the bacteria, so all of the	
	57	59)
1	tonight that Mr. Ian Bricknell, who is a fish disease	1 bacteria will be trapped in those filters under those	_
Ţ	CONTIGUE LEAC ME. TAIL DETCRIETE, WHO IS A LISH DESEASE	I bacterra will be trapped in those fifters where those	9
	and sea life expert with 40 years of experience from	2 situations. I mean, this is the way sterile blood	3
	and sea life expert with 40 years of experience from		
2 3	and sea life expert with 40 years of experience from	2 situations. I mean, this is the way sterile blood	3
2 3 4	and sea life expert with 40 years of experience from the University of Maine has volunteered his time	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of	
2 3 4	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to	
2 3 4 5 6	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L.	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria.	
2 3 4 5 6 7	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and	 2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 	
2 3 4 5 6 7	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know	 2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 	U)
2 3 4 5 6 7 8	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it	 situations. I mean, this is the way sterile blood products are made, for example, for transfusion of plasma or saline. They are often ultra filtered to remove all those bacteria. AUDIENCE MEMBER: (Lawrence Reichard.) So you yourself said that disease outbreak is possible. Can you answer the question, what chemical will be used to clean the tanks in the event of a disease outbreak? You have not answered the question. 	
2 3 4 5 6 7 8 9 10 11	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use.	 2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 	
2 3 4 5 6 7 8 9 10	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities	
2 3 4 5 6 7 8 9 10 11	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's	
2 3 4 5 6 7 8 9 10 11 12 13 14	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.)	
2 3 4 5 6 7 8 9 10 11 12 13 14 15	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question.	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting.	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols.	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring	<pre>2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard</pre>	
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring that the fish that are being ground are vaccinated	2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard 21 thing. This is something that any veterinarian could	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring that the fish that are being ground are vaccinated against those diseases. And most of the common viral	<pre>2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard 21 thing. This is something that any veterinarian could 22 advise you on as part of their training.</pre>	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring that the fish that are being ground are vaccinated against those diseases. And most of the common viral and bacterial diseases in salmon farming, and there	 2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard 21 thing. This is something that any veterinarian could 22 advise you on as part of their training. 23 AUDIENCE MEMBER: (Lawrence Reichard.) Are 	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring that the fish that are being ground are vaccinated against those diseases. And most of the common viral and bacterial diseases in salmon farming, and there are very, very good vaccines available. I know, I	<pre>2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. ERICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. ERICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard 21 thing. This is something that any veterinarian could 2 advise you on as part of their training. 23 AUDIENCE MEMBER: (Lawrence Reichard.) Are 24 you aware that there was a study released just this</pre>	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	and sea life expert with 40 years of experience from the University of Maine has volunteered his time tonight to answer those kind of questions. Come on up Mr. Bricknell. B-R-I-C-K-N-E-L-L. MR. BRICKNELL: Well, thank you for that question. That was really interesting. I'm a fish disease person. My PhD is in aquatic physiology and I've studied fish diseases for 39 years now. I know I look very young and dapper, that's just the way it is, but. It's all of the foreman I use. But one of the things to bear in mind with this is it's like any farm, there is always a risk of disease. You're on the coast, a storm will throw up wild sea water, those aerosols can enter any farm and there is a risk to that. But of course that risk assessment is always part of any biosecurity plan and I'm sure that's been taken into account. So when it actually comes to the chance of those outbreaks occurring you can reduce that markedly by ensuring that the fish that are being ground are vaccinated against those diseases. And most of the common viral and bacterial diseases in salmon farming, and there	 2 situations. I mean, this is the way sterile blood 3 products are made, for example, for transfusion of 4 plasma or saline. They are often ultra filtered to 5 remove all those bacteria. 6 AUDIENCE MEMBER: (Lawrence Reichard.) So 7 you yourself said that disease outbreak is possible. 8 Can you answer the question, what chemical will be 9 used to clean the tanks in the event of a disease 10 outbreak? You have not answered the question. 11 MR. BRICKNELL: Well, I'm not I'm not the 12 person who is going to discuss their biosecurities 13 for cleaning the tank because it's 14 AUDIENCE MEMBER: (Lawrence Reichard.) 15 Well, that was the question. 16 MR. BRICKNELL: Well, I'm talking about the 17 actual disease component that you are suggesting. 18 Now, there are many things you can clean the tank 19 with, hydrogen peroxide, hypochlorite, iodofols. 20 There is books on this. I mean, it's a standard 21 thing. This is something that any veterinarian could 22 advise you on as part of their training. 23 AUDIENCE MEMBER: (Lawrence Reichard.) Are 	2

1	which is the most common chemical used to clean fish	1	are doing is to prevent that as much as possible.
2	tanks that this was linked to the to death of	2	Now, in terms of cleaning it really depends
3	crustations?	3	on what you are looking at. There is no one answer
4	MR. BRICKNELL: It depends on the study	4	to that. There is a variation of cleaners you can
5	you're talking about. Do you have the author's name?	5	use and they will all be listed in our permit
6	AUDIENCE MEMBER: (Lawrence Reichard.) Are	6	application. Hydrogen peroxide, generally something
7	you aware of any such study?	7	we avoid. I am not a big fan of it, but it is
8	MR. BRICKNELL: Well, it depends on the	8	something that is used in the industry. We will be
9	concentration. If you take crustations and put them	9	looking at other substances and there is going to be
10	in a hydrogen peroxide solution they will die.		a range of them listed in the application. So I
11	AUDIENCE MEMBER: (Lawrence Reichard.)		would advise that you take a look at that when it
12	Well, yeah, I suppose that's true.		comes. It always will depend on the circumstances of
13	MR. BRICKNELL: It is very true.		what we are dealing with.
14	AUDIENCE MEMBER: (Lawrence Reichard.) Yes.	14	What I can say is we run our facilities in
15	So they so hydrogen peroxide is toxic to		Denmark for three years, we have never had disease.
15	crustations.		So the point here is really to reduce the risk of
	MR. BRICKNELL: It's toxic to you. If you		disease and that's what the whole set up is designed
17			
18	go and eat hydrogen peroxide you will be dead in half		for also here in Belfast. It's just like flying an
	an hour.		airplane, there is always a risk it will fall down
20	AUDIENCE MEMBER: (Lawrence Reichard.)		from the sky but I still fly, you know, because the
21	Okay. Well, I'd still like to know what Nordic		risk is much lower than it was many decades ago. So
	Aquafarms intends to use to clean those tanks.		that's where the industry and we are going is the
23	MR. BRICKNELL: Well, I'll push it back to		preventative measures.
24	you.	24	And I'd like to say finally it's impossible
25	MS. TOURANGEAU: Thank you, Dr. Bricknell. 61	25	for a professor in Norway who doesn't understand our 63
1	Erik.	1	designs and what we've done to comment on our
1 2	Erik. MR. HEIM: So just a couple of comments.		designs and what we've done to comment on our technology. We are way beyond what you typically see
2		2	-
2 3	MR. HEIM: So just a couple of comments.	2 3	technology. We are way beyond what you typically see
2 3 4	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems.	2 3	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these
2 3 4	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in	2 3 4	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies.
2 3 4 5	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you.	2 3 4 5 6	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow.
2 3 4 5 6	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no	2 3 4 5 6 7	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry
2 3 4 5 6 7	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic.	2 3 4 5 6 7 8	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see
2 3 4 5 6 7 8 9	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not	2 3 4 5 6 7 8	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you.
2 3 4 5 6 7 8 9	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at	2 3 4 5 6 7 8 9	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I
2 3 4 5 6 7 8 9 10 11	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the	2 3 4 5 6 7 8 9 10 11	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a
2 3 4 5 6 7 8 9 10 11 12	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an	2 3 4 5 6 7 8 9 10 11 12	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the
2 3 4 5 6 7 8 9 10 11 12 13	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs	2 3 4 5 6 7 8 9 10 11 12 13	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to
2 3 4 5 6 7 8 9 10 11 12 13 14	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to	2 3 4 5 6 7 8 9 10 11 12 13 14	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any
2 3 4 5 6 7 8 9 10 11 12 13 14 15	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no	2 3 4 5 6 7 8 9 10 11 12 13 14 15	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early	2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data?
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of pathogens in general the main thing is to keep them	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	<pre>technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that? AUDIENCE MEMBER: (Mary Bigelow.) if,</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22	<pre>MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of pathogens in general the main thing is to keep them out and that's what the system is designed for and</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that? AUDIENCE MEMBER: (Mary Bigelow.) if, for example, heaven forbid you didn't last at this
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of pathogens in general the main thing is to keep them out and that's what the system is designed for and then you always have worst case scenarios with	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that? AUDIENCE MEMBER: (Mary Bigelow.) if, for example, heaven forbid you didn't last at this site and somebody else bought it
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of pathogens in general the main thing is to keep them out and that's what the system is designed for and then you always have worst case scenarios with humans, animals or anyone that you can never be 100 	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	<pre>technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that? AUDIENCE MEMBER: (Mary Bigelow.) if, for example, heaven forbid you didn't last at this site and somebody else bought it MR. HEIM: Yeah.</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	MR. HEIM: So just a couple of comments. First of all, Bent Urup has not designed our systems. We were involved in an investment project with him in Denmark and he has no AUDIENCE MEMBER: We can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Can't hear you. AUDIENCE MEMBER: Use the mic. MR. HEIM: I'm sorry. Bent Urup has not been involved in any designs that we are looking at in Norway for further developments and also in the U.S. just to make that clear. He was involved in an early investment we did in Denmark and did designs for that. We are way beyond that level today just to set the record straight on that. He has no involvement in our business. He was an early entrepreneur that was involved in our Danish operation and is now currently doing other things just to set the record straight on that. In terms of cleaning, so in terms of pathogens in general the main thing is to keep them out and that's what the system is designed for and then you always have worst case scenarios with	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	technology. We are way beyond what you typically see in small facilities in Norway today in terms of these technologies. AUDIENCE MEMBER: My name is Mary Bigelow. That's B-I-G-E-L-O-W. I live in Belfast. I want to thank you for this presentation. I've been hungry for numbers for months, so I'm glad to finally see some numbers. So thank you. One question I do have, even though I totally am encouraging you guys, will there be a sampling manhole which the state or the municipalities could have access to without having to ask permission from Nordic Aquafarms? Is there any plan for such a thing? MR. HEIM: So the discharge data? I'm sorry, you mean discharge data? AUDIENCE MEMBER: (Mary Bigelow.) No, a sampling manhole so that if MR. HEIM: What's that? AUDIENCE MEMBER: (Mary Bigelow.) if, for example, heaven forbid you didn't last at this site and somebody else bought it

1	then we suspected they weren't behaving themselves,	1 whether or not that might be something where there
2	it's really sometimes good for the municipality to	2 are either university or community or other
3	have a manhole outside the property of the industrial	3 representatives that are involved in that and so that
4	plant, which has which can be accessed, padlocked	4 would allow for some impartial non-paid by Nordic
5	and what not that would permit sampling by the state	5 people to be having a way to get at the evidence
б	or the municipality.	6 directly as to what's going on versus having
7	MS. TOURANGEAU: So our MEPDES permit should	7 something that comes through a Nordic monitored
8	it issue will have sampling criteria	8 program.
9	AUDIENCE MEMBER: (Mary Bigelow.) Yup.	9 AUDIENCE MEMBER: (Mary Bigelow.) In
10	MS. TOURANGEAU: and will require	10 extreme cases such as what happened in this adjacent
11	quarterly testing that will go to a state accredited	11 town in Vermont, they ended up putting a sampling
12	lab with chain of custody and all those things. The	12 device down the manhole and they could say X number
13	DEP will be able to come on site at any time and	13 of gallons at such and such concentration during this
14	validate those data. And, you know, the manhole, I'm	14 hour, this hour, this hour. It did not leave any
15	not sure that that idea would work because the	15 room for the industry to say, oh, it's background,
16	discharge system will run from the wastewater	16 it's not me, it's my neighbor. It's just right on
17	treatment plant on land via pipe out to an outfall,	17 the pipe.
18	so what we are talking about are monitoring stations	18 MS. RANSOM: I understand. I'd be
19	that are around the outfall, but a manhole would have	19 interested in actually getting some of the details
20	to go down through the water to the pipe, so I'm not	20 from you and perhaps we can kind of take it
21	sure that I 100 percent understand your question.	21 off-line
22	AUDIENCE MEMBER: (Mary Bigelow.) Where I'm	22 AUDIENCE MEMBER: (Mary Bigelow.) Yup.
23	coming from is I'm a former chief operator of a	23 MS. RANSOM: because obviously this pipe
23		24 is going to be under, you know, buried and, you
	town but in a different town there was a terrible	25 know
25	65	67
1	problem with a very green supposedly producer dumping	1 AUDIENCE MEMBER: (Mary Bigelow.) Sure.
1 2		1AUDIENCE MEMBER: (Mary Bigelow.)Sure.2MS. RANSOM: with a significant water
	large amounts of cream, milk and sugar down the drain	
2	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally	2 MS. RANSOM: with a significant water
2 3	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got	2 MS. RANSOM: with a significant water 3 column above it, so we 4 AUDIENCE MEMBER: Couldn't it be on land? 5 MS. RANSOM: Yeah, that's what I I'd be
2 3 4	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the	2 MS. RANSOM: with a significant water 3 column above it, so we 4 AUDIENCE MEMBER: Couldn't it be on land?
2 3 4 5	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got	2 MS. RANSOM: with a significant water 3 column above it, so we 4 AUDIENCE MEMBER: Couldn't it be on land? 5 MS. RANSOM: Yeah, that's what I I'd be
2 3 4 5 6	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.	2 MS. RANSOM: with a significant water 3 column above it, so we 4 AUDIENCE MEMBER: Couldn't it be on land? 5 MS. RANSOM: Yeah, that's what I I'd be 6 curious, like I said, to get some details from you
2 3 4 5 6 7	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom. MS. TOURANGEAU: Hmm. I think that our	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it.
2 3 4 5 6 7 8	large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom. MS. TOURANGEAU: Hmm. I think that our equivalent of manholes here would be the kind of	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay.
2 3 4 5 6 7 8 9	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight.
2 3 4 5 6 7 8 9 10	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you.
2 3 4 5 6 7 8 9 10 11	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary.
2 3 4 5 6 7 8 9 10 11 12	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is
2 3 4 5 6 7 8 9 10 11 12 13	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the
2 3 4 5 6 7 8 9 10 11 12 13 14 15	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in everybody's interest everybody's interest that
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in everybody's interest everybody's interest that that not happen. But in the event that it does
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in everybody's interest everybody's interest that that not happen. But in the event that it does happen, we would like to know what is used to clean
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in everybody's interest everybody's interest that that not happen. But in the event that it does happen, we would like to know what is used to clean such large tanks with very large amounts of water,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 14	<pre>large amounts of cream, milk and sugar down the drain and they could never catch them. And they finally ended up having to put manholes in because the industry denied everything and as soon as they got those manholes in there was peace in the kingdom.</pre>	 MS. RANSOM: with a significant water column above it, so we AUDIENCE MEMBER: Couldn't it be on land? MS. RANSOM: Yeah, that's what I I'd be curious, like I said, to get some details from you when we can talk about it. AUDIENCE MEMBER: (Mary Bigelow.) Okay. And I really applaud the work you've done tonight. Thank you. MS. RANSOM: Thank you, Mary. AUDIENCE MEMBER: Good evening. My name is Chris Wright. That's with a W. I'm going to ask a different question, but I guess thinking about the concern for what happens and what are the chemicals or whatever that are used or if there is a virus or bacteria that slips through the filters, the ultraviolet, et cetera, of course, it's in everybody's interest everybody's interest that that not happen. But in the event that it does happen, we would like to know what is used to clean such large tanks with very large amounts of water, 10s of thousands of fish. We need to know what

15 16 17 18 19 20 21 22 23 24 25	chemicals are, but aside from that what happens to all of the fish and all of that water that is now infected? And we don't have to this doesn't have to be hypothetical. I'm sure there are cases in the industry someplace that you can refer to. MR. HEIM: Sure. Just a couple comments in the case AUDIENCE MEMBER: Louder. MR. HEIM: Okay. So and I think it's very	19 20 21 22 23 24	
16 17 18 19 20 21 22 23	all of the fish and all of that water that is now infected? And we don't have to this doesn't have to be hypothetical. I'm sure there are cases in the industry someplace that you can refer to. MR. HEIM: Sure. Just a couple comments in the case	19 20 21 22 23	dealing with various kinds of virus if they should occur and the answer to each situation is a differ solution depending on what it is. AUDIENCE MEMBER: (Chris Wright.) So do I understand you correctly that the water might
16 17 18 19 20 21 22	all of the fish and all of that water that is now infected? And we don't have to this doesn't have to be hypothetical. I'm sure there are cases in the industry someplace that you can refer to. MR. HEIM: Sure. Just a couple comments in	19 20 21 22	dealing with various kinds of virus if they should occur and the answer to each situation is a different solution depending on what it is. AUDIENCE MEMBER: (Chris Wright.) So do I
16 17 18 19 20 21	all of the fish and all of that water that is now infected? And we don't have to this doesn't have to be hypothetical. I'm sure there are cases in the industry someplace that you can refer to.	19 20 21	dealing with various kinds of virus if they should occur and the answer to each situation is a different solution depending on what it is.
16 17 18 19 20	all of the fish and all of that water that is now infected? And we don't have to this doesn't have to be hypothetical. I'm sure there are cases in the	19 20	dealing with various kinds of virus if they should occur and the answer to each situation is a different
16 17 18 19	all of the fish and all of that water that is now infected? And we don't have to this doesn't have	19	dealing with various kinds of virus if they should
16 17 18	all of the fish and all of that water that is now		
16 17		1.9	mean, there is experience in the industry with
16	chemicals are but aside from that what happens to	17	acpointing on what it is. So every scenario here,
			probably for a number of weeks, maybe months depending on what it is. So every scenario here, 1
г	it would really not we don't want to hear about a list of chemicals. We'd like to know what the		out into the ocean. You will let the tank sit dry
.4			not really discharging large amounts of this clean
L3			U.S. for this purpose. And that means that you're
12	asking you is what happens if the facility in Belfast	12	depending on what you have that are approved in the
1	that are on a scheduled regular basis. What I'm	11	
.0	sounds great that there are ways to clean the tanks	10	tank and let it sit dry for a longer period of tim
9	sorry, that doesn't answer my question at all. That	9	virus. Typically, what we will do is to empty the
8	AUDIENCE MEMBER: (Chris Wright.) I'm		facility that will take bacteria, that will take
7	5		high grade water filtration equipment in this
	tanks and the systems to prevent any buildup of any		disinfect with chemicals this water because we hav
	magnificent amount of constant cleanliness in the		those we are not in the situation where we need to
	manpower and basically allow you to achieve this		that we just discussed and given the strength of
	for them because they save an immense amount of		out, it will go through the same biosecurity measu
	recently out at the USDA and I absolutely advocate		if you have a tank with disease, you will empty it
	don't have to get to that level. We've employed them		sea pens as well. In terms of the tanks, typically
	69	_	
5	continuous non-stop cleaning of the tanks and so you	25	common practice in the industry. And this happens
4	lot of fantastic robotic cleaners that allow	24	solution to neutralize bacteria in it. This is a
3	grease and manpower. But recently there have been a	23	to grind it up and also put it in diluted acid
2	the majority of the cleaning is done with elbow	22	depends on what it is. One way of dealing with it
1	working in RAS facilities and I can assure you that	21	do. And, again, what the what is done with that
0	MR. NOYES: So I've spent about a decade now	20	facility is or the processing facility is prepared
9	AUDIENCE MEMBER: We can't hear you.	19	situation and that's typically that our slaughteri
8	Aquafarms.	18	slaughter out the fish from a tank due to disease
17	MR. NOYES: I'm the CTO for Nordic	17	Worst case scenario in the industry is the
6	MS. TOURANGEAU: David Noyes, sorry.	16	generalize because it can be different things.
.5	MR. NOYES: Hi. My name is David Noyes.	15	depending on what it is. It's difficult to
4	can	14	one form of treatment can potentially be described
	I'm not a scientist, so others can David Cyr	13	
	resistance doesn't build and that kind of thing. And		authorized veterinary right away to asses the
.1	differently for cleaning products so that, you know,		of disease you will take in a veterinary
.0	know, certain ones need to be rotated and used		you will see in the industry if there is a detecti
9	including all of redundant chemicals meaning, you		comes in it depends on what it is. Typically, what
Ċ	every chemical that will be used at the facility		So if we were to come in a scenario where a diseas
7	chemical list and that chemical list will include		veterinaries in Maine, so these are isolated syste
6	application to the DEP when it's submitted is a		quarantine and health certificate testing with
	want more detail, but I do know that the one of the components that will be an exhibit to the		source of potential disease is the bay just to mak it clear because eggs we bring in go through
5	MS. TOURANGEAU: I can turn this over if you		should take that into consideration. So our prima
5	important question.		I mean, anybody working with either humans or anim
3 4 5		1	

1 MD IETM: In the gages there you cannot	1 good observation that the the Dependencet Day is not
1 MR. HEIM: In the cases where you cannot 2 efficiently treat let me make it clear, there are	1 good observation that the the Penobscot Bay is not 2 a small bay. There are a lot of small bays where the
3 first of all, vaccinations to prevent this for a	3 amount of water that comes in and out with the tide
4 number of the common diseases. In the worst case	4 can go all the way out in the ocean on one tide and
5 scenarios where you cannot treat there will be a	5 then get washed down the shore. Well, this is a
6 solution to do a short-term treatment solution for	6 very, very large bay and even though the tide range
7 this. Your alternative then is to take out the fish	7 is very large, the there is not enough it's not
8 and you would empty out the tank, the water would go	8 enough of an excursion to actually push it all the
9 through those biosecurity measures I just described,	9 way out of the bay on every tide. So you see but
10 which is drinking water grade cleaning equipment. In	10 you do see over time, you know, up to two weeks that
11 other words, it's safe to drink that water basically	11 those that those particles do actually migrate
12 if it hadn't been for the salinity. It's typically	12 away from Belfast Bay and, you know, but there will
13 the type of treatment you would also be using for	13 also be other things that are migrating in from other
14 drinking water in some areas to prevent virus and	14 places, so it's and if you if you watch it more
15 bacteria infections. And that results in emptying	15 carefully there tends to be some circulations. And
16 out the tank, you let it dry out and you can do	16 this has been documented in some other studies too
17 surface cleaning or equipment cleaning with the	17 where in one case, you know, and there is some
18 appropriate cleaner that a veterinary prescribes.	18 conflicting evidence and I think it probably has to
19 That's the way it is. And that also means that	19 do with differences in the river discharge,
20 you're not really emptying huge amounts of cleaners	20 differences in the stratification and the densely
21 into the ocean. This will dry out and be washed out	21 driven currents in the bay that sometimes you
22 afterwards with water, probably probably weeks or	22 might you might find that there is sort of a
23 months after a dry out period. But, again, it	23 circulation that goes counterclockwise, you know,
24 depends what it is, yup.	24 around Islesboro and then other times you might see
25 AUDIENCE MEMBER: (Chris Wright.) Thank	25 circulation go the other way around Islesboro. And
73	75
1 you. I have one more quick question on the ping pong	1 actually if you look at the results just from the
1 you. I have one more quick question on the ping pong 2 balls. So it seemed to me watching those ping pong	1 actually if you look at the results just from the 2 simulation that we did it was about a month long
	 actually if you look at the results just from the simulation that we did it was about a month long simulation you can see that actually some of those
2 balls. So it seemed to me watching those ping pong	2 simulation that we did it was about a month long
2 balls. So it seemed to me watching those ping pong3 balls that they didn't actually leave the bay; is	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those
2 balls. So it seemed to me watching those ping pong3 balls that they didn't actually leave the bay; is4 that correct? I mean, and what I was paying	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro
 2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are
 2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 	2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay?	2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good	2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to	2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know,
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out
<pre>2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I</pre>	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay.
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of 19 the discharge is less than what is currently in the
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of 19 the discharge is less than what is currently in the 20 bay. So this system the proposed system is
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes 21 about after about two weeks or so it will find its	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of 19 the discharge is less than what is currently in the 20 bay. So this system the proposed system is 21 filtering solids out of the bay.
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes 21 about after about two weeks or so it will find its 22 way out into into the sort of mid-Penobscot, lower	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of 19 the discharge is less than what is currently in the 20 bay. So this system the proposed system is 21 AUDIENCE MEMBER: (Chris Wright.) Thank
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes 21 about after about two weeks or so it will find its 22 way out into into the sort of mid-Penobscot, lower 23 Penobscot Bay. This depends a lot on what the river	 simulation that we did it was about a month long simulation you can see that actually some of those particles that go counterclockwise around Islesboro they start drifting counterclockwise and there are some other ones that start drifting clockwise around Islesboro. The ones that tended to be further to the south tended to go clockwise and the ones that were to the north tended to go kind of up in the Belfast Bay and then come down around the west side of Belfast Bay. AUDIENCE MEMBER: (Chris Wright.) You know, I guess my concern was so the solids that come out of if they don't go say make their way out to the ocean some percentage of them ends up in the bay. MR. DILL: Yeah. I think that if the well, actually what we see from the information is that the amount of solids that will be coming out of that the anount of solids that will be coming out of that the anount of the bay. AUDIENCE MEMBER: (Chris Wright.) Thank you.
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes 21 about after about two weeks or so it will find its 2 way out into into the sort of mid-Penobscot, lower 24 currents are doing. It depends a lot on what the river 24 currents are doing. It depends a lot on what the	 2 simulation that we did it was about a month long 3 simulation you can see that actually some of those 4 particles that go counterclockwise around Islesboro 5 they start drifting counterclockwise and there are 6 some other ones that start drifting clockwise around 7 Islesboro. The ones that tended to be further to the 8 south tended to go clockwise and the ones that were 9 to the north tended to go kind of up in the Belfast 10 Bay and then come down around the west side of 11 Belfast Bay. 12 AUDIENCE MEMBER: (Chris Wright.) You know, 13 I guess my concern was so the solids that come out 14 of if they don't go say make their way out to the 15 ocean some percentage of them ends up in the bay. 16 MR. DILL: Yeah. I think that if the 17 well, actually what we see from the information is 18 that the amount of solids that will be coming out of 19 the discharge is less than what is currently in the 20 bay. So this system the proposed system is 21 filtering solids out of the bay. 22 AUDIENCE MEMBER: (Chris Wright.) Thank 23 you. 24 MR. DILL: You're welcome.
2 balls. So it seemed to me watching those ping pong 3 balls that they didn't actually leave the bay; is 4 that correct? I mean, and what I was paying 5 attention to at that point when I was watching the 6 ping pong balls was solids. So those solids will all 7 stay in the bay or generally stay in the bay? 8 MR. DILL: Yeah, so that's a good 9 observation. The tidal excursion so if you were 10 to put a ping pong ball in the bay out there now and 11 watch it go for a couple of days it's not going to 12 leave the bay. It depends on where you put it 13 though. Over time with the tidal current and the 14 other there is actually a residual current and I 15 don't know if you were watching it you could see some 16 of the redder or oranger ones that started out more 17 north in the bay. Those they migrate and they 18 migrate slowly and what we saw that if when you 19 look in Belfast Bay itself, so if you look at a 20 drifter that was placed in Belfast Bay it takes 21 about after about two weeks or so it will find its 22 way out into into the sort of mid-Penobscot, lower 23 Penobscot Bay. This depends a lot on what the river	 simulation that we did it was about a month long simulation you can see that actually some of those particles that go counterclockwise around Islesboro they start drifting counterclockwise and there are some other ones that start drifting clockwise around Islesboro. The ones that tended to be further to the south tended to go clockwise and the ones that were to the north tended to go kind of up in the Belfast Bay and then come down around the west side of Belfast Bay. AUDIENCE MEMBER: (Chris Wright.) You know, I guess my concern was so the solids that come out of if they don't go say make their way out to the ocean some percentage of them ends up in the bay. MR. DILL: Yeah. I think that if the well, actually what we see from the information is that the amount of solids that will be coming out of that the anount of solids that will be coming out of that the anount of the bay. AUDIENCE MEMBER: (Chris Wright.) Thank you.

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	historical and recent status of Penobscot Bay lists it as Maine's largest and most productive fishery and estuary system. It is also known as one of the most significant estuaries on the eastern seaboard. It can produce high quantities of wild fish, but has been severely mismanaged detracting each of the regional ecosystems, the economy and the culture. The waters and rivers have been cleaned considerably since the days of chicken processing and many industrial polluters have gone out of business, left the area or reduced their outflow. At this critical time, you are proposing to locate a 7.7 million gallon per day outflow pipe deep within the estuary not even close to deep ocean currents. Can you please provide scientific evidence hard scientific evidence to support your claim that the overflow would indeed be in deep ocean currents and have no negative impacts on the bay and its recovery. And I would like to see scientific articles and I'm happy to leave my email address here. MS. TOURANGEAU: Thank you. AUDIENCE MEMBER: (Natalie Charles.) You're welcome. MS. TOURANGEAU: Could you would you mind 77	 and this is pretty much every wastewater discharge is like this, I'm not aware of any, you know, there may be some locations where the deep ocean is right next to the shoreline that you can actually discharge wastewater into the deep ocean. You know, the analysis of the concentrations and the dilutions indicates that it's not that the concentrations of nitrogen aren't going to be high enough to impact, you know, what evidence we have that suggests we're at a threshold level. So even that discharge into the estuary it should be sufficient and that's what we're looking at. And I don't know if you can maybe reiterate your question. AUDIENCE MEMBER: (Natalie Charles.) Well, if there were you could send, again, articles, peer reviewed articles that prove what you're saying, that agree with what you're saying that would be helpful. MR. DILL: Okay. MS. TOURANGEAU: Thanks, Nate. AUDIENCE MEMBER: Hi. I always like to just sigh hi to everyone in the room so I feel a little bit more human. My name is Ethan Hughes and I'm a resident of Belfast and I also have a background in
	writing your email address down for me?	1 ggiongo gongozgation and long overlanations are
1	AUDIENCE MEMBER: (Natalie Charles.) Sure.	 science conservation and long explanations are typical in the field of science. We have given the
2 3 4	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to	 typical in the field of science. We have given the respected time for answers from many of your experts even when they're not answering our questions. I ask
2 3 4 5	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a
2 3 4 5 6	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in
2 3 4 5 6 7	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought.	2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please
2 3 4 5 6 7 8	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for	2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police
2 3 4 5 6 7	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought.	2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please
2 3 4 5 6 7 8 9	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be	2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of
2 3 4 5 6 7 8 9 10	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her.	2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand.
2 3 4 5 6 7 8 9 10 11	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and
2 3 4 5 6 7 8 9 10 11 12	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great.	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANCEAU: We're wild. We're wild and 12 crazy.
2 3 4 5 6 7 8 9 10 11 12 13	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note
2 3 4 5 6 7 8 9 10 11 12 13 14	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power
2 3 4 5 6 7 8 9 10 11 12 13 14 15	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power 17 imbalance with citizens and corporations. You can
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power 17 imbalance with citizens and corporations. You can 18 stop our sharing, but we can't actually stop yours.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no.	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power 17 imbalance with citizens and corporations. You can 18 stop our sharing, but we can't actually stop yours. 19 And I just want to invite that it would be wonderful
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no. In order to reach deep ocean currents you would have	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANCEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power 17 imbalance with citizens and corporations. You can 18 stop our sharing, but we can't actually stop yours. 19 And I just want to invite that it would be wonderful 20 for Nordic to start having a equal power sharing with
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no. In order to reach deep ocean currents you would have to go hundreds of miles off shore and that it's	 2 typical in the field of science. We have given the 3 respected time for answers from many of your experts 4 even when they're not answering our questions. I ask 5 you to please give me the same respect. I want a 6 reminder to Nordic and Erik that you are guests in 7 our country and not the other way around and please 8 honor your hosts. I appreciates the local police 9 presence just in case Nordic gets a little out of 10 hand. 11 MS. TOURANGEAU: We're wild. We're wild and 12 crazy. 13 AUDIENCE MEMBER: (Ethan Hughes.) It would 14 be great if you were wild enough to do wild salmon, 15 but that's another conversation. I just want to note 16 the elephant in the room that there is it a power 17 imbalance with citizens and corporations. You can 18 stop our sharing, but we can't actually stop yours. 19 And I just want to invite that it would be wonderful 20 for Nordic to start having a equal power sharing with 21 the citizens. That would be great.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no. In order to reach deep ocean currents you would have to go hundreds of miles off shore and that it's just simply not practical to put a pipe hundreds of	 typical in the field of science. We have given the respected time for answers from many of your experts even when they're not answering our questions. I ask you to please give me the same respect. I want a reminder to Nordic and Erik that you are guests in our country and not the other way around and please honor your hosts. I appreciates the local police presence just in case Nordic gets a little out of hand. MS. TOURANGEAU: We're wild. We're wild and crazy. AUDIENCE MEMBER: (Ethan Hughes.) It would be great if you were wild enough to do wild salmon, but that's another conversation. I just want to note the elephant in the room that there is it a power imbalance with citizens and corporations. You can stop our sharing, but we can't actually stop yours. And I just want to invite that it would be wonderful for Nordic to start having a equal power sharing with the citizens. That would be great.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no. In order to reach deep ocean currents you would have to go hundreds of miles off shore and that it's just simply not practical to put a pipe hundreds of miles off-shore. And from what from what what	 typical in the field of science. We have given the respected time for answers from many of your experts even when they're not answering our questions. I ask you to please give me the same respect. I want a reminder to Nordic and Erik that you are guests in our country and not the other way around and please honor your hosts. I appreciates the local police presence just in case Nordic gets a little out of hand. MS. TOURANGEAU: We're wild. We're wild and crazy. AUDIENCE MEMBER: (Ethan Hughes.) It would be great if you were wild enough to do wild salmon, but that's another conversation. I just want to note the elephant in the room that there is it a power imbalance with citizens and corporations. You can stop our sharing, but we can't actually stop yours. And I just want to invite that it would be wonderful for Nordic to start having a equal power sharing with the citizens. That would be great. And so now I have a question for Erik specifically. Thanks. So you seem very sure about
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	AUDIENCE MEMBER: (Natalie Charles.) Sure. That would be great. MS. TOURANGEAU: Do you mind if I proceed to other people while you're AUDIENCE MEMBER: Do you want to answer her question? She had several questions there I thought. MS. TOURANGEAU: I thought she had asked for more scientific articles on those issues to be emailed to her. AUDIENCE MEMBER: (Natalie Charles.) If you could address what you can that would be great. MR. HEIM: Well, I guess the water questions is more I think we have addressed it, but we can summarize it again. MR. DILL: I'm not sure if I heard the first part of your question. The you did ask to provide evidence that the discharge would be in deep ocean currents. I think the answer to that question is no. In order to reach deep ocean currents you would have to go hundreds of miles off shore and that it's just simply not practical to put a pipe hundreds of	 typical in the field of science. We have given the respected time for answers from many of your experts even when they're not answering our questions. I ask you to please give me the same respect. I want a reminder to Nordic and Erik that you are guests in our country and not the other way around and please honor your hosts. I appreciates the local police presence just in case Nordic gets a little out of hand. MS. TOURANGEAU: We're wild. We're wild and crazy. AUDIENCE MEMBER: (Ethan Hughes.) It would be great if you were wild enough to do wild salmon, but that's another conversation. I just want to note the elephant in the room that there is it a power imbalance with citizens and corporations. You can stop our sharing, but we can't actually stop yours. And I just want to invite that it would be wonderful for Nordic to start having a equal power sharing with the citizens. That would be great.

1 International Salmon Farming Association, Jo	hn 1 if you look in general we are taking water and
2 Davidson, in his report of 2016 state that 1	ne is 2 putting water back, as long as you don't add things
3 the entire association is against land-based	3 that eventually harm an ecosystem that's been our
4 aquafarms because of disease, effluence, ca	doon 4 goal and what's what we're aiming for.
5 footprint. They say no to raising Atlantic	salmon to 5 As far as the other comments are concerned
6 adults. It's illegal to be organic when the	y're in 6 why not Norway. We are expanding in Norway. There
7 the tanks and there is cramped conditions for	
8 fish. The Scottish salmon producer organiza	
9 also frame it as Atlantic salmon land-based	is an 9 equation you're referring to, when you buy a salmon
10 environmentally unfriendly option, not finan	
11 viable. I urge you to read these reports for	
12 sake of the bay and for Belfast to balance	
13 confidence with some of this humility that	
14 actually other world experts that are coming	
15 very different conclusions than Nordic. And	
-	
18 And now I'm going to tend with my g	
19 So the way you frame this experiment it sour	
20 Jobs, clean tax, clean water, tax support, g	
21 filtration, cutting edge, economic boom. The	
22 population density in Europe is much higher	
23 actually you had a concern about less flying	
24 in Maine, why not go to Norway? Surely you	
25 want to rob the Norwegian's of this incredi	
	81 83
1 opportunity if itle as incredible. Why com	to 1 organizations who praise land based including the
1 opportunity if it's so incredible. Why com	
2 Maine? Well, Norway is too regulated for a	farm of 2 Atlantic Salmon Federation, who has been quite clear
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't D	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Monterey
 2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't l 4 permits. So for an entire country you're get 	farm of2 Atlantic Salmon Federation, who has been quite clearhave the3 about their view on this, and also the Montereybing to do4 Seafood Watch, who also rates seafood in terms of
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're go 5 10 times the amount that are permitted in No	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't h 4 permits. So for an entire country you're go 5 10 times the amount that are permitted in No 6 just one town. So Norway is too strict for	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have different
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't h 4 permits. So for an entire country you're go 5 10 times the amount that are permitted in No 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine because	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentrethe7 views and that's fair, we respect that and I'm
 Maine? Well, Norway is too regulated for a this scale that's experimental. You don't lies permits. So for an entire country you're get 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socio 	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentwe the7 views and that's fair, we respect that and I'm8 familiar with all of them. And we do read them and
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't b 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat.	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentse the7 views and that's fair, we respect that and I'mseconomic8 familiar with all of them. And we do read them andyour for9 we do talk to what they write and we do listen to
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't h 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat. 10 7.7 million gallons a day of effluent into the 10 Section of the strict environment of the section of the sec	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentrese the7 views and that's fair, we respect that and I'mse the8 familiar with all of them. And we do read them andions for9 we do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 1 11 okay in the United States, so welcome. And	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentreconomic8 familiar with all of them. And we do read them andhere is10 them and we have dialogue with them and that's fair.here is11 I think that's the way it needs to be. Just like sea
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 1 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do read them andyour is10 them and we have dialogue with them and that's fair.here is11 Think that's the way it needs to be. Just like seaan gallons12 pen is a big discussion topic in the U.S. and has its
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 4 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million 13 of effluent released daily into the bay have	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,6 there is always going to be people who have different7 views and that's fair, we respect that and I'm8 familiar with all of them. And we do read them and9 we do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.11 I think that's the way it needs to be. Just like sea20 ngallons13 own issues as far as I'm concerned.
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 1 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentreconomic8 familiar with all of them. And we do read them andse the9 we do talk to what they write and we do listen tothe bay is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itsten oill14AUDIENCE MEMBER: (Ethan Hughes.) Yeah.
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 4 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million 13 of effluent released daily into the bay have	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,6 there is always going to be people who have different7 views and that's fair, we respect that and I'm8 familiar with all of them. And we do read them and9 we do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.11 I think that's the way it needs to be. Just like sea20 ngallons13 own issues as far as I'm concerned.
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't b permits. So for an entire country you're ge 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socio and hydraulic restrictions and also regulat: 7.7 million gallons a day of effluent into the okay in the United States, so welcome. And my question. Tell me, Erik, will 7.7 million of effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? (Applause.)	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentreconomic8 familiar with all of them. And we do read them andse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do listen tothe bay is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itsten oill13 own issues as far as I'm concerned.till effect14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add you
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're ge 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulat: 10 7.7 million gallons a day of effluent into 5 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million 13 of effluent released daily into the bay have 14 effect? 7.7 million gallons daily have no 5 15 to the bay and its ecosystem?	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentreconomic8 familiar with all of them. And we do read them andse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do listen tothe bay is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itsten oill13 own issues as far as I'm concerned.till effect14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add you
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't b permits. So for an entire country you're ge 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socio and hydraulic restrictions and also regulat: 7.7 million gallons a day of effluent into the okay in the United States, so welcome. And my question. Tell me, Erik, will 7.7 million of effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? (Applause.)	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentreconomic8 familiar with all of them. And we do read them andse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do listen tothe bay is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itsten oill13 own issues as far as I'm concerned.till effect14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add you
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't l permits. So for an entire country you're ge 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socie and hydraulic restrictions and also regulat: 7.7 million gallons a day of effluent into hydraulic restrictions and also regulat: and ny question. Tell me, Erik, will 7.7 million of effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? MR. HEIM: Well, I believe that's well.	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do read them andyour is the way is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaan gallons12 pen is a big discussion topic in the U.S. and has itsin oill13 own issues as far as I'm concerned.14AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15Thanks. You're really articulate, but you didn't16answer my question. And I also wanted to add youthat we've17 said as long as you're putting water back into the18bay, but there will be another hundreds of millions a
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't 1 permits. So for an entire country you're ge 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socie and hydraulic restrictions and also regulat: 7.7 million gallons a day of effluent into a okay in the United States, so welcome. And my question. Tell me, Erik, will 7.7 million of effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? MR. HEIM: Well, I believe that's w been trying to answer today.	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do read them andyour is the way is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaan gallons12 pen is a big discussion topic in the U.S. and has itsin oill13 own issues as far as I'm concerned.14AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15Thanks. You're really articulate, but you didn't16answer my question. And I also wanted to add youthat we've17 said as long as you're putting water back into the18bay, but there will be another hundreds of millions a
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're get 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, sociol 9 and hydraulic restrictions and also regulate 10 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million 13 of effluent released daily into the bay have 14 effect? 7.7 million gallons daily have no fill 15 to the bay and its ecosystem? 16 (Applause.) 17 MR. HEIM: Well, I believe that's weight been trying to answer today. 19 AUDIENCE MEMBER: Please hold the method.	farm of2 Atlantic Salmon Federation, who has been quite clearnave the3 about their view on this, and also the Montereyoing to do4 Seafood Watch, who also rates seafood in terms ofprway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentviews and that's fair, we respect that and I'mse the7 views and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do read them andyour side do talk to what they write and we do listen tothem and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itsill effect14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add youhat we've17 said as long as you're putting water back into the18 bay, but there will be another hundreds of millions a19 year of gallons of fresh water that are coming from20 aquifers into the bay, so that's a new water coming
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't b permits. So for an entire country you're ge 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, socio and hydraulic restrictions and also regulat: 7.7 million gallons a day of effluent into effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? MR. HEIM: Well, I believe that's w been trying to answer today. AUDIENCE MEMBER: Please hold the m 20 up.	farm of nave the2 Atlantic Salmon Federation, who has been quite clear a about their view on this, and also the Montereyabout their view on this, and also the Monterey3 about their view on this, and also the Montereybing to do4 Seafood Watch, who also rates seafood in terms of 5 standard sustainability. So I think like anything, 6 there is always going to be people who have different 7 views and that's fair, we respect that and I'm 8 familiar with all of them. And we do read them and 9 we do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.11 I think that's the way it needs to be. Just like sea 10 own issues as far as I'm concerned.12 pen is a big discussion topic in the U.S. and has its 13 own issues as far as I'm concerned.14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't 16 answer my question. And I also wanted to add you 17 said as long as you're putting water back into the 18 bay, but there will be another hundreds of millions a 19 year of gallons of fresh water that are coming from 20 aquifers into the bay, so that's a new water coming 21 in.
2 Maine? Well, Norway is too regulated for a 3 this scale that's experimental. You don't 1 4 permits. So for an entire country you're get 5 10 times the amount that are permitted in Ne 6 just one town. So Norway is too strict for 7 experiment, so you have come to Maine becaus 8 U.S. offers less strict environmental, social 9 and hydraulic restrictions and also regulated 10 okay in the United States, so welcome. And 11 okay in the United States, so welcome. And 12 my question. Tell me, Erik, will 7.7 million 13 of effluent released daily into the bay have 14 effect? 7.7 million gallons daily have no to 15 to the bay and its ecosystem? 16 (Applause.) 17 MR. HEIM: Well, I believe that's well 18 been trying to answer today. 19 AUDIENCE MEMBER: Please hold the me 20 up. 21 MR. HEIM: Yeah. So in the end I d	farm of ave the2 Atlantic Salmon Federation, who has been quite cleara about their view on this, and also the Montereybing to do4 Seafood Watch, who also rates seafood in terms of5 standard sustainability. So I think like anything,your6 there is always going to be people who have different7 views and that's fair, we respect that and I'm8 familiar with all of them. And we do read them and9 we do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.here is11 I think that's the way it needs to be. Just like seaan gallons12 pen is a big discussion topic in the U.S. and has itsan oill13 own issues as far as I'm concerned.14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add you17 said as long as you're putting water back into the18 bay, but there will be another hundreds of millions aicrophone19 year of gallons of fresh water that are coming from20 aquifers into the bay, so that's a new water coming21 in.mat it22 MR. HEIM: So that additional I can
 Maine? Well, Norway is too regulated for a this scale that's experimental. You don't I permits. So for an entire country you're get 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine because U.S. offers less strict environmental, social and hydraulic restrictions and also regulated of effluent released daily into the bay have and effect? 7.7 million gallons daily have no set to the bay and its ecosystem? (Applause.) MR. HEIM: Well, I believe that's well been trying to answer today. MR. HEIM: Yeah. So in the end I do to the particular of water matters, it's well 	farm of2 Atlantic Salmon Federation, who has been quite clearave the3 about their view on this, and also the Montereybing to do4 Seafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentviews and that's fair, we respect that and I'mbeconomic8 familiar with all of them. And we do read them andyour is the way is10 them and we have dialogue with them and that's fair.here is11 think that's the way it needs to be. Just like seaon gallons12 pen is a big discussion topic in the U.S. and has itse no ill13 own issues as far as I'm concerned.till effect14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add youhat we've17 said as long as you're putting water back into the18 bay, but there will be another hundreds of millions aicrophone19 year of gallons of fresh water that are coming from20 aquifers into the bay, so that's a new water comingon't21 in.21 in.22 MR. HEIM: So that additional I can23 answer that additional question. We did address that
 Maine? Well, Norway is too regulated for a this scale that's experimental. You don't I permits. So for an entire country you're get 10 times the amount that are permitted in Ne just one town. So Norway is too strict for experiment, so you have come to Maine because U.S. offers less strict environmental, social and hydraulic restrictions and also regulate of effluent restrictions and also regulate of effluent released daily into the bay have effect? 7.7 million gallons daily have no set to the bay and its ecosystem? MR. HEIM: Well, I believe that's we been trying to answer today. MR. HEIM: Yeah. So in the end I d think the quantity of water matters, it's will contains and that's what we've been trying to 	farm of2 Atlantic Salmon Federation, who has been quite clearave the3 about their view on this, and also the Montereyabout their view on this, and also the Montereyseafood Watch, who also rates seafood in terms oforway in5 standard sustainability. So I think like anything,your6 there is always going to be people who have differentviews and that's fair, we respect that and I'mse the7 views and that's fair, we respect that and I'meconomic8 familiar with all of them. And we do read them andabout their size and we have dialogue with them and that's fair.in them and we have dialogue with them and that's fair.in I think that's the way it needs to be. Just like seaon gallonsin gen is a big discussion topic in the U.S. and has itsin onllin own issues as far as I'm concerned.iil effectiii AUDIENCE MEMBER: (Ethan Hughes.) Yeah.iii Thanks. You're really articulate, but you didn'tia answer my question. And I also wanted to add youin said as long as you're putting water back into theii bay, but there will be another hundreds of millions aiicrophoneii year of gallons of fresh water that are coming fromii answer that additional question. We did address thatii the earlier meeting. So if you look at the Little
Maine? Well, Norway is too regulated for a this scale that's experimental. You don't 1 permits. So for an entire country you're ge 10 times the amount that are permitted in No just one town. So Norway is too strict for experiment, so you have come to Maine becaus U.S. offers less strict environmental, social and hydraulic restrictions and also regulat. 7.7 million gallons a day of effluent into a okay in the United States, so welcome. And my question. Tell me, Erik, will 7.7 million of effluent released daily into the bay have effect? 7.7 million gallons daily have no to the bay and its ecosystem? MR. HEIM: Well, I believe that's w been trying to answer today. MR. HEIM: Yeah. So in the end I d think the quantity of water matters, it's w contains and that's what we've been trying for and that's what we've been trying for an today. So and that's been very important.	farm of2 Atlantic Salmon Federation, who has been quite clearave the3 about their view on this, and also the Montereyabout their view on this, and also the Montereyyour6 there is always going to be people who have differentviews and that's fair, we respect that and I'mbeconomica familiar with all of them. And we do read them andwe do talk to what they write and we do listen to10 them and we have dialogue with them and that's fair.11 I think that's the way it needs to be. Just like seaan gallons12 pen is a big discussion topic in the U.S. and has itsa no ill13 own issues as far as I'm concerned.14 AUDIENCE MEMBER: (Ethan Hughes.) Yeah.15 Thanks. You're really articulate, but you didn't16 answer my question. And I also wanted to add younat we've17 said as long as you're putting water back into the18 bay, but there will be another hundreds of millions aicrophone19 year of gallons of fresh water that are coming from20 aquifers into the bay, so that's a new water coming21 in.22 MR. HEIM: So that additional I can23 answer that additional question. We did address that

2	something that's been mapped by Ransom over here. This watershed empties into that area of the Little River. Some of it goes surface, some of it goes through the ground. All of it empties out in the bay in this area. So we are just taking a part of that water that was otherwise going to the ocean, borrowing it for a while, treating it and sending it in the same way it was going in the first place. AUDIENCE MEMBER: (Ethan Hughes.) Some of those are protected deep wells aquaculture, you know,	<pre>1 are written in the State of Maine do not yet actually 2 contain limits for nitrogen and phosphorous within 3 the permits. There are generally limits provided for 4 BOD and TSS and then there is a requirement to 5 monitor for those compounds but there are not 6 generally limits set. That being said, the trend at 7 the moment is to start adding those limits. So we 8 would not be surprised to find a requirement in the 9 actual permit that's written for this project. But 10 if you look up and down the coast, I think you'll</pre>
11	I mean, they're not moving into the bay. They're	11 find the majority of the permits that are out there
12 13	in that fresh water is protected and sealed. MR. HEIM: We can have Ransom, who has been	12 from primarily municipal treatment plants, but also13 some of the other industry permits that are out
14	doing the modeling and investigation on that.	14 there, I think you'll find the majority do not
15	AUDIENCE MEMBER: (Ethan Hughes.) I	15 actually contain a limit for nitrogen and
16	actually want to ask you the question again. Just	16 phosphorous.
17	tell me will the 7.7 million gallons of effluent	17 AUDIENCE MEMBER: (Andy Stevenson.) Okay.
18	cause no harm to the bay, yes or no?	18 All right. So that answers my question. We're
19	MR. HEIM: I cannot see that with what we	19 talking about permits for primarily publicly owned
20	described today that it will cause harm to this bay.	20 treatment plants?
21	AUDIENCE MEMBER: (Ethan Hughes.) Okay.	21 MS. RANSOM: That's correct.
22	MR. HEIM: That's why we have also got	22 AUDIENCE MEMBER: (Andy Stevenson.) Okay.
23 24	independent parties to review that to conclude on that because for me personally that's also priority.	23 Second, Mr. Heim, you talked also about the24 monitoring about the reporting program which is great
25	It's bad business for us if we cause harm to the bay.	25 and the fact that DEP and U.S. EPA can come and look
	85	87
1	AUDIENCE MEMBER: (Ethan Hughes.) And	1 at your records and your reports at any time. Would
1 2	AUDIENCE MEMBER: (Ethan Hughes.) And that's the reason I'm very suspicious because there	 at your records and your reports at any time. Would there be any interest in having the public be able to
	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the	2 there be any interest in having the public be able to 3 come in and look at those records as well?
2 3 4	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank	 there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that
2 3 4 5	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.	 there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that the DEP eventually will define what is required and
2 3 4 5 6	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time. MR. HEIM: Okay. Yup.	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures
2 3 4 5 6 7	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time. MR. HEIM: Okay. Yup. MS. TOURANGEAU: Thank you, Mr. Hughes.	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but
2 3 4 5 6 7 8	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time. MR. HEIM: Okay. Yup. MS. TOURANGEAU: Thank you, Mr. Hughes. AUDIENCE MEMBER: Do you want to	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so
2 3 4 5 7 8 9	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time. MR. HEIM: Okay. Yup. MS. TOURANGEAU: Thank you, Mr. Hughes. AUDIENCE MEMBER: Do you want to MS. TOURANGEAU: Um How are folks	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report.
2 3 4 5 6 7 8	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so
2 3 4 5 7 8 9 10	that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time. MR. HEIM: Okay. Yup. MS. TOURANGEAU: Thank you, Mr. Hughes. AUDIENCE MEMBER: Do you want to MS. TOURANGEAU: Um How are folks	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on
2 3 4 5 6 7 8 9 10 11	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that.
2 3 4 5 6 7 8 9 10 11 12	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANCEAU: All of the testing and
2 3 4 5 6 7 8 9 10 11 12 13	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANCEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANGEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program 16 will automatically be a public record.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANGEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program 16 will automatically be a public record. 17 AUDIENCE MEMBER: (Andy Stevenson.) Okay.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANCEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program 16 will automatically be a public record. 17 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 18 All right. And would be available from DEP but not
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANGEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program 16 will automatically be a public record. 17 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 18 All right. And would be available from DEP but not 19 necessarily from Nordic?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	 there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that the DEP eventually will define what is required and what they'd like to see. I don't know the procedures of the DEP in terms of making public records, but certainly that could be a part of the procedure so that the public would have access to whatever report. I don't know, again, but maybe Joanna can comment on that. MS. TOURANGEAU: All of the testing and monitoring and sampling results that are submitted to the state, anything that's submitted to the DEP that's required as part of any monitoring program will automatically be a public record. AUDIENCE MEMBER: (Andy Stevenson.) Okay. All right. And would be available from DEP but not necessarily from Nordic? MS. TOURANGEAU: It varies. Sometimes
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	2 there be any interest in having the public be able to 3 come in and look at those records as well? 4 MR. HEIM: Well, what I would expect is that 5 the DEP eventually will define what is required and 6 what they'd like to see. I don't know the procedures 7 of the DEP in terms of making public records, but 8 certainly that could be a part of the procedure so 9 that the public would have access to whatever report. 10 I don't know, again, but maybe Joanna can comment on 11 that. 12 MS. TOURANCEAU: All of the testing and 13 monitoring and sampling results that are submitted to 14 the state, anything that's submitted to the DEP 15 that's required as part of any monitoring program 16 will automatically be a public record. 17 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 18 All right. And would be available from DEP but not 19 necessarily from Nordic? 20 MS. TOURANCEAU: It varies. Sometimes 21 they'll put it right up
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that MR. HEIM: Well, what I would expect is that the DEP eventually will define what is required and what they'd like to see. I don't know the procedures of the DEP in terms of making public records, but certainly that could be a part of the procedure so that the public would have access to whatever report. I don't know, again, but maybe Joanna can comment on that. MS. TOURANCEAU: All of the testing and monitoring and sampling results that are submitted to the state, anything that's submitted to the DEP that's required as part of any monitoring program will automatically be a public record. AUDIENCE MEMBER: (Andy Stevenson.) Okay. All right. And would be available from DEP but not necessarily from Nordic? MS. TOURANCEAU: It varies. Sometimes they'll put it right up AUDIENCE MEMBER: (Andy Stevenson.) Yeah.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	 there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that the DEP eventually will define what is required and what they'd like to see. I don't know the procedures of the DEP in terms of making public records, but certainly that could be a part of the procedure so that the public would have access to whatever report. I don't know, again, but maybe Joanna can comment on that. MS. TOURANGEAU: All of the testing and monitoring and sampling results that are submitted to the state, anything that's submitted to the DEP that's required as part of any monitoring program will automatically be a public record. AUDIENCE MEMBER: (Andy Stevenson.) Okay. All right. And would be available from DEP but not necessarily from Nordic? MS. TOURANGEAU: It varies. Sometimes they'll put it right up AUDIENCE MEMBER: (Andy Stevenson.) Yeah. MS. TOURANGEAU: and sometimes they'll
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>that's the reason I'm very suspicious because there is no way to do 7.7 million without impacting the system, so I hope you do some more research. Thank you for your time.</pre>	 there be any interest in having the public be able to come in and look at those records as well? MR. HEIM: Well, what I would expect is that the DEP eventually will define what is required and what they'd like to see. I don't know the procedures of the DEP in terms of making public records, but certainly that could be a part of the procedure so that the public would have access to whatever report. I don't know, again, but maybe Joanna can comment on that. MS. TOURANGEAU: All of the testing and monitoring and sampling results that are submitted to the state, anything that's submitted to the DEP that's required as part of any monitoring program will automatically be a public record. AUDIENCE MEMBER: (Andy Stevenson.) Okay. All right. And would be available from DEP but not necessarily from Nordic? MS. TOURANGEAU: It varies. Sometimes they'll put it right up AUDIENCE MEMBER: (Andy Stevenson.) Yeah. MS. TOURANGEAU: and sometimes they'll

1	MS. TOURANGEAU: It varies. And we'll know	1 been gathered over the course of the past several
2		2 months and we will be continuing to gather data as
3	AUDIENCE MEMBER: (Andy Stevenson.) Okay.	3 the project goes on so that we can, you know, have an
4	So on that point, I would suggest that Nordic	4 understanding of not just one elevation surface or
5	consider having those records available at Little	5 bottom but several elevations.
6	River at the facility as part of your public or your	6 AUDIENCE MEMBER: (Andy Stevenson.) Would
7	community outreach program.	7 you be able to tell us a little bit more tonight if
8	Moving on. Mr. Dill, man, I've got to tell	8 time allows about the monitoring and assessment that
9	you, I'm a water quality monitor and I love the	9 you plan to do between now and the time you start
10	little ping pong balls. That was neat. But the ping	10 construction given that a permit might be granted?
11	pong balls are only showing us what's happening on	11 MS. RANSOM: I think some of that will be
12	surface, correct? I mean, it wasn't a full water	12 something that comes out through the draft permit
13	column modeling simulation.	13 process through discussions with DEP. Obviously we
14	MR. DILL: The hydrodynamic model, the far	14 want to make sure that whatever we're proposing is
15	field model is a two-dimensional depth average model,	15 something that they feel is a good thing as well. So
16	so it's an estimate of depth average currently.	16 but what that might look like is you would look at,
17	AUDIENCE MEMBER: (Andy Stevenson.) Okay.	17 again, multiple depths, also multiple seasons and as
18	Okay.	18 we've been doing you would be looking at that during
19	MR. DILL: We made an assumption that based	19 different portions of the tidal cycle because
20	on the CORMIX results which does give you	20 obviously things that you're seeing during an ebb
21	three-dimensional information that the in order to	21 tide might be different than during a flood tide.
22	calculate the concentrations that the ping pong balls	22 AUDIENCE MEMBER: (Andy Stevenson.) Right.
23	would all stay within the upper 10 meters of the	23 Okay. As far as monitoring the effects of the
24	water column	24 effluent on the marine environment I'd like to offer
25	AUDIENCE MEMBER: (Andy Stevenson.) Okay.	25 a wild suggestion tonight, which is that in addition
	89	91
1	MR. DILL: so they're not mixing down	1 to what I'll call mechanical sampling or chemical
1 2	MR. DILL: so they're not mixing down into the deeper parts of the bay.	1 to what I'll call mechanical sampling or chemical 2 sampling or automated sampling or even hand sampling,
2	into the deeper parts of the bay.	2 sampling or automated sampling or even hand sampling,
2	into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay.	 2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would
2 3 4 5	into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a	 2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling
2 3 4 5 6	into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would	 sampling or automated sampling or even hand sampling, Nordic Aquafarms considers putting in what I would call a three-dimensional biological sampling operation, which would essentially be a full water
2 3 4 5 6 7	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far</pre>	 sampling or automated sampling or even hand sampling, Nordic Aquafarms considers putting in what I would call a three-dimensional biological sampling operation, which would essentially be a full water column installation of kelp, seaweed, muscles grown
2 3 4 5 6 7	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional
2 3 4 5 6 7	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the
2 3 4 5 6 7 8 9	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved.
2 3 4 5 6 7 8 9 10	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling</pre>	 2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting
2 3 4 5 6 7 8 9 10 11	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some
2 3 4 5 6 7 8 9 10 11 12	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level?</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for
2 3 4 5 6 7 8 9 10 11 12 13	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular
2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we've been</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay.
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we've been looking at the water quality at 5 meter intervals</pre>	 2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 21 Well, the people who know it far better than I are a
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we've been looking at the water quality at 5 meter intervals from the surface down to the depth of where the</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 21 Well, the people who know it far better than I are a 22 group called GreenWave and I believe they're in
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we've been looking at the water quality at 5 meter intervals from the surface down to the depth of where the discharge pipe is proposed.</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 21 Well, the people who know it far better than I are a 22 group called GreenWave and I believe they're in 23 Connecticut. They focus mostly on the West Coast,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we ve been looking at the water quality at 5 meter intervals from the surface down to the depth of where the discharge pipe is proposed. AUDIENCE MEMBER: (Andy Stevenson.) Okay.</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 21 Well, the people who know it far better than I are a 22 group called GreenWave and I believe they're in 23 Connecticut. They focus mostly on the West Coast, 24 but they've developed this concept and I'm sure they
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>into the deeper parts of the bay. AUDIENCE MEMBER: (Andy Stevenson.) Okay. MR. DILL: And we think that that's a conservative assumption because over time you would tend to get more mixing especially in the sort of far field time scales when you're looking at days to weeks rather than just the first, you know, hour or so after the effluent leaves the pipe. AUDIENCE MEMBER: (Andy Stevenson.) All right. Then would it be accurate to say that there has not yet been any modeling or actual sampling information about water quality below let's say that 10 meter or that level? MS. RANSOM: Actually, I can take a piece of that. So there are in addition to sort of some of the publicly available data for, I mean, I think it even goes to even some of the samples maybe go as deep as 100 and about 60 meters down, but we've established some sampling stations where we've been looking at the water quality at 5 meter intervals from the surface down to the depth of where the discharge pipe is proposed.</pre>	2 sampling or automated sampling or even hand sampling, 3 Nordic Aquafarms considers putting in what I would 4 call a three-dimensional biological sampling 5 operation, which would essentially be a full water 6 column installation of kelp, seaweed, muscles grown 7 on ropes vertically and clams caged on the bottom as 8 a way to reassure people over the long haul that the 9 viability of the bay as a source for additional 10 aquaculture or any other harmonious installation 11 could be preserved. 12 MS. RANSOM: I think that's an interesting 13 concept. I think we'd have to obviously get some 14 input from some of the folks at DEP. I know, for 15 example, the clam flat at the discharge area has been 16 closed for some time, so I think that particular 17 piece might, you know, require some additional input, 18 but I'd be happy to speak with you further about what 19 you're proposing. 20 AUDIENCE MEMBER: (Andy Stevenson.) Okay. 21 Well, the people who know it far better than I are a 22 group called GreenWave and I believe they're in 23 Connecticut. They focus mostly on the West Coast,

1		1 because game of them are very larger marks a billameters
1	MS. RANSOM: Awesome. Thank you.	1 however some of them are, you know, maybe a kilometer
2	AUDIENCE MEMBER: (Andy Stevenson.) Yeah.	2 from where we're discharging, so we're just now
	All right. I think that's it and I want to thank you	3 starting to make sure we gather data that is closer
4	all for the opportunity to talk tonight. Thank you. AUDIENCE MEMBER: Hello. My name is Audra	4 to the point that we're discharging so we have a more
5	-	5 in-depth understanding of the place we're going to be
6	Novine McTague. A-U-D-R-A, M-C-T-A-G-U-E. And my question is regarding the time frame of your	6 proposing. And then as we mentioned, the intent is 7 to have that be something where we can keep making
8	research. You said that the research that you	8 comparisons going forward and the ultimate program is
0 9	presented was for the time period of one month and	something that we expect the state is going to want
9 10	I'm assuming you guys are going to be here longer	10 to weigh in on and help us develop something that
	than that. And it is critical for operations like	11 they feel is a sound approach to monitoring. But,
11 12	these to look at a time frame that is long-term and I	12 you know, the permit process doesn't just stop when
	mean 20 years or more. And so I'm wondering if	
13 14		
	MS. RANSOM: Great question. Let me do some	
15 16	clarification.	
		16 there, you know, there will be things that keep going 17 into next decades.
17	AUDIENCE MEMBER: Can you repeat the question?	
18	-	
19	MS. RANSOM: I'm sorry.	19 the these studies, what do you expect the long-term 20 effects of your discharge to be?
20	AUDIENCE MEMBER: Can you repeat the question? I couldn't hear.	
21 22	MS. RANSOM: Sure. Her question was that	21 MS. RANSOM: That's a good question. You 22 know, we are looking at various different parameters
	_	
23	she had understood from the presentation that we had	23 and we have, you know, tried to the best of our
24	been gathering data for about a month and that given	24 ability to predict what we think is going to happen
25	the longevity of the project it was important to have 93	25 over time and, you know, obviously as we mentioned 95
1	a much longer time frame of monitoring in order to	1 some of the things he's discharging are actual
2	understand potential impacts and I'm paraphrasing a	2 improvements over what the bay has right now. So,
2	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it.	 2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a
2	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate?	2 improvements over what the bay has right now. So,3 you know, is, you know, I think we showed earlier a4 statistic that says his discharge is going to
2 3	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes.	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off
2 3 4 5 6	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen.
2 3 4 5 6 7	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact
2 3 4 5 6 7	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No,
2 3 4 5 6 7 8 9	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of
2 3 4 5 6 7 8	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go,	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small
2 3 4 5 6 7 8 9 10 11	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you
2 3 4 5 6 7 8 9 10 11 12	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however,	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific
2 3 4 5 6 7 8 9 10 11	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the
2 3 4 5 6 7 8 9 10 11 12	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and
2 3 4 5 6 7 8 9 10 11 12 13	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and
2 3 4 5 6 7 8 9 10 11 12 13 14	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are
2 3 4 5 6 7 8 9 10 11 12 13 14 15	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles.	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there 20 should be no negative impacts. But, you know, we're
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles. And so we've not only looked at our own dataset, but	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles. And so we've not only looked at our own dataset, but at some of the data that exists from other studies.	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there 20 should be no negative impacts. But, you know, we're 21 going to keep monitoring to make sure that that's 22 true.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles. And so we've not only looked at our own dataset, but at some of the data that exists from other studies. So we have data that comes from the 1970s. We have	 2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there 20 should be no negative impacts. But, you know, we're 21 going to keep monitoring to make sure that that's 22 true. 23 MR. DILL: Can I say something about the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles. And so we've not only looked at our own dataset, but at some of the data that exists from other studies. So we have data that comes from the 1970s. We have data that comes from the 1970s. We have data that comes from you know, 2001 through 2010	2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there 20 should be no negative impacts. But, you know, we're 21 going to keep monitoring to make sure that that's 22 true. 23 MR. DILL: Can I say something about the 24 modeling? I think you you mentioned you did
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	understand potential impacts and I'm paraphrasing a bit there, but I think that's the gist of it. MS. TOURANGEAU: Is that accurate? AUDIENCE MEMBER: (Audra McTague.) Yes. MS. RANSOM: So first of all, we've been as a consultant gathering data over the last several months, but there are and the reason for that is because we wanted to get some things as we narrowed down sort of where might that pipeline actually go, we wanted to narrow down things that were right at that discharge point. There have been, however, studies that have been going on in the bay since the 1970s and so there is a dataset for other areas within the bay that we can use to start establishing what does it look like historically, how has it changed, what are the different effects you might see at different times of the year, what are the different effects you might see upgrade or downgrade and upflow or downflow during different tide cycles. And so we've not only looked at our own dataset, but at some of the data that exists from other studies. So we have data that comes from the 1970s. We have	 2 improvements over what the bay has right now. So, 3 you know, is, you know, I think we showed earlier a 4 statistic that says his discharge is going to 5 ultimately be less than one percent of the run-off 6 that is currently coming into the bay for nitrogen. 7 And so, you know, is he going to have a strong impact 8 on the bay with anything he is discharging? No, 9 because that bay is many trillions of gallons of 10 water and he's discharging, you know, a small 11 fraction into that. But over time, you know, you 12 have things that are being discharged in one specific 13 area over time we hope to see that, you know, the 14 things that he's improving because he's treating and 15 cleaning will potentially show some improvements and 16 we hope that the things that we are discharging are 17 not going to have the negative impacts. And, you 18 know, we think that with the studies we've done, the 19 modeling we've done, we've demonstrated that there 20 should be no negative impacts. But, you know, we're 21 going to keep monitoring to make sure that that's 22 true. 23 MR. DILL: Can I say something about the

1	be because of the modeling that we showed it was a	1 circulated up from on the west side of Islesboro. So
2	one month long simulation. Actually, the model	2 that was able to sort of answer that question that
3	simulation was actually 45 days. It was actually a	3 you've got about this two week time frame and so then
4	little more than a month, but the initial part we	4 if you look at what the impact is on the
5	just kind of cutoff because when you with this	5 concentration in the area, after after two weeks
б	kind of modeling you have to spin up the tidal	6 of a continuous release, you have a good
7	forcing, you know, so it's initially the water is	7 representation of what the long-term impact is going
	perfectly still and it takes a couple weeks for the	8 to be and that was kind of the first slide that I
9	hydrodynamics to create a realistic current. At that	9 talked about that showed a very small light blue area
10	point, then you can then we we compared the	10 and so that was, you know, and with looking at
11	water levels to the observed water levels and	11 nitrogen, because in this case nitrogen is really the
12	showed that they were pretty accurately reproduced	12 thing we're most concerned about. TSS we're not so
13	and so the currents are pretty accurate.	13 concerned about because it's actually lower than
14	And I think one of the questions that I had	14 what's in the bay now.
15	going into this was, well, how long does the water in	15 So that so I guess to answer your
16		16 question that impact area is very small where you
17	know, typically you might call this a residence time.	17 would see that elevated nitrogen concentration and it
18	So trying so this is one thing that we that we	18 wasn't anywhere near where some of the sensitive
19	-	19 population of eel grass were that we had. So I hope
20	is actually really important for understanding what	20 that answers your
21	these impacts are. And if you look at the results of	21 AUDIENCE MEMBER: (Audra McTague.) Thanks.
22	that, you know, if you look at the tidal currents and	22 MS. TOURANGEAU: I am going to say I see we
23	the result of that simulation and one of the reasons	23 still have quite a long line. I just want to flag
24	1 5	24 for folks that we're getting we've got 45 minutes
25	amount of time it takes for the moon to go through a 97	25 left for the room, so if you are kind of not getting 99
	51	
1	full cycle and so you go through a full spring neap	1 to your question quickly, can you please try to. And
	full cycle and so you go through a full spring neap tidal cycle, which is really representative, you	1 to your question quickly, can you please try to. And 2 I apologize, we are just running out of time a little
2		 to your question quickly, can you please try to. And I apologize, we are just running out of time a little bit.
2 3	tidal cycle, which is really representative, you	2 I apologize, we are just running out of time a little
2 3 4	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of	2 I apologize, we are just running out of time a little 3 bit.
2 3 4 5	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the	 I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James
2 3 4 5 6	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why	 I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure,
2 3 4 5 6 7	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric	 I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in
2 3 4 5 6 7	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then	 2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack
2 3 4 5 6 7 8	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to	 2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this
2 3 4 5 6 7 8 9	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the	 2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed
2 3 4 5 6 7 8 9 10	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the	 2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used
2 3 4 5 6 7 8 9 10 11	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long	2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used 11 to be in your shoes as a former marketer of military
2 3 4 5 6 7 8 9 10 11 12	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation	2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used 11 to be in your shoes as a former marketer of military 12 hardware and I had all of the answers and the people
2 2 3 3 4 5 6 7 7 8 9 10 11 12 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we	2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used 11 to be in your shoes as a former marketer of military 12 hardware and I had all of the answers and the people 13 asking me didn't and so this is a very hard scenario,
2 2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 1	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you	2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used 11 to be in your shoes as a former marketer of military 12 hardware and I had all of the answers and the people 13 asking me didn't and so this is a very hard scenario, 14 but we were begging, this whole community, for an
2 2 3 3 4 5 5 6 7 7 8 9 10 11 12 13 14 15 5 7 15 7 1	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered	2 I apologize, we are just running out of time a little 3 bit. 4 AUDIENCE MEMBER: Yeah, my name is James 5 Merkel. I live in Belfast. And for full disclosure, 6 I am running for city council, Ward 5, a write-in 7 candidate. And what really concerns me is the lack 8 of transparency and public engagement. I know this 9 is the fourth information meeting where we're allowed 10 to ask questions and you're the expert. And I used 11 to be in your shoes as a former marketer of military 12 hardware and I had all of the answers and the people 13 asking me didn't and so this is a very hard scenario, 14 but we were begging, this whole community, for an 15 engagement and this is still you're the expert and
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that.
2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and ke're asking questions, so I'll participate in that.
2 2 3 4 5 6 6 7 7 8 9 9 10 11 12 13 14 15 16 17 7 8	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running
2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that simulation and you say you picked you tracked a	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running back into the harbor with the tailwind, you know, out
2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that simulation and you say you picked you tracked a couple of the particles and you watch them with your	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running back into the harbor with the tailwind, you know, out of south, that's normal. And I know you left this
2 2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NOAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that simulation and you say you picked you tracked a couple of the particles and you watch them with your eyes they were in Belfast Bay, about two weeks later	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running back into the harbor with the tailwind, you know, out of south, that's normal. And I know you left this
2 2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that simulation and you say you picked you tracked a couple of the particles and you watch them with your eyes they were in Belfast Bay, about two weeks later they're out of Belfast Bay and there is new ones that	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to be in your shoes as a former marketer of military hardware and I had all of the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running back into the harbor with the tailwind, you know, out out of south, that's normal. And I know you left this the wind out, but it's quite significant and Wejisue's (phonetic) report from 1999 says the
2 2 3 4 5 6 7 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	tidal cycle, which is really representative, you know, it's sort of enough a long enough period of time to represent what a long-term simulation of the tides would be. So like, for example, the reason why NDAA, the National Oceanic and Atmospheric Administration, collected tide data at Fort Point during that time period was so that they could then do an analysis on that and use that analysis to predict tides any time in the past, any time in the future. And so that that that one month long simulation is sufficient to give you a representation of what those tidal currents are doing. And what we saw from that simulation is that it when you when you release particles that are sort of scattered throughout the bay they tend to take about two weeks until they move, so if you saw that animation I was showing that had the different colored dots floating around, if you look for about two weeks of that simulation and you say you picked you tracked a couple of the particles and you watch them with your eyes they were in Belfast Bay, about two weeks later they're out of Belfast Bay and there is new ones that have come in from up the river or from the other side	I apologize, we are just running out of time a little bit. AUDIENCE MEMBER: Yeah, my name is James Merkel. I live in Belfast. And for full disclosure, I am running for city council, Ward 5, a write-in candidate. And what really concerns me is the lack of transparency and public engagement. I know this is the fourth information meeting where we're allowed to ask questions and you're the expert. And I used to ask questions and you're the answers and the people asking me didn't and so this is a very hard scenario, but we were begging, this whole community, for an engagement and this is still you're the expert and we're asking questions, so I'll participate in that. But several questions, I want to start with, again, on the currents. Now, I'm a sailor, so I'm out there quite a bit. On an I'm usually running back into the harbor with the tailwind, you know, out We jisue's (phonetic) report from 1999 says the currents out in that bay are really affected by

1	longshore current coming down the whole coast and	1 matter that you're adding more to an already
2	it's also these other currents that wrap around	2 collapsed system. You know, you're saying, well,
3	Islesboro and it's very complex and it's even	3 it's small, but it's more to an already collapsed
4	dependent on the wind direction, so I see that plume	4 system, so I don't get it.
5	coming right into the past the park of the city,	5 MS. RANSOM: So I'm not a hundred percent
б		6 sure of the question in there.
7		7 AUDIENCE MEMBER: (James Merkel.) Well, the
8		8 question is how what guarantee when you're, you
9	quite common wind. And on the outgoing tide it's	9 know, 10 to 15 Belfast city sewers and, you know,
10	going to go right past Bayside and Kelly's Cove and	10 what happens if the beaches are smelly?
11		11 MS. RANSOM: So
12	Now, Bayside has 1.6 pounds of nitrogen.	12 AUDIENCE MEMBER: (James Merkel.) You know,
13	You're talking about 1600, so that's what, my math, a	13 what what
14	thousand times more than Bayside Sewer. And Belfast	14 MS. RANSOM: the amount of nitrogen that
15	City has 108 pounds of nitrogen versus your 1600, so	15 currently is going in from other sources, the amount
16	this is like Belfast having a population of 98,000	16 that
10	people. It's like Portland putting their waste	17 AUDIENCE MEMBER: (James Merkel.) I heard
18	stream into, you know, equivalent to Belfast city's	18 you, yeah.
10	waste stream into our it's not a deep ocean	19 MS. RANSOM: is less than 1 percent is
20	current. I've heard Erik say it in three in two	20 of that point source discharge, that 4.3 percent is
20		21 going to go up by about three-quarters of a percent
21	currents. This is a deep estuary. It's a deep	22 with this discharge. That's a pretty small amount.
22	estuary where you are. And I saw your ping pong	23 And when you look at the fact that the bay contains
	balls and I see your numbers, but I'm still saying	24 trillions of gallons of water
	would these citizens be sitting down and nodding	25 AUDIENCE MEMBER: (James Merkel.) But what
25	101	103
1	along because you can present data in very many	1 happens if it's smelly at the beach, you know, I want
1 2	different ways, but to putting 10 to 15 times more	2 to know. And, for example, like
2 3	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay	2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I
2 3 4	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems</pre>
2 3 4 5	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't</pre>
2 3 4 5	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right.</pre>
2 3 4 5	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach.</pre>
2 3 4 5	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I</pre>
2 3 4 5 6 7	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the</pre>
2 3 4 5 6 7 8	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know.	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay</pre>
2 3 4 5 6 7 8 9	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your</pre>
2 3 4 5 6 7 8 9 10	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay</pre>
2 3 4 5 6 7 8 9 10 11	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah.</pre>
2 3 4 5 6 7 8 9 10 11 12	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much</pre>
2 3 4 5 6 7 8 9 10 11 12 13	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin.	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about 17 comparing the sewer discharge from a municipal sewage</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about 17 comparing the sewer discharge from a municipal sewage 18 system, municipal wastewater treatment plant, you're</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about 17 comparing the sewer discharge from a municipal sewage</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach sustainability at a university and we've been	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about 17 comparing the sewer discharge from a municipal sewage 18 system, municipal wastewater treatment plant, you're 19 not comparing apples to oranges. 20 AUDIENCE MEMBER: (James Merkel.) Right.</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach	<pre>2 to know. And, for example, like 3 MS. RANSOM: Jim, I don't honestly, I 4 don't think there is going to be any problems 5 AUDIENCE MEMBER: (James Merkel.) You don't 6 think so, right? Right. 7 MS. RANSOM: at the beach. 8 AUDIENCE MEMBER: (James Merkel.) No, I 9 understand you don't think so. And then just the 10 last question is Moulton Bay, Port Moulton Bay 11 MR. DILL: I just wanted to respond to your 12 question quickly. 13 AUDIENCE MEMBER: (James Merkel.) Yeah. 14 MR. DILL: Municipal sewage is much, much 15 different than the water that's being proposed to be 16 discharged here, so when you're talking about 17 comparing the sewer discharge from a municipal sewage 18 system, municipal wastewater treatment plant, you're 19 not comparing apples to oranges. 20 AUDIENCE MEMBER: (James Merkel.) Right. 21 MR. DILL: And when you're talking about</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach sustainability at a university and we've been	 to know. And, for example, like MS. RANSOM: Jim, I don't honestly, I don't think there is going to be any problems AUDIENCE MEMBER: (James Merkel.) You don't think so, right? Right. MS. RANSOM: at the beach. AUDIENCE MEMBER: (James Merkel.) No, I understand you don't think so. And then just the last question is Moulton Bay, Port Moulton Bay MR. DILL: I just wanted to respond to your question quickly. AUDIENCE MEMBER: (James Merkel.) Yeah. MR. DILL: Municipal sewage is much, much different than the water that's being proposed to be discharged here, so when you're talking about comparing the sewer discharge from a municipal sewage system, municipal wastewater treatment plant, you're not comparing apples to oranges. AUDIENCE MEMBER: (James Merkel.) Right. MR. DILL: And when you're talking about closures of shellfish bay shellfish areas and what
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach sustainability at a university and we've been teaching that for 30 or 40 years. Like you say, well, we have the water so we can use it, but we at home turn the faucet off when we brush our teeth and	 to know. And, for example, like MS. RANSOM: Jim, I don't honestly, I don't think there is going to be any problems AUDIENCE MEMBER: (James Merkel.) You don't think so, right? Right. MS. RANSOM: at the beach. AUDIENCE MEMBER: (James Merkel.) No, I understand you don't think so. And then just the last question is Moulton Bay, Port Moulton Bay MR. DILL: I just wanted to respond to your question quickly. AUDIENCE MEMBER: (James Merkel.) Yeah. MR. DILL: Municipal sewage is much, much different than the water that's being proposed to be discharged here, so when you're talking about comparing the sewer discharge from a municipal sewage system, municipal wastewater treatment plant, you're not comparing apples to oranges. AUDIENCE MEMBER: (James Merkel.) Right. MR. DILL: And when you're talking about closures of shellfish bay shellfish areas and what drives largely the wastewater treatment discharge is
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach sustainability at a university and we've been teaching that for 30 or 40 years. Like you say, well, we have the water so we can use it, but we at	 to know. And, for example, like MS. RANSOM: Jim, I don't honestly, I don't think there is going to be any problems AUDIENCE MEMBER: (James Merkel.) You don't think so, right? Right. MS. RANSOM: at the beach. AUDIENCE MEMBER: (James Merkel.) No, I understand you don't think so. And then just the last question is Moulton Bay, Port Moulton Bay MR. DILL: I just wanted to respond to your question quickly. AUDIENCE MEMBER: (James Merkel.) Yeah. MR. DILL: Municipal sewage is much, much different than the water that's being proposed to be discharged here, so when you're talking about comparing the sewer discharge from a municipal sewage system, municipal wastewater treatment plant, you're not comparing apples to oranges. AUDIENCE MEMBER: (James Merkel.) Right. MR. DILL: And when you're talking about closures of shellfish bay shellfish areas and what drives largely the wastewater treatment discharge is bacteria concentrations, not nitrogen. And so that's
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	different ways, but to putting 10 to 15 times more doubling the 15 times more sewage from Belfast Bay into and my children swim in those beaches, so like what guarantee do we have that the beaches aren't becoming horrible? Like, I mean, I don't know if there was if there was 15 sewers like just put into the Belfast Bay right in this estuary, I don't think I'd ask my boy to swim there. I think we'd go somewhere else, you know. I mean, there is a lot of ways to present data, but this is another way to look at it and I'm just not clear. I need to have a gut feeling. I am a scientist too, but was looking at 1.6 from Bayside versus 1600 and I'm looking at 1600 versus 108 in nitrogen and we already have a closure. Our bays are closed for shellfish, toxic algae bloom, biotoxin. It's currently closed. And, you know, you say dilution is your solution to pollution and I teach sustainability at a university and we've been teaching that for 30 or 40 years. Like you say, well, we have the water so we can use it, but we at home turn the faucet off when we brush our teeth and	 to know. And, for example, like MS. RANSOM: Jim, I don't honestly, I don't think there is going to be any problems AUDIENCE MEMBER: (James Merkel.) You don't think so, right? Right. MS. RANSOM: at the beach. AUDIENCE MEMBER: (James Merkel.) No, I understand you don't think so. And then just the last question is Moulton Bay, Port Moulton Bay MR. DILL: I just wanted to respond to your question quickly. AUDIENCE MEMBER: (James Merkel.) Yeah. MR. DILL: Municipal sewage is much, much different than the water that's being proposed to be discharged here, so when you're talking about comparing the sewer discharge from a municipal sewage system, municipal wastewater treatment plant, you're not comparing apples to oranges. AUDIENCE MEMBER: (James Merkel.) Right. MR. DILL: And when you're talking about closures of shellfish bay shellfish areas and what drives largely the wastewater treatment discharge is

1	when it comes to a municipal sewer discharge, so it's	1 That's about where we are, okay. So I've been along
2	not an apples to oranges comparison.	2 the whole coastline in Norway, I never really
3	AUDIENCE MEMBER: (James Merkel.) No.	3 detected any smell outside of these facilities. The
4	MR. DILL: I just wanted to make that clear.	4 only thing that you need to be concerned about is ho
5	AUDIENCE MEMBER: (James Merkel.) Sure.	5 you handle your sludge waste because if you extract
б	And the other question I have is about the smell and	6 and dispose of it here it will start smelling, so
7	the pheromones and kairomones that are in that water.	7 that's why you need to contain it and make sure it's
8	Like Moulton Bay recently did a study in Nova Scotia	8 not exposed to oxygen. I have never walked along an
9	finding 56 percent decrease in bearing lobster	9 land-based facility where there is a strong smell
10	lobsters bearing eggs and 40 percent reduction in	10 coming from the ocean.
11	regular lobsters because they're sense field they	11 AUDIENCE MEMBER: (James Merkel.) I guess
12	find their bait by antennas. They have to smell	12 what I would like to see too though if you would
13	their bait and if your whole world smells like salmon	13 study or show some peer study that would look at the
14	you can't find a trap or you can't even find the food	14 plume and its affect on lobster harvest.
15	for yourself to eat, so this Moulton Bay study was 11	15 MR. HEIM: Okay. Well, we look at the
16	years and it's quite conclusive. And I don't know if	16 receptors of the population.
17	you have read it. They give they say the things	17 MS. RANSOM: Actually, I can take a little
18	that really affect it are sulfides and ammonium,	18 bit of that question on lobster and I think that's
19	toxic and and they have behavioral effects on	19 something that's near and dear to every Mainer. One
20	adults and other lobsters at various stages.	20 of the primary things from a discharge that can have
21	MS. RANSOM: Jim, remember the among the	21 a strong impact on lobster growth is actually your
22	numbers from this facility are .003	22 dissolved oxygen. The lobsters are quite sensitive
23	AUDIENCE MEMBER: (James Merkel.) Right. I	23 particularly in their juvenile stage to the DO
	saw that, but	24 levels. And so at a DO level, for example, of 2 1/2
25	MS. RANSOM: so that's pretty low.	25 milligrams per liter, the juveniles show a 30 percen
	105	10
1	AUDIENCE MEMBER: (James Merkel.) but	1 reduction in their growth. And adults are sensitive
2	how about the sulfides? But what about the sulfides?	2 too, you know, you start getting up to, you know, 3
3	MS. RANSOM: Hydrogen sulfide.	3 1/2 milligrams per liter and even adults show, you
	Mo. RANSOM. HYDROGEN SUILIDE.	5 1/2 Inititigrans per titter and even addites snow, you
4	AUDIENCE MEMBER: (James Merkel.) Yeah.	4 know, some distress. The discharge from Nordic's
4 5		4 know, some distress. The discharge from Nordic's
5	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I'
5 6	AUDIENCE MEMBER: (James Merkel.) Yeah.	4 know, some distress. The discharge from Nordic's5 facility is going to be at 4 1/2 give or take, if I'6 not mistaken, and that level is actually a level
5 6	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen	 4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's
5 6 7	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I	 4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact to
5 6 7 8 9	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther
5 6 7 8 9 10	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig
5 6 7 8 9 10 11	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor.	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that
5 6 7 8 9 10 11 12	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers
5 6 7 8 9 10 11 12 13	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary
5 6 7 8 9 10 11 12 13	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms.	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is the
5 6 7 8 9 10 11 12 13 14	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean.	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is
5 6 7 8 9 10 11 12 13 14 15	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that.
5 6 7 8 9 10 11 12 13 14 15 16	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean.	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right.
5 6 7 8 9 10 11 12 13 14 15 16 17 18	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones?	 4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to single
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take	 4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is the 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take AUDIENCE MEMBER: (James Merkel.) I know	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it 20 affects their antennae and their ability to find foo
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take AUDIENCE MEMBER: (James Merkel.) I know what a .4 micron is is what you're saying, right?	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it 20 affects their antennae and their ability to find foo 21 because their whole world smells like salmon. And
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take AUDIENCE MEMBER: (James Merkel.) I know what a .4 micron is is what you're saying, right? MR. HEIM: Yeah, exactly. So if you if	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it 20 affects their antennae and their ability to find foo 21 because their whole world smells like salmon. And 22 maybe you don't smell it up above, but it could be
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take AUDIENCE MEMBER: (James Merkel.) I know what a .4 micron is is what you're saying, right? MR. HEIM: Yeah, exactly. So if you if you have taken the perspective that this is going	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it 20 affects their antennae and their ability to find foo 21 because their whole world smells like salmon. And 22 maybe you don't smell it up above, but it could be 23 down in the waterfall, that smell.
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	AUDIENCE MEMBER: (James Merkel.) Yeah. MR. HEIM: I think I am not familiar with that particular study, but this is not a sea pen operation. AUDIENCE MEMBER: (James Merkel.) Oh, I know very clearly, but the plume is going to have odor of salmon. I mean, it's going to smell of salmon. It's going to have that odor. MR. HEIM: We have no odor in our farms. AUDIENCE MEMBER: (James Merkel.) It's going to have MR. HEIM: This water is clean. AUDIENCE MEMBER: (James Merkel.) What about can it are the pheromones taken out, kairomones? MR. HEIM: Again, if you take AUDIENCE MEMBER: (James Merkel.) I know what a .4 micron is is what you're saying, right? MR. HEIM: Yeah, exactly. So if you if	4 know, some distress. The discharge from Nordic's 5 facility is going to be at 4 1/2 give or take, if I' 6 not mistaken, and that level is actually a level 7 that's considered safe for marine life, so that it's 8 not a level that you would expect to see an impact t 9 lobsters. But the primary I mean, obviously ther 10 is a variety of different things. If there were hig 11 TSS the lobsters are going to be sensitive to that 12 too, but really here out of the discharge numbers 13 that we're looking at from this facility the primary 14 thing that we'd be focused on for the lobsters is th 15 DO and that is one of the things that's there is 16 number of studies I could share with you on that. 17 AUDIENCE MEMBER: (James Merkel.) Right. 18 And the odor plume is what they really seem to singl 19 out in the Moulton Bay study was the odor plume, it 20 affects their antennae and their ability to find foo 21 because their whole world smells like salmon. And 22 maybe you don't smell it up above, but it could be

1	AUDIENCE MEMBER: (James Merkel.) Pardon?		allow me to read the statement because I'm not an
2	MR. HEIM: What is the case example that is		expert, but we have experts, we have PhDs and so
3	based on?	3	forth.
4	AUDIENCE MEMBER: (James Merkel.) Port	4	AUDIENCE MEMBER: We can't hear you.
	Moulton Bay. It's an 11 year study. It's near pens,	5	AUDIENCE MEMBER: Hold the mic up.
6	but pen is a, you know, it's putting out the salmon	6	MR. DEMOS: We screen for pesticides and
7	smell, you know, your pipe is going to put out a	7	······································
8	salmon smell.	8	sex hormones, nor do we use raw fish as an
9	MR. HEIM: What is what's going to smell	9	ingredient. We don't use antibiotics to our
10	is your basically your waste coming from the farm.	10	non-medicated feed. We are USDA compliant, FDA
11	Your feces, feed particles, wasted feed coming out,	11	registered and have all the third-party
12	that's what really smells and that's not going into	12	certifications. Our feed meets all of the
13	the bay here.	13	requirements around the globe including the European
14	AUDIENCE MEMBER: (James Merkel.) Right.	14	Union. All our ingredients used in the manufacturing
15	The last time I cooked salmon and I washed my hands	15	of Skretting feeds are approved by the American Feed
16	20 times and they still smelled like salmon.	16	Control of Fishes and Canadian Feed Inspection
17	MR. HEIM: Well, if you open up the fish	17	Agency. Our feed plants are regularly inspected by
18	AUDIENCE MEMBER: (James Merkel.) I was	18	the Canadian Feed Inspection Agency and the FDA. Our
19	swimming in I was camping in grizzly bear	19	plants are ISO 9001 GMP, BAP is best aquaculture
20	territory in DC	20	practices, HACCP, I don't know what that stands for
21	MR. HEIM: Yeah.	21	but it's one of our certifications. We have a global
22	AUDIENCE MEMBER: (James Merkel.) and I	22	audit team, which is a part of the supplier approval
23	washed them 20 times before I went to bed that night,	23	program. Their role is to visit the suppliers and
24	I still smelled like salmon.	24	ensure that they're complying with the food safety
25	MR. HEIM: Certainly if you open up a salmon	25	requirements. Testing for contaminants are also an
	109		111
1	it will smell like fish, but	1	integral part of the process. We reject any raw
2	AUDIENCE MEMBER: (James Merkel.) And your		materials that don't comply with the standards. I
	hands will and the smell is that's what's		have a quality assurance report if anybody is
	affecting the lobsters, so I just really urge you to	4	
	look at that and maybe answer it. I'll I have 76	5	AUDIENCE MEMBER: (Ellie Daniels.) Oh, I
	questions, but I'll give them to you in writing.	6	have questions. You're telling me about your
7	MR. HEIM: That's fine.		certifications and I do appreciate that, but what is
8	AUDIENCE MEMBER: Good evening. I'm Ellie	8	
	Daniels and I live in Belfast and I too have a	9	specifically?
10	disclosure that I am running as a write-in for Ward 1	10	MR. DEMOS: Well, there is fish meal
11	on the Belfast City Council. I admit I'm really	11	AUDIENCE MEMBER: (Ellie Daniels.) Oh.
12	disappointed not to hear more about feed tonight	12	MR. DEMOS: there is fish oil, but here
13	because everything that I try to research about what	13	is the thing, it depends on the feed.
14	the salmon are going to be fed tells me that it makes	14	AUDIENCE MEMBER: (Ellie Daniels.) That's
	a very big difference in what gets out in the	15	• • • • •
15	effluent. So I guess you have a resident expert	16	AUDIENCE MEMBER: We need you to tell us.
10	here.	17	AUDIENCE MEMBER: (Ellie Daniels.) Erik,
17	MR. DEMOS: I'm not an expert. I'm a	18	
10	representative for Skretting, it's a feed		to be fed?
20	AUDIENCE MEMBER: We can't hear you.	20	MR. DEMOS: It depends on the type of feed
20 21	MR. DEMOS: Okay. I am a representative for		you're feeding. We have organic feed. We have low
21	Skretting Global Feed Company. I live in Newport.		phosphorous feed. We have organic reed. We have row
22	I've sailed Penobscot Bay for 38 years. I've		feed, so.
		23	AUDIENCE MEMBER: (Ellie Daniels.) I would
	about the bay. As far as fish feed is concerned		specifically like to know specifically what Nordic
20	about the bay. As far as fish feet is concerned 110	20	specifically like to know specifically what Nordic 112
	Dostie R		
	DOSCIE R	F	

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	<pre>selection here. Right now, we're focused on the AIDIENCE MEMBER: Hold the microphone up. MR. HEIM: Okay. We're not even close to making a final feed decision in the U.S. We are just making that in Norway, it would start up in two months over there. So generally what you will see in the feed, it's a growing amount of vegetable proteins AIDIENCE MEMBER: (Ellie Daniels.) What kind of vegetables, please? MR. HEIM: There could be a whole range of vegetable proteins involved in their feed. AUDIENCE MEMBER: (Ellie Daniels.) Are there soy proteins? MR. HEIM: There can be soy. There are substitutes for soy. Any time you look at these proteins you want to be looking at where they're sourced from, how sustainable are they, for example,</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	MR. HEIM: No, but we're not buying feed until two or three years from now, right, so in the next couple of years AUDIENCE MEMBER: (Ellie Daniels.) Yeah. Okay. MR. HEIM: you're going to see a lot of developments in this industry. And the reason why is
2 3 4 5 6	MR. HEIM: There can be, yes. Again, you always look at the sourcing of these things. AUDIENCE MEMBER: (Ellie Daniels.) Are there animal byproducts in the feed? MR. HEIM: That is used in some feeds, yes, it depends. AUDIENCE MEMBER: (Ellie Daniels.) And how are animal byproducts certified in feed? MR. HEIM: That is an issue we will be looking into in the U.S. Our concern is the sourcing of it and to be sure that is a safe, good sourcing. For example, we know that in the U.S. antibiotics is used in animal feeds in some cases. This is not something we see in Europe, so obviously that's one thing we're going to be looking at that we want to make sure that every source we have is antibiotics free in terms of that. AUDIENCE MEMBER: (Ellie Daniels.) And	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	MR. HEIM: Actually, feed is a fairly low margin business. You have powerful buyers. They are pressing the feed companies on the margins, so it's not as profitable as you might think to be honest, so. Yeah. MS. TOURANGEAU: We are getting I appreciate, Miss Daniels, that you have questions about the specifics about the feed and I appreciate AUDIENCE MEMBER: (Ellie Daniels.) Well, I appreciate the answers. MS. TOURANGEAU: and I'm hoping that we can move to questions about the discharges. We're running short on time. AUDIENCE MEMBER: (Ellie Daniels.) I do have questions about the discharge. Specifically, how big is the diameter of this effluent pipe and will there be one effluent pipe or two effluent pipes and how many water intake pipes? MS. TOURANGEAU: So I'm going to preface

—			
1	in the other permits that are issued and you can	1	to at mean low water, so the flats don't count
2	answer it really quickly, but.	2	essentially in our distance calculation. So if it's
3	MS. RANSOM: Ellie, I can give you a brief	3	dry to some degree that doesn't so when we're
4	discussion on that. As Joanna mentioned, we are	4	talking about depths, for example, that 35 foot depth
5	going to be covering that in more detail when we get	5	at the pipe outfall is at mean low water. So, yes,
6	to the Army Corps permitting and there will be a lot		it's counting in our distance, but it's not counting
7	more detail provided and some of that is still		in our depth distance. So the idea is we've looked
8	ongoing engineering. But one of the things that		at over time with the modeling different scenarios
9	CORMIX modeling does look at is what are the best		for what happens if you put the pipe at 500 meters,
10			what happens if you put the pipe at 1,000 meters,
11	you receive is the best possible that you can and so		what happens if you put the pipe out at 1500 meters
12			and we've optimized through the modeling scenarios,
13			you know, where do you see change occur and how do we
14	multiple ports particularly in the beginning when the		make sure that that discharge isn't coming right back
	flows are lower and there could also be diffusers		into the bay and the reason you don't have the pipe
16	involved. And all of those things will be looked at		at, you know, 20 meters is because you're going to
17	and engineered over the next few months to make sure		get better effects by going further out, but you also
18	that by the time we get to the Army Corps public		don't want to go so far out that you're, you know,
19	meeting we have more answers for you.		getting to the other side of the bay. So part of
20	AUDIENCE MEMBER: (Ellie Daniels.) Okay. I		what we've done why the number of changes and why
21	5		we have a draft application process is so that we can
22	target and I'm interested in the plume related to		understand the science before we settle on a number
23	discharge and ports, is this the same as baffles, meaning that along the termination of the pipe you		and obviously in early meetings we hadn't done the engineering yet and so we're working on it.
24 25	have multiple places that the effluent	24 25	AUDIENCE MEMBER: (Ellie Daniels.) I have
20	117	20	ADDIENCE MEMBER. (EITTE Danteis.) I have 119
1	MS. RANSOM: And we're about to get out of	1	one last question that I don't believe anybody has
2		2	addressed.
3	AUDIENCE MEMBER: (Ellie Daniels.) Okay.	3	MS. TOURANGEAU: I
4	MS. RANSOM: But there are things, for	4	AUDIENCE MEMBER: (Ellie Daniels.) Excuse
	example, like a duck bill where you can have		me, other people have been able to get to the end of
	something that opens when the flow reaches a certain		their
	level	7	MS. TOURANCEAU: I hear you and I am going
8	AUDIENCE MEMBER: (Ellie Daniels.) Exceeds		to interrupt you just briefly to say that right now
9	a certain		for the last two at about 15 minutes per person. We
10	MS. RANSOM: and then comes back down,		have seven people in line and about 20 minutes left,
	yes.		so I'm going to ask people to keep it short and
12 13	AUDIENCE MEMBER: (Ellie Daniels.) Okay. Well, early on in this process we were told that the	12 13	apologize to people that are at the end of the line. AUDIENCE MEMBER: (Ellie Daniels.) We all
13 14	pipe would be a mile and a half out in the bay and		are aware that there is a second large salmon farm
15	then we heard a mile and now we're hearing about it		that is applying going through its discharge
15	in meters. And so I had used my trusty iPhone, same		permit right now up in Bucksport and I am wondering
10	thing with the kilos to pounds. I really think that		if you know how the DEP will be handling the fact
18	an American permit might put American measures on		that two large facilities will be discharging into
19	these things so that we could understand them more.		the bay and if there is some kind of a plan for a
20	But I did use my phone, so I see now that you're		cumulative effect study related to two facilities.
21	talking about .62 miles out and my neighbor who lives	21	MS. TOURANGEAU: It's not truly relevant to
22	down there on the shore talks about a half a mile of		our permit, but I do I am aware that the DEP has
23			issued a draft permit for that project that has been
24	out there, so we're not very far out.		circulated, so that I'm sure when our permit comes in
25	MS. RANSOM: I can tell you that this refers	25	that that will be taken into consideration.
	118		120
	Dostie R	lep	orting
		-	

1	AUDIENCE MEMBER: (Ellie Daniels.) Thank	1 for having best practice
2	you. Just a procedural question. Someone had to	2 AUDIENCE MEMBER: What's your question?
3	submit their email in order to get a scientific	3 AUDIENCE MEMBER: Yeah, what's your
4	study. We all submitted emails here, will we all	4 question?
5	receive scientific responses to those questions?	5 AUDIENCE MEMBER: (Don Perkins.) I'm going
б	MS. TOURANGEAU: We like I said at the	6 to get to it. I'm going to get to it best
7	beginning of the meeting, I am going to pull the	7 practice regulatory practices. And so I think, you
8	questions on the permitting criteria out and there	8 know, time will bear out examining this, but the
9	will be narrative responses if they're not addressed	9 engineering side has been very well done. I think to
10	in the transcript.	10 me the big risk question and where my question goes
11	AUDIENCE MEMBER: (Ellie Daniels.) Thank	11 is on the operational side. Once you've built a
12	you.	12 state-of-the-art facility then it's a matter of how
13	AUDIENCE MEMBER: Good evening. My name is	13 well you operate it. And I'm interested, Erik, in
14	Don Perkins. I run the Gulf of Maine Research	14 how you think about, you know, who you're going to
15	Institute down in Portland and I would note I've done	15 hire, what kind of training and what kind of risk
16	that for 24 years now. I have been watching the	16 management you're going to do once it's built. Thank
17	evolution of the aquaculture industry in Maine since	17 you.
18	the late 1980s with the first salmon farms. I was a	18 MS. TOURANCEAU: Thank you.
19	co-founder of Friends of Casco Bay and so I have a	19 MR. HEIM: And I totally agree. This kind
20	deep interest in water quality and we're actively	20 of operation that we're looking at
21	involved in understanding and stewarding the	21 AUDIENCE MEMBER: It's not related to
22	ecosystem along the coast of Maine as well as	22 effluent, so why can he ask that question? It's not
23	supporting the growth of a sustainable seafood	23 related to effluence. You just shut Ellie down.
24	industry. So I've been watching this. I've been	24 MR. HEIM: I'll answer it briefly because it
	watching the evolution of the RAS industry for the	25 also does relate to your discharge. So, yes,
25	121	123
	past few years. We at GMRI from an economic point of $% \mathcal{G}_{\mathcal{M}}$	1 recruiting and training and people is a really
	view are interested in aquaculture as a	2 important part of operations discipline. Operations
	view are interested in aquaculture as a diversification opportunity along this coast. And I	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you
	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to
2 3	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge
2 3	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to
2 3 4 5 6	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge
2 3 4 5 6	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked
2 3 4 5 6 7	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water
2 3 4 5 6 7 8	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who
2 3 4 5 6 7 8 9	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the
2 3 4 5 6 7 8 9 10	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the
2 3 4 5 6 7 8 9 10 11	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly
2 3 4 5 6 7 8 9 10 11 12	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with
2 3 4 5 6 7 8 9 10 11 12 13	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic,</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things.
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project.</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a
2 3 4 5 6 7 8 9 10 11 12 13 14 15	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project. It's been engineered thoughtfully. I had an opportunity to grill them about their environmental</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project. It's been engineered thoughtfully. I had an opportunity to grill them about their environmental impacts. The concentrations of nutrients going into</pre>	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is 19 Paul Dean and I live in Belfast. You may not be able
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is 19 Paul Dean and I live in Belfast. You may not be able 20 to answer these questions. I have three. The first
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project. It's been engineered thoughtfully. I had an opportunity to grill them about their environmental impacts. The concentrations of nutrients going into the bay are small. The number of gallons is a big number, but it's trivial in the context of the volume of Belfast Bay. They are engineering and I've been in touch I've tracked this through the marine construction industry, friends in Norway who are very	2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is 19 Paul Dean and I live in Belfast. You may not be able 20 to answer these questions. I have three. The first 21 one, I don't know if the effluent line will be 22 pressurized or not. And I heard earlier tonight, I
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project. It's been engineered thoughtfully. I had an opportunity to grill them about their environmental impacts. The concentrations of nutrients going into the bay are small. The number of gallons is a big number, but it's trivial in the context of the volume of Belfast Bay. They are engineering and I've been in touch I've tracked this through the marine construction industry, friends in Norway who are very familiar with the evolution of RAS in Norway.	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is 19 Paul Dean and I live in Belfast. You may not be able 20 to answer these questions. I have three. The first 21 one, I don't know if the effluent line will be 22 pressurized or not. And I heard earlier tonight, I 23 thought, it's quite noisy in here, that the testing
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside.</pre>	 important part of operations discipline. Operations discipline also goes into your practice and how you develop your protocols and your practices related to monitoring and following-up and making your discharge structure. So all of these things are linked together. So, for example, in terms of the water treatment plant, we have a CTO, David, down here, who has many years of experience. He will be one of the key people overseeing also the all of the wastewater plants and that experience is highly important and it's important to have people with discipline and competence to operate these things. So that's the short answer and I could talk about a lot more about the production side, but I'm not going to do that right now. But, yes, it is true, operations excellence is extremely important. AUDIENCE MEMBER: Good evening. My name is Paul Dean and I live in Belfast. You may not be able to answer these questions. I have three. The first one, I don't know if the effluent line will be pressurized or not. And I heard earlier tonight, I would be done quarterly on the effluent that comes
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	view are interested in aquaculture as a diversification opportunity along this coast. And I came up here tonight I'm actually on vacation, but I came up here tonight having listened to this from a distance to just share an observation from the outside. Number one, how you all decide as community to deal with this project is that's a local question and you have a healthy political process here to do that. I would note from a distance and as a party that has no dog in this fight, no financial relationship, no business relationship with Nordic, that this this is a state-of-the-art project. It's been engineered thoughtfully. I had an opportunity to grill them about their environmental impacts. The concentrations of nutrients going into the bay are small. The number of gallons is a big number, but it's trivial in the context of the volume of Belfast Bay. They are engineering and I've been in touch I've tracked this through the marine construction industry, friends in Norway who are very familiar with the evolution of RAS in Norway.	 2 important part of operations discipline. Operations 3 discipline also goes into your practice and how you 4 develop your protocols and your practices related to 5 monitoring and following-up and making your discharge 6 structure. So all of these things are linked 7 together. So, for example, in terms of the water 8 treatment plant, we have a CTO, David, down here, who 9 has many years of experience. He will be one of the 10 key people overseeing also the all of the 11 wastewater plants and that experience is highly 12 important and it's important to have people with 13 discipline and competence to operate these things. 14 So that's the short answer and I could talk about a 15 lot more about the production side, but I'm not going 16 to do that right now. But, yes, it is true, 17 operations excellence is extremely important. 18 AUDIENCE MEMBER: Good evening. My name is 19 Paul Dean and I live in Belfast. You may not be able 20 to answer these questions. I have three. The first 21 one, I don't know if the effluent line will be 22 pressurized or not. And I heard earlier tonight, I 23 thought, it's quite noisy in here, that the testing

 the public sampling out further on the line. If that line is a constant query hours frequently them just monthly. Mai as far as the public sampling pices goes, I think were sith unkning and elexping what the an encore frequently built making an developing what the indight look like in them set that 104 the indight look like in them set, y was know, who might the neight look like in them set, y was know, who might the indight look like in them set, y was know, who might the neight look like in them set, y was know, who might the neight look like in them set, y was know, who might the neight look like in them set, y was know, who might the neight look like in them set, y was know, who might that would be another one. That and net least that the like a - with that encore look like in the like, y is hown and was the set the set set and look least the set set from set that encore look like in the like, y is hown and was the set that encore look like in the like, y is hown and was the set the set set and net looks, that of this like that that encore like looks and was the like the set set and net looks, the offluer like set. the set offlow and have looks the side doin in the like were like like and looks are net likely to get the them set. K NUMANDEN: Say, I am on save the! ADDENEY MEMERS: (Ion Parkins.) I the set and looks are net high like looks in a lot of ways fall hook to a like were like and looks are net doing water the set and like and looks are net doing water and was looks are things like looks in a look of was like like set and like were and like doing set and was looks are the like set and looks are net doing water and was like like set and was looks at looks and water was and like doing like doing set and was like looks in a look of was like like and like set and like looks			
 a true carbon with the EDF that is walled accounting the set of the true of t	1	the public sampling out further on the line. If that	1 need to meet so that the monitoring is actually
 4 encylar basis. The speaking tonig three the I only 4 construction of the RP that I would encourage the 4 construction of the RP that I would encourage the 4 construction of the RP that I would encourage the 5 be working and participating on that and whor that 9 out in the NP. I have shall that shall yo 9 out in the NP. I have shall that shall yo 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the All that would encourage the 9 out in the Way of the Way of the All that would encourage the 9 out in the Way of the Way of the Way of the Way of the 9 out in the Way of the All that would be another on the that 9 out in the Way of the Way of the Way of the 9 out in the Way of the All that would be another on the Way of the	2	line is actually pressurized, you should be able to	2 conducted much more frequently than just monthly.
 is can record with the IDP that I would encourage the text single down on a more regular basis so that, you how, things thatwill know what will attuiling of the things thatwill know what will attuiling of the things that	3	bring sample points up from it and sample on a more	3 And as far as the public sampling piece
 is testing be done on a more regular basis so that, you is now, things that we'll know what will actually goes is out in the hoy. I have't heard mything ator pit, is that not have not account what will actually goes is that puts into effect that this is a with is accound it to be able to takes actually the what we will there be a barring is accound it to be able to take the waters from one or is accound it to be able to takes from one or is accound it to be able to take the waters from one or is accound it to be able to take the water from one or is accound it to be able to take the water from one or is accound it to be able to take the water from one or is accound it to be able to take the water from one or is the take account of the best. Use on match it is is accound it the best. The height structure that and it certainly see this in my busineses as an is accound it was a structure that would be dying shortly in the is the takes. Were you saying in the	4	regular basis. I'm speaking tonight more that I can	4 goes, I think we're still working on developing what
 incur, things that we'll know shat will actually go incur in the hay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't heard suphing about pit. int the bay. I haven't haven'thaven't haven't haven't haven't haven't haven't haven't haven'	5	be on record with the DEP that I would encourage the	5 that might look like in terms of, you know, who might
 a out in the kay. I haven't heard anything about pf, b that that would he another one. c introducts would be the states from one or a rourd it to be able to takes from one or a rourd it to be able to takes from one or a man if it to be able to takes the waters from one or a bet and not least, but on this line that c abst and not least, but on this line that c abst and not least, but on this line that d planning to develop an energency procedure house g that energency? And thank you very much. MS CUNEAUXENU: Sir, I am not sure that I e develop an energency in the	б	testing be done on a more regular basis so that, you	6 be working and participating on that and what that
 but that would be arother one. That puts into effect that this is a with the DBP I have to mention about attatrophic tank around it to be able to take the waters from one or to to take setually breaking doon and what the sensempency procedure would be for something like that? gess cut, if it plugs, and 'I'' hearing things noting a stuff in the like. I'm hoping that you're planning to develop an encrearcy. Procedure because you have fish that would be dying shortly in the that encrearcy. Protecture because you have fish that would be dying shortly in the that encrearcy. Protecture because you have fish that would be dying shortly in the that actually requestion about the fish dying in the tanks. Where you saying in the	7	know, things that we'll know what will actually go	7 might involve and there certainly are both groups and
10 That puts into effect that this is a - with 11 the DBP I have to mention about catastrophic tank 12 failure.1 the DBP I have to mention about catastrophic tank 13 around it to be able to take the waters from one or 14 to tanks actually preaking down and what the 15 mergency procedure walle be for scretching like that? 16 mergency procedure walle be for scretching like that? 17 gees out, if it plugs, and I'm hearing things moving 18 and suff in the line, I'm hoping that you're 19 panning to develop an energency procedure walls on about that sufficient that walls on a water stat wall or develop an energency procedure walls on about that sufficient that walls on about that sufficient that walls on about that sufficient that energency? And thank you very much. 11 Motient Besser: (Don Perkins.) If the anergency? And thank you very much. 12 NUDENCE MENER: (Con Perkins.) If the stank of the wall answers and 14 we can go from there. 10 15 NS. NURENCE I Con Perkins.) If the water gaulity to stay of the wall answers for the stay and an a far a percepared answers and so these are things that will be 2 developed. The facility will have bat an apperiate procedures and so these are things that will be 2 developed. The facility will have bat an apperis thang that answers and so t	8	out in the bay. I haven't heard anything about pH,	8 individuals that expressed interest in joining that
 11 the DEP I have to mention about catastrophic tank 11 around it to be able to take what we have the isen if you build this site will there be a been 12 around it to be able to take the waters from one or 14 too tanks actually breaking down and what the 15 energency procedures and lo for something like the? 16 at and not least, but on this line that 17 goes out, if it plugs, and I'm hearing things noving 18 and stuff in the line, I'm hoging that you're 19 planning to develop an energency procedure because 20 you have fish that would be dying shortly in the 21 that energency mother would a diversity in the 21 that every of the day of the energency records the because 21 you have fish that would be dying shortly in the 21 that every of the day of the energency records the table to a day of the energy of that that would be dying shortly in the 21 that every of the day of the would be dying shortly in the 21 that every of the day of the day of the day of the energy of the day and the field day the year oner like) to get 21 more placed your last question about the fish dying in 22 more years and you have fish the day in the	9	but that would be another one.	9 in some fashion.
12 failure. If you build this site will there be a beem 13 around it to be able to take the waters from ore or to to take actually breaking down and what the 14 concernent doubt is risk management and when 15 mergency procedure would be for something like that? 16 Task and not least, hut on this line that 17 gees cut, if i plugs, and i'm hearing things noving 18 and stuff in the line, I'm hoping that you're 19 particip develop an energency procedure breases 10 that energency? And thank you way much. 10 that and yeastion about the fish dying in 11 apprend your last question about the fish dying in 12 that analys without that outlyou way much. 10 that analys outhout that outlyou way much. 11 ADDIENCE MEMER: (Con Perkins.) If the 12 ALDIENCE MEMER: (Con Perkins.) If the 14 Nos. NEGWISEN: I can take a crack at some of if or dealing with those kinds of energency situations. 19 well hegetily get to same more diated answers and if or dealing with those kinds of energency situations. 14 that the nomer it hink the design is a if or dealing with those kinds of energency situations. <td>10</td> <td>That puts into effect that this is a with</td> <td>10 As far as the questions about the tank</td>	10	That puts into effect that this is a with	10 As far as the questions about the tank
12 failure. If you build this site will there be a beem 13 around it to be able to take the waters from ore or to to take actually breaking down and what the 14 concernent doubt is risk management and when 15 mergency procedure would be for something like that? 16 Task and not least, hut on this line that 17 gees cut, if i plugs, and i'm hearing things noving 18 and stuff in the line, I'm hoping that you're 19 particip develop an energency procedure breases 10 that energency? And thank you way much. 10 that and yeastion about the fish dying in 11 apprend your last question about the fish dying in 12 that analys without that outlyou way much. 10 that analys outhout that outlyou way much. 11 ADDIENCE MEMER: (Con Perkins.) If the 12 ALDIENCE MEMER: (Con Perkins.) If the 14 Nos. NEGWISEN: I can take a crack at some of if or dealing with those kinds of energency situations. 19 well hegetily get to same more diated answers and if or dealing with those kinds of energency situations. 14 that the nomer it hink the design is a if or dealing with those kinds of energency situations. <td>11</td> <td>the DEP I have to mention about catastrophic tank</td> <td>11 collapse procedures and clogs in the effluent line,</td>	11	the DEP I have to mention about catastrophic tank	11 collapse procedures and clogs in the effluent line,
 around it to be able to take the waters from one or 14 two tanks actually breaking down and what the 15 energency procedure would be for something like that? 16 Inst and not least, but on this line that 17 goes out, if it plugs, and I'm hearing things moving 18 and stuff in the line, I'm hoging that you're 19 plarning to develop an energency procedure because 10 you have fish that would be dying shortly in the 11 take without that outflow and what would you do in 12 take without that outflow and what would you do 12 take without that outflow and what would you do 13 the tanks. Were you saying in the			
14 two tanks actually breaking down and what the 15 resignery procedure would be for something like that? 16 Last and not least, but on this line that 17 goes out, if if plugs, and I'm hearing things moving 18 and stuff in the line, I'm hoging that you're 19 planning to develop an emergency procedure because 10 out has without that outflow and what would you do in 12 that energency? And thank you very much. 13 NS. TORPNEEW: Sir, I am not sure that I 14 appured your last question about the fish dying in 15 energency: And thank you very much. 16 appured your last question about the fish dying in 17 AUDIENCE MEMER: (Don Perkins.) 16 outflow of the, you know, the effluent line stops, 19 plugs up. 10 NS. TORPNEEW: (Don Perkins.) 15 Audies an ap of mo there. 16 NS. TORPNEEW: (Don Perkins.) 16 Possibility. Everything is a possibility at times 17 MUENCE MEMER: (Don Perkins.) 16 Audie and port there weet of the mings that question 17 Mue can go from there.	13	-	
 15 emergency procedure would be for something like that? 16 Tast and not least, but on this line that 17 grees out, if it plugs, and I'm hearing things moving 18 and stuff in the line, I'm hoping that you're 19 planning to develop an emergency procedure because 20 tanks without that outflow and what would you do in 21 tanks without that outflow and what would you do in 21 tanks without that outflow and what would you do in 22 tanks without that outflow and what would you do in 23 that emergency? And thank you very much. 24 captured your last guestion about the fish dying in 25 the tanks. Were you saying in the			
16 Last and not least, but on this line that 17 grees out, if it plugs, and I'm hearing things moving 18 and stuff in the line, I'm hoping that you're 19 planning to develop an emergency procedure because 20 you have fish that would be dying shortly in the 21 that emergency? 21 MS. TOURAVERU: Sir, I am not sure that I 23 MS. TOURAVERU: Sir, I am not sure that I 24 MS. TOURAVERU: Sir, I am not sure that I 25 MDIENCE MEMEER: (Don Perkins.) If the 2 outflow of the, you know, the effluent line stops, 3 plugs up. 1 AUDIENCE MEMEER: (Don Perkins.) 5 AUDIENCE MEMEER: (Don Perkins.) 6 Possibility, Dewything is a possibility at times 7 now cango from there. 8 NS. TOURAVERU: Cday. 5 AUDIENCE MEMEER: (Don Perkins.) 6 Possibility, Dewything is a possibility at times 1 use and of them will be partial answers for 1 you, Right at the moment I think the design is a 1 we'll hopefully get to some mare detailed answers for 1 yo			
17 gees out, if it plugs, and I'm hearing things moving 18 and stuff in the line, I'm hoging that you're 19 planning to develop an emergency procedure because 10 you have fish that would be dying shortly in the 11 tanks without that outflow and what would you do in 12 that emergency? And thank you very much. 13 deputed your last question about the fish dying in 14 captured your last question about the fish dying in 15 the tanks. Were you saying in the 10 11 11 ADDIENCE MEMBER: (Don Perkins.) If the 2 0 cutflow of the, you know, the effluent line stops, 3 plugs up. 1 ADDIENCE MEMBER: (Don Perkins.) 5 ADDIENCE MEMBER: (Don Perkins.) 6 MS. FOURANCEAU: Okay. 7 ADDIENCE MEMBER: (Don Perkins.) 6 NS. RANSOW: I can take a crack at some of 9 those. Sme of them will be partial answers and 10 we'll hogefully get to some more detailed answers and 10 we'll hogefully get to some more detailed answers and 10 we'll hogefully get to some more detailed answers and 10 we'll hogefully get to some more detailed answers and			
 18 and stuff in the line, I'm hoping that you're 19 planning to develop an energency procedure because 20 you have fish that would be dying shortly in the 21 tarks without that outflew and what would you do in 22 that energency? And thark you very mach. 23 MS. TOURNOEQU: Sir, I am not sure that I 24 captured your last question about the fish dying in 25 the tanks. Were you saying in the - 25 26 outflew of the, you know, the effluent line stops, 3 plugs up. 26 and there. 27 1 ANDIENCE MEMBER: (Don Perkins.) 27 1 ANDIENCE MEMBER: (Don Perkins.) 28 not there. 29 procedures. 20 and those will include things that will be 2 developed. The facility will have best management 3 practices that their employees will be trained to 4 MS. TOURNOEQU: Okay. 2 ANDIENCE MEMBER: (Don Perkins.) 3 RADIENCE MEMBER: (Don Perkins.) 4 MS. RNNSOF: I can take a crack at some of 3 ractices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situations. 9 we'll hopefully get to some more detailed answers for 19 we'll hopefully get to some more detailed answers for 19 we'll hopefully get to some and repeat that question 19 having a gravity flow or a purped flow down the pipe 19 throughout. Chroinsly this is these are living 19 throughout. Chroinsly this is these are living 20 creatures that need the water quality to stay good 21 within the plants and logged with equipment, not manually, so 23 that we can take those readings more frequently. So 24 within the plants and logged with equipment, not manually, so 25 monthy, weekly, and dhiy maximu walues that you 			
 19 plarming to develop an emergency procedure because 20 you have fish that would be dying shortly in the 21 that emergency? And thark you very much. 23 MS. TOURANGEAU: Sir, I am not sure that I 24 captured your last question about the fish dying in 25 the tanks. Were you saying in the 25 26 27 27 28 29 20 21 20 21 21 21 21 22 21 21 21 22 21 21 21 22 21 21 21 21 21 22 21 21 21 21 22 22 23 24 24 24 24 24 24 24 24 25 26 27 27 27 28 29 20 21 22 21 21 21 22 21 22 21 22 23 24 24 24 24 24 24 			
 you have fish that would be dying shortly in the intaks without that outflow and what would you do in that emergency? And thank you very much. So. TOURNEEN: Sir, I am not sure that I at a catually is frequently requested in a daft permit is it do you have appropriate procedures in place for these in emergency? And thank you very much. So. TOURNEEN: Sir, I am not sure that I at actually is frequently requested in a daft permit is it do you have appropriate procedures in place for these in emergency? And thank you very much. ADDIENCE MEMBER: (Don Perkins.) If the outflow of the, you know, the effluent line stops, plugs up. M.S. TOURNEENU: Okay. N.S. TOURNEENU: Okay. Southows ago from there. M.S. TOURNEENU: I can take a crack at some of those. Some of them will be partial answers and in we'll hopefully get to some more detailed answers for in you. Right at the moment I think the design is a little bit unclear still as to whether or not we're in you. Right at the moment I think the design is a little bit unclear still as to whether or not we're in the wet re doing our Amy Cores permitting. May so I hope you'll come and repeat that question is the plant daily, probably hourly, and that's congoing the plant daily, probably hourly, and that's congoing in the plant daily, probably hourly, and that's congoing is conducted and loged with equipment, not manually, so is that we can take those readings more frequently on the sump site and we also farm muscles on a site is clarifying question wondering if the water quality is sum of the sum of the plant daily, weekly, and daily maximum values that you. M.S. TOURNEENE: Since of that monitoring is conducted and loged with equipment, not manually, so is that we can take those readings more frequently. But in addition, the permits are usually issued with is monthy. M.S. TOURNEENE: So and is monitoring is monitoring is monitoring is monitoring is monitoring is monitory ing is monito			
 1 tanks without that outflow and what would you do in 2 tanks without that outflow and what would you do in 2 that emergency? And thank you very much. 2 MS. TOURNAGEU: Sir, I am not sure that I 4 captured your last guestion about the fish dying in 2 to see within a given time period from the issuance 2 of that permit your plans for dealing with those 2 developed. The facility will have best management 3 plugs up. 1 MIDIENCE MEMEER: (Don Perkins.) 4 MS. TOURNAGEU: Okay. 3 ADDENCE MEMEER: (Don Perkins.) 5 ADDENCE MEMEER: (Don Perkins.) 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANGOK I: can take a crack at some of 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 14 and so I hope you'll come and repeat that question 15 the plant daily, probably hourly, and that's orgoing 16 the plant daily, probably hourly, and that's orgoing 17 thorea are certain parameters that ged monitored in 18 the plant daily, probably hourly, and that's orgoing 19 throughout. Oviously this is these are living 10 creatures that need the water quality to stay good 11 throughout. Oviously this is these are living 12 canductared and logged with equipment, not manally, so 13 that we can take those readings more frequently. But 14 in addition, the permits are usually issued with 2 and that we can take those readings more frequently. But 2 and that we can take those readings more frequently. But 3 addition, the permits are usually issued with 4 in addition, the permits are usually issued with 4 addition, the permits ar			
 22 that emergency? And thank you very much. MS. TOTENMERNI: Sir, I am not sure that I captured your last question about the fish dying in the tanks. Were you saying in the			
 MS. TOURANGEAU: Sir, I am not sure that I captured your last question about the fish dying in the tanks. Were you saying in the 122 ADDIENCE MEMBER: (Don Perkins.) If the outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. ADDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of ms. RANSOM: I can take a crack at some of ms. RANSOM: I can take a crack at some of those. Some of them will be partial answers and upu. Right at the moment I think the design is a there are certain parameters that get monitored in the plant daily, probably hourly, and that's crgoing throughout. Obviously this is these are living corakted and logged with equipment, not manally, so that we can take those readings more frequently. the van take those readings more frequently. that we can take those readings more frequently. the discharge site and wealso farm managers? MS. TOURANCEAU: Extra that the submits are usually is so that weal that and I wanted to the value take that and I wanted to the value take that and I wanted to the value take that and I			
24 captured your last question about the fish dying in 24 to see within a given time period from the issuance 25 26 to see within a given time period from the issuance 26 to see within a given time period from the issuance 26 to see within a given time period from the issuance 27 1 AUDIENCE MEMBER: (Don Perkins.) If the 2 3 plugs up. 1 energencies and so those are things that will be 2 4 MS. TOURANCEAU: Okay. 5 autointy will have best management 5 AUDIENCE MEMBER: (Don Perkins.) 6 for dealing with those will be trained to 6 MS. TOURANCEAU: Okay. 5 for dealing with those will be trained to 6 MS. RANEOM: I can take a crack at some of 5 for dealing with those kinds of emergency situations. 9 we'll hopefully get to some more detailed answers for 1 aquaculture done well is going to be an important 12 juttle bit unclear still as to whether or not we're a agravity flow or a pumped flow down the pipe 14 and so I hope you'll cone and repeat that question 15 set the daily, probably hourly, and that's orgoning 16 whe plant daily, probably hourly, and that's orgoning 10 14 hore sar as the frequency of monitoring gos,			
25 the tanks. Were you saying in the 125 25 of that permit your plans for dealing with those 127 1 AUDIENCE MEMBER: (Don Perkins.) If the 2 of that permit your plans for dealing with those 127 1 AUDIENCE MEMBER: (Don Perkins.) 1 emergencies and so those are things that will be 2 developed. The facility will have best management 3 plugs up. 1 emergencies and so those will include things like cleaning 5 4 MS. TOURANGENI: Okay. 5 plugs the ween going to be a procedure 5 AUDIENCE MEMBER: (Don Perkins.) 6 follow and those will include things like cleaning 5 AUDIENCE MEMBER: (Don Perkins.) 6 follow and those will include things like cleaning 6 MS. RANSOM: I can take a crack at some of 6 follow and those will include things like cleaning 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 10 10 we'll hopefully get to some more detailed answers for 12 part of the future of Maine's coastal economy. My 13 having a gravity flow or a pumped flow down the pipe acouple miles away on Islesboro. 11			
1251271AUDIENCE MEMBER: (Don Perkins.) If the 2 outflow of the, you know, the effluent line stops, 3 plugs up.1emergencies and so those are things that will be 2 developed. The facility will have best management 3 practices that their employees will be trained to 4 MS. TOURANGEAU: Okay.4MS. TOURANGEAU: Okay.5auditon Perkins.)5AUDIENCE MEMBER: (Don Perkins.)5pipes so that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 161emergencies and so those are things that will be 2 developed. The facility will have best management 3 ractices that the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitoring is 18 the plant daily, probably hourly, and that's ongoing 19 troughout. Obviously this is these are living 10 creatures that need the water quality to stay good 11 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those meadings more frequently. But 24 in addition, the permits are usually issued with 25 month			
1 AUDIENCE MEMBER: (Don Perkins.) If the 2 outflow of the, you know, the effluent line stops, 3 plugs up. 4 MS. TOURANCEAU: Okay. 5 AUDIENCE MEMBER: (Don Perkins.) 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANSON: I can take a crack at some of 9 mode can go from there. 8 MS. RANSON: I can take a crack at some of 9 mode can go from there. 8 MS. RANSON: I can take a crack at some of 9 hose. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 the dially, probably hourly, and that's orgoing 18 the plant daily, probably hourly, and that's orgoing 19 throughout. Obviously this is these are living <tr< td=""><td>25</td><td></td><td></td></tr<>	25		
 2 outflow of the, you know, the effluent line stops, 3 plugs up. 4 MS. TOURANGEAU: Okay. 5 ADDIENCE MEMBER: (Don Perkins.) 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANSOM: I can take a crack at some of 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 when we're doing our Army Corps permitting. 16 As far as the frequency of monitorring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 21 throughout. Obviously this is these are living 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximu values that you 			
 2 outflow of the, you know, the effluent line stops, 3 plugs up. 4 MS. TOURANGEAU: Okay. 5 ADDIENCE MEMBER: (Don Perkins.) 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANSOM: I can take a crack at some of 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitorring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 Mat we can take those readings more frequently. But 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximm values that you 			
 3 plugs up. 4 MS. TOURANGEAU: Okay. 5 AUDIENCE MEMBER: (Don Perkins.) 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANSOM: I can take a crack at some of 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitoring in 18 the plant daily, probably hourly, and that's orgoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	1	MINITUMON MEMORED. (Don Derking) If the	1 emergencies and so those are things that will be
 MS. TOURANGEAU: Okay. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of MS. RANSOM: I can take a crack at some of We'll hopefully get to some more detailed answers for You. Right at the moment I think the design is a Little bit unclear still as to whether or not we're and so I hope you'll come and repeat that question Mshen we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitoring goes, throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so that we can take those readings more frequently. But in addition, the permits are usually issued with monthly, weekly, and daily maximum values that you 			
 AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitoring in the plant daily, probably hourly, and that's ongoing there atta take those readings more frequently. But in addition, the permits are usually issued with monthly, weekly, and daily maximum values that you 	2	outflow of the, you know, the effluent line stops,	2 developed. The facility will have best management
 6 Possibility. Everything is a possibility at times 7 and we can go from there. 8 MS. RANSOM: I can take a crack at some of 9 those. Some of them will be partial answers and 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 creatures that need the water quality to stay good 19 within the plants and so some of that monitoring is 20 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 6 that requires an energency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 chalt you have done, are those based on Phase 1 20 or. 21 MS. TOURANGEAU: Both. I can answer that 22 one. 23 AUDIENCE MEMBER: (Shay Conover.) T	2 3	outflow of the, you know, the effluent line stops, plugs up.	 developed. The facility will have best management practices that their employees will be trained to
 7 and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing the plants and so some of that monitoring is creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so that we can take those readings more frequently. But monthly, weekly, and daily maximum values that you 	2 3 4	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay.	 developed. The facility will have best management practices that their employees will be trained to follow and those will include things like cleaning
8MS. RANSOM: I can take a crack at some of9for dealing with those kinds of emergency situations.9those. Some of them will be partial answers and9AUDIENCE MEMBER: Hi. My name is Shay10we'll hopefully get to some more detailed answers for10Conover. I'm from Islesboro. And I agree,11you. Right at the moment I think the design is a10Conover. I'm from Islesboro. And I agree,12little bit unclear still as to whether or not we're12part of the future of Maine's coastal economy. My13having a gravity flow or a pumped flow down the pipe14and so I hope you'll come and repeat that question14and so I hope you'll come and repeat that question15the discharge site and we also farm muscles on a site16As far as the frequency of monitoring goes,15the discharge site and we also farm muscles on a site16As far as the frequency of monitoring goes,17I have two questions. The first is just a18the plant daily, probably hourly, and that's ongoing16a couple miles away on Islesboro.19throughout. Obviously this is these are living10or Phase 2 discharge?10creatures that need the water quality to stay good10MS. TOURANCEAU: Both. I can answer that12conducted and logged with equipment, not manually, so20MS. TOURANCEAU: Both. I can answer that12audition, the permits are usually issued with21AUDIENCE MEMBER: (Shay Conover.) Thank14in addition, the permits are usually issued with24you.	2 3 4 5	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.)	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation
 9 those. Some of them will be partial answers and 9 AUDIENCE MEMBER: Hi. My name is Shay 10 we'll hopefully get to some more detailed answers for 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is
 we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so that we can take those readings more frequently. But moddition, the permits are usually issued with monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there.	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure
 11 you. Right at the moment I think the design is a 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7 8	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations.
 12 little bit unclear still as to whether or not we're 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7 8 9	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay
 13 having a gravity flow or a pumped flow down the pipe 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7 8 9	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree,
 14 and so I hope you'll come and repeat that question 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7 8 9 10 11	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important
 15 when we're doing our Army Corps permitting. 16 As far as the frequency of monitoring goes, 17 there are certain parameters that get monitored in 18 the plant daily, probably hourly, and that's ongoing 19 throughout. Obviously this is these are living 20 creatures that need the water quality to stay good 21 within the plants and so some of that monitoring is 22 conducted and logged with equipment, not manually, so 23 that we can take those readings more frequently. But 24 in addition, the permits are usually issued with 25 monthly, weekly, and daily maximum values that you 	2 3 4 5 6 7 8 9 10 11	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My
16As far as the frequency of monitoring goes,16a couple miles away on Islesboro.17there are certain parameters that get monitored in16a couple miles away on Islesboro.18the plant daily, probably hourly, and that's ongoing17I have two questions. The first is just a19throughout. Obviously this is these are living18clarifying question wondering if the water quality19throughout. Obviously this is these are living19models that you have done, are those based on Phase 120creatures that need the water quality to stay good20or Phase 2 discharge?21within the plants and so some of that monitoring is21MS. TOURANGEAU: Both. I can answer that22conducted and logged with equipment, not manually, so23AUDIENCE MEMBER: (Shay Conover.) Thank24in addition, the permits are usually issued with23AUDIENCE MEMBER: (Shay Conover.) Thank25monthly, weekly, and daily maximum values that you25clarify.	2 3 4 5 6 7 8 9 10 11 12	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture
17 there are certain parameters that get monitored in17I have two questions. The first is just a18 the plant daily, probably hourly, and that's ongoing17I have two questions. The first is just a19 throughout. Obviously this is these are living18 clarifying question wondering if the water quality20 creatures that need the water quality to stay good19 models that you have done, are those based on Phase 120 creatures that need the water quality to stay good20 or Phase 2 discharge?21 within the plants and so some of that monitoring is2122 conducted and logged with equipment, not manually, so23 that we can take those readings more frequently. But24 in addition, the permits are usually issued with2325 monthly, weekly, and daily maximum values that you24 clarify.	2 3 4 5 6 7 8 9 10 11 12 13	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of
18 the plant daily, probably hourly, and that's ongoing18 clarifying question wondering if the water quality19 throughout. Obviously this is these are living18 clarifying question wondering if the water quality20 creatures that need the water quality to stay good20 or Phase 2 discharge?21 within the plants and so some of that monitoring is20 or Phase 2 discharge?22 conducted and logged with equipment, not manually, so21 MS. TOURANGEAU: Both. I can answer that23 that we can take those readings more frequently. But23 AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting.	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site
19 throughout. Obviously this is these are living19 models that you have done, are those based on Phase 120 creatures that need the water quality to stay good20 or Phase 2 discharge?21 within the plants and so some of that monitoring is21 MS. TOURANGEAU: Both. I can answer that22 conducted and logged with equipment, not manually, so23 that we can take those readings more frequently. But23 that we can take those readings more frequently. But23 AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14 15	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes,	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site
20 creatures that need the water quality to stay good20 or Phase 2 discharge?21 within the plants and so some of that monitoring is21 MS. TOURANGEAU: Both. I can answer that22 conducted and logged with equipment, not manually, so21 MS. TOURANGEAU: Both. I can answer that23 that we can take those readings more frequently. But23 AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 monthly, weekly, and daily maximum values that you20 or Phase 2 discharge?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes,	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro.
21 within the plants and so some of that monitoring is21MS. TOURANGEAU: Both. I can answer that22 conducted and logged with equipment, not manually, so22 one.23 that we can take those readings more frequently. But23AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 monthly, weekly, and daily maximum values that you25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in	 2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a
22 conducted and logged with equipment, not manually, so22 one.23 that we can take those readings more frequently. But23 AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 monthly, weekly, and daily maximum values that you25 clarify.	2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 clarifying question wondering if the water quality
23 that we can take those readings more frequently. But23AUDIENCE MEMBER: (Shay Conover.) Thank24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 monthly, weekly, and daily maximum values that you25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 clarifying question wondering if the water quality 19 models that you have done, are those based on Phase 1
24 in addition, the permits are usually issued with24 you. I thought I just missed that and I wanted to25 monthly, weekly, and daily maximum values that you25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 clarifying question wondering if the water quality 19 models that you have done, are those based on Phase 1 20 or Phase 2 discharge?
25 monthly, weekly, and daily maximum values that you 25 clarify.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is	 2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 clarifying question wondering if the water quality 19 models that you have done, are those based on Phase 1 20 or Phase 2 discharge? 21 MS. TOURANGEAU: Both. I can answer that
	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so	2 developed. The facility will have best management 3 practices that their employees will be trained to 4 follow and those will include things like cleaning 5 pipes so that we hopefully don't have a situation 6 that requires an emergency because the pipe is 7 clogged. So, yeah, there is going to be a procedure 8 for dealing with those kinds of emergency situations. 9 AUDIENCE MEMBER: Hi. My name is Shay 10 Conover. I'm from Islesboro. And I agree, 11 aquaculture done well is going to be an important 12 part of the future of Maine's coastal economy. My 13 husband and I are farm managers on the aquaculture 14 lease site that was shown just south of the map of 15 the discharge site and we also farm muscles on a site 16 a couple miles away on Islesboro. 17 I have two questions. The first is just a 18 clarifying question wondering if the water quality 19 models that you have done, are those based on Phase 1 20 or Phase 2 discharge? 21 MS. TOURANGEAU: Both. I can answer that 22 one.
126 128	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so that we can take those readings more frequently. But	 developed. The facility will have best management practices that their employees will be trained to follow and those will include things like cleaning pipes so that we hopefully don't have a situation that requires an emergency because the pipe is clogged. So, yeah, there is going to be a procedure for dealing with those kinds of emergency situations. AUDIENCE MEMBER: Hi. My name is Shay Conover. I'm from Islesboro. And I agree, aquaculture done well is going to be an important part of the future of Maine's coastal economy. My husband and I are farm managers on the aquaculture lease site that was shown just south of the map of the discharge site and we also farm muscles on a site a couple miles away on Islesboro. I have two questions. The first is just a clarifying question wondering if the water quality models that you have done, are those based on Phase 1 or Phase 2 discharge? AUDIENCE MEMBER: (Shay Conover.) Thank
	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	outflow of the, you know, the effluent line stops, plugs up. MS. TOURANGEAU: Okay. AUDIENCE MEMBER: (Don Perkins.) Possibility. Everything is a possibility at times and we can go from there. MS. RANSOM: I can take a crack at some of those. Some of them will be partial answers and we'll hopefully get to some more detailed answers for you. Right at the moment I think the design is a little bit unclear still as to whether or not we're having a gravity flow or a pumped flow down the pipe and so I hope you'll come and repeat that question when we're doing our Army Corps permitting. As far as the frequency of monitoring goes, there are certain parameters that get monitored in the plant daily, probably hourly, and that's ongoing throughout. Obviously this is these are living creatures that need the water quality to stay good within the plants and so some of that monitoring is conducted and logged with equipment, not manually, so that we can take those readings more frequently. But in addition, the permits are usually issued with	 developed. The facility will have best management practices that their employees will be trained to follow and those will include things like cleaning pipes so that we hopefully don't have a situation that requires an emergency because the pipe is clogged. So, yeah, there is going to be a procedure for dealing with those kinds of emergency situations. AUDIENCE MEMBER: Hi. My name is Shay Conover. I'm from Islesboro. And I agree, aquaculture done well is going to be an important part of the future of Maine's coastal economy. My husband and I are farm managers on the aquaculture lease site that was shown just south of the map of the discharge site and we also farm muscles on a site a couple miles away on Islesboro. I have two questions. The first is just a clarifying question wondering if the water quality models that you have done, are those based on Phase 1 or Phase 2 discharge? MS. TOURANGEAU: Both. I can answer that auditional members: (Shay Conover.) Thank you. I thought I just missed that and I wanted to

1 And then the second, I guess, is our largest	1 portion of the bay. And so we've tried with the
2 concern is Penobscot Bay for us is great in growing	2 information we have to place this pipe in a way
3 shellfish because while it because of it it is	3 that's going to not cause an impact to the bay, but
4 great, clean water, a lot of the reasons why you want	4 we're also going to have a lot of time over the next
5 to come here. We also are very fortunate in	5 few years to show that we're right and make sure
6 Penobscot Bay in that where there are often	6 that, you know, we don't get to a full phase facility
7 particularly in the summertime large amounts of time	7 without understanding the potential impacts of where
8 where we're folks are closed and other parts of	8 it goes.
9 the state for algal blooms, particularly red tide,	9 AUDIENCE MEMBER: (Shay Conover.) Right. I
10 and more Downeast in domoic acid. Penobscot Bay	10 mean, I think local farmers don't have the economic
11 really has not had any of those closures this season	11 ability to run that kind of experiment. I guess the
12 and at the same time, you know, the coast of Maine	12 other piece is just that might be helpful is to
13 has very clean water but potentially different mixes	13 have some kind of comparative table to understand
14 of nitrogen and the phosphorous and water	14 it was helpful to get the background levels in
15 temperatures are all very complex. But I'm	15 Penobscot Bay, I think that would be helpful to have
16 interested in how, you know, what you are bringing	16 that compared to other regions where there are
17 into the water and how that might, you know, even	17 aquaculture farms and how it would be we'd be able
18 slightly change our mix and potentially increase the	18 to more easily compare kind of environmental factors
19 amount of time where other farmers nearby may be	19 that other farmers are dealing with would be very
20 closed to harvest is a concern.	20 helpful.
21 MS. RANSOM: Hi. I'll try to take that one.	21 MS. RANSOM: Just real quick on that is one
22 So one of, you know, as we went through the	22 of the things that there is a lot of information for
23 presentation, obviously some of the critical factors	23 is some of the more closed estuaries, so you'll find,
24 to whether you develop things like algal blooms are	24 for example, in Great Bay at the Maine/New Hampshire
25 things like your nitrogen and phosphorous discharge.	25 border there is a fair bit of shellfish farming there
129	131
1 The the facility is taking depitwification	1 and there are a number of studies for that area
	I and there are a number of studies for that area (the
1 The the facility is taking denitrification 2 seriously because obviously they want to be a good	1 and there are a number of studies for that area. One 2 of the things that's better about Penobscot. I guess.
2 seriously because obviously they want to be a good	2 of the things that's better about Penobscot, I guess,
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the	 of the things that's better about Penobscot, I guess, would be to say it's a bit more open. There is a bit
 2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now,	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like	 of the things that's better about Penobscot, I guess, would be to say it's a bit more open. There is a bit more circulation happening and so your numbers up here tend to be better than what you might find in some of those other situations. MR. NOYES: I just had one quick follow-up
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility,	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site?
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted?
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.)
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a	2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed?
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the 21 bay responds to that. And as they grow, we'll	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you. 21 NDIENCE MEMBER: I'm going to just ask too
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the 21 bay responds to that. And as they grow, we'll 22 continue to add to that dataset, so by the time they	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you. 21 MS. TOURANGEAU: I'm going to just ask too 22 if your information is on the sign-in sheet we would
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the 21 bay responds to that. And as they grow, we'll 22 continue to add to that dataset, so by the time they 23 get to a full build-out situation we're going to have	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you. 21 MS. TOURANCEAU: I'm going to just ask too 22 if your information is on the sign-in sheet we would 23 love to connect with you about monitoring.
<pre>2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the 21 bay responds to that. And as they grow, we'll 22 continue to add to that dataset, so by the time they 23 get to a full build-out situation we're going to have 24 a pretty good understanding how that impacts the bay</pre>	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you. 21 MS. TOURANGEAU: I'm going to just ask too 22 if your information is on the sign-in sheet we would 23 love to connect with you about monitoring. 24 AUDIENCE MEMBER: (Shay Conover.) Yup.
2 seriously because obviously they want to be a good 3 steward of this water and we fully believe that the 4 discharge is not going to have a significant change 5 to the nitrogen values that you have in the bay now, 6 that the facility is going to be able to monitor 7 their discharge as they start up. It's not like 8 so we've shown numbers tonight for the full facility, 9 so all that modeling and all those numbers that we 10 showed you were for 33,000 metric tons at full 11 capacity of this facility, but the facility is not 12 going to get there over night. There is not going to 13 be 33,000 metric tons of fish in the first year. It 14 takes a long time to grow a salmon and it's going to 15 take a long time to build this facility. So there is 16 going to be many years of monitoring data that we'll 17 have accumulated to see how they're doing and in the 18 first months of operation they're going to have a 19 small discharge with a small amount of nitrogen 20 coming down the pipe and we're going to see how the 21 bay responds to that. And as they grow, we'll 22 continue to add to that dataset, so by the time they 23 get to a full build-out situation we're going to have	 2 of the things that's better about Penobscot, I guess, 3 would be to say it's a bit more open. There is a bit 4 more circulation happening and so your numbers up 5 here tend to be better than what you might find in 6 some of those other situations. 7 MR. NOYES: I just had one quick follow-up 8 question. What are you growing in that lease site? 9 Are you growing sugar kelp on your lease site, that 10 one that was plotted? 11 AUDIENCE MEMBER: (Shay Conover.) Sorry. 12 Currently 13 MR. NOYES: Sugar kelp and muscles. 14 AUDIENCE MEMBER: (Shay Conover.) 15 Currently, it's blue muscles, but it's permitted to 16 grow sugar kelp as well as blue muscles. 17 MR. NOYES: Okay. And sugar kelp would be 18 removing some of those nutrients we discussed? 19 AUDIENCE MEMBER: (Shay Conover.) Yes. 20 MR. NOYES: Okay. Thank you. 21 MS. TOURANCEAU: I'm going to just ask too 22 if your information is on the sign-in sheet we would 23 love to connect with you about monitoring.

1	MS. TOURANGEAU: Thank you.	1	to what extent that's being factored into planning if
2	AUDIENCE MEMBER: Hi. My name is Amy Green	2	the project goes well you'll be here 30, 40 years
3	and I actually live in Monroe. I would love to live	3	from now and the water will be a very different
4	in Belfast where you have multiple job opportunities	4	temperature, so that's my question.
5	ready, but I haven't actually found affordable	5	MR. HEIM: Is your question the impact for
б	housing here. So the rezoning of your residential	6	the production, is that what you're thinking or?
7	land into this massive industrial project was a shock	7	AUDIENCE MEMBER: (Joelle Gaseidnes.) I
8	for me to find out about.	8	just want to hear more about production as well as
9	And I did want to talk about the effluent	9	the models that you discussed regarding effluent
10	from the run-off that would happen when you replaced	10	using today's temperatures and today's scenarios
11		11	MR. HEIM: Yup.
12	impervious surface, pavement, rooftop, so that's a	12	AUDIENCE MEMBER: (Joelle Gaseidnes.)
13	lot of run-off. Projections for our area of		but what does that look like when the water is
	rainfall and I know that there are engineering		warmer?
15	practices for huge industrial areas. I don't live in	15	MR. HEIM: Exactly. So this is, I think,
16	a huge industrial area on purpose. I know this is a		it's not directly related to discharge, but it's sort
17	very it's almost as though folks are speaking like		of interrelated. This is a concern I have for this
	you're going to be exploited anyway, isn't it nice		industry when you look at so much of the seafood
10	that it's so green and proper.	19	production in the world being dependent on the ocean
20	MS. TOURANGEAU: So we are looking for		conditions we have today. So one of the benefits of
20	questions on the discharge.	20	this production is that we have temperature control.
21	AUDIENCE MEMBER: (Amy Green.) My question		We can we can adjust pH, we can adjust the oxygen
22	is how are you treating the run-off that will be	22	levels in the water, all of these factors that can be
	gathered from rainfall off of here, that is my		influenced by climate change we can adjust and that's
	question.		one of the big benefits of this production. Much
20	quescion. 133	20	135
1	MS. TOURANGEAU: So that will be addressed	1	more difficult to do if you are in the ocean. And
	MS. TOURANGEAU: So that will be addressed in the site location of the Development Act Permit		more difficult to do if you are in the ocean. And that's what scares me, you know, when you look at
	in the site location of the Development Act Permit	2	
2 3	in the site location of the Development Act Permit	2 3	that's what scares me, you know, when you look at
2 3 4	in the site location of the Development Act Permit and the Natural Protection Act permits, which are	2 3 4	that's what scares me, you know, when you look at coastlines change in temperatures and all of these
2 3 4 5	in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking	2 3 4	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in
2 3 4 5	in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment	2 3 4 5 6	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our
2 3 4 5 6 7	in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project.	2 3 4 5 6 7	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is
2 3 4 5 6 7	in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was	2 3 4 5 6 7 8	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that
2 3 4 5 6 7 8	in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well.	2 3 4 5 6 7 8 9	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common
2 3 4 5 6 7 8 9	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go</pre>	2 3 4 5 6 7 8 9	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with
2 3 4 5 6 7 8 9 10	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there.</pre>	2 3 4 5 6 7 8 9 10	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am
2 3 4 5 6 7 8 9 10 11	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't.</pre>	2 3 4 5 6 7 8 9 10	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction
2 3 4 5 6 7 8 9 10 11 12	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you.</pre>	2 3 4 5 6 7 8 9 10 11 12 13	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary.
2 3 4 5 6 7 8 9 10 11 12 13	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup.</pre>	2 3 4 5 6 7 8 9 10 11 12 13	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah,
2 3 4 5 6 7 8 9 10 11 12 13 14	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question
2 3 4 5 6 7 8 9 10 11 12 13 14 15	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast.</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please?</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup.
2 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please? AUDIENCE MEMBER: (Joelle Gaseidnes.) Sure.</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.)
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please? AUDIENCE MEMBER: (Joelle Gaseidnes.) Sure. G-A-S-E-I-D-N-E-S.</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) it's assuming a certain temperature, it's assuming a
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please? AUDIENCE MEMBER: (Joelle Gaseidnes.) Sure. G-A-S-E-I-D-N-E-S. THE REPORTER: Thank you.</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) it's assuming a certain temperature, it's assuming a certain mixing
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: (Joelle Gaseidnes.) Sure. G-A-S-E-I-D-N-E-S. THE REPORTER: Thank you. AUDIENCE MEMBER: (Joelle Gaseidnes.) My</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	<pre>that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) it's assuming a certain temperature, it's assuming a certain mixing MR. HEIM: Yup.</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please? AUDIENCE MEMBER: (Joelle Gaseidnes.) Sure. G-A-S-E-I-D-N-E-S. THE REPORTER: Thank you. AUDIENCE MEMBER: (Joelle Gaseidnes.) My question really is only about climate change and the</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) it's assuming a certain temperature, it's assuming a certain mixing MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.)</pre>
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	<pre>in the site location of the Development Act Permit and the Natural Protection Act permits, which are still forthcoming. Right now, tonight, we're talking about the discharge from the wastewater treatment facility at the project. AUDIENCE MEMBER: (Amy Green.) I was interpreting that as discharge as well. MS. TOURANGEAU: The storm water doesn't go in there. AUDIENCE MEMBER: (Amy Green.) It doesn't. Okay. Thank you. MS. TOURANGEAU: Yup. AUDIENCE MEMBER: Hi. My name is Joelle Gaseidnes and I live in Belfast. THE REPORTER: Could you spell your last name for me, please? AUDIENCE MEMBER: (Joelle Gaseidnes.) Sure. G-A-S-E-I-D-N-E-S. THE REPORTER: Thank you. AUDIENCE MEMBER: (Joelle Gaseidnes.) My question really is only about climate change and the warming of the Gulf of Maine, which is the second</pre>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	that's what scares me, you know, when you look at coastlines change in temperatures and all of these conditions, new species coming in, current species in some cases disappearing. It's scary. So our contribution to this in terms of our surroundings is to minimize any contribution and impact to that process and I think the whole industry has a common responsibility. As of today, I am not familiar with anyone who has gone as far as us to do that, but I am sure this industry will be moving in that direction in the years to come because it's necessary. AUDIENCE MEMBER: (Joelle Gaseidnes.) Yeah, I think my I mean, I appreciate that. My question was more specifically regarding you what is coming out in the effluent, coming into the bay MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) it's assuming a certain temperature, it's assuming a certain mixing MR. HEIM: Yup. AUDIENCE MEMBER: (Joelle Gaseidnes.) according to temperature and stratification according

	AUDIENCE MEMBER: (Joelle Gaseidnes.) And	1 reverse you have a reverse of temperatures in the
2	as the bay warms does that stratification change?	2 summertime when you have very cold, maybe, I don't
3	Does the way in which it mixes become more favorable	3 know, 30 degree water toward the bottom. We're
4	or less favorable?	4 not I'm sorry, I just mixed my Celsius and
5	MR. HEIM: I think you can answer that,	5 Fahrenheit.
6	Nate.	6 AUDIENCE MEMBER: (Joelle Graseidnes.)
7	MR. DILL: I think I have a very quick	7 Yeah.
8	answer to this question. The modeling that we have	8 MR. DILL: Yeah. Sorry. Around 30
9	done considers a full seasonal changes and the and	9 AUDIENCE MEMBER: (Joelle Graseidnes.)
10	actually the data that was collected that we've used	10 You're using what my grandfather used to call a super
11	or sort of the best dataset that we've used we've	11 cool thing.
12	looked at data, you know, going all the way back into	12 MR. DILL: Around 30, yes, 30 to 60 degrees
13	the '70s. But one of the most comprehensive datasets	13 in terms of Fahrenheit. I was giving the low end of
14	on stratification in the bay was from '70s and the	14 Celsius and the high end of Fahrenheit to give the
15	climate has changed significantly since then I would	15 full range. But anyway, the point that I'm trying to
16	think in terms of climate variables if you look at	16 make is that those seasonal variations are much
17	long-term average temperatures and things. What's	17 bigger than any variation that we're going to see in
18	actually what's actually important for the for	18 terms of long-term temperature. And what's actually
19	the physical behavior of the discharge is what is the	19 really important for the physical behavior of the
20	temperature now today and we have looked at a range	20 plume is what is the what is the current
21	of temperatures that go from right around 0 to	21 temperature of that season, not so much the average
22	degrees to probably around 60 degrees in term of the	22 over the long-term 30 year period, so.
23	ambient temperature in that modeling. Those	23 AUDIENCE MEMBER: (Joelle Graseidnes.)
24	variations just the seasonal variations are much,	24 Thank you.
25	much larger	25 MS. TOURANGEAU: I'm going to thank all of
	137	139
1	AUDIENCE MEMBER: (Joelle Graseidnes.)	1 the people that have been coming along for managing
2	You're talking Celsius, right?	2 their time so well. There is a gentleman who has to
3	MR. DILL: No. No. Fahrenheit. I just	3 clean up after us who has stayed late because school
3 4	MR. DILL: No. No. Fahrenheit. I just AUDIENCE MEMBER: (Joelle Graseidnes.) No.	3 clean up after us who has stayed late because school4 closed early today and it's closed tomorrow, so he
	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees?	4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely
4	AUDIENCE MEMBER: (Joelle Graseidnes.) No.	4 closed early today and it's closed tomorrow, so he
4 5	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold	4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely
4 5 6	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold	4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work.
4 5 6 7	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.)	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about
4 5 6 7 8	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.)	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the
4 5 7 8 9	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay.	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about
4 5 7 8 9 10	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.)	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and
4 5 6 7 8 9 10 11	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm
4 5 6 7 8 9 10 11 12	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and
4 5 6 7 8 9 10 11 12 13	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the
4 5 6 7 8 9 10 11 12 13 14	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge.
4 5 6 7 8 9 10 11 12 13 14 15	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me?
4 5 6 7 8 9 10 11 12 13 14 15 16	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I
4 5 6 7 8 9 10 11 12 13 14 15 16 17	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.)	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.)	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay.	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the 19 effluent as they're causing dead zones in our ocean.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: down to freezing temperatures	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the 19 effluent as they're causing dead zones in our ocean. 20 MS. RANSOM: We have not specifically
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: down to freezing temperatures in the wintertime, yes.	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the 19 effluent as they're causing dead zones in our ocean. 20 MS. RANSOM: We have not specifically 21 sampled for dissolved organ carbon levels. If you
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. Wow. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: down to freezing temperatures in the wintertime, yes. AUDIENCE MEMBER: (Joelle Graseidnes.) All	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the 19 effluent as they're causing dead zones in our ocean. 20 MS. RANSOM: We have not specifically 21 sampled for dissolved organ carbon levels. If you
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	AUDIENCE MEMBER: (Joelle Graseidnes.) No. Zero degrees? MR. DILL: Yeah, the water gets pretty cold in the wintertime. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: Yes, very cold. AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: And there AUDIENCE MEMBER: (Joelle Graseidnes.) Like below freezing? MR. DILL: Yes. Yes. The surface the surface water of the bay gets AUDIENCE MEMBER: (Joelle Graseidnes.) Okay. MR. DILL: down to freezing temperatures in the wintertime, yes. AUDIENCE MEMBER: (Joelle Graseidnes.) All right. MR. DILL: So, now, maybe not at the bottom,	 4 closed early today and it's closed tomorrow, so he 5 has given us some leeway. I want to use it as wisely 6 as we possibly can, so please keep up the good work. 7 Thank you. 8 AUDIENCE MEMBER: My name is Suzanne Stone. 9 I live in Belfast. I haven't heard any studies about 10 the dissolved organic carbon levels. I know that the 11 high DOCs are causing dead spots in our ocean and I'm 12 wondering if you've been studying those levels and 13 how much are they coming out in the effluent and the 14 discharge. 15 MS. RANSOM: Could you repeat that for me? 16 AUDIENCE MEMBER: (Suzanne Stone.) Yeah. I 17 am asking about if your studies have been concerned 18 with the dissolved organic carbon levels in the 19 effluent as they're causing dead zones in our ocean. 20 MS. RANSOM: We have not specifically 21 sampled for dissolved organ carbon levels. If you 22 have specific studies and references that you'd like 23 to provide with us, we'll be happy to look at that.

1	studied.	1	crop there is no non-GMO soy that exists, so that's
2	MS. RANSOM: Yeah, I'd very much like to	2	another factor to keep in mind when thinking of the
3	if you could provide us with the studies, I'd very	3	feed. And I meant to ask this in my second part of
4	much like to see what exactly they are monitoring by	4	the question is vaccine run-off from you ensured
5	what method and so forth so that perhaps if it seems	5	us that you're vaccinating all of the fish.
б	like something we should be adding to the monitoring	6	MR.HEIM: Yes.
7	program we can consider that.	7	AUDIENCE MEMBER: (Camille Giglio.) The
8	AUDIENCE MEMBER: (Suzanne Stone.) Thank	8	potential of vaccines coming into the water and into
9	you.	9	our bay and water supply, what are the plans for
10	MS. RANSOM: So if you can provide that it	10	filtering that out as well of the water?
11	would be great. Is your email contact information	11	MR. HEIM: Yeah. So vaccines are
12	available?	12	administered not in the tanks. They go through a
13	AUDIENCE MEMBER: (Suzanne Stone.) I will	13	vaccination process. Basically they're pumped and go
14	write it down.	14	slide through a vaccination machine, they give them a
15	MS. RANSOM: Thank you.	15	small needle and they go back in.
16	AUDIENCE MEMBER: Hi. I'm Camille Giglio	16	AUDIENCE MEMBER: (Camille Giglio.) Right.
17	and I'm a resident of Thorndike.	17	But their bodies are actually detoxing the vaccines
18	THE REPORTER: Could you spell your last	18	into the water and if you're talking about hundreds
19	name for me, please?	19	of thousands of fish
20	AUDIENCE MEMBER: (Camille Giglio.)	20	MR. HEIM: The benefits
21	G-I-G-L-I-O.	21	AUDIENCE MEMBER: (Camille Giglio.) it
22	THE REPORTER: Thank you.	22	accumulates quite a bit.
23	AUDIENCE MEMBER: (Camille Giglio.) I would	23	MR. HEIM: Yeah. So the benefit
24	love to know what are your plans for filtering out	24	typically we have a gentleman here who wants to
25	thanks to Ellie we know that there is a potential for	25	say something.
	141		143
1	down and dow in the teeds for the salmon which is a		MP PPICKNETI. There actually coent a lot
	corn and soy in the feeds for the salmon, which is a		MR. BRICKNELL: I have actually spent a lot
2	pretty known kind of thing. I would love to know		of time developing fish vaccines. Every single fish
2 3	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and	3	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be
2 3 4	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets	3 4	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their
2 3 4 5	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other	3 4 5	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is
2 3 4 5 6	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there	3 4 5 6	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a
2 3 4 5 6 7	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to	3 4 5 6 7	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is
2 3 4 5 6 7	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from	3 4 5 6 7 8	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into
2 3 4 5 6 7 8 9	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well.	3 4 5 6 7 8 9	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down
2 3 4 5 6 7 8 9 10	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not	3 4 5 6 7 8 9 10	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection.
2 3 4 5 6 7 8 9 10 11	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I	3 4 5 6 7 8 9 10 11	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah.
2 3 4 5 6 7 8 9 10 11 12	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more	3 4 5 6 7 8 9 10 11 12	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that
2 2 3 3 4 5 6 7 7 8 9 10 11 12 13 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big	3 4 5 6 7 8 9 10 11 12 13	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. ERICKNELL: There will be none of that excreted from the fish into the water. It's all
2 3 4 5 6 7 8 9 10 11 12 13 14	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion.	3 4 5 6 7 8 9 10 11 12 13 14	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a
2 3 4 5 6 7 8 9 10 11 12 13 14 15	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup.	3 4 5 6 7 8 9 10 11 12 13 14 15	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with	3 4 5 6 7 8 9 10 11 12 13 14 15 16	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right.
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	<pre>pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS. MR. HEIM: There is no GMOs in the feed.</pre>	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<pre>pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOs. MR. HEIM: There is no GMOs in the feed. We I mean, you can get feed with GMO for sure, but</pre>	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. ERICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS. MR. HEIM: There is no GMOS in the feed. We I mean, you can get feed with GMO for sure, but we are making a conscious choice in terms of the	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and they're in our water supply.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS. MR. HEIM: There is no GMOs in the feed. We I mean, you can get feed with GMO for sure, but we are making a conscious choice in terms of the quality of the product to say away from ingredients	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and they're in our water supply. MR. BRICKNELL: No, it doesn't.
2 2 3 3 4 5 6 7 8 9 9 10 11 12 13 14 15 16 17 18 19 20 21 21 22 23	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS. MR. HEIM: There is no GMOs in the feed. We I mean, you can get feed with GMO for sure, but we are making a conscious choice in terms of the quality of the product to say away from ingredients with GMOs just to make that clear.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and they're in our water supply. MR. ERICKNELL: No, it doesn't. AUDIENCE MEMBER: (Camille Giglio.) Okay.
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOs. MR. HEIM: There is no GMOs in the feed. We I mean, you can get feed with GMO for sure, but we are making a conscious choice in terms of the quality of the product to say away from ingredients with GMOs just to make that clear. AUDIENCE MEMBER: (Camille Giglio.) Okay.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and they're in our water supply. MR. ERICKNELL: No, it doesn't. AUDIENCE MEMBER: (Camille Giglio.) Okay. Thank you.
2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	pretty known kind of thing. I would love to know your plans for filtering out GMOs from this feed and the plans as far as the effluent and what gets through the UV filtration system and the other filters you're using. So along with the GMOs there is known carcinogens in GMO feed and so I'd love to know your plans for filtering out those things from the water as well. MR. HEIM: So in terms of GMOs they're not allowed in Europe, so we have no GMO issues where I come from and it's something we've become more familiar with here in the U.S. That's is a big discussion. AUDIENCE MEMBER: (Camille Giglio.) Yup. MR. HEIM: So we have had discussions with this with our feed companies. MR. DEMOS: No GMOS. MR. HEIM: There is no GMOs in the feed. We I mean, you can get feed with GMO for sure, but we are making a conscious choice in terms of the quality of the product to say away from ingredients with GMOs just to make that clear.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	of time developing fish vaccines. Every single fish that gets a vaccine, the salmon anyway, will be injected either by a machine or by hand and their bodies will process it, but what you're doing is you're taking a bacteria or virus is grown in a laboratory quite naturally and the whole organism is going in and you're tricking the immune system into thinking it's got an infection, it breaks it down just as it would any natural infection. AUDIENCE MEMBER: (Camille Giglio.) Yeah. MR. BRICKNELL: There will be none of that excreted from the fish into the water. It's all processed by it's macrophages and it's put into a tissue called the pronephros at the top of its kidney and in the spleen and it becomes part of the fishes immune system. AUDIENCE MEMBER: (Camille Giglio.) Right. I know what a vaccine is. I I as far as I know, vaccines still come out of our bodies and they're in our water supply. MR. ERICKNELL: No, it doesn't. AUDIENCE MEMBER: (Camille Giglio.) Okay.

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	<pre>great if you could actually provide us with those like on a website or on the city website, I'd really appreciate that.</pre>	1 lobstermen, lobster people make their living and have this community here, do we really want to f this risk? Do you really want our community to the risk because I know you made a joke and said you'd be happy to get on the plane, you still f you take the risk. I don't think that our community would want to take that risk, so that's one quest I had for you. MR. HEIM: Yup. Okay. So it's more discussion of probabilities. That's what I'm to to get at. So if you take, for example, BOD, th reduced in two stages in the system AUDIENCE MEMBER: (Robin Duffy.) I this people can't hear you. MR. HEIM: Okay. If you take a sample BOD it's reduced in two stages in the system. If it's reduced in the tanks because we have filtrate in the tank system also. AUDIENCE MEMBER: (Robin Duffy.) Right MR. HEIM: And there is a secondary reduction in the wastewater treatment plant, so is two stages of that. So what would happen if get a pressure loss anywhere in the piping, you datastically reduce the pumping right away, stop feeding the fish so you would reduce your water	take take d ly, unity stion rying his is nk of First ation there you would
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	<pre>interrelated AUDIENCE MEMBER: (Robin Duffy.) Right. MS. RANSOM: so it's a little confusing. The parameter I was speaking about with regard to the lobsters in particular was the DO. There are a number of studies about DO and lobster shell growth. AUDIENCE MEMBER: (Robin Duffy.) Okay. MS. RANSOM: And the the BOD number is more of a general indicator AUDIENCE MEMBER: (Robin Duffy.) Okay. MS. RANSOM: for the health of the ecosystem. AUDIENCE MEMBER: (Robin Duffy.) So the DO is more specific? MS. RANSOM: Correct. AUDIENCE MEMBER: (Robin Duffy.) Okay. So Erik said that like with flying there is always a risk for anything, correct? I wanted to know like let's say that there is a pipe failure because I think that may happen as we just saw recently in the Carolinas there were all these CAFOs with all the the pig overflow, I mean, things do happen, right. Hurricanes happen, all kinds of issues happen. If</pre>	quickly in the system. So you would very quick able to reduce your water exchange in the system that's how we would deal with a situation like if And if you have a pressure loss you identify the application and you fix it. So if, for example discharge pipe had a pressure loss that would no result in more BOD because it's already been red in the facility. If we have a pipe failure for whatever reason on the site we will be in a site where we would have to take out the feeding of part of the system, reduce the water cycle right and if we stop feeding we can actually shut down pipe and repair it right away. That being said these are industrial grade pipes, it takes a lot them to truly fail on a larger scale, so. And we have a professional contractor here in Maine, Cianbro, who is also present who has a long, lot experience in building piping systems. So you a likely in very good hands with Maine experience also doing business. But you're right, everyth like this is things we have to think through and for and also always think how do we avoid the situations in terms of how we design and how we build. It's an important part of the design pro- AUDIENCE MEMBER: (Robin Duffy.) Okay.	ly be m and that. e , the ot duced uation that t away m that , t for we ng are and ing d plan

 a on processing fish on site and, if so, do you introd to use the Bifart over system for disposing of the processing fishs on site and, if so, do you introduce the processing fishs processing. b NR. EDN: There is a segmente treatment (plant of fish processing. AUDINON MARGE: (Rebin Daffy.) Oky. M. EDN: So that cores before the processing plant goes to a separate breatment processi- is and but is also put to the seatcoster processing plant goes to a separate breatment processi- is and but is also put to the seatcoster processing plant goes to a separate breatment processi- is and but is also put to be Bifart: AUDINON MARGE: (Rebin Daffy.) Oky. And processing plant goes to a separate breatment processi- is and but is also put to be Bifart: AUDINON MARGE: (Bain Daffy.) Oky. And the final field complexity is developed for (m. EDN: May Dig through also - that was before the seatcoster processing plant goes to a separate breatment processi- is AUDINON MARGE: (Bain Daffy.) Oky. And the final field complexity is developed for (m. EDN: May Dig through also - that was before the seatcoster (m. EDN: May Dig through (m. ED	1 had just a couple other questions. Are you planning	1 the maximum. That gives a lot of room for us to play
 is to use the Pelman sever system for disposing of a processing fluids? is Could considerably be that the final fact that we find y with will reduce this discharge quite a bit processing fluids? is Could considerably be that the final fact that we find y with will reduce this discharge quite a bit processing fluids? is Could considerably be that the final fact that we find y with will reduce this discharge quite a bit processing fluids grows. But proceeds the set we want we have the fact that we find y will be about the processing fluids? is Could considerably be that the final fact that we find y with will reduce this discharge for states at the transmitter system. is could considerably be that the final fact that we find y with will reduce this discharge for states at the transmitter system. is add now facts are being developed for states at the processing plane grows the weak the were facts over the wateweak the transmitting application data in 2000, but is discover the wateweak the produces can charge their facts over the wateweak the public is information at those updates? is ADDENNE MEMBER: (Rebin Diffy.) (New, Mod is many facts that is a set of a spectra that is the processing through the public is information. The is grant through the fact is a wailable in the moder at the set of the s		
 4 processing fluids? M. HEDM: There is a separate treatment of plant for link processing. M. HEDM: Solution comes helicore the set set of the separate treatment system. MEDMENT MANNERS: (Robin Daffy.) Okay. M. HEDM: Solution is also part of the separate treatment process. M. HEDM: Solution is also part of the separate treatment process. M. HEDM: Non the separate treatment process. M. HEDM: Non, it's not. M. HEDM: Non, it's not. M. HEDM: No, it's no		_
 M. HEN: There is a separate treatment plant for fish proceeding. M. HEN: So that comes before the substrate treatment system. M. HEN: So that comes before the substrate treatment system. M. HEN: No. HEN: So that is also part of the application, so everything we have from the application, so everything we have from the sprotesting plant goes to a separate treatment process. M. HEN: No. WENE: (Robin Diffy.) Okay. And M. HEN: No. WENE: (Robin Diffy.) Okay. And M. HEN: The finally I M. HEN: No. Norwere: (Robin Diffy.) Okay. And multiple treatment stations. M. HEN: The so this not going to Belfast? M. HEN: No. Norwere: So the stated to any I think any going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to Belfast and I alsod Erik to answer that going to book at the issue calculate the exet that M. HEN: No, HEN: So the first step is to calculate going to how for you calculate the exet that head concervative figures and maximut is so how this de and and there will use for every pound of salon in gord the asse thas a clot of crom to wiggle in i		
 i plant for fish processing. MUDINNE MONGRE: (Robin Daffy.) Okay. M. EDN: So this is also part of the sector treatment system. MUDINNE MONGRE: (Robin Daffy.) Okay. M. EDN: So this is also part of the generating plant goes to a separate treatment process. MIDINNE MONGRE: (Robin Daffy.) Okay. And processing plant goes to a separate treatment process. M. EDN: Mongres: (Robin Daffy.) Okay. And M. EDN: Mongres: (Robin Daffy.) And just M. EDN: Mongres: (Robin Daffy.) And just a saminable fish? M. EDN: Mongres: (Robin Daffy.) And just a set final connect. J just sented to say I think and M. EDN: Mongres: (Robin Daffy.) And just a set final connect. J just sented to say I think and Mongress (Robin Daffy.) And just ADDINNE MONGRE: He sethery Allgeove. I Mongress (Robin Daffy.) And just ADDINNE MONGRE: He sethery Allgeove. I Mongress (Robin Daffy.) And just ADDINNE MONGRE: He sether and and the and or accuration of the limitations we alkey will be on the market. That's MDINNE MONGRE: Please hold the microphone M. EDN: Mongres: He Bethery Allgeove. I data Mongress is to look at the visual set to an any data we need to construct working is broad of participhene we have a lot of cornon to siggle in mini still trying to figure and maximum figures and Mongress is to look at the visual set that an and Mongress is to look		
P NLIDENT MOMER: Robin Duffy.) Okay. P NUTRENT MOMER: Robin Duffy.) Okay. P NUTRENT MOMER: Robin Duffy.) Okay. P application, so everything we have from the P NEDNER MOMERE: (Robin Duffy.) Okay. And P NEDNER MOMERE: (Robin Duffy.) And yst P NEDNER MOMERE: (Robin Duffy.) And yst P NEDNER MOMERE: (Robin Duffy.) And yst P NEDENER MOMERE: (Robin Duffy.) And yst		
 M.R. HEDN: So that comes before the watswater treatment system. M.R. HEDN: White: So this is also part of the application, so everything we have from the application, so everything we have from the application, so everything the have treatment process. M. HEDN: MARGER: (Robin Duffy.) Okay. And The finally I M. HEDN: MARGER: (Robin Duffy.) Okay. And M. HEDN: MARGER: Wat? M. HEDN: So the first not. M. HEDN: So solve that vertice. M. HEDN: So the first solping through M. HEDN: No, it's not going to Belfast. M. HEDN: No, i		
 9 westewater treatment system. 9 ADDENCE MEMBER: (Robin Daffy.) Okay. 10 REDM: So this is also part of the 12 application, so everything we have from the 13 processing plant goes to a separate treatment process. 14 and that is also - that was before the westewater 15 treatment process. 16 ADDENCE MEMBER: (Robin Daffy.) Okay. And 17 then finally I 18 M. TODENCE MEMBER: (Robin Daffy.) Okay. And 19 M. HEDM: BMORER: (Robin Daffy.) Okay. And 10 the finally I 10 M. HEDM: MARKENU: Is it going to Belfast? 11 M. HEDM: BMORER: (Robin Daffy.) Okay. And 12 M. HEDM: BMORER: (Robin Daffy.) Okay. And 13 MS. TODENCEMMERS: Wat? 14 M. HEDM: BMORER: (Robin Daffy.) Okay. And 14 M. HEDM: BMORER: (Robin Daffy.) Okay. And 14 M. HEDM: BMORER: (Robin Daffy.) Okay. And 15 TODENCE MEMBER: (Robin Daffy.) Okay. And 16 M. HEDM: BMORER: (Robin Daffy.) Okay. And 17 M. HEDM: BMORER: (Robin Daffy.) Nai just 18 as a final Consent. J just that solay events 18 as a final Consent. J just that solay events 19 MALIELEN: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: No, it's not going to Belfast. 21 M. HEDM: SMORER: Hi. Bethay Allgrove, I for work we wait a sate of the assumptions that field and the sate the maximum is act of the assumptions that field and the sate the maximum is act of the assumptions that field and the sate the maximum is act of the assumptions that mather as and so what we're done there is to find the sate the rake t and we have a lot of room to wight in in 21 M. HEDM: MARER:		
10 ADDENCE MEMBER: (Rebin Duffy.) Okay. 11 MR. HEIM: So this is also part of the 12 application, so everything we have from the 13 processing plant goes to a separate treatment process. 14 and that is also that was before the wastewater 15 then finally I 16 NUDENCE MEMER: (Rebin Duffy.) Okay. Nad 17 MR. HEIM: No., it's not. 18 NOTENCE MEMER: Wat? 19 MR. HEIM: Th's going through 19 NOTENCE MEMER: Wat? 10 MR. HEIM: No., it's not. 10 NOTENCE MEMER: Wat? 10 MR. HEIM: No., it's not going to Belfast. 11 NR. HEIM: No., it's not going to Belfast. 12 ADDENCE MEMER: (Rebin Duffy.) And just 14 So for us it's a anter of saving conservative 14 So for us it's a natter of saving conservative 15 NR. HEIM: No., it's not going to Belfast. 11 NR. HEIM: No., it's not going to Belfast. 12 ADDENCE MEMER: He methy all gove. I 13 NR. HEIM: No., it's not going to Belfast.		
11 MR. HEIM: So this is also part of the 12 application, so everything we have from the 13 processing plant cyse to a separate treatment process. 14 and that is also - that was before the wastewater 15 treatment process. 16 ADDINCE MARGER: (Robin Duffy.) (Xay, And 17 the finally 1 18 MS. TOURNEEW: Is it ig going to Belfast? 19 MR. HEIM: Haw's ho, it's not. 20 ADDINCE MARGER: (Robin Duffy.) (Xay, And 21 MS. TOURNEEW: She asked if it was also 21 MS. TOURNEEW: She asked if it was also 22 MR. HEIM: Haw's have and is asked Erik to answer that 23 MS. TOURNEEW: Robin Duffy.) And just 24 as a final comment, 1 just wanted to say 1 think and 24 The maximum of field you will use then we know this 3 as and final comment, 1 maily carlous, how do you 3 ADDIENE MARGER: (Robin Duffy.) And just 3 as a final comment, 1 maily carlous, how do you 3 ADDIENE MARGER: (Robin Duffy.) And just 3 as a final comment, 1 maily carlous, how do you 3 Callalate discharcegi if you don't		
12 application, so everything we have from the 13 processing plant goes to a separate treatment process 14 and that is also that was before the wastewater 15 treatment process. 16 MUDENX MAMERE: (Robin Duffy.) Gkay. And 17 then finally I 18 M. HEDM: Hand, No, it's not. 19 M. HEDM: Song through 11 milliple treatment stations. 10 M. HEDM: No, it's not. 11 M. HEDM: No, it's not. going to Belfast: 12 guestion. 14 11 M. HEDM: No, it's not. going to Belfast: 12 guestion. 14 14 15 NOTENNEEWE: Ricking the until 2020, but 16 Inter intal reader. 17 M. HEDM: No, it's not. going to Belfast: 18 M. HEDM: No, it's not. going to Belfast. 19 10 and that's mot going to Belfast. 110 111 N. HEDM: No, it's not. going to Belfast. 112 113 114 114 115 115 116 117 118 119 110 11111 <td></td> <td></td>		
 1) processing plant goes to a separate treatment process. 1) you're submitting application data in 2018, what's 14 the process for updating the pennts and the public 15 treatment process. 1) MENDER MUMBER: (Robin Diffy.) Gkay. And 17 then finally I 1) M. HEDK: HUMP NO, it's not. 2) ADDENCE MUMBER: What? 2) MS. TORANGEND: Is it going to Belfast? 3) MS. TORANGEND: She asked if it was also 24 going to Belfast and I asked Fit was also 24 going to Belfast and I asked Fit was also 24 going to Belfast. 2) MR. HEDK: NO, it's not going to Belfast. 2) MR. HEDK: NO, it's not going to Belfast. 3) MS. TORANGEND: She asked if it was also 24 going to Belfast. 3) MS. TORANGEN: She asked if it was also 24 going to Belfast. 3) MS. TORANGEN: She asked if it was also 24 going to Belfast. 3) MS. TORANGEN: She asked if it was also 24 going to Belfast. 4) MR. HEDK: NO, it's not going to Belfast. 3) MS. TORANGEN: Ribber Mullion. 4) MDIENCE MUMBER: (Robin Diffy.) And just 34 work of the fish? 4) May you know, asying that we will use this feed 32 doing to Belfast. 3) MS. TORANGEN: HI. Bethaw you light to any divert that as we see new options in the market. That's 34 My, you know, asying that we will use this feed 32 doing on advective you will be assention of feed you will use then we how this 31 based upon so-called feed factor, how much how 32 moth feed we will use. For every pound of salmon 32 produced, so that helps us calculate the sect anount 34 process is to look at the typical feed profile that 34 process is to look at the typical feed profile that 34 we would use and so what we've dow the there is to find we will use and so what we've dow the there is to find in the would use and so what we've dow the there is to find the well use. 3) ADDENCE MUMBER: Please hold the microphone 34 bat's inportant for us. 4) May coure and bath the day as a digit		
14 and that is also that was before the wastewater 15 treatment process. 16 ADDINCE MMERS: (Robin Duffy.) Okay. And 17 then finally I 18 M. TOURAXERNO: Is it going to Belfast? 19 MR. HEDN: Hum? No, it's not. 20 ADDINCE MMERS: What? 21 MR. HEDN: This going through 22 MULENXE MMERS: What? 23 MS. TOURAXERNO: Is a sked if it was also 24 going to Belfast and I asked Brik to answer that 25 going to Belfast. 26 ADDINKE MMERS: (Robin Duffy.) And just 27 a final comment, I just wanted to say I think ary 28 a a final comment, I just wanted to say I think ary 29 MR. HEDN: MMERS: (Robin Duffy.) And just 3 as a final comment, I just wanted to say I think ary 4 going the fish? 30 as final comment, I just wanted to say I think ary 4 live in Lincolnville. (The really curious, how do you 10 calculate discharge i jou don't know what you're 6 live in Lincolnville. (The new know this 10 based upon so-called feed factor, how much how 11 based upon so-called feed factor, how much how 12 much feed we will use. 13 based upon so-called feed factor, how much how 14 feed we will use. 15 much		
 is treatment process. MIDIENCE MEMBER: (Robin Duffy.) Okay. And then finally I is MS. TOURAKEAU: Is it going to Belfast? MR. REDM: Th's going trongh MR. REDM: Th's going trongh MR. The MAMERE what? MS. TOURAKEAU: She asked if it was also going to Belfast and I asked Erik to answer that going to Belfast and I asked Erik to answer that MR. REDM: No, it's not going to Belfast. MIDIENCE MEMBER: (Robin Duffy.) And just as a final comment, T just wanted to say I think ary follow in Lincolnville. T'm really curious, how doy over a feeding the fish? MIDIENCE MEMBER: Please hold the microphone MIDIENCE MEMBER: Please hold the microphone the amount of feed you will use then we know this based upon so-called feed factor, how much - how mach feed we will use. MIDIENCE MEMBER: Please hold the microphone cone from. MIDIENCE MEMBER: Please hold the microphone cone from. MIDIENCE MEMBER: Please hold the microphone cone from. MR. REDM: Ckay. And the next step in that produced, so that helps us calculate the exact amount declase in the market and we set the max values for work did use and so what we tve don there is to find therwalues in the feeds, that zynes us a big interval the values in the feeds, that zynes us a big interval the values in the feeds, that zynes us a big interval the walues in the feeds, that zynes us a big interval the walues in the market and we set the max values for the walues in the market and we set the ma		
15 AUDIENCE MEMBER: (Robin Duffy.) Okay. And 17 then finally 1		
 17 then finally I 18 NS. TOURNAMENU: Is it going to Belfast? 19 NR. HEIM: In's going through 20 ADDIENCE MEMBER: Mhat? 21 NR. HEIM: It's going through 22 multiple treatment stations. 23 NS. TOURNAENCE: She asked if it was also 24 going to Belfast and I asked Erik to answer that 25 question. 149 1 NR. HEIM: No, it's not going to Belfast. 2 ADDIENCE MEMBER: HL Bethary Allgrove. I 2 live in Lincolnville. I'm really curious, how do you 7 calculate discharge if you don't know what you're 8 feeding the fish? 9 NR. HEIM: So the first step is to calculate 16 based upon so-called feed factor, how much how 25 closer. 17 NR. HEIM: So the first step is to calculate 18 based upon so-called feed factor, how much how 19 croduced, so that helps us calculate the exact amount 19 croduced, so that helps us calculate the exact amount 19 croduced, so that helps us calculate the exact amount 19 croduced, so that helps us calculate the mairrophone 19 we would use and so what we've done there is to find 10 theread of an earket and we set the max values for 11 theread of various mutrients in the feeds that are 21 to values in the feeds, that gives us a hig interval 21 to values in the feeds, that gives us a hig interval 21 to values in the feeds, that gives us a hig interval 21 to values in the feeds, that gives us a hig interval 21 to rave and is a watter to the figures you see here, 21 with are the max discharge figures, not the average in 21 to wave sing of the trans of composing a final feed. 21 the values in the feeds, that gives us a hig interval 21 to move inside of in terms of composing a final feed. 21 to wave and so what we set the max values feed. 22 the values in the feeds, that		_
 MS. TOURANDEAU: Is it going to Belfast? MS. TOURANDEAU: Is it going to Belfast? MR. HEIM: Hum? No, it's not. ADDIENCE MEMBER: What? MR. HEIM: 'No, it's not going to Belfast. MR. HEIM: 'No, it's not going to Belfast. MDIENCE MEMBER: (Bobin Diffy.) And just as a final comment. I just wanted to say I think any series is to lock the going to belfast. ADDIENCE MEMBER: (Bobin Diffy.) And just as a final comment. I just wanted to say I think any series is to much pollution. ADDIENCE MEMBER: (Bobin Diffy.) And just as a final comment. I just wanted to say I think any series is to much pollution. ADDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use for every pound of salmon grocks, so that helps us calculate the exact amount grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that we would use and so what we've done there is to find interval of various mutrients in the feeds that are available in the market and we set that are available in the market and we set the max values at big interval the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval we would use and so what we've done there is to find interval of various mutrients in the feeds that are available in the market and we set the ax values of a there was a lot of room to wiggle in in the values in the feeds, that gives us a big interval we would use and so what we've done there is to find interval of various mutrients in the feeds that are		_
 MR. HEIM: Ham? No, it's not. MDIENCE MEMBER: Mat? MR. HEIM: It's going through MR. HEIM: It's going through MS. TOURNIZERU: She asked if it was also going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast. MDIENCE MEMBER: Robin Duffy.) And just as a final comment, I just wanted to say I think any goilate discharge if you don't know what you're f live in Lincolnville. I'm really curicus, how doy ou calculate discharge if you don't know what you're getadowd, so that helps us calculate the exact amount grocess is to look at he typical feed profile that grocess is to look at he typical feed profile that we would use and so what we've done there is to find interval of various mutrients in the feeds that are available in the market and we set the max values for the values in the feeds, that gives we are have a lot of roon to viggle in in the the 's important for us. MS. RNNOM: I can maybe help. I think if 'I'm understanding you, you're wondering, well, what they alues the the so orgonging a final feed. the values in the feeds, that gives we are have a lot of roon to viggle in in the source of any you're wondering, well, what interval of various mutrients in the feeds that are available in the market and we set the max values for that 's important for us. MS. RNNOM: I can maybe help. I think if 'I'm understanding you, you're wondering, well, wel	-	
 ALDIENCE MEMBER: What? M. HELM: It's going through m. NS. TOURNEEW: She asked if it was also going to Belfast and I asked Brik to answer that guestion. M. K. HELM: NO, it's not going to Belfast. M. K. HELM: NO, it's not going to Belfast. M. K. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. M. HELM: NO, it's not going to Belfast. M. DIENCE MEMBER: (Rohin Duffy.) And just as a final comment, I just wanted to say I think any pollution into our waters is too much pollution. M. DIENCE MEMBER: Hi. Bethary Allgrove. I live in Lincohnville. I'm really curricus, how do you calculate discharge if you don't know what you're feeding the fish? MDIENCE MEMBER: Please hold the microphone ot cheared, so that helps us calculate the exact amount grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that grocess is to look at the typical feed profile that grocess is to look at the typical feed stat are available in the market and we set the max were for us. M. HEDM: We would use and so what we've done there is to find interval of various mutrients in the feeds that are available in the market and we set the max were for us. M. HEDM: We would use and so what we've done there is to find the values in the feeds, that gives us a big interval to move inside of in terms of composing a final feed. we		
 MR. HEIM: It's going through MS. TOURNAEEU: She asked if it was also MS. TOURNAEEU: She asked if it was also going to Belfast and I asked Brik to answer that going to Belfast and I asked Brik to answer that going to Belfast. MR. HEIM: No, it's not going to Belfast. MDIENCE MEMBER: (Robin Diffy.) And just as a final comment, I just wanted to say I think any pollution into our waters is too much pollution. f live in Lincohnville. I'm really curious, how do you g feeding the fish? MR. HEIM: So the first step is to calculate f ead in goaration, but the limitations we always will work with is the assumptions that discharge is based gong so-called feed factor, how much how moth feed we will use. MDIENCE MEMBER: Rease hold the microphone closer. MR. HEIM: Okay. And the next step in that process is to look at the typical feed profile that we would use and so what we ve done there is to find interval of various nutrients in the feeds that are available in the market and we set the max values for the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big interval. the values in the feeds, that gives us a big int		
 22 multiple treatment stations. 23 MS. TOURANEEN: She asked if it was also 24 going to Belfast and I asked Erik to answer that 25 guestion. 149 24 gear or two from now. And it's conceivable that, you 25 know, after one year of operations we may adjust that 28 head, that gives us room to define a final feed in 29 the end with what we see is available in the market a 20 guestion. 21 MR. HEIM: No, it's not going to Belfast. 20 MIN. HEIM: No, it's not going to Belfast. 21 MR. HEIM: No, it's not going to Belfast. 21 MR. HEIM: No, it's not going to Belfast. 21 MR. HEIM: No, it's not going to Belfast. 22 ADDIENCE MEMBER: H. Bethary Allgrove. I 35 ADDIENCE MEMBER: H. Bethary Allgrove. I 36 live in Lincolnville. I'm really curious, how do you 7 calculate discharge if you don't know what you're 8 feeding the fish? 9 MR. HEIM: So the first step is to calculate 10 the amount of feed you will use then we know this 11 based upon so-called feed factor, how much how 12 much feed we will use. 14 of feed we will use. 15 ADDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 what that's how you get to the figures you see here, 150 		
 MS. TOURANCEAU: She asked if it was also a going to Belfast and I asked Erik to answer that is guestion. 149 MR. HEIM: No, it's not going to Belfast. AIDIENCE MEMBER: (Robin Duffy.) And just is as a final comment, I just wanted to say I think any is pollution into our waters is too much pollution. AIDIENCE MEMBER: (Robin Duffy.) And just is the assumptions that discharge is based upon and that's what we need to operate within. a mean the feed such as a cloudate discharge if you don't know what you're is faeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this based upon so-called feed factor, how much how is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that helps us calculate the exact amount is procluced, so that we've done there is to find is interval of various nutrients in the feeds that are it available in the market and we set the max values for 2 the values in the feeds, that gives us a big interval is the values in the feeds, that gives us a big interval is the values of its hew you get to the figures you see here, 150 who hat the's how you get to the figures you see here, 150 		-
24 going to Belfast and I asked Erik to answer that 1	_	
25 gestion. 109 25 know, after one year of operations we may adjust that 151 1 MR. HEIM: No, it's not going to Belfast. 1 because we see new options in the market. That's 2 AUDIENCE MEMBER: (Robin Duffy.) And just 1 because we see new options in the market. That's 3 as a final comment, I just wanted to say I think any 1 because we see new options in the market. That's 4 pollution into our waters is too much pollution. 1 because we see new options in the market. That's 5 AUDIENCE MEMBER: Hi. Bethany Allgrove. I 1 because we see new options that discharge is based 6 live in Lincolnville. I'm really curious, how do you 1 sork with is the assumptions that discharge is based 6 heard conservative figures and maximum figures and 9 MR. HEIM: So the first step is to calculate 1 based upon so-called feed factor, how much how 10 MR. HEIM: Yeah. So conservative maximum 13 produced, so that helps us calculate the exact amount 1 MR. HEIM: Yeah. So conservative maximum 14 produced, so that helps us calculate the microphone 10 MR. HEIM: So how that we've done there is to find 16 netreval of various nutrients in		
1491511MR. HEIM: No, it's not going to Belfast.1MR. HEIM: No, it's not going to Belfast.2MUDIENCE MEMBER: (Robin Duffy.) And just3 as a final comment, I just wanted to say I think any4pollution into our waters is too much pollution.5MUDIENCE MEMBER: Hi. Bethany Allgrove. I6live in Lincolnville. I'm really curious, how do you7calculate discharge if you don't know what you're8feeding the fish?9MR. HEIM: So the first step is to calculate10the amount of feed you will use then we know this11based upon so-called feed factor, how much how12much feed we will use.13much feed we will use.14of feed you will use.15AUDIENCE MEMBER: Please hold the microphone16closer.17MR. HEIM: Okay. And the next step in that18process is to look at the typical feed profile that19we wuld use and so what we've done there is to find10interval of various nutrients in the feeds that are12available in the market and we set the max values for12the values in the feeds, that gives us a big interval13to move inside of in terms of composing a final feed.14And that's how you get to the figures, you see here,15we wuld use of ne the max discharge figures, not the average,16the values in the feeds figures, not the average,17MR. HEIM: Okay. And the next step in that18pr		
 ADDIENCE MEMBER: (Robin Duffy.) And just as a final comment, I just wanted to say I think any pollution into our waters is too much pollution. ADDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this based upon so-called feed factor, how much how much feed we will use. the amount of feed you will use then we know this produced, so that helps us calculate the exact amount of feed we will use. ADDIENCE MEMBER: Please hold the microphone closer. MR. HEIM: Okay. And the next step in that process is to look at the typical feed profile that we would use and so what we've done there is to find metrval of various nutrients in the feeds that are available in the market and we set the max values for the values in the feeds, that gives us a big interval to move inside of in terms of composing a final feed. the values for the max discharge figures, not the average, 10 		
 ADDIENCE MEMBER: (Robin Duffy.) And just as a final comment, I just wanted to say I think any pollution into our waters is too much pollution. ADDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this based upon so-called feed factor, how much how much feed we will use. much feed we will use the max values for the much we have a lot of room to wiggle in in much feed we will use the max values for much feed factor, that we heave a lot of room to wiggle in in much feed factor, that we may have a lot of room to wiggle in in much feed factor, the feed sch at are much feed factor is the max we use a blo of not the way for the total<!--</td--><td></td><td></td>		
 3 as a final comment, I just wanted to say I think any 4 pollution into our waters is too much pollution. AIDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use them we know this based upon so-called feed factor, how much how much feed we will use. MDIENCE MEMBER: Please hold the microphone closer. MR. HEIM: Okay. And the next step in that process is to look at the typical feed profile that we would use and so what we've done there is to find interval of various nutrients in the feeds that are available in the market and we set the max values for the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval the values in the feeds, that gives us a big interval the values in the feeds, that gives you see here, the values in the max discharge figures, not the average, 150 		
 4 pollution into our waters is too much pollution. AUDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this based upon so-called feed factor, how much how much feed we will use. much feed we will use. MIDIENCE MEMBER: Please hold the microphone closer. MR. HEIM: Okay. And the next step in that process is to look at the typical feed profile that process is to look at the typical feed profile that we would use and so what we've done there is to find the values in the feeds, that gives us a big interval to move inside of in terms of composing a final feed. And that's how you get to the figures you see here, which are the max discharge figures, not the average, 10 		
 ADDIENCE MEMBER: Hi. Bethany Allgrove. I live in Lincolnville. I'm really curious, how do you calculate discharge if you don't know what you're feeding the fish? MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this based upon so-called feed factor, how much how much feed we will use for every pound of salmon produced, so that helps us calculate the exact amount of feed we will use. ADDIENCE MEMBER: Please hold the microphone closer. MR. HEIM: Okay. And the next step in that process is to look at the typical feed profile that we would use and so what we've done there is to find interval of various nutrients in the feeds that are available in the market and we set the max values for the values in the feeds, that gives us ab ig interval to move inside of in terms of corposing a final feed. And that's how you get to the figures, not the average, 150 		
 6 live in Lincolnville. I'm really curious, how do you 7 calculate discharge if you don't know what you're 8 feeding the fish? 9 MR. HEIM: So the first step is to calculate 10 the amount of feed you will use then we know this 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 10 		
 7 calculate discharge if you don't know what you're 8 feeding the fish? 9 MR. HEIM: So the first step is to calculate 10 the amount of feed you will use then we know this 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 10 interval of various nutrients in the feeds that are 11 available in the market and we set the max values for 12 the values in the feeds, that gives us a big interval 13 to move inside of in terms of composing a final feed. 14 And that's how you get to the figures you see here, 15 which are the max discharge figures, not the average, 15 mich are the max discharge figures, not the average, 15 mich are the max discharge figures, not the average, 15 mich are the max discharge figures, not the average, 15 mich are the max discharge figures, not the average, 15 mich are the max discharge figures, not the average, 16 mich are the max discharge figures, not the average, 17 maximum ta the believes his feed 18 process is to to the figures you see here, 19 mich are the max discharge figures, not the average, 10 mich are the max discharge figures, not the average, 10 mich are the max discharge figures, not the average, 10 mich are the max discharge figures, not the average, 10 mich are the max discharge figures, not the average, 11 mich are average. 12 mich are the max discharge figures, not the average, 14 mich are the max maximum figures and the feed has a different amount 15 mich are the max dis		
 8 feeding the fish? 9 NR. HEIM: So the first step is to calculate 10 the amount of feed you will use then we know this 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AJDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 160 		
9MR. HEIM: So the first step is to calculate the amount of feed you will use then we know this 10 based upon so-called feed factor, how much how 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use.9 then I'm still trying to figure out where the numbers 10 come from.13 produced, so that helps us calculate the exact amount 14 of feed we will use.11NR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels15AUDIENCE MEMBER: Please hold the microphone 16 closer.11NR. HEIM: that are conservative for us.16Iterval of various nutrients in the feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 1509 then I'm still trying to figure out where the numbers 10 come from.11NR. HEIM: Object the figures you see here, 15015 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed 150		
 10 the amount of feed you will use then we know this 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 16 the same thing for us. 10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 bill of nitrogen coming out of that. The answer to that 26 is he's put out a maximum that he believes his feed 27 the solution of the solution of that. 		8 heard conservative figures and maximum figures and
11based upon so-called feed factor, how much how11MR. HEIM: Yeah. So conservative maximum is12much feed we will use for every pound of salmon13produced, so that helps us calculate the exact amount13produced, so that helps us calculate the exact amount14of feed we will use.12sort of the same thing for us. We set maximum is14of feed we will use.13levels14AUDIENCE MEMBER: Blease hold the microphone16closer.14MR. HEIM: Okay. And the next step in that15MR. HEIM: that are conservative for us.17MR. HEIM: Okay. And the next step in that16that we have a lot of room to wiggle in in18process is to look at the typical feed profile that19MS. RANSOM: I can maybe help. I think if19we would use and so what we've done there is to find11mucherstanding you, you're wondering, well, what11understanding you, you're wondering, well, what11happens if the number we put up today for the total12the values in the feeds, that gives us a big interval11nitrogen, for example, has to change because his feed13to move inside of in terms of composing a final feed.15015014And that's how you get to the figures, not the average, 150150		
12much feed we will use for every pound of salmon12sort of the same thing for us. We set maximum13produced, so that helps us calculate the exact amount12sort of the same thing for us. We set maximum14of feed we will use.12sort of the same thing for us. We set maximum15AUDIENCE MEMBER: Please hold the microphone13levels16closer.14AUDIENCE MEMBER: (Bethany Allgrove.) Okay.17MR. HEIM: Okay. And the next step in that15MR. HEIM: that are conservative for us.18process is to look at the typical feed profile that17terms of adjusting feed formulas in the end and18process is to look at the typical feed profile that17terms of adjusting feed formulas in the end and19MS. RANSOM: I can maybe help. I think if20interval of various nutrients in the feeds that are21available in the market and we set the max values for22the values in the feeds, that gives us a big interval23to move inside of in terms of composing a final feed.24And that's how you get to the figures you see here,25which are the max discharge figures, not the average,150150		
13 produced, so that helps us calculate the exact amount13 levels14 of feed we will use.13 levels15 AUDIENCE MEMBER: Please hold the microphone14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay.16 closer.15 MR. HEIM: Okay. And the next step in that17 MR. HEIM: Okay. And the next step in that18 process is to look at the typical feed profile that19 we would use and so what we've done there is to find10 interval of various nutrients in the feeds that are11 available in the market and we set the max values for19 MS. RANSOM: I can maybe help. I think if12 the values in the feeds, that gives us a big interval11 happens if the number we put up today for the total13 to move inside of in terms of composing a final feed.12 on move inside of in terms of composing a final feed.14 And that's how you get to the figures, not the average, 1501515 which are the max discharge figures, not the average, 15015		10 come from.
14 of feed we will use.14AUDIENCE MEMBER: (Bethany Allgrove.) Okay.15AUDIENCE MEMBER: Please hold the microphone14AUDIENCE MEMBER: (Bethany Allgrove.) Okay.16 closer.15MR. HEIM: that are conservative for us.17MR. HEIM: Okay. And the next step in that16That means we have a lot of room to wiggle in in18 process is to look at the typical feed profile that17terms of adjusting feed formulas in the end and19 we would use and so what we've done there is to find18that's important for us.10 interval of various nutrients in the feeds that are19MS. RANSOM: I can maybe help. I think if21 available in the market and we set the max values for19MS. RANSOM: I can maybe help. I think if22 the values in the feeds, that gives us a big interval12nitrogen, for example, has to change because his feed23 to move inside of in terms of composing a final feed.24and that's how you get to the figures you see here,25 which are the max discharge figures, not the average, 150150152	11 based upon so-called feed factor, how much how	 come from. MR. HEIM: Yeah. So conservative maximum is
15AUDIENCE MEMBER: Please hold the microphone15MR. HEIM: that are conservative for us.16closer.17MR. HEIM: Okay. And the next step in that18process is to look at the typical feed profile that19we would use and so what we've done there is to find20interval of various nutrients in the feeds that are21available in the market and we set the max values for22the values in the feeds, that gives us a big interval23to move inside of in terms of composing a final feed.24And that's how you get to the figures you see here,25which are the max discharge figures, not the average, 15015MR. HEIM: that are conservative for us.16That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 1819MS. RANSOM: I can maybe help. I think if 2021interval of various nutrients in the feeds that are 2122the values in the feeds, that gives us a big interval 2323to move inside of in terms of composing a final feed.24And that's how you get to the figures you see here, 15025which are the max discharge figures, not the average, 15026150	11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon	 come from. MR. HEIM: Yeah. So conservative maximum is sort of the same thing for us. We set maximum
16 closer.16 That means we have a lot of room to wiggle in in17MR. HEIM: Okay. And the next step in that18 process is to look at the typical feed profile that17 terms of adjusting feed formulas in the end and19 we would use and so what we've done there is to find18 that's important for us.10 interval of various nutrients in the feeds that are19 MS. RANSOM: I can maybe help. I think if11 available in the market and we set the max values for19 MS. RANSOM: I can maybe help. I think if12 the values in the feeds, that gives us a big interval11 happens if the number we put up today for the total13 to move inside of in terms of composing a final feed.12 nitrogen, for example, has to change because his feed14 And that's how you get to the figures you see here,15015 which are the max discharge figures, not the average,150	11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount	 come from. MR. HEIM: Yeah. So conservative maximum is sort of the same thing for us. We set maximum levels
17MR. HEIM: Okay. And the next step in that17terms of adjusting feed formulas in the end and18process is to look at the typical feed profile that17terms of adjusting feed formulas in the end and19we would use and so what we've done there is to find18that's important for us.10interval of various nutrients in the feeds that are19MS. RANSOM: I can maybe help. I think if11understanding you, you're wondering, well, what12the values in the feeds, that gives us a big interval13to move inside of in terms of composing a final feed.14And that's how you get to the figures, not the average, 150150150	11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use.	10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay.
 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed 26 150 	11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use.	10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us.
19we would use and so what we've done there is to find19MS. RANSOM: I can maybe help. I think if20interval of various nutrients in the feeds that are19MS. RANSOM: I can maybe help. I think if21available in the market and we set the max values for19MS. RANSOM: I can maybe help. I think if22the values in the feeds, that gives us a big interval19MS. RANSOM: I can maybe help. I think if23to move inside of in terms of composing a final feed.19MS. RANSOM: I can maybe help. I think if24And that's how you get to the figures you see here,23source changes and that feed has a different amount24of nitrogen coming out of that. The answer to that150150150152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in</pre>
 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 26 I'm understanding you, you're wondering, well, what 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 which are the max discharge figures, not the average, 26 1/m understanding you, you're wondering, well, what 27 is he's put out a maximum that he believes his feed 28 is he's put out a maximum that he believes his feed 29 is he's put out a maximum that he believes his feed 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed 26 150 	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and</pre>
 available in the market and we set the max values for the values in the feeds, that gives us a big interval to move inside of in terms of composing a final feed. And that's how you get to the figures you see here, which are the max discharge figures, not the average, 10 	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and</pre>
22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 150 12 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed 152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 	 10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if
23 to move inside of in terms of composing a final feed.23 source changes and that feed has a different amount24 And that's how you get to the figures you see here,23 source changes and that feed has a different amount25 which are the max discharge figures, not the average,26 is he's put out a maximum that he believes his feed150152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what</pre>
24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 15024 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed 152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what</pre>
25 which are the max discharge figures, not the average, 150 25 is he's put out a maximum that he believes his feed 152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 	<pre>10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total</pre>
150 152	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 	10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed
	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 	10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that
	 11 based upon so-called feed factor, how much how 12 much feed we will use for every pound of salmon 13 produced, so that helps us calculate the exact amount 14 of feed we will use. 15 AUDIENCE MEMBER: Please hold the microphone 16 closer. 17 MR. HEIM: Okay. And the next step in that 18 process is to look at the typical feed profile that 19 we would use and so what we've done there is to find 20 interval of various nutrients in the feeds that are 21 available in the market and we set the max values for 22 the values in the feeds, that gives us a big interval 23 to move inside of in terms of composing a final feed. 24 And that's how you get to the figures you see here, 25 which are the max discharge figures, not the average, 	10 come from. 11 MR. HEIM: Yeah. So conservative maximum is 12 sort of the same thing for us. We set maximum 13 levels 14 AUDIENCE MEMBER: (Bethany Allgrove.) Okay. 15 MR. HEIM: that are conservative for us. 16 That means we have a lot of room to wiggle in in 17 terms of adjusting feed formulas in the end and 18 that's important for us. 19 MS. RANSOM: I can maybe help. I think if 20 I'm understanding you, you're wondering, well, what 21 happens if the number we put up today for the total 22 nitrogen, for example, has to change because his feed 23 source changes and that feed has a different amount 24 of nitrogen coming out of that. The answer to that 25 is he's put out a maximum that he believes his feed

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	there is going to be a level set that says this is how much nitrogen you're allowed to have come out of your facility daily, weekly, monthly, and he's going to have to adhere to that. So as long as the food choices get better and his feeds improve it's fine. You know, maybe he is instead of discharging 5 milligrams per liter of something he's now discharging 3, that's fine, he will meet his permit. But if he wants to go over that in the future, he would have to reapply for a new permit because he would then, you know, in theory be violating the permit by discharging too much. So he can he can come up with assumptions now that are based on realistic understanding of what the feed sources are, but when the final formulations come out as long as they leave him with the discharge that's lower he's okay.	2 in 3 wi 4 a 5 yy 6 m 7 8 S 9 s 10 11 12 T 13 14 B 15 yy 16 h 17 dd 19 o 20 ti 21 m 22 ai 23 g	agnitude of like 10,000, so where it would be mpossible to even measure the impact. And that area here you get that distance where you get to that rea was totally shown within those figures, so rou're so far away at that point that there is eally there is really no impact essentially. AUDIENCE MEMBER: (Bethany Allgrove.) Okay. AUDIENCE MEMBER: (Bethany Allgrove.) Okay. WR. DILL: Yes. AUDIENCE MEMBER: (Bethany Allgrove.) Okay. hank you. AUDIENCE MEMBER: Hi. My name is Sid Block, B-L-O-C-K. I appreciate your patience. I'll help rou clean up. I'm from Northport and my question, I ad hoped somebody would ask, but nobody did. I hon't understand why the pipe and the discharge are soming out so close to Northport along Bayside as pposed to going more directly out into the center of he of the bay. You're going right past the residential area and a community area with a beach and your dock and things like that as opposed to poing directly out into the bay, so that is my uestion and a good comment. MS. TOURANGEAU: I'm going to take a quick 155
2 2 3 4 5 6 7 8 9 100 111 122 133 14 15 166 177 18 19 200 211 222 233 24	<pre>where they leave the bay, I want to see them in Lincolnville. I'm very concerned about the beach qualities for Bayside and for Lincolnville, so if we can get the study expanded to show how it's going to affect all of Penobscot in a cumulative manner that would certainly help a lot of the concerns that the whole mid-coast has, not just Belfast. MR. DILL: I can MS. TOURANCEAU: Okay. I'm getting the heads-up. We've got one more person after her, do we have time to and then take this gentleman quickly? AUDIENCE MEMBER: (Custodian.) Very quickly. AUDIENCE MEMBER: (Police Officer.) It could be a 15 minute question. MR. DILL: With the ping pong ball, so there was first there was the animation that showed that has ping pong balls everywhere, that's not really representative of the discharge. We were starting them all over the place. We did another simulation where the ping pong balls were being released steadily from where the discharge location is and we ran that long enough so that they were essentially spreading out to the point that any impact they would have is minuscule. Dilutions, you know, of orders of 154</pre>	2 wi 3 u 4 5 A 6 7 8 9 M 10 t 11 i 12 wi 13 c	<pre>hot at that and grab me if I'm wrong. I believe hat we did was look for access to the bay that got as to the deepest area quickest. AUDIENCE MEMBER: (Sid Block.) Okay. MS. TOURANCEAU: Is that right? MS. RANSOM: Yes. AUDIENCE MEMBER: And my quick comment since fr. Heim did mention the benefits of this even though his was a discharge situation is that before I lived in Northport I lived in Belfast and I do not remember then MENA came to Belfast or Front Street Shipyard ame to Belfast that my property taxes ever went town. AUDIENCE MEMBER: That's right. MS. TOURANCEAU: Thank you all. (Hearing concluded at 9:17 p.m.)</pre>

			E E 00-14	J 1.0 1.10	120.10
1	CERTIF	ICATE	5.5 26:14 5.8 26:20	A. 1:8, 1:12 ability 45:15,	129:10 acids 16:21
2	I, Robin J. Dostie, a	a Court Reporter and	500 119:9 56 105:9	95:24, 108:20,	acres 133:11 across 11:8
3	Notary Public within and for	the State of Maine, do		131:11 able 4:21,	Act 3:9, 3:10, 3:11, 6:21,
4			< 6 >	13:6, 13:11,	13:14, 134:2, 134:3
		-	6 46:23 6.3 26:7	31:11, 32:7, 32:8, 36:13,	actively 121:20
5		contraction on contract by life	6.9 19:7, 26:9 60 90:19,	45:3, 54:6, 65:13, 88:2,	actual 13:21, 15:5, 25:25,
			137:22, 139:12	91:7, 99:2, 120:5,	39:2, 56:13, 60:17, 87:9,
7			673 27:6 6:00 1:14	124:19, 125:2,	90:12, 96:1 ADCIRC 32:11
8	and I have signed:		0.00 1.14	125:13,	add 17:17,
9			< 7 >	130:6, 131:17, 148:2	55:5, 56:8, 83:2, 84:16,
10			7 46:23 7.7 77:13,	above 40:22, 68:3, 108:22	130:22 added 11:14,
11			82:10, 82:12, 82:14, 85:17,	abroad 8:19 Absolutely	111:7, 153:24 adding 87:7,
12			86:3	45:5, 70:2	103:1, 141:6
13		z Public	70s 13:15, 137:13,	abundant 16:19 academic 10:9,	addition 90:16, 91:25, 126:24
14			137:14 76 110:5	10:11, 18:23 access 9:21,	additional 3:15, 3:17,
		Echanova 6 2010		64:13, 88:9, 156:2	5:7, 19:15, 22:17, 43:24,
15	1 1	5. February 6, 2019.	< 8 > 8 6:13, 6:16,	accessed 65:4 accident 59:7	44:1, 84:22, 84:23, 92:9,
16			45:7	accompany	92:17
17	DATED: October 16, 2	2018	85 21:14, 27:1	145:14 according	address 21:5, 43:22, 44:2,
18			< 9 >	25:22, 136:23 account 58:18	44:3, 44:6, 47:6, 49:2,
19			9 43:18 9. 6:19	accredited 65:11	77:21, 78:1, 78:12, 82:25,
20			9/5 55:4	accumulated	84:23
21			90 83:12 9001 111:19	130:17 accumulates	addressed 12:3, 78:14,
22			98,000 101:16 99 21:24, 26:5,	143:22 accurate 90:11,	116:25, 120:2, 121:9,
23			26:13, 26:20 9:17 156:18	94:4, 97:13, 157:5	134:1 addresses
23			5117 150110	accurately 97:12	22:14, 50:24, 50:25
			< A >	achieve 8:8,	adequate 59:12
25		155	A-R-E 57:3 A-U-D-R-A 93:6	70:4 acid 71:23,	adhere 153:6 adjacent 67:10
		157			159
	< Dates > 10,000 155:1		adjust 135:22,	83:11	amount 15:5,
	February 6, 100 40:14, 2019. 157:15 62:24, 65:	2000. 2:9 2000s 18:25	135:24, 151:25	airfreighted 83:13	15:6, 16:8, 25:4, 27:22,
	October 16, 90:19 2018 157:17 108 101:15,	2001 94:24 2010 94:24	adjusting 152:17	aimplane 8:18, 63:19	35:12, 39:24, 70:3, 70:5,
	October 19 5:11 102:15	2016 81:2 2018 151:13	administered	algae 102:17, 115:4	75:3, 76:18, 82:5, 97:25,
	1:12 11 19:7,	2020 151:12	143:12 Administration	algal 17:7,	103:14,
	.003 105:22 105:15, 10 .012 19:12 11. 26:9	09:5 20s 55:9, 55:14 23 27:6	98:7 admire 80:24	17:14, 17:18, 129:9, 129:24	103:15, 103:22,
	.024 19:12 .08 19:14 13 2:20, 54: 55:2, 55:3	:24, 24 121:16 3 25 36:8	admit 110:11 adults 81:6,	Allgrove 150:5 Allgrove.	113:10, 115:24,
	.17 19:14, 27:7 .2 15:7 .15 2:7, 102: 102:3, 102	:2,	105:20, 108:1, 108:3	151:6, 151:10,	129:19, 130:19,
	.3 30:15, 103:9, 120):9, < 3 >	advance 4:5,	152:7,	150:10,
	35:20, 37:7 .4 59:24, 1500 119:11	3 108:2, 153:10 30 2:15,	11:6 advantage 83:21	152:14, 153:20,	150:13, 152:23
	106:21 16 2:7, 55:3 .48. 27:8 16. 40:4, 40		advise 60:22, 63:11	155:7, 155:11 allow 67:4,	amounts 66:2, 68:22, 72:14,
	.5 35:18 .62 118:21 .62 118:21 .62 118:21		advised 5:14 advocate 70:2	69:24, 70:4, 111:1	73:20, 129:7 Amy 133:2,
	.78 19:21 1600 101:13,		aerobic 16:8	allowed 100:9,	133:22,
	101:15, 102:15	139:22	aeromonas 58:25 aerosols 58:15	142:11, 153:4 allows 15:9,	134:7, 134:11 analyses 78:24
	< 0 > 162 26:12 0 137:21 17 2:7	300 22:25 32. 55:5	affect 39:4, 46:19,	91:8 almost 7:15,	analysis 53:25, 79:7, 98:9
	0.12 26:22 173 1:13 0.2 26:21 18 133:11	33,000 26:2, 130:10,	105:18, 107:14, 154:5	22:6, 24:4, 133:17	Andy 86:14, 86:25, 87:17,
	0.24 26:22 185 26:6	130:13	affected 57:9,	already 11:7, 40:11, 40:13,	87:22, 88:17,
	0.7 27:13 94:14, 94:	23 36 117:12	100:24 affecting 110:4	40:14, 41:12,	88:22, 88:25, 89:3, 89:17,
	0.7527:2019726:2000327:131977.13:22	38 110:23 39 58:9	affects 37:23, 108:20	42:5, 53:17, 102:16,	89:25, 90:3, 90:10, 90:24,
	1980s 121:18 1989 58:25		affordable 133:5	103:1, 103:3, 142:25, 148:7	91:6, 91:22, 92:20, 93:2
	< 1 > 1999 100:23	< 4 > 4 108:5	afterwards	alternative	animal 15:19,
	1 26:3, 103:19, 110:10, 1999. 36:11	4 108:5 4.3 103:20	21:1, 73:22 Agency 111:17,	9:6, 73:7 alternatives	17:22, 59:7, 114:9,
	128:19 1,000 119:10 < 2 >	40 58:2, 102:21,	111:18 ago 45:13,	25:13, 115:3 ambient 41:7,	114:13, 114:18
	1.6 101:12, 2 19:11, 102:14 107:24,	105:10, 133:11, 135:2	63:21 agree 79:18,	49:7, 49:10, 51:6, 137:23	animals 59:7, 62:24, 71:2
	1/2 107:24, 128:20	45 97:3, 99:24	123:19,	American	animation
	108:3, 108:5 2. 26:15 10 41:11, 20 9:25, 41:3		128:10 agricultural	111:15, 118:18	33:10, 35:23, 38:15, 98:17,
	41:16, 42:3, 55:14, 93: 42:4, 50:6, 109:16,		16:24, 17:22 ahead 38:22,	amino 16:21 ammonia 27:12	154:17 answered 60:10
	82:5, 89:23, 109:23,	42:6, 50:6,	57:24	ammonium 105:18	answering 3:18,
	90:14, 102:2, 119:16, 103:9 120:10	90:21, 100:6, 153:8	aiming 83:4 airfreight	among 105:21, 113:23	45:2, 80:4 answers 80:3,
		158			160

87:18, 99:20, 100:12, 116:13, 117:19, 126:9, 126:10, 153:21 antennae 108:20 anternas 105:12 antibiotics 25:16, 111:9, 114:17, 114:21 antibodies 59:9 anybody 68:25, 71:2, 112:3, 120:1 anyway 133:18, 139:15, 144:3 apologize 13:9, 13:11, 30:11, 100:2, 120:12 appear 117:10 applaud 68:9 Applause. 82:16 apples 104:19, 105:2 applicable 42:25 AppLicable 42:35 AppLicable 42:44 AppLicable 42:44 AppLicable 42:44 AppLicable 42:44 AppLicable 42:45 AppLicable 42:45 AppLicable 42:45 AppLicable 42:45 AppLicable 42:45 AppLicable 42:45 AppLicable 42:45 AppLicable 43:45 AppLicable 43:45 AppLicable 43:45 AppLicable 43:45 AppLicabl	appreciate 45:19, 112:7, 116:9, 116:10, 116:13, 136:14, 145:10, 155:14 appreciates 80:8 approach 31:15, 95:11 appropriate 71:13, 73:18, 127:19, 127:21 approved 39:14, 72:12, 111:15 Approximately 5:21, 26:15, 55:10, 55:16, 55:20 aquaculture 10:10, 10:13, 85:10, 92:10, 111:19, 115:20, 121:17, 122:2, 128:11, 131:17 Aquafarms 1:6, 1:36, 1:18, 1:21, 1:22, 2:5, 2:11, 14:20, 42:20, 42:23, 57:15, 61:22, 64:14, 69:18, 81:4, 92:3, 113:1 aquatic 58:8 aquifers 84:20 area 10:1, 12:11, 19:14, 29:23, 30:9, 40:19, 41:10, 46:14, 52:9,	85:5, 92:15, 96:13, 99:5, 99:9, 99:16, 132:1, 133:16, 155:2, 155:4, 155:2, 156:3 areas 30:22, 54:9, 54:11, 73:14, 94:14, 104:22, 133:15 argument 83:15 Arny 3:5, 117:6, 117:18, 126:15 Around 5:11, 29:22, 33:4, 33:7, 33:10, 33:13, 34:10, 43:13, 43:15, 44:21, 45:1, 49:16, 65:19, 75:24, 75:25, 76:4, 76:6, 76:40, 80:7, 98:19, 101:2, 111:13, 125:13, 137:21, 137:22, 139:8, 139:12 arrows 32:23, 32:25, 51:13 articles 77:20, 78:9, 79:16, 79:17 articulate 84:15 aside 44:19, 70:17 ASL 5:23 aspects 3:18, 43:24, 44:16 asses 71:12 assessment 29:2, 58:17,	152:5, 153:15 basic 20:24 Basically 8:15, 11:24, 12:22, 20:25, 22:10, 23:18, 24:4, 24:25, 31:23, 70:4, 73:11, 109:10, 143:13 basis 21:2, 23:25, 24:3, 28:8, 70:11, 125:4, 125:6 bathroom 45:4 bator 45:1 bays 75:2, 102:16 Bayside 101:10, 101:12, 101:14, 102:14, 154:3, 155:18 beach 104:1, 104:7, 104:25, 154:2, 155:21 beaches 101:11, 102:4, 102:5, 103:10 beam 31:12 bean 113:22 bear 58:12, 109:19, 123:8 bearing 105:9, 105:10 become 49:22, 137:3, 142:12, 151:19 becomes 49:16, 144:16 becoming 102:6 bed 37:23, 109:23 beaging 100:14 beginning 34:15, 37:9, 43:25,	behalf 2:4 behaves 49:11 behavior 50:21, 137:19, 139:19 behavioral 105:19 behind 7:20, 7:22, 7:23, 20:8 believe 9:7, 10:16, 11:9, 12:25, 27:18, 57:14, 82:17, 92:22, 120:1, 130:3, 156:1 believes 152:25 Belmont 45:21 belowed 16:13 below 30:19, 37:6, 37:7, 49:24, 90:13, 138:15 benefit 8:20, 12:7, 27:3, 143:23 benefits 9:2, 135:20, 135:25, 143:20, 156:9 Bent 57:14, 62:3, 62:9 bentbic 15:25 Bergen 57:3 bermacki 45:21, 45:22, 46:4, 46:11, 47:3, 54:17, 54:20, 55:6, 55:11, 55:18, 55:22, 56:4 best 32:6, 45:15, 56:24, 95:23, 111:19,	117:11, 122:24, 123:1, 123:6, 128:2, 137:11 Bethary 150:5, 151:6, 151:10, 152:7, 152:14, 153:20, 155:7, 155:11 better 24:13, 35:25, 54:13, 92:21, 119:17, 132:2, 132:5, 153:7 Beyond 9:8, 62:14, 64:2 big 37:11, 63:7, 84:12, 84:25, 110:15, 113:24, 116:19, 122:18, 123:10, 135:25, 142:13, 150:22 Bigelow 64:5 Bigelow 64:5 Bigelow 64:5 Bigelow 64:5, 65:9, 65:22, 65:9, 67:9, 67:22, 68:1, 68:8 bigger 139:17 bill 118:5 bio 6:12, 6:18 biogas 23:14, 23:17 biological 15:3, 16:3, 92:4 biosecurity 58:17, 72:3,
20:21, 120:15	77:12, 85:2,	91:8	43:25, 117:14, 121:7	117:9,	73:9
		161			163
assessments 2:16 assistance 5:24 associated 3:23, 7:3, 11:3 Association 81:1, 81:3 assume 52:18, 52:20 assuming 93:10, 136:19 assumption 53:1, 89:19, 90:5 assumptions 151:21, 152:5, 153:15 assure 69:21 assure 69:21 assure 69:21 assure 69:21 assure 69:21 assure 69:21 assure 69:21 assure 69:21 attomsphere 16:20 Atmosphere 16:20 Atmosphere 16:20 Atmosphere 17:2, 17:4, 98:6 attempt 32:6 attention 74:5 attomine 22:3 audit 111:22 audited 28:9 Audia 93:5, 94:5, 95:18, 99:21 Augusta 5:12 authorities 28:9 authorized 71:12 automated 92:2 automated 92:2 automated 92:2 automated 5:18, 16:11, 53:24, 58:16 available 5:18, 16:11, 53:24, 58:24, 59:14, 88:18, 88:24, 89:5, 90:17,	141:12, 145:4, 150:21, 151:19, 151:21, 151:23, Avernage 38:12, 38:13, 38:16, 38:17, 38:21, 52:12, 56:1, 89:15, 89:16, 137:17, 139:21, 150:25, avoid 63:7, 148:22, aware 60:24, 61:7, 79:3, 83:17, 120:14, 120:22, away 36:7, 41:11, 42:3, 46:23, 71:12, 75:12, 128:16, 142:22, 147:24, 148:13, 155:5 Awesome 93:1 < B > B-E-R-N-A-C-K-I 45:22 B-I-G-E-L-O-W 64:6 B-L-O-C-K 155:14 B-R-I-C-K-N-E-L -L 58:5 Background 2:19, 13:10, 18:17, 26:8, 26:14, 26:18, 26:12, 26:23, 27:7, 27:10, 27:14, 66:9,	66:17, 67:15, 79:25, 131:14 backup 22:19 backwards 6:12 bacteria 11:18, 21:10, 22:4, 60:5, 68:17, 71:24, 72:8, 73:15, 104:24, 144:6 bacterial 22:6, 23:6, 58:23, 70:13 bad 85:25 baffles 117:23 bait 105:12, 105:13 balance 81:12 ball 53:12, 74:10, 154:16 balls 33:13, 34:9, 34:16, 34:23, 35:3, 35:9, 51:14, 52:9, 52:19, 74:2, 74:3, 74:6, 89:10, 89:11, 89:22, 101:7, 101:24, 153:22, 153:24, 154:18, 154:21 BAP 111:19 barriers 11:25 base 6:14 Based 2:6, 8:24, 26:1, 27:9, 27:19, 36:9, 36:10, 37:24, 38:2, 46:22, 56:24, 59:13, 89:19, 95:18, 108:25, 109:3, 128:19, 150:11, 162	biotoxin 102:17 bird 40:23 bit 12:16, 18:10, 20:3, 20:6, 20:18, 22:16, 22:22, 27:10, 29:1, 30:25, 36:3, 37:14, 37:16, 41:24, 51:2, 79:24, 91:7, 94:3, 100:3, 100:19, 107:18, 126:12, 131:25, 132:3, 134:25, 143:22, 151:4 Block 155:13 Block 155:13 Block 156:4 blocm 102:17 blocms 17:7, 17:14, 17:18, 129:9, 129:24 blocm 102:17 blocms 17:7, 17:14, 17:18, 129:9, 129:24 blocm 30:12, 99:9, 132:15, 132:16 boat 34:4 boathouse 101:6 BOD 16:10, 16:16, 19:10, 26:11, 26:13, 40:12, 87:4, 145:20, 145:25, 146:8, 147:11, 147:16, 148:7 bodies 143:17, 144:5, 144:20 boom 81:21 border 131:25 borrowing 85:7	bottom 3:6, 15:25, 29:21, 41:19, 41:20, 42:4, 48:6, 49:13, 50:14, 51:22, 52:22, 91:5, 92:7, 138:24, 139:3 bought 64:23 boy 102:9 branch 10:11 Brazil 113:24 break 6:13, 6:18, 16:9, 45:4, 86:10 Break: 45:8 breakdown 21:10 breaking 125:14 breaking 125:14 breaking 125:14 breaking 125:14 breaks 144:9 HRICKNEIL 58:1, 58:5, 58:6, 59:17, 59:23, 60:11, 60:16, 61:4, 61:8, 61:13, 61:17, 61:23, 61:25, 144:12, 144:12, 144:12, 144:12, 144:12, 144:12, 144:12, 125:3 bringing 129:16 broadcast 5:25 brush 102:23 bucket 106:25 Bucksport 120:16, 153:24 big 23:1 bug 23:1 bug 23:1 bug 23:1 bug 23:1 bug 23:1 buld 69:12, 125:12, 130:15, 148:24	build-out 130:23 building 16:22, 148:18 buildup 70:6 built 123:11, 123:16 bunch 33:12, 34:9 buoyancy 42:1 buoyancy 42:1 buoyancy 47:24, 50:2 buried 67:24 business 10:6, 62:16, 77:11, 85:25, 115:4, 116:4, 122:13, 127:16, 148:20 buy 83:9 buyers 116:4 buying 115:12 byroducts 11:13, 114:9, 114:13 C > Calculate 23:21, 31:11, 35:14, 51:15, 52:13, 89:22, 150:7, 150:9, 150:13 calculated 33:5, 38:13, 52:18 calculates 39:22, 52:12 calculation 119:2 calculations 24:6, 50:16 call 8:12, 38:24, 52:19, 92:1, 92:4, 97:17, 139:10 164

called 21:9, cases 21:21, 129:18,		
	64.1 00.10 composition	
	64:1, 88:10, competitiv 150:3, 83:23	e concentrations 30:5, 40:13,
22:9, 32:11, 23:14, 49:24, 130:4, 39:11, 92:22, 50:3, 51:24, 134:22,	155:24, 156:8 complete 4	
144:15 $52:22, 52:24, 135:24, 135:24,$	comments 5:5, completely	
Camille 141:16, 67:10, 70:20, 136:3, 137:2,	5:15, 25:15, 86:19	79:7, 79:8,
141:20, 73:1, 114:18, 151:17,	43:22, 44:14, complex 10	
141:23, 136:5 152:22	44:15, 59:11, 129:15	104:24,
142:15, catastrophic changed 53:16,	62:2, 70:22, compliance	
142:24, 125:11 94:17, 137:15	83:5, 83:16 compliant	concept 83:23,
143:7, catch 66:3 changes 5:4,	Commission 24:23, 1	11:10 92:13, 92:24
143:16, cause 85:18, 38:9, 41:1,	157:15 complicate	
143:21, 85:20, 85:25, 47:10, 50:19,	Common 9:7, complicate	
144:11, 131:3 53:10,	17:15, 17:20, 31:2, 31	:14, 114:15,
144:18, causing 140:11, 119:20, 144:23 140:19 137:9, 152:23	58:22, 61:1, 33:5, 45	
144:23 140:19 137:9, 152:23 camping 109:19 Celsius 55:3, channel 5:25,	71:25, 73:4, 50:18 101:9, 136:8, comply 3:2	129:20, 2, 135:17
Canada 9:13 $138:2, 139:4, 46:24$	151:18 28:11, 1	
Canadian 139:14 chaotic 31:7	commonly 16:4, complying	59:4, 83:5,
111:16, center 155:19 Charles 76:25	17:12, 26:7 111:24	84:13, 99:12,
111:18 centigrade Charles. 77:23,	communities component	99:13,
candidate 100:7 54:24 78:2, 78:11,	15:25 20:24, 6	
capacity 130:11 certain 18:22, 79:15	community 9:20, components	
captured 125:24 18:23, 49:17, chemical 25:8,	67:2, 89:7, 29:12, 6	
carbohydrates 69:10, 118:6, 14:17 60:8, 61:1, 18:9, 69:7, 69:8,	100:14, composing 122:8, 147:2, 150:23	127:14, 140:17, 154:2
carbon $81:4$, $126:17$, $92:1$	122:8, 147:2, 150:23 147:3, 147:6, composition	
140:10, 136:19, chemicals	155:21 25:5, 15	
140:18, 136:20 57:20, 59:18,	companies 10:7, compounds	conclude 85:23
140:21 Certainly 88:8, 68:15, 69:9,	10:8, 11:9, 14:12, 8	7:5 concluded
carcinogens 109:25, 70:16, 70:17,	20:9, 20:21, comprehens	
142:7 127:7, 72:6, 72:11	21:8, 116:5, 137:13	conclusions
care 59:8 127:16, 154:6 chicken 7:3,	142:17 computer 3	
carefully 75:15 certificate 77:10	Company 10:25, 31:22, 3	
Carolinas 71:6 chief 65:23 146:21 certifications children 102:4	28:18, 33:8 110:22, 115:1 conceivabl	105:16 condition 51:7
CARIER 1:22 111:12, choice 142:21	comparative 25:10, 2	
Casco 121:19 $111:21, 112:7$ choices 24:20,	131:13 151:24	2:19, 2:21,
case 9:15, certified 153:7	compare 36:14, concentrat	
21:7, 21:11, 114:13 cholesterol	54:4, 131:18 26:7, 27	:6, 49:18, 50:3,
21:22, 22:21, certify 157:4 14:16	compared 97:10, 27:15, 2	9:13, 81:7, 135:20,
23:2, 23:13, cetera 68:18 choose 24:2	131:16 30:11, 3	
25:18, 34:18, chain 65:12 Chris 68:13,	comparing 35:14, 3	
35:1, 40:11, challenge 12:1, 70:8, 72:22,	104:17, 36:24, 3	6:25, <u>126:22</u> , 127:2
41:23, 51:16, 115:19, 73:25, 76:12, 51:18, 56:24, 115:22 76:22	104:19 37:6, 37	
51:18, 56:24, 115:22 76:22 62:23, 70:23, chance 53:17, Cianbro 148:17	comparison 37:17, 3 105:2 40:10, 4	
71:1, 71:17, 58:19 circle 30:14	comparisons 41:14, 4	
73:4, 75:17, change 20:14, circulate 33:4	95:8 51:15, 5	
80:9, 99:11, 25:12, 50:22, circulated	competence 61:9,67	
108:24, 109:2 119:13, 99:1, 120:24	124:13 99:5, 99	:17 connect 132:23
165		167
circulation 69:24, 73:20 CO2 21:18,	Connecticut consumers	8:23 117:6,
$\begin{array}{c} 48:4, \ 48:8, \\ \end{array} \qquad \begin{array}{c} 09:24, \ 73:20 \\ \end{array} \qquad \begin{array}{c} 00:24, \ 73:$	92:23 contact 6:	
	92:23 contact 6: Conover 128:10 141:11	8, 117:18, 126:15
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23,	92:23 contact 6: Conover 128:10 141:11 Conover. contain 20	8, 117:18, 126:15 :12, Correct 45:14,
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1,	92:23 contact 6: Conover 128:10 Conover. 128:23, 87:2, 87	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21,
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22,	92:23 contact 6: Conover 128:10 141:11 Conover. contain 20 128:23, 87:2, 87 131:9, 107:7	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12,
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12	92:23 contact 6: Conover 128:10 128:23, contain 20 128:23, 87:2, 87 131:9, 107:7 132:11, contains 20	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23,
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coastal 128:12	92:23 contact 6: Conover 128:10 Conover. 128:23, 87:2, 87 131:9, 107:7 132:11, contains 2 132:14, 82:23, 82:23, 8	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15,
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coastal 128:12 63:12 128:4 coastline 9:13,	92:23 contact 6: Conover 128:10 141:11 Conover 228:23, 87:2, 87 131:9, 107:7 132:11, contains 2 132:14, 82:23, 8 132:19, 103:23	8, 117:18, 126:15 :12, Obrrect 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coastal 128:12	92:23 contact 6: Conover 128:10 Conover. 128:23, 87:2, 87 131:9, 107:7 132:11, contains 2 132:14, 82:23, 82:23, 8	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coast1 128:12 63:12 128:4 coastline 9:13, citations cleanliness 107:2	92:23 contact 6: Conover 128:10 Canover. 28:23, 87:2, 87 131:9, 107:7 132:11, contains 2 132:14, 82:23, 8 132:19, 103:23 132:24 contaminan	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coastline 9:13, citations cleanliness 107:2 145:16 70:5 coastlines citizens 80:17, clear 25:23, 136:3 80:21, 101:25 62:12, 71:5, cold 9:18,	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 67:2, 87 131:9, 107:7 132:11, contains 2 132:14, 82:23, 8 132:19, 103:23 132:24 contaminan conscious 7:5, 111 142:21 context 12 conservation contingenc	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coast 128:12 63:12 128:4 coast11ne 9:13, 145:16 70:5 coast1ines citizens 80:17, clear 25:23, 136:3 80:21, 101:25 62:12, 71:5, codd 9:18, city 3:21, 5:6, 73:2, 84:2, 48:23, 138:6,	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 contact 8: 0 128:23, 87:2, 87 131:9, 107:7 132:11, contain 20 132:14, 82:23, 8 132:19, 103:23 132:24 contact 12 conservation context 12 conservation contingend 31:17, 31:18, 25:18	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coastal 128:12 63:12 128:4 coastline 9:13, citations cleanliness 107:2 145:16 70:5 coastlines citizens 80:17, clear 25:23, 136:3 80:21, 101:25 62:12, 71:5, cold 9:18, city 3:21, 5:6, 73:2, 84:2, 48:23, 138:6, 5:12, 6:1, 102:13, 138:10, 139:2	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 contact 6: 141:11 contact 7: 132:23 132:11, contains 2 132:14, 82:23,8 132:19, 103:23 132:24 contact 12 conscious 7:5,111 142:21 context 12 conservation contingend 31:17, 31:18, 25:18 80:1 continue 1	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, :2:25, 146:15, 146:18 ts correctly 72:23 :2:5 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis
48:4, 48:8, cleanest 42:24 83:8, 83:14 51:24, 51:25, cleaning 57:17, Coast 58:14, 75:23, 75:25, 59:19, 60:13, 87:10, 92:23, 132:4 62:20, 63:2, 101:1, circulations 69:11, 69:22, 121:22, 75:15 69:25, 73:10, 122:3, 129:12 circumstances 73:17, 96:15, coast 1128:12 63:12 128:4 coastline 9:13, 145:16 70:5 coastlines 70:51 62:12, 71:5, cold 9:18, citizens 80:17, clear 25:23, 136:3 80:21, 101:25 62:12, 71:5, cold 9:18, City 3:21, 5:6, 73:2, 84:2, 48:20, 139:2 44:2, 100:6, 105:4, 142:23 colder 48:14,	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contain 20 132:14, 82:23, 8 132:19, 103:23 132:24 contactinantain conscious 7:5, 111 142:21 context 12 conservation contingenc 31:17, 31:18, 80:1 conservative continue 1	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 conover. 87:2, 87 131:9, 107:7 132:11, contain 20 132:14, 82:23, 8 132:19, 103:23 132:24 context 12 conservation context 12 conservation continuent 31:17, 31:18, 25:18 80:1 continue1 conservative continue1 conservative continuing	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 contact 23, 87:2, 87 131:9, 107:7 132:11, contains 20 132:14, 82:23, 132:14, 82:23, 132:24 contains 21 conscious 7:5, 111 142:21 context 12 conservation 31:17, 31:18, 80:1 continue 1 conservative continue 1 sonservative continue 1 90:5, 151:20, 24:3, 69	8, 117:18, 126:15 :12, Correct 45:14, 39:12, 89:12, 145:23, 22:25, 146:15, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, 100:6, 100:11 :20:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 100:11
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 conover. 87:2, 87 131:9, 107:7 132:11, contacts 28 132:14, 82:23, 8 132:19, 103:23 132:24 context 12 conservation contingend 31:17, 31:18, 25:18 80:1 continue 1 conservative continue 1 conservative continuing 52:6, 53:1, 99:6 92:211, continuous	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover 128:20 141:11 Conover 128:23, 87:2, 87 131:9, 107:7 132:11, contains 20 132:14, 82:23, 8 132:14, 82:23, 8 132:14, 82:23, 8 132:24 contains 20 conscious 7:5, 111 142:21 context 12 conservation 31:17, 31:18, 25:18 80:1 continue 1 conservative continue 1 continue 1 90:5, 151:20, 24:3, 69 99:6 152:11, 5 9:2, 21:	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, Y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, country 39:13,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contain 20 132:14, 82:23, 8 132:19, 103:23 132:24 context 12 conservation continuent 31:17, 31:18, 25:18 80:1 continuent conservative continuous 90:5, 151:20, 24:3, 69 9152:8, 99:6 152:15 9:2, 21: conscider 89:5, 27:4, 34	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, country 39:13, :13, 80:7, 82:4,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover. 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contacts. 132:14, 82:23, 8 132:19, 103:23 132:24 context. conservation contingenc 31:17, 31:18, 25:18 80:1 continue1 conservative continue1 p0:5, 151:20, 24:3, 69 152:11, continuous 152:11, continuous 152:12, 99:6 152:11, continuous 152:11, continuous 152:12, 91:6 152:13, 92:2, 21: consider 89:5, 27:4, 34 141:7 34:17	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, Y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, countries 9:9 12, countries 9:9 12, countries 9:13, 80:7, 82:4, 83:12, 83:13
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contacts 2 132:14, 82:23, 8 132:19, 103:23 132:24 contactmain 20 conservation contingend 31:17, 31:18, 80:1 conservation continuen 30:5, 151:20, 24:3, 69 sconservative continuen 52:6, 53:1, continuous 90:5, 151:20, 24:3, 69 152:15 9:2, 21: consider 89:5, 27:4, 34 141:7 34:17	8, 117:18, 126:15 12, Correct 45:14, 15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 counting 2:8, 4:11, 119:6 ly countries 9:9 12, countries 9:9 12, countries 9:9 12, s3:12, s3:13 couple 11:4,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover. 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contacts. 132:14, 82:23, 8 132:19, 103:23 132:24 context. conservation contingenc 31:17, 31:18, 25:18 80:1 continue1 conservative continue1 p0:5, 151:20, 24:3, 69 152:11, continuous 152:11, continuous 152:12, 99:6 152:11, continuous 152:11, continuous 152:12, 91:6 152:13, 92:2, 21: consider 89:5, 27:4, 34 141:7 34:17	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, country 39:13, :13, 80:7, 82:4, 83:12, 83:13 couple 11:4, 25:7, 34:5,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contacts 23, 8 132:14, 82:23, 8 132:14, 82:23, 8 132:19, 103:23 132:24 contaminan conservation contingend 31:17, 31:18, 80:1 conservation continuen sois continuous 90:5, 151:20, 24:3, 69 152:8, 99:6 152:15, 9:2, 21: consider 89:5, 27:4, 34 141:7 continuous 90:5, 151:20, 24:3, 69 152:15, 9:2, 21: consider 89:5, 27:4, 34 141:7 contractor considerably contractor consideration contributi 71:3, 120:25 136:6, 1	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 counting 2:8, 4:11, 119:6 Ly countries 9:9 12, countries 9:9 12, countries 9:9 12, countries 9:9 12, countries 9:9 12, countries 9:9 13, 80:7, 82:4, 83:12, 83:13 couple 11:4, 25:7, 34:5, 36:7 51:8, 62:2,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover. 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contacts. 132:14, 82:23, 8 132:14, 82:23, 8 132:14, 82:23, 8 132:14, 82:23, 8 132:14, 82:23, 8 132:24 contactions conservation context 12 conservation contingenc 31:17, 31:18, 25:18 80:1 continuous 52:6, 53:1, 99:6 152:11, continuous 90:5, 151:20, 24:3, 69 152:15, 9:2, 21: consider 89:5, 27:4, 34 141:7 contractor considerably contractor 71:3, 120:25 136:6, 1 consideration contributi	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contactin 20 132:14, 82:23, 8 132:19, 103:23 132:24 context 12 conservation 7:5, 111 142:21 context 12 conservation continuen 31:17, 31:18, 25:18 80:1 continuen conservative continuen 52:6, 53:1, 99:6 152:11, continuous 515:20, 24:3, 69 99:6 152:11, consider 89:5, 27:4, 34 141:7 contractor 77:9, 151:3 148:16 consideration contributi 71:3, 120:25 136:6, 1 considerations Control 11 9:24 135:21,	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, Y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 counting 2:8, 4:11, 119:6 Ly countries 9:9 12, countries 9:9 13, 80:7, 82:4, 83:12, 83:13 couple 11:4, 25:7, 34:5, 36:7 51:8, 62:2, 1:16, 70:22, 74:11, 86:16, 97:8, 98:21,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, :15, 74:4, 87:21, 89:12, 1:2, 145:23, 2:25, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, y 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, country 39:13, :13, 80:7, 82:4, 83:12, 83:13 couple 11:4, 25:7, 34:5, con 43:13, 50:8, 36:7 51:8, 62:2, 1:16, 70:22, 74:11, 86:16, 97:8, 98:21, 9 106:25,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92:23 contact 6: Conover 128:10 141:11 Conover. 141:11 Conover. 87:2, 87 131:9, 107:7 132:11, contactin 20 132:14, 82:23, 8 132:19, 103:23 132:24 context 12 conservation 7:5, 111 142:21 context 12 conservation continue1 31:17, 31:18, 25:18 80:1 continue1 conservative continue1 consider 89:5, 152:15, 152:11, continuous 152:12, 99:6 152:14, continuous 152:15, 92:2, 21: consider 89:5, 27:4, 34 141:7 34:17 considerably contractor 71:3, 120:25 136:6, 1 consideration control 11 9:24 135:21, considered 145:23 13:21, 108:7 control11in 9:24 </td <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:18, 125; 2:25, 146:18, 100:6, 100
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8, 117:18, 126:15 :12, Correct 45:14, 74:4, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:15, 146:18, 125; 2:25, 2:2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:15, 146:18 15 correctly 72:23 correlate 38:19 2:19 Council 100:6, 110:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 2:5, counting 2:8, 4:11, 119:6 1y countries 9:9 1:2, countries 6:27, 34:5, con 43:13, 50:8, 36:7 51:8, 62:2, 115:14, 25:7, 34:5, con 43:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, con 43:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, con 43:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, con 43:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, 15:14, 15:2, 15:14, 15:2, 15:14, 15:2, 15:14, 15:2, 15:14, 15:2, 15:13, 46:10, 58:16, 10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 11, 15:2, 15:13, courteous 44:6, 10, 59:16, Cover 10:10, 09:20, cover 15:25 covered 116:25
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 126:15 :12, 145:23, 225, 146:15, 146:15, 146:18 ts correctly 72:23 correlate 38:19 2:19 Council 100:6, 100:11 count 119:1 30:22 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, countries 9:9 12, countries 9:9 12, countries 43:13 couple 11:4, 25:7, 34:5, 01 43:13, 50:8, 36:7, 51:8, 66:2, 11:16, 70:22, 74:11, 88:16, 97:8, 98:21, 91:16, 70:22, 74:11, 88:16, 97:8, 98:21, 15:14, 128:16, 149:1 course 10:15, 15:14, 159:6, 59:8, 0, 68:18, 91:1 courts 10:15, 15:16, 159:6, 59:8, 0, 68:18, 91:1 course 10:15, 15:16, 159:2, 44:7, 45:18, 11, 157:2, 157:13 11, 157:2, 157:13 11, 157:2, 157:13 11, 157:2, 157:13 11, 157:2, 157:13 11, 157:2, 157:13 11, 157:2, 157:13 12, courteous 44:6 0, cover 10:10 9:20, cover 15:25 covering 117:5
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 74:4, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:18 ts correctly 72:23 :25, 146:18 ts correctly 72:23 :219 Council 100:6, 110:11 :219 Council 100:6, 110:11 :220 counterclockwis 91:2 e 75:23, 76:4, 76:5 :25, counting 2:8, 4:11, 119:6 ly countries 9:9 12, countries 9:9 12, countries 9:9 12, asi12, 83:13 couple 11:4, 25:7, 34:5, 018, 36:7, 51:8, 62:2, 116, 70:22, 74:11, 86:16, 97:8, 98:21, 98:21, 98:21, 98:21, 98:21, 98:21, 99:21, 15:14, 105:55, 115, 46:10, 58:16, 159:6, 59:8, 10, 68:18, 91:1, 128:16, 149:11 course 10:15, 15:4, 159:6, 59:8, 10, 68:18, 91:1, 128:16, 149:11 course 10:15, 15:4, 159:6, 59:8, 10, 68:18, 91:1, 157:2, 157:13 courtecus 44:6, 07:10, 58:20, 00:4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:18, 125 correctly 72:23 correlate 38:19 2:19 Council 100:6, 100:11 count 119:1 30:22 counterclockwis 91:2 e $75:23$, $76:4, 76:5$ counting 2:8, 4:11, 119:6 1y countries 9:9 1:2 e $75:23$, $76:4, 76:5$ counting 2:8, 4:11, 119:6 1y countries 9:9 1:2, countries 9:9 1:2, countries 9:9 1:2, countries 9:9 1:2, countries 6:25, 13:13, 80:7, 82:4, 83:12, 83:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, 50:6, 25:6, 59:8, 0, 68:18, 91:1, 128:16, 149:1 course 10:15, 15 46:10, 58:16, 19:10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 44:7, 45:18, 11, 157:2, 157:13 course 10:15, 15, 16, 29:8, 0, 68:18, 91:1, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 10, 59:6, 59:8, 10, course 10:15, 15, 16, 159:6, 59:8, 10, course 10:15, 15, 16, 10, 59:6, 59:8, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 59:8, 10, course 10:15, 11, 44:7, 45:18, 11, 157:2, 157:13 course 10:15, 16, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 59:8, 10, course 10:12, 59:20, covered 116:25, covering 117:5, cack 126:8 cramped 81:7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 74:4, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:15, 146:18, 125; 2:25, 2:2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8, 117:18, 126:15 :12, Correct 45:14, 87:21, 89:12, 145:23, 2:25, 146:15, 146:15, 146:18, 125 correctly 72:23 correlate 38:19 2:19 Council 100:6, 100:11 count 119:1 30:22 counterclockwis 91:2 e $75:23$, $76:4, 76:5$ counting 2:8, 4:11, 119:6 1y countries 9:9 1:2 e $75:23$, $76:4, 76:5$ counting 2:8, 4:11, 119:6 1y countries 9:9 1:2, countries 9:9 1:2, countries 9:9 1:2, countries 9:9 1:2, countries 6:25, 13:13, 80:7, 82:4, 83:12, 83:13, 50:8, 36:7, 51:8, 62:2, 115:14, 25:7, 34:5, 50:6, 25:6, 59:8, 0, 68:18, 91:1, 128:16, 149:1 course 10:15, 15 46:10, 58:16, 19:10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 44:7, 45:18, 11, 157:2, 157:13 course 10:15, 15, 16, 29:8, 0, 68:18, 91:1, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 59:8, 0, 68:18, 91:1, 11, 4:12, 5:22, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 10, 59:6, 59:8, 10, course 10:15, 15, 16, 159:6, 59:8, 10, course 10:15, 15, 16, 10, 59:6, 59:8, 11, 157:2, 157:13 course 10:15, 15, 16, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 59:8, 10, course 10:15, 11, 44:7, 45:18, 11, 157:2, 157:13 course 10:15, 16, 10, 59:6, 10, 59:6, 10, 59:6, 10, 59:6, 59:8, 10, course 10:12, 59:20, covered 116:25, covering 117:5, cack 126:8 cramped 81:7

create 4:18,	132:12,	116:1,	125:19,	40:25, 41:23,	91:13, 142:16
	132:12,	116:12,	129:24	101:4, 136:11	disease 11:21,
48:3, 51:23,			developed	directions 41:2	57:6, 57:7,
51:25, 52:2,	currents 32:8,	116:17,			
52:4, 97:9	33:4, 37:4,	117:20,	26:13, 39:13,	directly 7:5,	57:19, 57:22,
created 13:22	37:17, 39:2,	118:3, 118:8,	92:24, 128:2,	67:6, 135:16,	58:1, 58:8,
creates 11:15,	39:5, 40:25,	118:12,	151:7, 151:11	155:19,	58:14, 60:7,
48:7, 52:2	41:2, 50:10,	119:25,	developing	155:23	60:9, 60:17,
creating 10:6,	51:20, 51:22,	120:4,	127:4, 144:2,	disadvantages	62:25, 63:15,
39:19	74:24, 75:21,	120:13,	151:19	10:20, 10:21	63:17, 71:4,
creation 10:8,	77:15, 77:18,	121:1, 121:11	Development	disappearing	71:8, 71:11,
10:15	78:19, 78:20,	Danish 62:17	3:9, 17:2,	136:5	71:18, 72:2,
creatures	97:13, 97:22,	dapper 58:10	134:2	disappointed	81:4
16:13, 22:18,	98:13,	dark 30:12	developments	110:12	diseases 58:9,
126:20	100:18,	darker 30:10	62:11, 115:18	disbursing 35:5	58:22, 58:23,
criteria 9:14,	100:24,	data 18:22,	device 67:12	discharged	59:2, 59:20,
65:8, 121:8	101:2, 101:22	18:25, 19:5,	dewatering	21:25, 29:8,	73:4
critical 77:12,	Custodian.	36:12, 47:16,	23:11	96:12, 104:16	dishes 102:24
93:11, 129:23	154:12	48:2, 53:23,			
			dialogue 84:10	discharges	disinfect 72:6
crop 143:1	custody 65:12	53:24, 54:1,	diameter	6:24, 7:2,	dispersion
crustations	cutoff 97:5	64:16, 64:17,	116:19,	16:25, 26:12,	50:23
61:3, 61:9,	cutting 81:21	65:14, 66:17,	117:13	39:13, 116:15	dispose 107:6
61:16	cycle 91:19,	90:17, 90:25,	die 61:10	discharging	disposing 149:3
CIO 69:17,	98:1, 98:2,	91:2, 93:24,	difference	20:21, 23:6,	dissolved 16:8,
124:8	148:11	94:7, 94:22,	49:6, 110:15	26:10, 29:21,	107:22,
culture 77:8	cycles 94:20	94:23, 94:24,	differences	72:14, 95:2,	140:10,
cumulative	Cyr 1:22, 69:13	95:3, 98:7,	75:19, 75:20	95:4, 96:1,	140:18,
120:20, 154:5		102:1,	differently	96:8, 96:10,	140:21
cup 40:2		102:12,	11:1, 49:11,	96:16,	distance 26:25,
cups 40:4	< D >	130:16,	69:11	120:18,	119:2, 119:6,
curious 68:6,	D-U-F-F-Y 145:1	137:10,	difficult 27:2,	153:8,	119:7, 122:6,
134:25, 150:6	daily 82:13,	137:12,	71:15, 136:1	153:10,	122:11, 155:3
current 32:24,	82:14,	151:13	diffusers	153:14	distress 108:4
33:10, 34:21,	126:18,	datapoint 94:25	117:15	discipline	distributed
41:1, 41:3,	126:25, 153:5	datapoints	diffusing 35:6	124:2, 124:3,	35:4
41:5, 41:8,	Dam 19:17	18:20	diluted 26:18,	124:13	diversification
41:22, 42:2,	Daniels 110:9,	dataset 19:3,	26:24, 29:12,	disclosure	122:3
	116:9	94:14, 94:21,	40:14, 42:16,	56:20, 100:5,	dock 155:22
49:18, 50:10,		130:22,		110:10	DOCK 155:22 DOCS 140:11
51:8, 51:13,	Daniels. 112:5,		71:23		
52:12, 52:14,	112:11,	137:11	diluting 40:15	discuss 7:1,	doctor 14:15
53:10, 74:13,	112:14,	datasets 137:13	dilution 39:23,	60:12	document 30:2
74:14, 97:9,	112:17,	DATED 157:17	40:8, 40:9,	discussed 72:4,	documented
101:1,	112:24,	David 1:21,	40:10, 40:16,	132:18, 135:9	75:16
101:20,	113:12,	69:13, 69:15,	41:12,	discussion 7:7,	dog 122:12
136:4, 139:20	113:16,	69:16, 124:8	102:19,	43:20, 66:16,	doing 2:25,
Currently	114:8,	Davidson 81:2	117:10	66:23, 84:12,	11:16, 20:6,
12:18, 12:19,	114:12,	day 26:6,	Dilutions 79:7,	114:25,	20:23, 21:16,
19:10, 62:18,	114:23,	26:12, 26:21,	154:25	117:4,	28:2, 34:19,
76:19, 89:16,	115:7,	27:6, 27:13,	dim 24:12	142:14,	42:15, 44:17,
96:6, 102:18,	115:10,	33:2, 38:7,	direct 44:22	147:10	46:21, 62:18,
103:15,	115:15,	49:21, 77:14,	direction 33:1,	discussions	63:1, 74:24,
		169		· ·	171
		102			1/1
82:10	degree 119:3,	dependent 8:5,	74:25, 85:14,	2:4	77:5
82:10	degree 119:3, 139:3	dependent 8:5, 28:2, 49:5,	74:25, 85:14,	2:4 dry 72:10.	77:5 easy 10:3
days 34:5,	139:3	28:2, 49:5,	91:18, 98:13,	dry 72:10,	easy 10:3
days 34:5, 36:9, 38:7,	139:3 degrees 137:22,	28:2, 49:5, 101:4, 135:19	91:18, 98:13, 126:15,	dry 72:10, 72:11, 72:15,	easy 10:3 eat 25:1,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11 77:10	139:3 degrees 137:22, 138:5, 139:12	28:2, 49:5, 101:4, 135:19 depending 49:7,	91:18, 98:13, 126:15, 130:17	dry 72:10, 72:11, 72:15, 73:16, 73:21,	easy 10:3 eat 25:1, 61:18, 105:15
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11 77:10	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23	28:2, 49:5, 101:4, 135:19 depending 49:7,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 eab 50:21,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 eab 50:21, 91:20 economic 81:21,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:24,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy, 145:13, 145:19, 146:2, 146:7, 146:10, 146:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEWOS 110:18,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:16,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy, 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:10, 146:16, 146:16, 147:13, 147:19, 148:25, 149:7,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy, 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 ed 30:3, 30:4,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downgrade 94:19	$\begin{array}{c} \mathrm{dry} \ 72{:}10,\\ 72{:}11, \ 72{:}15,\\ 73{:}16, \ 73{:}21,\\ 73{:}23, \ 119{:}3\\ \mathrm{duck} \ 118{:}5\\ \mathrm{duc} \ 13{:}14,\\ 42{:}14, \ 71{:}18\\ \mathrm{Duffy} \ 145{:}13,\\ 145{:}19,\\ 146{:}2, \ 146{:}7,\\ 146{:}10,\\ 146{:}13,\\ 146{:}16,\\ 147{:}13,\\ 147{:}19,\\ 148{:}25,\\ 149{:}7,\\ 149{:}10,\\ 149{:}16, \ 150{:}2\end{array}$	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denied 66:5	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downstream 42:5	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:19, 148:25, 149:7, 149:10, 149:10, 150:2 durping 66:1	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decades 63:21,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denitrification	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 149:16, 150:2 dumping 66:1 during 33:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 death 61:2 decade 69:20 decades 63:21, 95:17, 115:22	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:4	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:19, 148:25, 149:7, 149:10, 149:10, 149:16, 150:2 durping 33:13, 37:16, 46:15,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 deart 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decaying 15:19	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demmark 57:1,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 describe 31:23	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 Dean 124:19 death 61:2 decades 63:21, 95:17, 115:22 decaying 15:19 decide 122:8	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 describe 31:23 described	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:12 decade 63:21, 95:17, 115:22 decaying 15:19 deciding 9:15	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEWOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:0, 142:18 denied 66:5 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 36:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dea	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denied 66:5 denietrification 21:8, 130:1 Demmark 57:1, 62:5, 62:13, 63:15 dense 48:14,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:25 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystems 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 51:19 decide 122:8 deciding 9:15 deciden 113:7 decrease 16:11,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:12, 112:20, 142:18 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effecttively 59:2 effects 34:25,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dearth 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decaying 15:19 decide 122:8 decide 122:8 decide 122:8 decide 113:7 decrease 16:11, 105:9	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 densely 75:20	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 98:8 dying 125:20,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dea	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:20, 142:18 denied 66:5 denietrification 21:8, 130:1 Demmark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:19, 146:7, 146:20, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decade 69:20 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 51:19 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 deciden 113:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 98:8 dying 125:20,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 deart 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decaying 15:19 decide 122:8 decide 122:8 decide 113:7 decrease 16:11, 105:9 deep 77:14, 78:18, 78:20,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEWOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15 density 49:6,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drift 33:20,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:19, 146:7, 146:20, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dear 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decision 113:7 decrease 16:11, 105:9 decision 113:7 decrease 16:11, 105:9 decg 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demmark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25, 49:15 density 49:6, 49:9, 81:22	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decade 69:20 decade 69:20 decade 63:21, 95:17, 115:22 decade 69:20 decade 63:21, 95:17, 115:22 decade 69:20 decade 63:21, 95:17, 115:22 decade 69:20 decade 69:20 decade 6122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 decide 122:8 deciding 9:15 decide 122:8 decide 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:10, 90:19,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:12, 112:20, 142:18 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEP 3:10, 4:5,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:10, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E >	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 deade 69:20 decade 69:20 decade 69:20 decade 69:21, 95:17, 115:22 decaying 15:19 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 decy 77:14, 77:15, 77:18, 78:20, 79:6, 85:10, 90:19, 101:19,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 densely 75:20 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 descign 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 46:20,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effect 51:20, 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dearde 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decision 113:7 decrease 16:11, 105:9 decision 113:7 decrease 16:11, 105:9 decision 9:15, 79:4, 79:6, 85:10, 90:19, 101:19, 101:21,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denietrification 21:8, 130:1 Demmark 57:1, 62:5, 62:13, 63:15 denser 47:25, 49:15 denser 47:25, 49:15 densier 49:6, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 46:20, 74:20	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effectively
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 39:5 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 decide 122:8 decide 13:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:21, 101:22,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEPD 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:23, 148:24 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 46:20,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effect 51:20, 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dearde 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decision 113:7 decrease 16:11, 105:9 decision 113:7 decrease 16:11, 105:9 decision 9:15, 79:4, 79:6, 85:10, 90:19, 101:19, 101:21,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 46:20, 74:20	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effectively
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 death 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 69:20 decades 63:21, 95:17, 115:22 decade 39:5 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 122:8 decide 122:8 decide 13:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:21, 101:22,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:23, 148:24 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifters 46:20, 74:20 drifters 33:24	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 efficiently 73:2
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dearth 61:2 decade 69:20 decades 63:21, 95:17, 115:22 decades 113:7 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 decy 77:14, 77:15, 77:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:21, 101:22, 121:20	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15 density 49:6, 49:9, 81:22 DEPD 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 descine 126:11, 148:23, 148:24, descine 62:3, 62:22, 63:17 destail 69:4, 117:5, 117:7 detail 69:4, 117:5, 117:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 33:24 drifters 33:24 drifter 76:5,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 146:2, 146:7, 146:10, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 << E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 ecl 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 efficiently 73:2 effluence 81:4,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dear 107:19 dear 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decision 113:7 decrease 16:11, 105:9 decision 113:7 decrease 16:11, 105:9 decision 90:19, 101:19, 101:21, 101:22, 121:20 deeper 46:25,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, 10:20, 49:18, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 49:16 denser 47:25, 49:16 denser 47:25, 49:15 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19 denser 47:25, 49:16 denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:10, denser 47:25, 49:10, denser 47:25, 49:11, denser 47:25, 49:12, denser 47:25, 49:13, denser 47:25, 49:13, denser 47:25, 49:14, denser 47:25, 49:15, 40:12, 40:13, 40:15, 40:13, 40:13, 40:13, 40:15, 40:13, 40:13, 40:13, 40:13, 40:15, 40:13	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 describe 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 detailed 50:16, 126:10	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drifter 33:20, 34:4, 34:10, 34:22 drifters 33:24 drifter 76:5, 76:6 drink 73:11 drinking 21:21,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluence 81:4, 123:23
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 deade 69:20 decade 69:20 decade 69:20 decade 69:21, 95:17, 115:22 decade 69:20 decade 69:20 decade 69:20 decade 69:21, decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 decy 77:14, 77:15, 77:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:22, 121:20 deeper 46:25, 90:2 deepest 156:3	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, 10:20, 49:18, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 49:16 denser 47:25, 49:16 denser 47:25, 49:15 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19 denser 47:25, 49:16 denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:10, denser 47:25, 49:10, denser 47:25, 49:11, denser 47:25, 49:12, denser 47:25, 49:13, denser 47:25, 49:13, denser 47:25, 49:14, denser 47:25, 49:15, 40:12, 40:13, 40:15, 40:13, 40:13, 40:13, 40:15, 40:13, 40:13, 40:13, 40:13, 40:15, 40:13	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 described 13:18, 26:4, 71:14, 73:9, 85:20 descigned 62:3, 62:22, 63:17 designed 62:3, 62:22, 63:17 descigned 62:3, 62:22, 63:17 descigned 62:3, 62:22, 63:17 descigned 50:16, 126:10 details 67:19, 68:6	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:20 downflow 94:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drifter 33:20, 34:4, 34:10, 34:22 drifters 33:24 drifter 76:5, 76:6 drink 73:11 drinking 21:21,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 146:2, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 ecl 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluence 81:4, 123:23 effluence 81:4, 123:23, effluence 81:4, 123:
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 decide 122:8 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 decp 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:19, 101:21, 101:22, 121:20 deepeer 46:25, 90:2 deepeet 156:3 define 88:5,	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 1110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Demmark 57:1, 62:5, 62:13, 63:15 denser 47:25, 49:15 denser 47:25, 49:15 denser 47:25, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5, 42:25, 43:3, 43:21, 44:13, 65:13, 69:6, 87:25, 88:5,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 details 67:19, 68:6 detected 107:3	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 127:23 drain 66:2 drain 66:2 drain 66:2 drain 7:10 draft 4:20 drifters 33:24 drifting 76:5, 76:6 drink 73:11 drinking 21:21, 73:10, 73:14	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 146:10, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluent 29:21, 49:9, 50:23, 53:9, 82:10,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dearth 61:2 decade 69:20 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 61:1, 105:9 deciding 9:15 deciding 9:16 deciding 9:15 deciding 9:15 decid	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 densely 75:20 denser 47:25, 49:15, 49:16 densely 75:20 density 49:6, 49:9, 81:22 DEPD 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5, 42:25, 43:3, 4:21, 44:13, 65:13, 69:6, 87:25, 88:5, 88:7, 88:14,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 destil 69:4, 117:5, 117:7 detailed 50:16, 126:10 detected 107:3 detection	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifters 46:20, 74:20 drifters 33:24 drifting 76:5, 76:6 drink 73:11 drinking 21:21, 73:10, 73:14 drift, 73:14	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy. 145:13, 145:19, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 72:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiently 73:2 effluence 81:4, 123:23 effluence 81
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 deade 69:20 decade 69:20 decade 69:20, decade 69:21, 95:17, 115:22 decaving 15:19 decide 122:8 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:21, 101:22, 121:20 deepest 156:3 define 88:5, 151:22 definitely	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DENOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17 denser 47:25, 49:16, denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19, denser 47:25, 49:16, denser 47:25, 49:17, denser 47:25, 49:18, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:19, denser 47:25, 49:11, denser 47:25, 49:12, denser 47:25, 49:13, denser 47:25, 40:12, 40:13, denser 47:25, 40:12, 40:13, 40	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 described 11:3; 148:23, 148:24 descine 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 detailed 50:16, 126:10 detected 107:3 detection 19:11, 71:10	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drifter 33:20, 34:4, 34:10, 34:22 drifter 46:20, 74:20 drifter 33:24 drifter 73:11 drinking 21:21, 73:10, 73:14 driven 31:25, 38:25, 39:1,	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 146:2, 146:7, 146:10, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 << E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluence 81:4, 123:23 effluence 81:4, 123:23, effluence 81:4, 123:23, efflue
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 dear 124:19 dear 107:19 dear 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decade 69:20 decision 113:7 decrease 16:11, 105:9 decision 113:7 decrease 16:11, 105:9 decision 90:19, 101:19, 101:21, 101:22, 121:20 deepest 156:3 define 88:5, 151:22 definitely 83:23	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 1110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5, 42:25, 43:3, 43:21, 44:13, 65:13, 69:6, 87:25, 88:5, 88:7, 88:14, 88:18, 91:13, 92:14,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 details 67:19, 68:6 detected 107:3 detection 19:11, 71:10 determine 12:13	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 drifter 96:20 drifter 96:20 dri	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:13, 145:19, 146:7, 146:10, 146:10, 146:13, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20, 17:15	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluent 29:21, 49:9, 50:23, 53:9, 82:10, 82:13, 85:17, 90:9, 91:24, 110:16,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dearde 69:20 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 63:21, 95:17, 115:22 decade 122:8 deciding 9:15 deciding 9:1	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEVOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 densely 75:20 densely 75:20 densely 75:20 densely 75:20 densely 75:20 densely 75:20 densely 75:20 densely 75:20 densely 49:6, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5, 42:25, 43:3, 43:21, 44:13, 65:13, 69:6, 87:25, 88:5, 88:7, 88:14, 88:18, 91:13, 92:14, 120:17,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:12, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 destin 69:4, 117:5, 117:7 detail 69:4, 117:5, 117:7 details 67:19, 68:6 detected 107:3 detection 19:11, 71:10 determine 12:13 detoxing 143:17	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 120:23, 127:23 drain 66:2 drained 57:10 drastically 147:24 drift 33:20, 34:4, 34:10, 34:22 drifter 46:20, 74:20 drifters 33:24 drifting 76:5, 76:6 drink 73:11 drinking 21:21, 73:10, 73:14 drives 104:23	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 Duffy 145:1 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 149:16, 150:2 dumping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20, 17:15 easier 32:21,	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluence 81:4, 123:23 effluence 81
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 deade 69:20 decade 69:20 decade 69:20, decade 69:21, 95:17, 115:22 decaying 15:19 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:22, 121:20 deepest 156:3 define 88:5, 151:22 definitely 83:23 deforestation 113:24	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DENOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:16, 12:2, 111:6, 12:2, 12:2, 12:2, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 19:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, 120:27, 120:22,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 described 11:23 described 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 detailed 50:16, 126:10 detected 107:3 detection 19:11, 71:10 deteracting 77:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drifter 33:20, 34:4, 34:10, 34:22 drifters 33:24 drifters 33:24 drifters 33:24 drifters 31:21, 75:21 drives 104:23 drives 104:23 drives 204:25	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20, 17:15 easier 32:21, 36:3, 52:16	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 efficiently 73:2 effluence 81:4, 123:23 effluent 29:21, 49:9, 50:23, 53:9, 82:10, 82:13, 85:17, 90:9, 91:24, 110:16, 116:20,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 decide 122:8 deciding 9:15 decide 122:8 deciding 9:15 decide 113:7 decrease 16:11, 105:9 decp 77:14, 77:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:19, 101:21, 101:22, 121:20 deepeer 46:25, 90:2 deepeer 46:25, 90:2 deepeet 156:3 define 88:5, 151:22 definitely 83:23 deforestation 113:24 degradation	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DEMOS 110:18, 110:21, 111:6, 112:10, 112:10, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Denmark 57:1, 62:5, 62:13, 63:15 denser 47:25, 49:15 denser 47:25, 49:15 denser 47:25, 49:9, 81:22 DEP 3:10, 4:5, 4:8, 5:9, 5:11, 5:14, 6:1, 6:9, 28:3, 28:5, 42:25, 43:3, 43:21, 44:13, 65:13, 69:6, 87:25, 88:5, 88:7, 88:14, 88:18, 91:13, 92:14, 120:22, 125:5, 125:11	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 design 126:11, 148:23, 148:24 designed 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 detailed 50:16, 126:10 detection 19:11, 71:10 determine 12:13 detoxing 143:17 detracting 77:7 develop 12:7,	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 123:5, 126:1, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 drifters 33:24 drifter 46:20, 74:20 drifters 33:24 drifting 76:5, 76:6 drink 73:11 drinking 21:21, 73:10, 73:14 driven 31:25, 38:25, 39:1, 75:21 drives 104:23 drop 22:11 drops 106:25	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:13, 145:19, 146:7, 146:10, 146:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:18, 91:20, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20, 17:15 easier 32:21, 36:3, 52:16 easily 131:18	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effectively 59:2 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 effluent 29:21, 49:9, 50:23, 53:9, 82:10, 82:13, 85:17, 90:9, 91:24, 110:16, 116:20, 117:25,
days 34:5, 36:9, 38:7, 38:8, 53:16, 74:11, 77:10, 90:7, 97:3 DC 109:20 dead 61:18, 140:11, 140:19 deal 57:18, 122:9, 148:3 dealing 22:18, 63:13, 71:13, 71:22, 72:19, 72:24, 127:25, 128:8, 131:19 Dean 124:19 dear 107:19 dear 107:19 dear 107:19 deade 69:20 decade 69:20 decade 69:20, decade 69:21, 95:17, 115:22 decaying 15:19 decide 122:8 deciding 9:15 decision 113:7 decrease 16:11, 105:9 deep 77:14, 77:15, 77:18, 78:20, 79:4, 79:6, 85:10, 90:19, 101:22, 121:20 deepest 156:3 define 88:5, 151:22 definitely 83:23 deforestation 113:24	139:3 degrees 137:22, 138:5, 139:12 deliver 9:23 demand 15:4, 16:3 demonstrate 26:24, 36:15, 43:1, 54:5 demonstrated 96:19 demonstrates 47:17 DENOS 110:18, 110:21, 111:6, 112:10, 112:12, 112:20, 142:18 denied 66:5 denitrification 21:8, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 dense 48:14, 49:15, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:16, 12:2, 111:6, 12:2, 12:2, 12:2, 130:1 Dermark 57:1, 62:5, 62:13, 63:15 denser 48:14, 49:15, 19:16 denser 47:25, 49:15 denser 47:25, 49:16 denser 47:25, 49:17, 120:27, 120:22,	28:2, 49:5, 101:4, 135:19 depending 49:7, 71:15, 72:12, 72:17, 72:21 depends 49:18, 61:4, 61:8, 63:2, 71:9, 71:22, 73:24, 74:22, 74:23, 74:24, 112:13, 112:20, 114:11 deposition 17:2, 17:5 depth 32:4, 52:12, 52:14, 89:15, 89:16, 90:22, 119:4, 119:7 depths 91:17, 119:4 described 31:23 described 13:18, 26:4, 71:14, 73:9, 85:20 described 11:23 described 62:3, 62:22, 63:17 designs 62:10, 62:13, 64:1 detail 69:4, 117:5, 117:7 detailed 50:16, 126:10 detected 107:3 detection 19:11, 71:10 deteracting 77:7	91:18, 98:13, 126:15, 130:17, 144:5, 148:20 domain 12:9 domoic 129:10 Don 121:14, 126:5, 127:12 dose 22:10, 22:25 dosing 22:9 Dostie 1:10, 4:13, 157:2 dot 36:22 dots 98:18 doubling 102:3 Downeast 129:10 downflow 94:20 downflow 94:20 downgrade 94:19 downstream 42:5 draft 4:4, 4:7, 5:2, 6:25, 56:10, 91:12, 119:21, 120:23, 127:23 drained 57:10 drastically 147:24 drifter 33:20, 34:4, 34:10, 34:22 drifters 33:24 drifters 33:24 drifters 33:24 drifters 31:21, 75:21 drives 104:23 drives 104:23 drives 204:25	dry 72:10, 72:11, 72:15, 73:16, 73:21, 73:23, 119:3 duck 118:5 due 13:14, 42:14, 71:18 Duffy 145:1 Duffy 145:1 Duffy 145:13, 146:2, 146:7, 146:10, 146:16, 147:13, 146:16, 147:13, 147:19, 148:25, 149:7, 149:10, 150:2 durping 66:1 during 33:13, 37:16, 46:15, 48:25, 50:9, 51:5, 67:13, 91:21, 94:20, 98:8 dying 125:20, 125:24 dynamics 42:17 < E > earlier 5:22, 13:13, 27:19, 43:25, 44:9, 84:24, 86:17, 96:3, 124:22 early 13:15, 62:13, 62:16, 118:13, 119:23, 140:4 earth 16:20, 17:15 easier 32:21, 36:3, 52:16	easy 10:3 eat 25:1, 61:18, 105:15 eating 14:16 ebb 50:21, 91:20 economic 81:21, 122:1, 131:10 economy 77:8, 128:12 ecosystem 82:15, 83:3, 121:22, 146:12 ecosystems 20:17, 77:8 edge 30:13, 81:21 eel 30:3, 30:4, 35:20, 37:23, 43:4, 99:19 effect 51:20, 51:21, 82:14, 120:20, 125:10 effects 34:25, 66:22, 91:23, 94:17, 94:19, 95:20, 105:19, 119:17 efficiency 59:13 efficiently 73:2 effluence 81:4, 123:23 effluent 29:21, 49:9, 50:23, 53:9, 82:10, 82:13, 85:17, 90:9, 91:24, 110:16, 116:20,

124:21,	117:3,	151:4,	2:16, 2:20,	69:21, 107:3,	118:24,
124:24, 126:2,	117:20, 118:3, 118:8,	151:23, 152:17	58:2, 72:18, 124:9,	120:18, 120:20	119:18, 126:16,
127:11,	118:12,	ended 9:12,	124:11,	fact 6:2, 17:3,	127:3,
133:9, 135:9, 136:16,	119:25, 120:4,	9:17, 66:4, 67:11	148:18, 148:19	19:19, 53:5, 87:25,	127:10, 136:10,
140:13, 140:19, 142:4	120:13, 121:1,	ends 76:15 engagement	experiment 80:24, 81:19,	103:23, 120:17	142:4, 144:19,
effort 44:8	121:11,	100:8, 100:15	82:7, 131:11	factor 143:2,	145:24, 155:5
eggs 8:12, 71:5, 105:10	123:23, 141:25	engineered 117:17,	experimental 82:3	150:11 factored 135:1	farm 24:11, 57:6, 57:8,
either 5:13,	email 77:21,	122:15	expert 58:2,	factors 28:6,	58:13, 58:15,
49:23, 67:2, 71:2, 86:18,	78:1, 121:3, 141:11	engineering 12:19, 12:22,	100:10, 100:15,	31:3, 31:6, 39:6, 129:23,	82:2, 109:10, 120:14,
144:4 ejected 41:5,	emailed 78:10 emails 121:4	31:10, 117:8, 118:2,	110:16, 110:18, 111:2	131:18, 135:23	128:13, 128:15
50:8	emergencies	119:24,	experts 80:3,	facts 56:22	farmed 59:7
elbow 69:22 element 16:20,	128:1 emergency	122:20, 123:9, 133:14	81:14, 111:2 Expires 157:15	factual 25:25 fading 36:7	farmers 129:19, 131:10,
17:15, 27:12	125:15,	Engineers 3:5	explain 9:11,	Fahrenheit	131:19
elements 22:7 elephant 80:16	125:19, 125:22,	England 43:4 enjoy 101:11	30:24 explains 26:11	138:3, 139:5, 139:13,	Farming 58:23, 81:1, 131:25
elevated 99:17 elevation 91:4	127:22, 128:6, 128:8	enormous 115:24 enough 13:7,	explanation 8:10	139:14 fail 148:15	farms 7:3, 83:7, 106:12,
elevations 91:5	employed 70:1	46:25, 50:11,	explanations	failure 125:12,	121:18,
ELIMINATION 1:2 Elizabeth 1:19,	employees 9:20, 128:3	50:12, 75:7, 75:8, 79:9,	80:1 exploited	146:19, 146:24, 148:8	131:17 fashion 127:9
2:14, 12:25, 13:4, 13:24,	empties 85:2, 85:4	80:14, 98:3, 154:23	133:18 exposed 107:8	fair 84:7, 84:10, 131:25	fast 32:24, 115:20
21:6, 22:14,	empty 40:3,	ensure 4:19,	expressed 127:8	fairly 42:13,	faucet 102:23
26:4, 27:19, 29:6, 42:10,	72:2, 72:9, 73:8	111:24 ensured 143:4	extends 29:20 extensive 11:25	116:3 fall 34:3,	favorable 137:3, 137:4
66:11, 86:23 Ellie 110:8,	emptying 73:15, 73:20	ensuring 58:20 enter 58:15	extent 4:23,	48:16, 63:19, 127:20	FDA 24:23, 111:10,
112:5,	encourage 125:5	entire 4:14,	12:2, 48:8, 135:1	familiar 21:15,	111:18
112:11, 112:14,	encouraging 64:11	9:13, 38:21, 81:3, 82:4	extract 107:5 extreme 67:10	66:12, 84:8, 106:5,	feces 20:25, 109:11
112:17,	end 12:14,	entity 88:24	extremely	122:23,	fed 110:14,
112:24, 113:12,	23:12, 26:25, 29:15, 30:12,	entrepreneur 62:17	115:20, 124:17	136:9, 142:13 fan 63:7,	112:8, 112:19 federal 3:4,
113:16, 114:8,	30:22, 34:5, 39:16, 48:1,	environment 21:12, 91:24	eye 33:16, 40:23	113:24 fantastic 69:24	3:20, 24:25 Federation 84:2
114:12,	82:21, 84:25,	Environmental	eyes 98:22	far 10:17,	feeding 112:21,
114:23, 115:7,	115:1, 117:10,	2:5, 2:16, 28:18, 82:8,	eyesight 7:17	38:24, 56:11, 83:5, 83:16,	147:25, 148:10,
115:10, 115:15,	120:5, 120:12,	83:15, 83:25, 122:16,	< F >	84:13, 89:14, 90:6, 91:23,	148:12, 150:8, 151:12
116:1,	139:13,	127:17,	faces 70:13	92:21,	feeds 24:19,
116:12, 116:17,	139:14, 145:7, 151:2,	131:18 environmentally	facilities 63:14, 64:3,	101:21, 110:25,	24:24, 111:15,
		173			175
81:10	estuaries	77:17, 78:18,	114:10.	143:10	90:8, 94:6,
81:10 envision 39:18	estuaries 30:16, 77:5,	77:17, 78:18, 79:10	114:10, 114:18,	143:10 filters 60:1,	90:8, 94:6, 99:8, 116:25,
				filters 60:1, 68:17, 142:6 filtration	
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4,	79:10 evolution 121:17, 121:25,	114:18, 142:1, 150:20, 150:22,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7,	99:8, 116:25, 121:18, 124:20, 128:17,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13	114:18, 142:1, 150:20, 150:22, 151:11, 151:17,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equations 33:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:77 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 fæl 79:23, 91:15, 95:11 fæling 86:10,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishemmen 146:25
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equations 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14, 20:13, 23:15,	114:18, 142:1, 150:20, 150:22, 151:11, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 151:3, 151:22, 153:17	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 25:17, 28:2,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 153:17 Finally 12:9, 41:8, 63:24,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 examining 123:8 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 25:17, 28:2, 28:12, 81:22, 114:19, 142:11	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishers 111:16, 144:16 fix 148:5 flag 99:23 flats 92:15 flats 118:23, 119:1 flexion 31:12
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 66:3, 149:17 financial 122:12 financially	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 115:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 109:2, 103:21,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishernen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flicer 6:7 float 41:25, 47:24 floating 98:18
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:12, 101:22, 101:23, 102:8 et 66:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 flocd 50:21, 91:21
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishers 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 98:18 floaty 15:17 float 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equirment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 102:8 et 68:18 Ethan 79:24, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 115:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 fighting 83:18 fighting 83:18	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 float 115:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 133:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fields 133:11 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 108:20,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 130:14, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 float 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 108:20, 131:23, 132:5, 133:8,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 eventybody 7:23,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellent 9:18	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 108:20, 131:23, 132:5, 133:8, 150:19	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flown 8:18
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential 17:16	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everybody 7:23, 7:24, 19:22, 68:19	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:25, 108:26,108:26, 108:26,100	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:25, 87:8, 87:11, 87:14, 105:12, 105:14, 108:20, 131:23, 132:5, 133:8, 150:19 find 105:9 Fine 28:24,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flow 8:18 flows 117:15 fluids 149:4
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 escentially 46:13, 46:15, 90:6 ESQ 1:17 Essential 17:16 essentially 52:5, 92:5,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Burope 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everybody 7:23, 7:24, 19:22, 68:19 everyene 79:23, 86:10	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellent 9:18 exchange 148:2 excurted 144:13 excursion 74:9, 75:8	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 fighting 83:18 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25, 152:8, 155:4 FILE 1:1	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 108:12, 105:14, 108:20, 131:23, 132:5, 133:8, 150:19 Fine 28:24, 110:7, 153:7, 153:10	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floaty 15:17 floady 12:14, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flows 117:15 fluids 149:4 fly 63:20, 147:5
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential 17:16 essentially 52:5, 92:5, 119:2,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everytody 7:23, 7:24, 19:22, 68:19 everything	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24,108:24, 108:24,100	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25, 152:8, 155:4 FILE 1:1 fillets 8:15	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:25, 87:8, 87:11, 87:14, 105:12, 105:14, 105:12, 105:14, 105:29 Fine 28:24, 110:7, 153:7, 153:10 findig 105:9 Fine 28:24,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flown 8:18 flown 8:18 flows 117:15 fluids 149:4 fly 63:20, 147:5 flying 63:18,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 escape 12:1	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everybody 7:23, 7:24, 19:22, 68:19 everything 11:17, 22:19, 24:24, 48:23,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellent 9:18 exchange 148:2 excreted 144:13 excursion 74:9, 75:8 Excuse 120:4 exhibit 69:5 existing 39:19	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 fight 122:22, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25, 152:8, 155:4 FILE 1:1 fillets 8:15 filled 40:6 filter 11:1]	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 108:120, 131:23, 132:5, 133:8, 150:19 Fine 28:24, 110:7, 153:7, 153:10 finely 22:5, 22:24 finish 6:14	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flown 8:18 flown 8:18 flown 117:15 fluids 149:4 fly 63:20, 147:5 flying 63:18, 81:23, 146:17 focus 12:11,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential 17:16 essentially 52:5, 92:5, 119:2, 15:6	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 25:17, 28:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 evenybody 7:23, 7:24, 19:22, 68:19 everytning 11:17, 22:19,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 115, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 109:2, 107:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147, 118:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellent 9:18 exchange 148:2 excursion 74:9, 75:8 Excuse 120:4 exhibit 69:5	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25, 152:8, 155:4 FTLE 1:1 filled 40:6	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:22, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 105:12, 131:23, 132:5, 133:8, 150:19 Find 105:9 Find 22:5, 21:24	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flows 117:15 fluids 149:4 fly 63:20, 147:5 flying 63:18, 81:23, 146:17
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential 17:16 essential 17:16 essentiall 19:3 established 43:4, 90:20 establishing	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:17, 28:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everytody 7:23, 7:24, 19:22, 68:19 everything 11:17, 22:19, 24:24, 48:23, 66:5, 110:13, 126:6, 148:20,	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellence 124:14 excellence 124:1	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:25, 26:1, 26:25, 26:2, 150:24, 150:25, 152:8, 155:4 FILE 1:1 filter 11:11, 12:4, 15:7, 15:8, 21:9, 59:13, 59:24	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 108:10, 131:23, 132:5, 133:8, 150:19 Fine 28:24, 110:7, 153:7, 153:10 finely 22:5, 22:24 finish 6:14 First 2:23, 3:24, 10:21, 11:8, 21:6,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flown 8:18 flown 8:18 flows 117:15 fluids 149:4 fly 63:20, 147:5 flying 63:18, 81:23, 92:23 focus ed 24:22, 108:14, 113:4
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential 17:16 essentially 52:5, 92:5, 119:2, 154:23, 155:6 established 43:4, 90:20 establishing 94:15 estimate 4:8,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 102:8 et 66:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everytody 7:23, 7:24, 19:22, 68:19 everytody 7:23, 7:24, 19:22, 68:10 Everything 11:17, 22:19, 24:24, 48:23, 66:5, 110:13, 126:6, 148:20, 149:12 evenywhere	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceed s118:8 excellence 124:17 excellent 9:18 exchange 148:2 excursion 74:9, 75:8 Excuse 120:4 exhibit 69:5 existing 39:19 exists 43:6, 94:22, 143:1 expanded 154:4 expanding 83:6 expect 19:22,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 30:7, 40:19, 152:8, 155:4 FILE 1:1 filter 11:11, 12:4, 15:7, 15:8, 21:9, 59:13, 59:24 filtering 57:5,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 105:12, 105:14, 105:23, 132:5, 133:8, 150:19 finding 105:9 Fine 28:24, 110:7, 153:7, 153:10 finely 22:5, 22:24 finisch 6:14 First 2:23, 3:24, 10:21, 11:8, 21:6, 22:7, 23:3, 41:16, 46:11,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floating 98:18 floaty 15:17 flood 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flows 117:15 fluids 149:4 flox 12:11, 82:23, 92:23 focused 24:22, 108:14, 113:4 folks 4:11, 6:13, 13:9,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Errik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 essential1y 52:5, 92:5, 119:2, 154:23, 155:6 established 43:4, 90:20 establishing 94:15	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everytody 7:23, 7:24, 19:22, 68:19 everything Everything 11:17, 22:19, 24:24, 48:23, 66:5, 110:13, 126:6, 148:20, 149:12	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 examining 123:8 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figure 29:16, 30:7, 40:19, 152:9 figures 13:4, 25:25, 26:1, 26:3, 56:22, 150:24, 150:25, 152:8, 155:4 FILE 1:1 fillets 8:15 filled 40:6 filter 11:11, 12:4, 15:7, 15:8, 21:9, 59:13, 59:24 filtered 60:4	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:25, 87:8, 87:11, 87:14, 105:12, 105:14, 105:12, 105:14, 105:29 Fine 28:24, 10:7, 153:7, 153:10 findig 105:9 Fine 28:24, 10:7, 153:7, 153:10 finish 6:14 First 2:23, 3:24, 10:21, 11:8, 21:6, 22:7, 23:3,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flows 117:15 fluids 149:4 flow 63:18, 81:23, 146:17 focus 12:11, 82:23, 92:23 focused 24:22, 108:14, 113:4 folks 4:11,
envision 39:18 EPA 18:25, 39:14, 87:25 equal 80:20 equation 83:9 equations 31:19, 31:20, 31:23, 32:7 equilibrium 35:3 equipment 72:7, 73:10, 73:17, 126:22 equivalent 66:8, 66:13, 101:18 eradicate 59:1 Erik 1:18, 2:10, 18:2, 18:9, 20:2, 28:22, 29:6, 42:15, 62:1, 80:6, 80:22, 82:12, 95:13, 101:20, 112:17, 123:13, 146:17, 149:24 error 127:15 escape 12:1 especially 46:13, 46:15, 90:6 ESQ 1:17 ESSENTIAL 17:16 essential 17:16 essential 19:3 established 43:4, 90:20 established 43:4, 90:20 establishing 94:15 estimate 4:8, 30:10, 33:6,	30:16, 77:5, 131:23 estuary 46:14, 47:18, 77:4, 77:14, 79:1, 79:12, 101:22, 101:23, 102:8 et 68:18 Ethan 79:24, 80:13, 84:14, 85:9, 85:15, 85:21, 86:1 Europe 20:9, 20:16, 25:2, 28:17, 28:2, 28:12, 81:22, 114:19, 142:11 European 111:13 evaporated 72:24 evening 2:2, 7:9, 13:6, 56:23, 68:12, 86:14, 110:8, 121:13, 124:18 event 60:9, 68:20 eventually 48:18, 83:3, 88:5 everytody 7:23, 7:24, 19:22, 68:19 everything 11:17, 22:19, 24:24, 48:23, 66:5, 110:13, 126:6, 148:20, 149:12 everwhere 154:18	79:10 evolution 121:17, 121:25, 122:23 exact 150:13 Exactly 8:22, 11:15, 19:1, 82:25, 106:22, 135:15, 141:4 example 16:14, 20:13, 23:15, 25:12, 25:16, 35:11, 40:2, 41:3, 60:3, 64:22, 92:15, 98:5, 104:2, 107:24, 108:24, 109:2, 113:21, 114:17, 118:5, 119:4, 124:7, 131:24, 147:11, 148:5, 152:22 exceed 42:25 Exceeds 118:8 excellence 124:17 excellence 124:17 excellent 9:18 excursion 74:9, 75:8 Excuse 120:4 exhibit 69:5 existing 39:19 exists 43:6, 94:22, 143:1 expanded 154:4 expanding 83:6 expect 19:22, 88:4, 95:9,	114:18, 142:1, 150:20, 150:22, 151:11, 151:17, 151:22, 153:7 feel 79:23, 91:15, 95:11 feeling 86:10, 102:13 fertilizer 17:22, 23:15 few 19:4, 21:7, 23:20, 38:8, 45:13, 117:17, 122:1, 131:5 field 2:7, 38:24, 45:13, 49:4, 56:10, 56:11, 80:2, 89:15, 90:7, 105:11, 127:18 fields 133:11 fight 122:12 fighting 83:18 figures 13:4, 25:25, 26:1, 26:25, 26:1, 26:25, 152:8, 155:4 FILE 1:1 filets 8:15 filled 40:6 filter 11:11, 12:4, 15:7, 15:8, 21:9, 59:13, 59:24 filtered 60:4 filtering 57:5, 76:21,	filters 60:1, 68:17, 142:6 filtration 59:10, 72:7, 81:21, 142:5, 147:17 final 22:8, 22:24, 23:8, 53:19, 113:3, 113:7, 150:3, 150:23, 151:2, 151:3, 151:2, 151:3, 151:22, 153:17 Finally 12:9, 41:8, 63:24, 64:8, 66:3, 149:17 financial 122:12 financially 81:10 find 10:3, 19:19, 19:24, 38:11, 74:21, 75:22, 83:23, 83:25, 87:8, 87:11, 87:14, 105:12, 105:14, 105:12, 105:14, 105:29 Fine 28:24, 110:7, 153:7, 153:10 finely 22:5, 22:24 finish 6:14 First 2:23, 3:24, 10:21, 11:8, 21:6, 22:7, 23:3, 41:16, 46:11, 47:5, 50:8,	99:8, 116:25, 121:18, 124:20, 128:17, 130:13, 130:18, 147:16, 150:9, 154:17 fishermen 146:25 fishery 77:3 Fishes 111:16, 144:16 fix 148:5 flag 99:23 flat 92:15 flats 118:23, 119:1 flexion 31:12 flier 6:7 float 41:25, 47:24 floaty 15:17 fload 50:21, 91:21 flow 9:4, 31:5, 46:2, 46:16, 118:6, 126:13 flowing 31:24, 32:2, 32:25, 40:25, 41:2, 41:4, 48:1 flown 8:18 flown 8:18 flown 8:18 flown 8:17 fluids 149:4 fly 63:20, 147:5 flying 63:18, 81:23, 126:17 focus 12:11, 82:23, 92:23 focus 24:22, 108:14, 113:4 folks 4:11, 6:13, 13:9, 43:15, 43:23,

173

and 177:12 1016:14:15:12 155:24 102:15:12:12 155:25 102:15:12:12 155:24 102:15:12:12 155:24 102:15:12 155:24 102:15:12 155:24 102:15:12 155:24 102:12 155:24 102:12 155:24 102:12:12 155:24 102:12:12 155:24 102:12 155:24 102:12<						
Introduction 19.5% Interpret 13.21 Interpret 13.21 Interpret 13.21 12.7% 0.7% 0.4% 0.2% 0.7% <t< td=""><td>inch 117:12</td><td>135:24</td><td>116:24</td><td>56:25</td><td>law 24:25,</td><td>level 3:14,</td></t<>	inch 117:12	135:24	116:24	56:25	law 24:25,	level 3:14,
Big Algebra	include 15:3,	information	integral 112:1		25:23, 28:11,	3:20, 3:21,
Jakka 2016, 2014 Construction Jakka 2016, 2014 Jakka 2016, 2014 Jakka 2016, 2014 Jakka 2016, 2017, 201		3:1, 3:2, 4:4 5:4		< 1. >		26:10, 30:19, 36:16 37:6
32:34.4 Desc Desc <thdesc< th=""> Desc Desc <</thdesc<>	128:4	6:8, 30:18,				37:7, 42:14,
Inclusing 70.5, 9317, 9012, 9012, 1312, 2012, 1312, 201						46:20, 53:23,
General Process (C) Gamma (C) General (C) <thgeneral (c)<="" th=""></thgeneral>		54:11, /6:1/, 89:21 90:13				
Increase 127:8						
Bit 0, 20118 Bit 0, 20118<	84:1, 111:13	131:22,	88:2, 121:20,	15:10, 19:11,		107:24,
increased 1745 111115 112115 112125 <th< td=""><td></td><td></td><td></td><td></td><td></td><td>108:6, 108:8, 118:7</td></th<>						108:6, 108:8, 118:7
increasibility increas						
Bits of the second se						
incredizione increase 23313, 33313, 333						
intervent Ditage interventions Bigsts 64:12 Distance Bigsts Bigsts 64:12 Distance Bigsts						
indegregenere ingregelients indegregenere indegreg						
BE 22 (B) 23 (1) (B) 23 (2) (B)					laying 43:8	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
indicates 79-8 63-4, 49-10, 10024 intermet 51-18 77-6, 75-7, 10024 incer 28-13, 10024 10023, 10024 10023, 10024 indicates 160-9 977 10024 10024 10024 10024 indicates 160-9 977 10024 10024 10024 10024 indicates 160-9 10024 10024 10024 10024 10024 indicate						
32:24, 52:25 initiality 50:7, 13:16 3:32, 7:17 120:18, 129:7, 13:17, 14:17, 13:17, 14:11, 13:17, 14:12, 13:17, 14:12,						140:21,
indicator: 146-9 indicator: 1						
inducer, 10:8 127:49 127:40				120.18, 129.7 largely 39:1,		
	indirect 10:8	injected 144:4	134:8	104:23	leave 67:14,	lice 12:4
				larger 9:22,		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$						
						licensing
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
	133:7,	111:17	150:22	30:14	left 2:14,	15:24, 17:16,
	133:15,				2:19, 9:8,	58:2, 108:7
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	industries		introduction	94:7, 104:10,	120:10	99:9
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	72:25	Institute	85:14	125:24,	49:1, 49:14,	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $						
influenced116:21,involve 127:7181181183involved 62:4, 62:10, 62:12,106:20, 105:33, 105:5, 105:32, 113:15, 105:32, 113:15, 113:16, 113:15, 113:16, 113:15, 113:16, 113:16, 113:15, 113:16, 113:16, 113:15, 113:16, 113:16, 113:15, 113:16,						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		110 21,		55 10, 50 11	1000119 110 10	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	62:17, 67:3, 113:15, 117:16, 121:21 involvement 62:16 iodofols 60:19 iphone 118:16 Islesboro 32:18, 75:24, 75:25, 76:4, 76:7, 98:25, 99:1, 101:3, 128:10, 128:16 ISO 24:23, 111:19 isolated 71:7 issuance 127:24 issue 12:3, 12:9, 51:1, 65:8, 95:14, 114:14 issued 117:1, 120:23, 126:24 issues 9:19, 21:5, 22:14, 44:3, 46:7, 46:13, 78:9, 84:13, 89:2, 142:11, 146:23 itself 19:19,	105:23, 106:1, 106:4, 106:8, 106:13, 106:16, 106:20, 107:11, 109:17, 109:1, 109:4, 109:18, 109:22, 110:2 jee 15:10 Jim 104:3, 105:21 Joanna 1:17, 2:3, 13:13, 43:8, 88:10, 117:4 job 10:8, 18:3, 28:25, 56:8, 13:4 Jobs 10:6, 11:15, 81:20 Joelle 134:14, 134:21, 135:7, 135:12, 136:13, 136:18, 136:22, 137:1, 138:1, 138:4, 138:8,	<pre>juveniles 107:25 < K > kairomones 105:7, 106:18 Keep 5:20, 13:16, 16:1, 16:15, 16:16, 17:20, 18:5, 18:15, 33:16, 38:5, 45:12, 46:6, 62:21, 86:13, 95:7, 95:14, 95:16, 96:21, 120:11, 140:6, 143:2, 145:3 keeping 8:6 keepis 37:5 Kelly 101:10 kelp 92:6, 132:9, 132:13, 132:16, 132:17 kept 28:8 key 14:25, 15:1, 124:10 kick 22:20 kicks 15:16 kichey 144:15</pre>	86:20, 87:2, 87:3, 87:6, 87:7 Lincolnville 1:13, 150:6, 154:2, 154:3 line 43:16, 45:10, 99:23, 120:10, 120:12, 124:21, 125:1, 125:2, 125:16, 125:18, 126:2, 127:11 linked 60:25, 61:2, 124:6 list 4:18, 9:14, 13:15, 13:20, 13:22, 25:9, 25:11, 25:13, 25:21, 44:11, 69:7, 70:16 listed 63:5, 63:10 listen 84:9 listened 122:5 lists 77:2 liter 19:8, 19:12, 19:13, 19:14, 19:22, 26:8, 26:14, 26:21, 27:7,	156:11 lives 118:21 living 38:4, 126:19, 147:1 load 31:12 lobster 105:9, 107:14, 107:21, 145:21, 146:6, 147:1 lobstermen 147:1 lobsters 16:15, 105:10, 105:11, 105:20, 107:22, 108:9, 108:14, 110:4, 146:5 local 3:22, 16:6, 80:8, 122:9, 131:10 localized 46:20, 47:12, 47:13, 53:20 locally 10:7, 83:11, 83:14 locate 77:13 located 6:6 location 3:9, 5:13, 29:18,	153:6, 153:17, 154:23 long-term 93:12, 95:19, 98:4, 99:7, 137:17, 139:18, 139:22 longer 72:10, 93:10, 94:1 longevity 93:25 longshore 101:1 looked 9:19, 15:2, 27:17, 29:24, 30:6, 35:13, 94:21, 117:16, 119:7, 137:12, 137:12, 137:12, 137:20 looks 15:15, 36:7, 39:15, 40:24, 45:9 loop 36:17 loss 147:23, 148:4, 148:6 lots 21:20 loud 8:4 Louder 70:24 love 18:15, 89:9, 132:23, 133:3, 141:24,
James 100:4,joining 127:8112:22,110:9,80:1, 83:2,116:3,103:7,joke 147:4128:8, 146:23110:2,84:17, 92:8,118:23,103:12,Journal 56:21kingdom 66:6124:19,95:15, 97:2,119:1, 119:5,103:17,jug 40:3, 40:7known 30:4,133:3,97:15, 97:24,139:13103:25,juice 40:2,77:4, 122:25,133:15,98:3, 98:11,lower 26:10,104:5, 104:8,40:14142:2, 142:7,134:15,99:23,63:21, 74:22,104:13,jump 37:20,knows 40:3,140:9, 145:1,130:14,99:13,	66:18, 74:19 < J >	138:18, 138:22, 139:6, 139:9, 139:23	26:12, 26:20, 27:6, 27:13, 118:17 kinds 7:4,	107:25, 108:3,153:9 live 5:25, 22:18,64:6,	locations 79:4 logged 126:22 logs 28:8 long 9:14,	16:1, 16:16, 19:10, 23:7, 42:13, 105:25,
103:12,Journal 56:21kingdom 66:6124:19,95:15, 97:2,119:1, 119:5,103:17,jug 40:3, 40:7known 30:4,133:3,97:15, 97:24,139:13103:25,juice 40:2,77:4, 122:25,133:15,98:3, 98:11,lower 26:10,104:5, 104:8,40:14142:2, 142:7,134:15,99:23,63:21, 74:22,104:13,jump 37:20,knows 40:3,140:9, 145:1,130:14,99:13,	James 100:4,	joining 127:8	112:22,	110:9,	80:1, 83:2,	116:3,
103:17,jug 40:3, 40:7known 30:4,133:3,97:15, 97:24,139:13103:25,juice 40:2,77:4, 122:25,133:15,98:3, 98:11,lower 26:10,104:5, 104:8,40:14142:2, 142:7,134:15,99:23,63:21, 74:22,104:13,jump 37:20,knows 40:3,140:9, 145:1,130:14,99:13,	103:7,	joke 147:4	128:8, 146:23	110:22,	84:17, 92:8,	
104:5, 104:8, 104:13,40:14142:2, 142:7134:15, 140:9, 145:1,99:23, 130:14,63:21, 74:22, 99:13,	103:17,	jug 40:3, 40:7	known 30:4,	133:3,	97:15, 97:24,	139:13
104:13, jump 37:20, knows 40:3, 140:9, 145:1, 130:14, 99:13,						
182 184			knows 40:3,			99:13,
			182			184

					± (
117:15, 153:18 < M > M-C-T-A-G-U-E 93:6 machine 143:14, 144:4 macrophages 144:14 magnificent 70:5 magnitude 155:1 main 4:15, 62:21 Maine/new 131:24 Mainer 107:19 maintain 48:15, 48:17 major 5:17 major 5:17 major 5:17 major 5:17 major 5:17 major 5:14, 69:22, 86:25, 87:11, 87:14 man 89:8 management 123:16, 127:14, 128:2 managers 128:13 managing 140:1 marhole 64:12, 64:19, 65:3, 65:14, 65:19, 66:6, 66:8 marner 154:5 marpower 69:23, 70:4 manual 28:7 manual 28:7 manual 28:7 manual 28:7 manual 28:7	91:24, 108:7, 122:21 markedly 58:20 market 150:21, 151:23, 152:1 marketer 100:11 markets 9:22 Mary 64:5, 64:18, 64:21, 64:25, 65:9, 65:22, 66:15, 66:19, 67:9, 67:22, 68:1, 68:8, 68:11 mass 31:18, 145:5 massive 133:7 matches 35:4 materials 5:16, 112:2 math 101:13 mathematical 31:19, 46:21 matter 10:6, 16:9, 102:25, 103:1, 115:23, 123:12, 151:20 matters 82:22 max 150:21, 150:25 maximum 126:25, 151:1, 152:8, 152:12, 152:25 maximum 126:25, 151:1, 152:8, 152:12, 152:25 maximum 126:25, 151:1, 152:8, 152:12, 152:25 maximum 126:25, 151:1, 152:8, 152:12, 152:25 MENA 156:12 Metague 93:6 Metague 94:5, 95:18, 99:21 meal 112:10, 114:24 mean 42:11,	102:11, 106:10, 108:9, 119:1, 119:5, 131:10, 136:14, 142:20, 146:22 meaning 69:9, 117:24 means 8:5, 8:25, 10:2, 10:8, 10:16, 12:12, 22:4, 22:17, 23:18, 24:4, 26:9, 26:15, 27:11, 47:19, 72:13, 73:19, 152:16, 157:6 meant 7:1, 86:21, 143:3 measure 155:2 measure 27:7, 28:7, 38:8 measure 27:7, 28:7, 38:8 measure 27:7, 28:7, 38:8 measure 15:2 measure 53:23, 72:3, 73:9, 118:18 measuring 16:19 mechanical 92:1 mechanical 92:1 medications 12:6, 25:7 meet 42:24, 43:2, 45:23, 45:24,	49:4, 49:11, 50:23, 51:9, 52:1, 52:21, 52:25, 53:5, 90:1, 90:6, 136:20 modeling 2:21, 26:17, 26:23, 27:8, 27:25, 28:15, 46:19, 48:2, 49:3, 50:15, 50:17, 53:14, 56:10, 56:11, 56:13, 85:14, 89:13, 90:12, 96:19, 96:24, 97:1, 97:6, 117:9, 119:12, 130:9, 137:8, 137:23, 145:15 models 128:19, 135:9 moment 87:7, 117:13, 126:11 moments 45:13 momentum 31:18, 39:17, 41:6 monitor 15:22, 17:9, 87:5, 89:9, 130:6 monitored 17:10, 67:7, 126:17 monitoring 17:20, 28:4, 28:5, 28:10, 65:18, 66:9, 87:24, 88:13,	127:1, 130:16, 132:23, 141:4, 141:6 monitors 16:7 Monroe 133:3 Monterey 84:3 month 34:19, 76:2, 93:9, 93:24, 96:25, 97:2, 97:4, 97:24, 98:11 monthly 126:25, 127:2, 153:5 months 19:4, 64:8, 72:16, 73:23, 91:2, 94:8, 113:9, 117:17, 130:18 mocn 32:1, 97:25 mostly 92:23 Moultan 104:10, 105:8, 105:15, 108:19, 109:5 mouth 7:15 mover 9:20, 33:9, 33:18, 34:20, 34:21, 34:22, 43:14, 51:11, 98:17, 116:15, 150:23 moved 20:10 movement 11:24 movers 33:7, 41:9 Moving 36:22, 37:18, 44:20, 45:11, 52:10, 85:11, 89:8, 117:21,	46:20 multiple 37:25, 91:17, 117:14, 117:25, 133:4, 149:22 multiply 55:4 Municipal 16:6, 20:23, 87:12, 104:14, 104:17, 104:18, 105:1 municipalities 64:13 municipality 65:2, 65:6 muscles 92:6, 128:15, 132:15, 132:15, 132:16 < N > N-A-T-A-L-I-E 77:1 N-Y-L-A-N-D 57:3 name 2:3, 43:17, 44:7, 45:16, 45:17, 56:17, 56:18, 57:3, 61:5, 64:5, 68:12, 69:15, 79:24, 93:5, 100:4, 121:13, 124:18, 128:9, 133:2, 134:14, 134:17, 140:8, 141:19, 144:25,
map 128:14	60:2, 60:20,	115:19,	88:15, 91:8,	125:17,	155:13
mapped 27:18, 85:1	64:17, 71:2, 72:18, 74:4,	115:22, 127:1, 153:10	91:23, 94:1, 95:11, 95:14,	136:11 multi-layers	narrative 4:20, 5:1, 44:12,
margin 116:4 margins 116:5	85:11, 89:12, 90:17, 93:13,	Meeting 1:4, 1:8, 3:2,	96:21, 124:5, 126:16,	48:1 multi-step 21:4	121:9 narrow 94:11
marine 15:24,	102:6,	4:5, 4:15, 185	126:21,	multi-water	narrowed 94:9 187
4:19, 5:3, 5:8, 5:24, 43:21, 44:1, 44:4, 46:25, 84:24, 100:9, 117:19, 121:7 meetings 3:2, 3:15, 3:16, 3:17, 6:1, 7:24, 8:9, 44:2, 101:21, 119:23 membrane 22:2 memorandums 56:9 memorize 19:23 mention 96:25, 125:11, 156:9 mention 96:25, 125:11, 156:9 mention 96:25, 125:11, 156:9 mention 95:22, 13:13, 47:6, 51:3, 86:17, 95:6, 95:25, 96:24, 117:4 MEPDES 3:1, 6:3, 6:24, 13:13, 14:23, 15:2, 43:16, 65:7, 86:25 Merkel 100:5 Merkel 100:5 Merkel 103:7, 103:12, 103:17, 103:25, 104:5, 104:8, 104:5, 104:8, 104:13, 104:20, 105:3, 105:5, 105:23, 106:1, 106:4, 106:13, 106:16, 106:20, 107:11, 108:17,	mesh 22:3, 22:5 meshed 22:24 metals 14:7, 111:7 meter 90:14, 90:21 meters 29:23, 41:11, 41:16, 42:3, 42:4, 50:6, 89:23, 90:19, 118:16, 119:10, 119:10, 119:11, 119:16 method 141:5 metric 26:2, 130:10, 130:13 mic 14:2, 62:8, 111:5 microc 22:3, 22:23, 22:23 microfiltration 22:2, 22:23 microfiltration 22:2, 22:23 microphones 82:19, 113:5, 150:15 microphones 44:24, 44:25 Mid 55:9, 55:14 mid-coast 154:7 mid-penobecot 74:22 mid-winter 48:22 Middle 1:8, 1:12 migrating 75:13 mile 118:14, 18:15,	128:16 military 100:11 milk 66:2 milligrams 19:8, 19:11, 19:13, 19:14, 19:22, 26:8, 26:14, 26:21, 27:7, 27:14, 30:15, 35:19, 107:25, 108:3, 153:9 million 77:13, 82:10, 82:12, 82:14, 85:17, 86:3 million 19:10 millions 84:18 mind 45:16, 45:18, 58:12, 77:25, 78:4, 143:2 minutes 43:13, 6:18, 154:15 minutes 43:13, 6:18, 154:15 minutes 43:13, 45:7, 99:24, 120:9, 120:10 mistanged 77:7 missed 128:24 mistaken 108:6 mistaken 29:10, 33:22, 39:25, 53:11, 53:18, 139:4 mixes 49:15, 129:13, 137:3	Natalie 76:25, 77:1, 77:23, 78:2, 78:11, 79:15 Nate 1:20, 2:19, 45:22, 46:1, 47:4, 56:5, 56:8, 79:21, 137:6 National 98:6 nationally 122:25 Natural 3:9, 3:11, 27:23, 31:3, 31:8, 83:20, 134:3, 144:10 naturally 17:4, 34:23, 39:5, 52:7, 144:7 nature 23:6, 31:7 nature 23:7 nature 23:7	112:16, 126:20, 127:1, 147:25, 152:6 needed 16:8 needle 143:15 needs 84:11, 115:19, 115:23 negative 77:19, 96:17, 96:20 neighbor 67:16, 118:21 neutralizes 22:9 New 24:2, 42:22, 43:4, 84:20, 98:23, 136:4, 151:11, 151:19, 152:1, 153:12 Newport 110:22 newspaper 56:21 Newton 31:17 next 12:21, 26:11, 26:17, 28:14, 33:8, 36:20, 38:7, 38:8, 79:4, 95:17, 115:14, 115:22, 117:17, 131:4, 150:17 Nice 9:20, 45:23, 45:24, 46:3, 133:18 night 109:23, 130:12 No. 7:13, 78:19, 86:12, 105:3, 138:3, 138:4	non-conventiona 1 14:10 non-gmo 143:1 non-medicated 111:10 non-paid 67:4 non-stop 69:25 none 19:1, 20:12, 23:18, 86:19, 144:12 nor 111:8 Nordic 1:6, 1:16, 1:18, 1:21, 1:22, 2:5, 2:11, 14:20, 15:21, 42:20, 42:23, 57:15, 57:17, 61:21, 64:14, 66:25, 67:4, 67:7, 69:17, 80:6, 80:9, 80:20, 81:15, 88:19, 89:4, 92:3, 108:4, 112:25, 122:13 normal 100:21 North 32:18, 74:17, 76:9 Northeast 8:17, 46:17 northern 9:8 Northport 155:15, 155:15, 155:16, 156:11 Norway 23:15, 56:25, 62:11, 63:25, 64:3, 81:24, 82:2, 82:5, 82:6, 83:10, 83:19, 83:21, 107:2, 113:8,
109:1, 109:4, 109:14, 109:18	118:22 miles 46:23, 78:21 78:23	mixing 33:23, 39:4, 39:20, 41:7 48:8	59:5, 68:23, 69:10, 72:5, 102:13	NOAA 98:6 nobody 155:16 nodding 101:25	122:22, 122:23 Norwegian 81:25
109:18, 109:22, 110:2	78:21, 78:23, 118:21,	41:7, 48:8, 48:10, 49:1,	102:13, 107:4, 107:7,	nodding 101:25 noisy 124:23	Norwegian 81:25 Notary 1:10,
		186			188

157:3 mote 80:15, 121:15, 122:11 moted 43:5 mothing 13:10, 56:24 NOTICE 1:1, 1:4 moticed 37:1 Nova 105:8 Novine 93:6 NOYES 1:21, 69:15, 69:16, 69:17, 69:20, 132:7, 132:13, 132:17, 132:20 Number 4:8, 9:8, 10:9, 10:14, 39:23, 40:9, 40:10, 40:36, 67:12, 72:16, 73:4, 108:16, 119:20, 119:22, 122:8, 122:18, 122:19, 132:1, 146:6, 146:8, 152:21, 153:1 numbers 19:23, 64:8, 64:9, 101:24, 105:22, 108:12, 130:8, 130:9, 132:4, 152:9 numerical 33:24 nutrient 23:23 nutrients 11:12, 14:10, 14:21, 14:22, 14:24, 15:1, 18:1, 21:3, 23:13, 24:18, 122:17, 132:18,	150:20 Nyland 57:2 < 0 > o'clock 6:13, 6:16, 43:19 Objectively 122:24 observation 74:9, 75:1, 122:6 observations 36:10, 38:3, 47:13, 54:5, 54:12, 54:13, 54:14 observed 54:7, 54:9, 97:11 obtain 3:12 Obviously 10:10, 12:7, 14:17, 14:18, 15:24, 17:8, 28:10, 66:20, 67:23, 91:13, 91:20, 92:13, 91:20, 92:13, 91:20, 92:13, 91:22, 108:9, 114:19, 119:23, 126:19, 129:23, 130:2 ccurr 59:20, 72:20, 119:13 occurring 17:4, 58:20 ocean 19:19, 23:18, 48:6, 72:15, 77:18, 78:18, 78:20, 79:4, 79:6, 85:6, 101:19, 107:10, 135:19, 136:1, 140:11, 140:19	Oceanic 98:6 oceans 13:17 odor 106:10, 106:11, 106:12, 108:18, 108:19 off-line 67:21 off-shore 29:20, 29:23, 78:23 offer 91:24 offices 5:11 Officer. 154:14 office 60:4, 129:6 oil 112:12 Once 3:19, 33:5, 35:1, 35:8, 40:9, 41:9, 42:3, 42:15, 123:11, 123:16 one. 125:9, 128:22, 129:21 ones 24:3, 51:14, 69:10, 74:16, 76:6, 76:7, 76:8, 98:23 ongoing 12:20, 43:1, 117:8, 126:18 Oops 32:20, 35:9 open 11:24, 12:6 operate 123:13, 124:13, 152:6 operation 8:11, 8:12, 10:24, 62:18, 92:5, 106:7, 123:20, 189	47:3, 54:17, 54:20, 55:6, 55:11, 55:18, 55:22, 56:4, 124:19 pavement 133:12 paying 74:4 pays 66:25 peace 66:6 peer 79:17, 107:13 pen 9:6, 9:9, 10:24, 11:4, 12:2, 83:18, 84:12, 106:6, 109:6 penalty 28:12 Penobecot 32:19, 46:24, 47:17, 74:23, 75:1, 77:2, 100:25, 110:23, 129:2, 129:6, 129:20, 129:6, 129:21, 129:6, 129:22, 154:5 pens 11:23, 12:3, 72:1, 109:5 people 4:8, 17:13, 18:14, 42:12, 44:18, 66:25, 67:5, 78:5, 83:27, 83:22, 83:24, 84:6, 92:8, 92:21, 100:12, 100:11, 120:12, 120:10, 120:11, 120:12, 124:11, 124:12, 140:1, 147:1, 147:14	per 19:8, 19:10, 19:12, 19:2, 26:6, 26:8, 26:12, 26:14, 26:21, 27:6, 27:7, 27:13, 27:14, 30:15, 35:19, 55:9, 55:14, 55:15, 77:14, 107:25, 108:3, 120:9, 153:9 percentve 83:19, 83:20 percent 21:14, 21:24, 26:5, 26:13, 26:20, 27:1, 27:21, 41:15, 42:6, 62:25, 65:21, 83:12, 96:5, 103:19, 103:20, 103:21, 105:9, 105:10, 107:25 percentage 76:15 perfectly 97:8 perfacts 97:20, 141:5 perfacts 97:20, 141:5 perfacts 97:20, 141:5 perfacts 97:20, 141:5 perfacts 97:20, 141:5 perfacts 97:20, 141:5 perfacts 46:14, 39:2, 33:14, 39:12, 30:9, 98:3, 99:33, 98:8, 127:24, 139:22 Periods 46:14, 47:11, 50:9, 51:3 Perkins 121:14 Perkins 121:14 Perkins 123:5, 126:1, 126:5 permission	64:14 permits 3:13, 13:1, 20:11, 28:13, 82:4, 86:20, 86:25, 87:3, 87:11, 87:13, 87:19, 117:1, 126:24, 134:3 permitted 82:5, 83:7, 132:15 permitting 2:5, 12:18, 117:6, 121:8, 126:15, 153:2 percoxide 60:19, 60:25, 61:10, 61:15, 61:18, 63:6 perpendicular 41:5 person 45:15, 58:8, 60:12, 120:9, 154:10 personally 85:24 perspective 32:17, 106:23 pesticides 14:7, 111:6 ph 125:8, 135:22 Phase 26:3, 128:19, 128:20, 131:6 Phd 58:8 Phds 111:2 phonet 18:20 phonet 100:23 Phosephorous 14:12, 15:4, 17:7, 17:14, 17:17, 17:21, 19:12, 19:16, 20:20, 40:12, 86:21, 87:2, 87:16, 191
130:18, 152:4 operational 123:11 Operations 12:2, 12:8, 93:11, 124:2, 124:17, 151:25 operator 65:23 opportunities 3:25, 133:4 opportunity 82:1, 93:4, 122:3, 122:16 opposed 46:21, 155:19, 155:22 optimized 119:12 options 151:19, 152:1 oranger 74:16 oranger 74:16 oranger 74:16 oranger 74:16 oranger 104:19, 105:2 orders 154:25 ordinances 3:22 organic 16:9, 81:6, 112:21, 140:10, 140:10, 140:18 organizs 16:9 organizations 43:4, 81:8, 84:1 others 69:13 otherwise 27:4, 85:6 ourselves 25:1 outbreak 57:7, 57:19, 57:22, 60:7, 60:10,	70:13 outbreaks 58:19 outfall 3:6, 29:19, 39:2, 39:8, 40:20, 41:11, 65:17, 65:19, 116:24, 119:5 outflow 54:21, 77:14, 125:21, 126:2 outgoing 101:9 outreach 89:7 outside 40:20, 65:3, 107:3, 122:7 overall 2:24, 3:3, 3:4 overboard 34:4 overbard 34:4 overblow 77:17, 146:22 overseeing 124:10 overview 2:12, 2:17, 2:25, 7:10, 7:25 own 84:13, 94:21 owned 87:19 oxygen 14:12, 15:3, 16:3, 16:8, 16:10, 16:11, 107:8, 107:22, 135:22 P > p.m. 1:14, 156:18 padlocked 65:4 parameters 2:18, 15:21, 19:18, 23:22, 43:3, 95:22, 126:17	paraphrasing 94:2 parasites 12:4 Pardon 109:1 park 101:5 participating 127:6 participating 127:6 particles 22:6, 75:11, 76:4, 98:15, 98:21, 109:11 particular 9:25, 13:15, 17:13, 92:16, 106:6, 146:5 particularly 107:23, 117:14, 129:7, 129:9 parties 85:23 partly 151:18 parts 19:9, 23:10, 44:14, 55:7, 55:9, 55:14, 55:17, 55:19, 55:20, 90:2, 129:8 party 122:12 pass 45:1, 45:14 passionate 110:24 past 19:4, 30:3, 91:1, 98:10, 101:5, 101:6, 101:10, 122:1, 155:20 patience 155:14 Paul 45:21, 45:22, 45:24, 45:25, 46:3, 46:4, 46:11, 190	112:22, 129:14, 129:25 photosynthesis 16:23 physical 137:19, 139:19 physics 31:5, 31:15, 31:16, 31:24, 39:15 physiology 58:8 physiology 58:8 physiology 58:8 physiology 58:8 picked 6:6, 6:7, 98:20 picked 6:6, 6:7, 98:20 picked 51:8, 53:11 picture 10:18, 34:2 picce 90:15, 92:17, 127:3, 131:12 pig 146:22 ping 33:12, 34:9, 34:14, 34:5, 34:23, 35:3, 35:9, 51:14, 52:9, 52:19, 53:12, 74:1, 74:2, 74:6, 74:10, 89:10, 89:22, 101:7, 101:23, 153:22, 153:24, 154:18, 154:21 pink 32:23, 32:25 pipeline 94:10 pipes 116:20, 116:21, 128:5, 148:14 piping 147:23, 148:18	place 8:21, 9:8, 12:22, 18:13, 22:7, 23:4, 34:10, 85:8, 95:5, 127:21, 131:2, 154:20 placed 74:20 placed 74:20 places 18:19, 18:24, 75:14, 117:25 plan 40:23, 41:16, 58:17, 64:15, 91:9, 120:19, 148:21 plane 147:5 planet 134:24 plankton 17:6 planned 54:21 planning 6:12, 12:20, 19:2, 125:19, 135:1, 149:1 plans 127:25, 141:24, 142:3, 142:4, 142:3, 142:4, 142:6, 143:9 plant 16:7, 17:16, 18:6, 21:19, 21:23, 65:4, 65:17, 65:24, 95:15, 104:18, 124:8, 126:18, 147:21, 149:6, 149:13 Plants 15:19, 16:22, 21:20, 27:2, 87:12, 87:20, 111:17, 111:19, 124:11, 126:21 plasma 60:4 plasma 60	Please 5:2, 44:13, 45:15, 45:16, 77:16, 80:5, 80:7, 82:19, 100:1, 112:4, 113:13, 134:17, 140:6, 141:19, 150:15 plenty 43:19 plotted 132:10 plugs 125:17, 126:3 plume 101:4, 106:9, 107:14, 108:18, 108:19, 117:22, 139:20 podium 7:21, 43:14, 44:25 Point 5:3, 6:22, 7:6, 16:25, 19:1, 29:18, 36:11, 44:20, 46:7, 46:22, 54:10, 63:16, 74:5, 81:16, 89:4, 95:4, 97:10, 98:7, 103:20, 122:1, 139:15, 154:24, 155:5 point. 53:24, 94:12 points 125:3 Police 80:8, 154:14 polio 59:2, 59:3 politically 20:14 POLIJITANT 1:2, 6:22 192

					L 2
pollutants 13:18, 13:19, 13:20, 14:4, 14:10 polluters 77:11 pollution 102:19, 150:4 porg 33:13, 34:9, 34:16, 34:23, 35:3, 35:9, 51:14, 52:9, 52:19, 53:12, 74:1, 74:2, 74:6, 74:10, 89:10, 89:11, 89:22, 101:7, 101:23, 153:24, 154:16, 154:18, 154:16, 154:18, 154:21 populated 21:9 population 81:22, 99:19, 101:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:16, 107:17, 121:15 portiand 2:6, 101:17, 121:15 ports 117:14, 117:23 Possibility 57:5, 66:25, 124:25, 126:6 possible 12:23, 18:4, 59:22, 60:7, 63:1, 117:11 possibly 30:7,	140:6 potential 17:17, 71:4, 94:2, 131:7, 141:25, 143:8 potentially 21:21, 71:14, 96:15, 129:13, 151:5 pound 150:12 pourds 101:12, 101:15, 118:17 power 9:21, 22:20, 80:16, 80:20 powerful 116:4 Powerpoint 37:21 practice 54:3, 71:25, 115:2, 122:24, 123:1, 123:7, 124:3 practicess 12:11, 111:20, 115:2, 123:7, 124:4, 128:3, 133:15 praise 84:1 precautions 57:4 prediction 54:8 prediction 54:8 prediction 54:8 prediction 54:8 prediction 54:8 prediction 54:8 preseribes 73:18 preseribes 73:18 preseribes 73:18 preserice 80:9	present 2:21, 5:4, 102:1, 102:11, 148:17 presentation 5:21, 6:15, 26:18, 42:18, 46:1, 56:23, 64:7, 86:17, 93:23, 129:23, 145:5 presented 93:9 preserved 92:11 President 2:11, 80:25 pressing 116:5 pressure 147:23, 148:4, 148:6 pressurized 124:22, 125:2 pretreated 21:16, 21:18 pretry 23:1, 24:18, 27:5, 33:5, 45:10, 48:17, 52:23, 53:18, 79:2, 97:12, 97:13, 103:22, 105:25, 130:24, 138:6, 142:2 preventing 63:23 prevent 11:19, 63:1, 70:6, 73:3, 73:14 preventative 63:23 preventing 62:25 previously 17:24, 87:12, 87:19 primary 23:2, 71:3, 107:20, 108:9, 108:13	4:4, 5:8, 6:2, 12:9, 44:1, 88:2, 88:7, 88:9, 88:16, 89:6, 100:8, 117:18, 125:1, 127:3, 145:5, 151:14, 157:3, 157:13 publicly 87:19, 90:17 pull 4:25, 121:7, pull 4:25, 121:7, pull 4:25, 121:7, pull 4:21, 143:13 purping 147:24 purpose 4:15, 8:7, 43:21, 72:13, 133:16 purposes 25:20 push 61:23, 75:8 pushing 39:19, 41:7, 42:2 put 12:22, 16:4, 33:9, 34:9, 40:2, 44:11, 47:13, 61:9, 66:4, 71:23, 74:10, 74:12, 78:22, 88:21, 102:7, 109:7, 118:18, 119:9, 119:10, 119:11, 144:14, 152:21, 152:25 puts 125:10 putting 66:21, 67:11, 83:2, 84:17, 92:3, 101:17, 102:2, 109:6	< Q > qualities 154:3 quality 2:14, 9:23, 12:12, 12:13, 17:19, 28:17, 36:1, 89:9, 90:13, 90:21, 112:3, 122:20, 126:20, 128:18, 142:22 quantities 2:14, 77:6 quantity 82:22, 115:11 quarantine 71:6 quarter 59:25 quarter1y 65:11, 124:24 quasi 35:6 quick 6:17, 74:1, 86:10, 131:21, 132:7, 137:7, 155:25, 156:8 quickest 156:3 quickly 26:18, 26:24, 100:1, 104:12, 134:24, 145:12, 148:1, 154:13 quire 13:25 quite 13:25 qui	<pre>< R > R&D 115:24 R-E-I-C-H-A-R-D 56:19 rainfall 133:14, 133:24 raising 81:5 Ramboll 28:17, 56:12 ran 32:12, 34:18, 154:23 Range 16:17, 19:7, 37:3, 37:14, 54:22, 63:10, 75:6, 113:14, 137:20, 133:15 ranged 19:12, 19:13 ranges 19:24, 24:6, 46:16 RAS 57:15, 69:21, 121:25, 122:23 rate 35:3, 35:5 rates 59:13, 84:4 rather 90:8 rathor 90:8 rat</pre>
priority 85:24 private 12:7 privileged 57:25 probabilities 147:10 probably 9:25, 45:7, 57:10, 72:16, 73:22, 75:18, 126:18, 137:22 problem 52:17, 66:1 problems 104:4 procedural 121:2 procedure 88:8, 125:15, 125:19, 128:7 procedures 88:6, 127:11, 127:20, 127:21 proceed 78:4 HROCEEDINGS 2:1, 157:5 processed 144:14 processes 20:11 processed 144:14 processes 20:11 processing 11:14, 71:20, 77:10, 149:2, 149:13 produce 8:15, 77:6, 83:11, 83:14 produced 21:14, 113:25, 114:1, 150:13 producer 24:4, 66:1, 81:8 producers 24:21, 151:17 producet 8:16, 9:23, 12:12, 12:13, 114:2, 142:22	production 8:4, 9:6, 9:10, 11:3, 16:21, 21:12, 23:14, 23:17, 26:2, 26:3, 27:4, 83:21, 124:15, 135:6, 135:8, 135:19, 135:25 productive 77:3 products 25:1, 60:3, 69:11 professional 148:16 Professor 57:2, 63:25 profile 23:21, 24:18, 25:5, 150:18 profiles 23:24 profiles 23:24 project 2:13, 3:4, 3:19, 4:1, 4:3, 7:8, 7:10, 10:17, 11:16, 12:20, 19:2, 19:3, 93:25, 120:23, 122:9, 122:14, 122:24, 133:7, 134:6, 135:2 Projections	133:13 projects 2:12, 2:17, 5:17, 10:3, 23:16 pronephros 144:15 proper 133:19 properly 7:15 proposed 4:1, 4:3, 76:20, 90:23, 104:15 proposing 77:13, 91:14, 92:19, 95:6 Protect 3:11 protected 3:7, 85:10, 85:12 Protection 3:10, 134:3 proteins 113:11, 113:15, 113:17, 113:20, 115:5 protested 110:24 protecols 124:4 prove 46:20, 79:17 proven 42:21 provide 4:20, 5:1, 44:6, 44:14, 54:11, 77:16, 78:17, 14:3, 141:30, 140:23, 141:3, 141:10, 145:8, 153:22 provided 87:3, 94:25, 117:7 proxen 122 Prote 1:4, 1:8, 1:10, 2:24, 3:1, 3:23, 3:25, 194	realm 68:25, 118:2 reagply 153:12 reason 13:13, 51:19, 83:8, 86:2, 94:8, 98:5, 115:18, 119:15, 148:9 reasonably 54:8 reasonably 54:8 reasonably 54:8 reasonably 54:8 reasonably 54:8 reasonably 54:8 reasonably 54:8 recall 47:9 receive 5:6, 28:13, 117:11, 121:5 recent 77:2 recent 77:2 recent 77:2 recent 77:2 receptors 107:16 recirculate 9:1 recirculation 8:25 records 30:2, 88:1, 88:16, 125:5 records 30:2, 88:7, 89:5 recovery 77:19 recruiting 124:1 recycled 18:8, 23:19, red 33:17, 36:22, 129:9 red 31:17, 36:22, 129:9 red 31:17, 36:22, 129:9 red 31:17, 36:22, 129:9 red 31:17, 36:22, 129:9 red 31:17, 37:19 red	148:2, 148:11, 151:4 reduced 29:14, 40:18, 77:12, 147:12, 147:16, 147:17, 148:7 reduces 21:14, 21:24, 26:5 reducing 21:13 reduction 21:22, 105:10, 108:1, 147:21 redurdant 69:9 refer 57:23, 70:21 references 140:22 referencing 145:3 referred 145:6 referring 83:9 refers 118:25 reflect 53:5 regard 146:4 regarding 4:1, 6:2, 93:7, 115:3, 135:9, 136:15 regard 146:4 regions 131:16 regions 57:4 regions 131:16 regions 131:16 regions 131:16 regions 131:16 regions 131:16 regions 131:16 regular 5:25, 18:20, 28:8, 70:11, 105:11, 125:4, 125:6 regulates 14:4, 14:23, 15:2, 28:24 regulates 6:23,	14:9 regulations 82:9 regulatory 123:7 Reichard 56:18 Reichard. 59:15, 59:21, 60:6, 60:14, 60:23, 61:6, 61:11, 61:14, 61:20 reiterate 79:14 reject 112:1 relate 14:8, 123:25 related 11:3, 23:22, 25:16, 28:6, 47:11, 117:22, 120:20, 123:21, 123:23, 124:4, 135:16 relation 27:22 relationship 122:13 released 11:17, 34:16, 98:15, 99:6 released 17:11, 34:13, 38:25, 49:13, 53:13, 60:24, 82:13, 154:21 relevant 120:21 remember 105:21, 156:11 reminder 80:6 removel 26:13, 26:20, 27:1 remove 27:2, 27:3, 60:5 removing 18:4, 21:17, 132:18 repair 148:13 repair 148:13 repair 148:13 repair 148:13 repair 148:13

106-14	05-10	F4.4 F2.1F	50.4	150.01	100-11
126:14,	95:13	54:4, 73:15,	seasons 50:4,	150:21,	120:11,
140:15	requirement	76:1, 88:13,	91:17	152:12, 153:3	124:14
replaced 133:10 report 28:19,	87:4, 87:8 requirements	89:20, 97:21 reused 18:7	seaweed 92:6 Second 31:17,	settle 119:22 seven 120:10	short-term 73:6 shortly 125:20
81:2, 88:9,	20:12, 28:3,	revenue 10:16	45:6, 47:9,	several 3:2,	shot 156:1
100:23, 112:3	28:6, 111:13,	reverse 139:1	87:23,	78:7, 91:1,	show 22:22,
Reported 1:10	111:25	review 5:13,	120:14,	91:5, 94:7,	26:17, 27:10,
Reporter 1:11,	requires 12:19,	5:18, 56:11,	129:1,	100:17	37:15, 96:15,
4:12, 5:22,	128:6	85:23	134:23, 143:3	severely 77:7	107:13,
44:7, 45:19,	Research 86:4,	reviewed 79:17	secondary	sewage 15:20,	107:25,
134:16,	93:8, 93:14,	rezoning 133:6	147:20	102:3,	108:3, 131:5,
134:20,	110:13,	rich 23:12	section 5:17	104:14,	154:4
141:18,	121:14 residence 97:17	rise 41:25, 49:23	sector 10:13	104:17 Sewer 101:14,	showed 51:13, 96:3, 97:1,
141:22, 157:2 Reporter/notary	resident 79:25,	rising 42:1,	seeing 51:10, 91:20, 130:25	104:17,	97:12, 99:9,
157:13	86:15,	49:17	seem 56:23,	105:1, 149:3	130:10,
reporting 87:24	110:16,	risk 23:5,	80:23, 108:18	sewers 102:7,	154:17
reports 56:13,	141:17	58:13, 58:16,	seemed 74:2	103:9	showing 29:17,
81:11, 88:1,	residential	63:16, 63:19,	seems 117:21,	sex 111:8	30:8, 32:10,
145:14	133:6, 155:21	63:21,	141:5	shallow 118:23	32:15, 32:23,
represent 35:9,	residual 14:21,	123:10,	seen 20:15,	share 108:16,	33:2, 33:11,
98:4	74:14 resistance	123:15, 127:14,	35:1, 48:3, 56:23	122:6 sharing 80:18,	34:6, 34:8, 36:23, 38:20,
98:12, 99:7	69:12	127:14,	selection 113:4	80:20	40:19, 41:13,
representative	resource 11:12	146:18,	self-imposed	Shay 128:9,	89:11, 98:18,
98:2, 110:19,	Resources 3:7,	147:3, 147:4,	28:4	128:23,	101:7
110:21,	3:10, 3:11	147:6, 147:7	self-interest	131:9,	shown 30:16,
154:19	respect 80:5,	River 19:17,	28:10	132:11,	30:23, 38:14,
representatives	84:7	19:21, 32:3,	send 79:16,	132:14,	128:14,
	respected 80:3	46:14, 47:23, 48:25, 74:23,	127:17	132:19, 132:24	130:8, 155:4 shows 30:12,
REPRESENTING 1:16	respond 46:8, 104:11,	48:25, 74:23, 75:19, 84:25,	sending 23:16, 85:7	sheet 4:10,	39:21 snows 30:12,
reproduce 54:6	145:11	85:3, 89:6,	sense 105:11	6:2, 132:22	shut 123:23,
reproduced	responds 130:21	98:24	sensitive 30:1,	sheets 6:5	148:12
97:12	response 4:20,	rivers 13:17,	30:5, 35:20,	shell 146:6	Sid 155:13,
reproduces	5:1, 5:5,	77:9	43:5, 99:18,	shellfish	156:4
36:15	54:16	road 8:17	107:22,	102:17,	side 76:10,
Republican	responses	rob 81:25	108:1, 108:11	104:22,	98:24, 99:1,
56:21 request 5:9	44:12, 121:5, 121:9	Robin 1:10, 4:13, 144:25,	sensitivity 43:3	129:3, 131:25 shift 43:13	119:19, 123:9,
requested	responsibility	145:13, 144.25,	sensors 28:7	Shipyard 156:12	123:11,
127:23	136:9	145:19,	sentence 46:5	shock 133:7	124:15
require 3:4,	rest 40:7	146:2, 146:7,	separate 149:5,	shoes 100:11	sigh 79:23
3:14, 5:23,	restrictions	146:10,	149:13	shore 75:5,	sign-in 4:10,
27:5, 65:10,	82:9	146:13,	series 46:6,	78:21, 118:22	6:5, 132:22
92:17	result 29:15,	146:16,	46:7	shoreline 32:5,	signed 4:9,
required 3:12,	38:16, 97:23, 148:7	147:13, 147:19,	seriously 130:2 set 44:19,	79:5 short 8:10,	157:8 Significant
4:5, 4:7, 6:3, 9:5,	results 32:15,	148:25,	62:15, 62:19,	25:19, 26:24,	3:12, 10:16,
88:5, 88:15,	38:15, 50:1,	149:7,	63:17, 87:6,	116:16,	43:23, 44:14,
		197			199
		191			
		197			
149:10,	55:20	71:1, 73:5,	47:18, 51:20,	60:2, 127:22,	smelled 109:16,
149:16,	sample 38:6,	71:1, 73:5, 119:8,	68:2, 77:5,	128:8, 132:6,	smelled 109:16, 109:24
149:16, 150:2, 157:2	sample 38:6, 38:7, 125:3,	71:1, 73:5, 119:8, 119:12,	68:2, 77:5, 100:22, 130:4	128:8, 132:6, 148:23	smelled 109:16, 109:24 smelling 107:6
149:16, 150:2, 157:2 robotic 69:24	sample 38:6, 38:7, 125:3, 147:15	71:1, 73:5, 119:8, 119:12, 135:10	68:2, 77:5, 100:22, 130:4 significantly	128:8, 132:6, 148:23 size 8:14,	smelled 109:16, 109:24 smelling 107:6 smells 105:13,
149:16, 150:2, 157:2 robotic 69:24 role 111:23	sample 38:6, 38:7, 125:3, 147:15 sampled 140:21	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25,	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21,
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12	sample 38:6, 38:7, 125:3, 147:15	71:1, 73:5, 119:8, 119:12, 135:10	68:2, 77:5, 100:22, 130:4 significantly	128:8, 132:6, 148:23 size 8:14,	smelled 109:16, 109:24 smelling 107:6 smells 105:13,
149:16, 150:2, 157:2 robotic 69:24 role 111:23	sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16,	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16,	sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12,	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1,	sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5,	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15,	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheckuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3</pre>	71:1, 73:5, 119:8, 119:12, 135:10 schechuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:22, 92:4, 125:1, 127:3 samplings 37:25</pre>	71:1, 73:5, 119:8, 119:12, 135:10 schechuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 rnn 44:4, 63:14, 65:16, 121:14,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 schechuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 nn 44:4, 63:14, 65:16, 121:14, 131:11 nn-off 96:5, 133:10,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:22, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 schechuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:23, 97:24, 98:4,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:22, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20</pre>	71:1, 73:5, 119:8, 119:12, 135:10 schechuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:22, 97:34, 98:4, 98:12, 98:14,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidis 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:23, 143:4	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 90:20, 92:1, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheckuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 sill 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulated 36:12 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 runing 100:2,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:3, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 simgle 108:18,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurning 100:2, 100:6,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:22, 97:34, 98:4, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 runing 100:2,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:3, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 simgle 108:18,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurning 100:2, 100:6, 100:19, 110:10, 116:16	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slips 68:17 slowly 74:18 sludge 23:12,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 152:26, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 ruroff 16:25,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:22, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 15:44, 16:13, 16:23, 17:4, 15:5, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:17 slowly 74:18 sludge 23:12, 23:13, 107:5	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidity 46:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurning 100:2, 100:6, 100:19, 110:10, 116:16	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seabcard 77:5	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:12 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:12 slaughtered 57:11 slaughtered 57:13 slaughtere 57:13 slaughtered 57:13 slaughtered 57:13 slaughtered 57:13 s	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:2, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 152:26, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 ruroff 16:25,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:34, 98:4, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slips 68:17 slowly 74:18 sludge 23:12, 23:13, 107:5 small 8:13, 15:8, 40:13,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 152:26, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 ruroff 16:25, 17:1, 17:22	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:32, 129:18 slightly 26:16, 20:31, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidity 46:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 nn 44:4, 63:14, 65:16, 121:14, 131:11 nn-off 96:5, 133:10, 133:13, 133:23, 143:4 numing 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S >	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:22, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 sligs 68:17 slowly 74:18 slucge 23:12, 23:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 152:26, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 ruroff 16:25, 17:1, 17:22	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:32, 129:18 slightly 26:16, 20:31, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 nn 44:4, 63:14, 65:16, 121:14, 131:11 nn-off 96:5, 133:10, 133:13, 133:23, 143:4 numing 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 130:4, 148:4, 148:9, 130:4, 148:4, 148:4, 148:4, 14	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slips 68:17 slowly 74:18 sludge 23:12, 23:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:2, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurning 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> </pre> </pre> </pre> </pre></pre></pre></pre></pre></pre></pre>	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scoti 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 searsport	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 sill 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:44, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 sligs 68:17 slowly 74:18 slidy 23:12, 23:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidits 15:3, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2, 75:21, 88:20,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 rn 44:4, 63:14, 65:16, 121:14, 13:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:16 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sites 9:16,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slivdge 74:18 slivdge 74:18, slivdge 74:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 12:14, 65:16, 12:14, 65:16, 13:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailed 110:23	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7 scares 136:2</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 school 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24 season 47:20,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:44, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sites 9:16, 9:25, 10:3,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slaughtered 57:12 slide 18:11, 24:8, 99:8, 143:14, 145:7 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 <pre> <pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> <pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> <pre> <pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7 scares 136:2 scary 136:5</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scoti 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 12:2, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafcod 84:4, 115:21, 121:23, 135:18 sealed 85:12 searsport 110:24 season 47:20, 47:21, 47:22,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 sill 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slips 68:17 slowly 74:18 slips 68:17 slowly 74:18 slips 68:17 slowly 74:13 slips 68:17 slowly 74:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidits 15:3, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Somewimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 rough 4:8, 12:24, 20:19 rough 4:8, 13:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailed 110:23 sailor 100:18 sake 81:12	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 105:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scales 20:7 scares 136:2 scary 136:5 scatter 33:12</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24 season 47:20, 47:21, 47:22, 48:11, 50:19,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sitting 41:19,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughterrd 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slowly 74:18 sludge 23:12, 23:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12 smell 105:6,	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solves 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12 somewhare
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 131:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 rurming 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 <pre> <pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> <pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> </pre> <pre> <pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7 scares 136:2 scary 136:5</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scoti 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 12:2, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafcod 84:4, 115:21, 121:23, 135:18 sealed 85:12 searsport 110:24 season 47:20, 47:21, 47:22,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 sill 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slips 68:17 slowly 74:18 slips 68:17 slowly 74:18 slips 68:17 slowly 74:13 slips 68:17 slowly 74:13, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidits 15:3, 15:6, 15:13, 15:6, 15:13, 15:6, 15:13, 15:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Somewimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 rough 4:8, 12:24, 20:19 rough 4:8, 13:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailor 100:18 sake 81:12 saline 60:4 salinity 55:7, 55:13, 73:12,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 105:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scales 20:7 scares 136:2 scarter 33:12 scatter 33:12 scatter 33:12 scatter 33:12 scatter 33:12 scattering 34:14</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Scotean 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:22, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24 season 47:20, 47:21, 47:22, 48:11, 50:19, 129:21, 139:21 seasonal 46:12,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:23, 97:24, 98:4, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sitting 41:19, 101:25 situation 71:19, 72:5,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slide 23:12, 13:10, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12 small 105:6, 105:12, 106:10, 107:3, 107:9,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solues 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 somebace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhart 50:25, 127:12 somewhare 102:10 soon 66:5 Sorry 13:25,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 12:14, 13:11 run-off 96:5, 133:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailed 110:23 sailor 100:18 sake 81:12 saline 60:4 salinity 55:7, 55:13, 73:12, 100:25	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7 scares 136:2 scartering 34:14 scenario 71:8,</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 searsport 110:24 season 47:20, 47:21, 47:22, 48:11, 50:19, 129:11, 139:21 seasonal 46:12, 47:10, 137:9,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:44, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sittang 41:19, 101:25 situation 71:19, 72:5, 72:20, 128:5,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:23, 107:5 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12 smell 105:6, 105:12, 106:10, 107:3, 107:9, 108:22,	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 sold 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 somebace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12 somewhat 50
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 121:14, 13:11, run-off 96:5, 133:10, 133:12, 133:23, 143:4 rurning 100:2, 100:6, 100:19, 110:10, 116:16 ruroff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 salien 60:4 salinity 55:7, 55:13, 73:12, 100:25 salmonicida	sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:1, 92:2, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20, saying 22:23, 59:19, 79:17, 79:18, 101:24, 103:2, 105:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scales 90:7 scares 136:2 scatter 33:12 scatter d 98:15 scatter 31:2, scatter 31:2,	71:1, 73:5, 119:8, 119:12, 135:10 scheckuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scoti 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafcod 84:4, 115:21, 121:23, 125:18 sealed 85:12 searsport 110:24 seasonal 46:12, 47:10, 137:9, 137:24,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:23, 97:24, 98:44, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sites 9:16, 9:25, 10:3, 37:25 sitting 41:19, 101:25, 72:20, 128:5, 130:23,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughter 71:19 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:19 slaughter 71:19 slau	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidity 46:13 solidity 46:13 solidity 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someplace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 50:25, 127:12 somewhat 70:25, 127:12 somewhat 70:25, 127:12 somewhat 70:25, 127:12 somewhat 70:25, 127:12
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 nn 44:4, 63:14, 65:16, 121:14, 131:11 nn-off 96:5, 133:10, 133:13, 133:23, 143:4 running 100:2, 100:16, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailor 100:18 sake 81:12 saline 60:4 salinity 55:7, 55:13, 73:12, 100:25 salmonicida 59:1	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scales 90:7 scares 136:2 scarter 33:12 scattering 34:14 scenario 71:8, 71:17, 72:17, 100:13</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheduled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scotia 105:8 Scottish 81:8 Scoreen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:22, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:14, 16:13, 16:23, 17:4, 15:12, 83:18, 84:11, 106:6 seaboard 77:5 Seafood 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24 Seasonal 46:12, 47:10, 137:9, 137:24, 139:16	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:4, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sitting 41:19, 101:25 situation 71:19, 72:5, 72:20, 128:5, 130:23, 148:3, 148:9,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtering 71:19 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slightly 26:16, 26:22, 129:18 slide 24:13 slightly 26:16, 26:22, 129:18 slide 24:13 slightly 26:16, 26:23, 129:18 slide 24:13 slightly 26:16, 26:24, 129:18 slide 24:13 slightly 26:16, 26:27, 129:18 slide 24:13 slightly 26:16, 26:27, 129:18 small 8:13, 15:8, 40:13, 64:3, 75:2, 96:10, 99:9, 99:16, 103:3, 103:22, 122:18, 130:19, 143:15 smaller 37:14 smeared 37:12 smell 105:6, 105:12, 106:10, 107:3, 107:9, 108:23, 108:23, 109:7, 109:8,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solves 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someyhace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12 somewhere 102:10 soon 66:5 Sorry 13:25, 18:11, 37:22, 62:9, 64:17, 69:16, 70:9,</pre>
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 run 44:4, 63:14, 65:16, 12:14, 65:16, 12:14, 65:16, 12:14, 65:16, 13:10, 133:13, 133:23, 143:4 running 100:2, 100:6, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailed 110:23 sailor 100:18 sake 81:12 saline 60:4 salinity 55:7, 55:13, 73:12, 100:25 salmonicida 59:1 salt 47:25,	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 save 70:3 save 70:3 save 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scale 82:3, 148:15 scales 90:7 scares 136:2 scary 136:5 scattering 34:14 scenario 71:8, 71:17, 72:17, 100:13 scenarios</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheckuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scoti 105:8 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafcod 84:4, 115:21, 121:23, 125:18 sealed 85:12 searsport 110:24 seasonal 46:12, 47:10, 137:9, 137:24,	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:2, 97:3, 97:23, 97:24, 98:44, 98:12, 98:14, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 sites 9:16, 9:25, 10:3, 37:25 sitting 41:19, 101:25, 72:20, 128:5, 130:23,	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughter 71:19 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:18 slaughter 71:19 slaughter 71:19 slau	smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solidis 15:3, 15:6, 15:13, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solve 31:20, 31:21, 32:7, 52:17 solves 31:23 someone 121:2 someone 121:2 someone 121:2 someone 121:2 somewhat 50:25, 127:12 somewhat 50:
149:16, 150:2, 157:2 robotic 69:24 role 111:23 rooftop 133:12 room 6:18, 18:15, 67:15, 79:23, 80:16, 99:25, 151:1, 151:22, 152:16 ropes 92:7 rotated 69:10 rough 4:8, 12:24, 20:19 nn 44:4, 63:14, 65:16, 121:14, 131:11 nn-off 96:5, 133:10, 133:13, 133:23, 143:4 running 100:2, 100:16, 100:19, 110:10, 116:16 runoff 16:25, 17:1, 17:22 < S > safe 73:11, 108:7, 114:1, 114:16 safety 80:24, 111:24 sailor 100:18 sake 81:12 saline 60:4 salinity 55:7, 55:13, 73:12, 100:25 salmonicida 59:1	<pre>sample 38:6, 38:7, 125:3, 147:15 sampled 140:21 sampled 140:21 sampled 140:21 samples 19:16, 38:6, 90:18, 140:25 sampling 64:12, 64:19, 65:5, 65:8, 66:24, 67:11, 88:13, 90:12, 90:20, 92:4, 125:1, 127:3 samplings 37:25 save 70:3 saw 74:18, 98:14, 98:17, 101:23, 105:24, 146:20 saying 22:23, 59:19, 79:17, 79:18, 101:24, 102:24, 103:2, 106:21, 116:23, 125:25, 151:20, 152:2 says 31:16, 96:4, 100:23, 153:3 scales 90:7 scares 136:2 scarter 33:12 scattering 34:14 scenario 71:8, 71:17, 72:17, 100:13</pre>	71:1, 73:5, 119:8, 119:12, 135:10 scheckuled 70:11 School 1:8, 1:12, 140:3 science 59:14, 80:1, 80:2, 119:22 scientific 9:12, 77:16, 77:20, 78:9, 121:3, 121:5 scientist 69:13, 102:14 Scottish 81:8 screen 7:19, 111:6 sea 9:6, 9:9, 10:24, 11:3, 11:23, 12:2, 12:3, 12:4, 15:14, 16:13, 16:23, 17:4, 17:15, 41:24, 58:2, 58:15, 72:1, 83:18, 84:11, 106:6 seaboard 77:5 Seafocd 84:4, 115:21, 121:23, 135:18 sealed 85:12 search 9:12 Searsport 110:24 season 47:20, 47:21, 47:22, 48:11, 50:19, 129:11, 139:21 seasonal 46:12, 47:10, 137:9, 137:24, 139:16 seasonality	68:2, 77:5, 100:22, 130:4 significantly 29:14, 137:15 silt 15:19 similar 2:12, 31:15 simple 21:10 simplification 52:16 simplify 31:20 simply 31:4, 78:22 simulated 36:12 simulated 36:12 simulation 32:16, 34:18, 34:20, 38:21, 76:2, 76:3, 89:13, 97:23, 97:24, 98:44, 98:12, 98:14, 98:20, 154:20 single 108:18, 144:2 Sir 125:23 sit 72:10, 72:15 Site 3:8, 9:15, 10:1, 64:23, 65:13, 125:12, 128:14, 128:14, 128:15, 132:8, 132:9, 134:2, 148:9, 149:2 situation 71:19, 72:5, 72:20, 128:5, 130:23, 148:3, 148:9, 15:10	128:8, 132:6, 148:23 size 8:14, 22:3, 59:25, 83:7 Skretting 110:19, 110:22, 111:15 sky 63:20 slack 46:15, 47:11, 49:19, 50:20, 51:3, 51:5 slaughter 71:18 slaughtered 57:11 slaughtered 57:11 slaughtered 57:11 slide 18:11, 24:8, 99:8, 143:14, 145:7 slides 24:13 slightly 26:16, 26:22, 129:18 slightly 26:16, 109:22, 109:27, 109:8, 109:7, 109:8, 109:9, 110:1,	<pre>smelled 109:16, 109:24 smelling 107:6 smells 105:13, 108:21, 109:12 smelly 103:10, 104:1 smolt 8:13, 55:24 so-called 8:15, 8:24, 150:11 socioeconomic 82:8 solid 83:12 solidity 46:13 solids 15:3, 15:6, 15:13, 15:23, 18:4, 18:7, 23:9, 23:10, 74:6, 76:13, 76:18, 76:21 solution 61:10, 71:24, 72:21, 73:6, 102:19 solves 31:20, 31:21, 32:7, 52:17 solves 31:23 somebody 14:15, 64:23, 127:17, 155:16 Someone 121:2 someyhace 70:21 Sometimes 65:2, 75:21, 88:20, 88:23 somewhat 50:25, 127:12 somewhere 102:10 soon 66:5 Sorry 13:25, 18:11, 37:22, 62:9, 64:17, 69:16, 70:9,</pre>

197

139:4, 139:8	140:20	47:21, 48:15,	51:4, 60:25	switch 43:11	60:9, 61:2,
sorts 31:3, 38:19	specifics 66:13, 116:10	76:5, 76:6, 80:20, 86:16,	summertime 129:7, 139:2	synergies 10:11 SYSTEM 1:2,	61:22, 68:22, 69:25, 70:6,
sound 95:11	speed 49:19,	87:7, 91:9,	sun 32:1, 48:12	9:1, 15:12,	70:10, 72:1
sounds 70:10, 81:19	53:10 spell 45:18,	94:15, 100:17,	super 139:10 supplier 111:22	21:9, 22:12, 22:13, 23:4,	81:7, 110:24, 125:14,
source 6:22,	134:16,	107:6, 108:2,	suppliers	31:3, 31:14,	125:21,
11:21, 71:4, 92:9, 103:20,	141:18 spent 69:20,	113:8, 130:7 started 2:8,	111:23 supply 143:9,	57:15, 62:22, 65:16, 66:9,	125:25, 143:12,
114:21,	144:1	12:17, 19:2,	144:21	76:20, 77:4,	147:17
114:24, 152:23	spin 97:6 spirit 56:20	19:4, 66:16, 74:16	support 5:9, 77:17, 81:20	86:4, 103:2, 103:4,	target 117:22 task 31:1
sourced 113:21	spleen 144:16	starting 18:13,	supporting	104:18,	tax 10:16,
sources 16:24, 17:21, 27:18,	spoke 57:1, 57:2, 57:14,	42:13, 95:3, 154:19	121:23 suppose 61:12	142:5, 144:8, 144:17,	81:20 taxes 156:13
27:23, 38:11,	145:20	starts 48:12,	supposed 15:12	147:12,	taxpayer 10:17,
103:15, 114:2, 153:16	spots 140:11 spread 34:23,	48:19 State 1:11,	supposedly 66:1 Surely 81:24	147:16, 147:18,	145:2 teach 102:19
sourcing 24:17,	35:13, 37:5,	3:13, 3:19,	surface 41:21,	148:1, 148:2,	teaching 102:21
114:7, 114:15,	52:10 spreading	6:23, 30:2, 35:7, 43:17,	48:4, 48:13, 48:20, 48:23,	148:11, 149:3, 149:9	team 111:22 technologies
114:16, 115:2 south 76:8,	154:24 spreads 37:19	45:16, 50:21, 64:12, 65:5,	49:23, 49:25, 50:5, 51:22,	systems 2:13, 8:25, 9:4,	20:7, 42:21, 64:4
100:21,	spring 37:3,	65:11, 81:2,	53:9, 73:17,	22:19, 31:8,	technology
128:14 southwest 46:18	37:19, 47:21, 47:22, 98:1	87:1, 88:14, 95:9, 122:25,	85:3, 89:12, 90:22, 91:4,	42:19, 59:10, 62:3, 70:6,	11:6, 64:2 tæth 102:23
soy 113:17,	stage 8:14,	129:9, 157:3	133:12,	71:7, 148:18	tells 40:16,
113:18, 113:19,	107:23 stages 105:20,	state-of-the-ar t 42:21,	138:16, 138:17		110:14 temperature
113:22,	147:12,	122:14,	surprised 87:8	< T >	48:19, 54:21,
142:1, 142:25, 143:1	147:16, 147:22	123:12 stated 55:7	surroundings 136:6	table 131:13 tailor 24:5	56:1, 135:4, 135:21,
space 12:9,	stand 44:22	statement 111:1	survive 14:18	tailwind 100:20	136:19,
43:18 speaking 125:4,	standard 39:12, 54:3, 60:20,	States 59:3, 82:11	suspected 65:1 suspended 15:3	talked 29:7, 38:23, 87:23,	136:23, 136:24,
133:17, 146:4	84:5	Station 36:11,	suspicious 86:2	99:9	137:20,
special 23:11 species 136:4	standardized 15:10	36:13, 46:22 stations 18:22,	sustainability 84:5, 102:20	talks 118:22 tank 27:5,	137:23, 139:18,
specific 13:3, 30:18, 39:23,	standards 42:25, 112:2	65:18, 90:20, 149:22	sustainable 113:21,	57:22, 60:13, 60:18, 71:18,	139:21 temperatures
96:12,	standing 41:19	statistic 96:4	115:23,	72:2, 72:10,	55:25,
140:22, 146:14	stands 111:20 start 7:7,	statistics 38:1, 38:5	121:23 Suzanne 140:8,	72:15, 73:8, 73:16,	129:15, 135:10,
Specifically	12:23, 19:24,	status 77:2	140:16,	125:11,	136:3,
10:5, 80:23, 112:9,	23:22, 24:17, 25:4, 26:2,	stay 50:4, 74:7, 89:23,	140:24, 141:8, 141:13	127:10, 147:18	137:17, 137:21,
112:18,	29:15, 37:14,	97:16, 126:20	swim 102:4,	tanks 21:13,	138:20, 139:1
112:25, 116:18,	37:15, 37:17, 43:8, 44:20,	stayed 140:3 stays 30:19,	102:9 swimming 15:15,	21:15, 21:17, 57:9, 57:12,	tend 33:20, 47:19, 47:20,
136:15,	45:10, 45:17,	43:1	109:19	57:19, 57:21,	47:22, 50:4,
		201			203
steadily 154:22	49:5, 49:8,		50:22, 51:9,	74:13, 75:6,	
steadily 154:22 steady 35:7	49:5, 49:8, 49:12, 50:11,	studying 140:12 stuff 11:19,	50:22, 51:9, 52:2, 52:10,	74:13, 75:6, 107:12,	20:11, 24:1, 27:24, 62:14,
	49:12, 50:11, 51:1, 51:4, 52:23, 52:25,	studying 140:12			20:11, 24:1,
steady 35:7 steel 31:12 stenograph 157:6	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5	107:12, 133:17, 156:9 thoughtfully 122:15	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9,
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand.	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21,
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson.	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Streegt 156:12 strength 72:4	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19,	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:17, 87:22, 87:17, 87:22, 88:17, 88:22,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11,	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 toms 26:2,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:25, 89:3, 89:17, 89:25,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomprow 140:4
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:25, 89:3, 89:17, 89:25, 90:3, 90:10,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13,	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 toms 26:2, 130:10, 130:13 took 38:6,
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:17, 89:3, 89:17, 89:25, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:10 90:2, 89:3, 89:17, 89:22, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substances 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6,	107:12, 133:17, 156:9 thoughtfully 122:15 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomprow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 22:24, 23:8, 22:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:25, 89:3, 89:17, 89:25, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 71:6, 88:12, 111:25,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 threat 83:19, 83:20 threat 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 89:21, 92:4	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:25, 89:3, 89:17, 89:25, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12,	107:12, 133:17, 156:9 thoughtfully 122:15 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 89:21, 92:4 three-quarters	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomprow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:15 stevenson 90:2, 89:3, 88:17, 88:22, 88:25, 89:3, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 65:25 terrible 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 88:21, 92:4 three-guarters 103:21 three. 124:20	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson. 87:17, 87:22, 88:17, 88:22, 88:25, 89:3, 89:17, 89:25, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 test 28:7,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 89:21, 92:4 three-quarters 103:21	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 toms 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:15 stevenson 90:2, 89:3, 88:17, 88:22, 88:25, 89:3, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stinred 33:21 Stone 140:8 Stone. 140:16,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 strorger 37:5, 39:3, 124:6 studies 18:23, 27:17, 75:16, 94:13, 94:22,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21,	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 88:21, 92:4 three-guarters 103:21 three. 124:20 threshold 79:11 throughout 49:21, 98:16,	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touch 122:21 touched 27:19
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:16 stevenson 86:16 stevenson 17, 89:22, 88:25, 89:3, 89:17, 89:22, 90:34, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stinred 33:21 Stone 140:8 Stone 140:16, 140:24, 141:8, 141:13	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16,	<pre>studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:13,</pre>	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended \ 76:7,\\ 76:8,\ 76:9\\ tendency \ 53:6\\ tends \ 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ term \ 137:22\\ termination\\ 117:24\\ terrible \ 65:25\\ territory\\ 109:20\\ Testing \ 43:1,\\ 65:11,\ 71:6,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests \ 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks \ 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three. 124:20\\ threshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 towards 12:21,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 90:2, 88:25, 89:3, 89:17, 89:22, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 stewarding 121:21 stick 28:12, 35:25 stinred 33:21 Stone 140:8 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:13, 132:16,	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 88:21, 92:4\\ three-inversion\\ 103:21, 92:4\\ three-inversion\\ 103:21, 92:4\\ three-inversion\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ throw 58:14\\ throw 13:10,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touch 122:21 touched 27:19 toward 139:3 towards 12:21, 48:5
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:16, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stinred 33:21 Stone 140:8 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:22,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16, 79:12, 98:12 Sucar 66:2, 132:9, 132:16, 132:17 suggest 89:4	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests $28:7,$ 46:20, 47:12, 53:20 Thanks $28:22,$ 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves $65:1$ theomy 153:13 theomocline	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three. 124:20\\ threshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thumping 13:10,\\ 36:4\\ tidal 36:10,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tottorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:10 (3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stirred 33:21 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 stronger 37:4	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:16, 132:17	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves 65:1 theory 153:13	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three, 124:20\\ three hold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thoughing 13:10,\\ 36:4\\ tidal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomprow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 total 15:4 touch 122:21 touched 27:19 towards 12:21, 48:5 town 65:25,
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 86:16, 90:22, 92:20, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stimred 33:21 Stome 140:8 Stome 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24, 148:12 stopped 2:8 stopped 2:8	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:17, 140:22, 141:3, 145:4, 145:6, 146:6	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:16, 132:17 suggest 89:4 suggestion	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves 65:1 theory 153:13 thermcline 46:12, 50:25 they'l1 88:21, 88:23	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-durents\\ 103:21\\ three. 124:20\\ threshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thumping 13:10,\\ 36:4\\ tickal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17,
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:10 (31, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:22, 141:3, 145:4, 145:6,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:16, 132:17 suggest 89:4 suggesting 60:17	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended 76:7,\\ 76:8,\ 76:9\\ tendency\ 53:6\\ tends\ 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ term 137:22\\ termination\\ 117:24\\ terrible\ 65:25\\ territcory\\ 109:20\\ Testing\ 43:1,\\ 65:11,\ 71:6,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests\ 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks\ 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ themselves\ 65:1\\ theory\ 153:13\\ thermcoline\\ 46:12,\ 50:25\\ they'\ 11\ 88:21,\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three, 124:20\\ three hold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thoughing 13:10,\\ 36:4\\ tidal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomprow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 total 19:63 took 12:21, total 19:33 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22,
steady 35:7 steel 31:12 stenograph 157:6 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:12 Stone 140:8 Stone 140:16, 140:24, 141:13 Stop 14:16, 80:18, 95:12, 147:24, 148:12 Stopped 2:8 Storm 15:16, 58:14, 134:9 Stomms 46:17,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:20, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:17, 140:12, 141:3, 145:4, 145:16, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:16, 132:17 suggest 89:4 suggestion 91:25 suggestion 91:25 suggests 79:10 sulfide 106:3	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended\ 76:7,\\ 76:8,\ 76:9\\ tendency\ 53:6\\ tends\ 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ termination\\ 117:24\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 71:26,\\ 117:24\\ terrible\ 65:25\\ terrible\ 71:26,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests\ 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks\ 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ themselves\ 65:1\\ theory\ 153:13\\ themmocline\\ 46:12,\ 50:25\\ they'\ 11\ 88:21,\\ 88:23\\ they'\ vs\ 35:13,\\ 92:24\\ thick\ 50:6\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three, 124:20\\ threehold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throm 58:14\\ thumping 13:10,\\ 36:4\\ tickla 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:2, 98:13\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 105:19 trace 8:21
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:10 (3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stirred 33:21 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24, 148:12 stopped 2:8 stops 126:2 storm 15:16, 58:14, 134:9 storms 46:17, 46:18 straight 62:15,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:12, 141:3, 145:4, 145:6, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 101:8, 105:8, 105:15,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:19, 132:16, 132:17 suggest 89:4 suggestion 91:25 suggests 79:10 sulfides 105:18, 106:2	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended 76:7,\\ 76:8,\ 76:9\\ tendency\ 53:6\\ tends\ 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ term 137:22\\ termination\\ 117:24\\ terrible\ 65:25\\ territcory\\ 109:20\\ Testing\ 43:1,\\ 65:11,\ 71:6,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests\ 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks\ 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ themselves\ 65:1\\ theory\ 153:13\\ thermcoline\\ 46:12,\ 50:25\\ they'll\ 88:21,\\ 88:23\\ they've\ 35:13,\\ 92:24\\ thick\ 50:6\\ thinking\ 19:9,\\ 68:14,\ 135:6,\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three, 124:20\\ threeshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thmping 13:10,\\ 36:4\\ tidal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:13\\ tides 32:1,\\ 51:3, 51:5,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 total 19:63 touch 122:21 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 105:19 trace 8:21 tracebility 8:21
steady 35:7 steel 31:12 stenograph 157:6 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:12 Stone 140:8 Stone 140:16, 140:24, 141:13 Stop 14:16, 80:18, 95:12, 147:24, 148:12 Stopped 2:8 stopms 16:17, 46:18 straight 62:15, 62:19	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:17, 140:22, 141:3, 145:4, 145:6, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 105:15, 105:8, 105:15, 106:6,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:13, 132:16, 132:17 suggesting 60:17 suggesting 60:17 suggesting 105:18, 106:2 summarize 78:15	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended\ 76:7,\\ 76:8,\ 76:9\\ tendency\ 53:6\\ tends\ 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ termination\\ 117:24\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 65:25\\ terrible\ 71:26,\\ 109:20\\ Testing\ 43:1,\\ 65:11,\ 71:6,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests\ 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks\ 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ thenselves\ 65:1\\ theory\ 153:13\\ themscline\\ 46:12,\ 50:25\\ they'tl\ 88:21,\\ 88:23\\ they've\ 35:13,\\ 92:24\\ thick\ 50:6\\ thinking\ 19:9,\\ 68:14,\ 135:6,\\ 140:25,\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 83:21, 92:4\\ three-quarters\\ 103:21\\ three. 124:20\\ threehold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thumping 13:10,\\ 36:4\\ tickla 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:21, 98:10\\ tickla 35:15,\\ 98:5, 98:10\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 toward 139:3 towards 12:21, 48:5 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:19 traceability 8:21 traces 33:9
steady 35:7 steel 31:12 stenograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:10 (3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 steward 130:3 stewarding 121:21 stick 28:12, 35:25 stirred 33:21 Stone 140:8 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24, 148:12 stopped 2:8 stops 126:2 storms 46:17, 46:18 stratight 62:15, 62:19 strategy 23:3 stratification	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:22, 141:3, 145:4, 145:6, 145:16, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 101:8, 105:8, 105:15, 106:6, 107:13, 108:19,	<pre>studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 suggests12, 132:9, 132:13, 132:16, 132:17 suggest 89:4 suggesting 60:17 suggests 91:25 suggests 105:18, 106:2 sumarize 78:15 sugmarizing 56:9</pre>	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves 65:1 theory 153:13 thermcoline 46:12, 50:25 they'll 88:21, 88:23 they've 35:13, 92:24 thick 50:6 thinking 19:9, 68:14, 135:6, 140:25, 143:2, 144:9 third-party	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-dimension\\ al 51:24,\\ 103:21\\ three 51:24,\\ 103:21\\ three 51:24,\\ 103:21\\ throw 58:14\\ throw 58:14\\ thomping 13:10,\\ 36:4\\ tidal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:2, 98:13\\ tides 32:1,\\ 51:3, 51:5,\\ 98:5, 98:10\\ timeline 12:16,\\ 12:24\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 33:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touch 122:21 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 105:19 trace 8:21 tracked 98:20,
steady 35:7 steel 31:12 stencoraph 157:6 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:15 stevenson 90:24, 99:3, 90:3, 90:10, 90:24, 91:6, 91:22, 92:20, 93:2 stewarding 121:21 stick 28:12, 35:25 stirred 33:21 stone 140:8 Stone 140:8 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24, 148:12 stopped 2:8 stom 15:16, 58:14, 134:9 stornes 46:17, 46:18 straight 62:15, 62:19 strategy 23:3 stratification 47:7, 47:11,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:17, 140:22, 141:3, 145:4, 145:6, 145:16, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 101:8, 105:8, 105:15, 106:6, 107:13,	studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:13, 132:16, 132:17 suggest 89:4 suggesting 60:17 suggest 79:10 sulfides 105:18, 106:2 summarize 78:15 summarize 78:15	$\begin{array}{c} 52:2,\ 52:10,\\ 53:1,\ 53:2,\\ 81:18,\ 90:6,\\ 98:16,\ 132:5\\ tended 76:7,\\ 76:8,\ 76:9\\ tendency 53:6\\ tends 37:4,\\ 41:25,\ 47:24,\\ 48:3,\ 48:5,\\ 48:6,\ 49:21,\\ 51:24,\ 51:25,\\ 52:4,\ 75:15\\ termination\\ 117:24\\ terrible 65:25\\ territory\\ 109:20\\ Testing 43:1,\\ 65:11,\ 71:6,\\ 88:12,\\ 111:25,\\ 124:23,\ 125:6\\ tests 28:7,\\ 46:20,\ 47:12,\\ 53:20\\ Thanks 28:22,\\ 56:5,\ 79:21,\\ 80:23,\ 84:15,\\ 99:21,\ 141:25\\ themselves 65:1\\ theory\ 153:13\\ thermocline\\ 46:12,\ 50:25\\ they'lu 88:21,\\ 88:23\\ they've 35:13,\\ 92:24\\ thick\ 50:6\\ thinking\ 19:9,\\ 68:14,\ 135:6,\\ 143:2,\ 144:9\\ \end{array}$	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 83:21, 92:4\\ three-quarters\\ 103:21\\ three. 124:20\\ threshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thumping 13:10,\\ 36:4\\ tickla 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:21, 98:10\\ timeline 12:16,\\ 12:24\\ tissue 144:15\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touch 122:21 touch 27:19 toward 139:3 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 102:17, 105:19 trace 8:21 traces 33:9 track 45:12
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:10 (3, 90:10, 90:24, 91:6, 91:22, 92:20, 91:22, 92:20, 91:23, 91:10, 91:24, 91:6, 91:22, 92:20, 91:24, 91:6, 91:22, 92:20, 91:22, 92:20, 91:24, 91:6, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 91:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 92:20, 91:22, 91:20, 91:22, 91:20, 91:20, 91:20, 91:20, 91:20, 91:20, 91:20, 91:20, 91	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:22, 141:3, 145:4, 145:6, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 101:8, 105:8, 105:15, 106:6, 107:13, 108:19, 109:5, 120:20, 121:4, 154:4,	<pre>studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 sufficient 57:16 suggests12, 132:9, 132:13, 132:16, 132:17 suggest 89:4 suggesting 60:17 suggests 91:25 suggests 105:18, 106:2 summarizing 56:9 summary 19:6 summary 19:6 summary 19:6</pre>	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 term 137:22 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves $65:1$ theory 153:13 thermcoline 46:12, 50:25 they'll 88:21, 88:23 they've $35:13,$ 92:24 thick 50:6 thinking 19:9, 68:14, 135:6, 140:25, 143:2, 144:9 third-party 111:11 Thormdike 141:17	$\begin{array}{c} 107:12,\\ 133:17, 156:9\\ thoughtfully\\ 122:15\\ thousand 29:23,\\ 101:14\\ thousand.\\ 55:10, 55:14,\\ 55:15\\ thousands\\ 57:11, 68:23,\\ 72:25, 143:19\\ threat 83:19,\\ 83:20\\ three 2:11,\\ 3:13, 55:7,\\ 55:19, 63:15,\\ 83:10, 83:13,\\ 101:20,\\ 115:13\\ three-dimension\\ al 51:24,\\ 89:21, 92:4\\ three-quarters\\ 103:21\\ three, 124:20\\ threeshold 79:11\\ throughout\\ 49:21, 98:16,\\ 126:19\\ throw 58:14\\ thmping 13:10,\\ 36:4\\ tidal 36:10,\\ 39:5, 41:1,\\ 46:2, 50:10,\\ 51:3, 74:9,\\ 74:13, 91:19,\\ 97:6, 97:22,\\ 98:2, 98:13\\ tides 32:1,\\ 51:3, 51:5,\\ 98:5, 98:10\\ timeline 12:16,\\ 12:24\\ tissue 144:15\\ Today 8:8,\\ 8:17, 9:5,\\ \end{array}$	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 33:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touched 27:19 towards 12:21 touched 27:19 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 105:19 trace 8:21 tracked 98:20, 122:21 tracked 98:20, 122:21 tracked 98:20, 122:21
steady 35:7 steel 31:12 stemograph 157:6 step 7:16, 8:21, 21:6, 22:8, 22:24, 23:8, 28:14, 150:9, 150:17 steps 20:19 sterile 60:2 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 Stevenson 86:15 stevenson 86:10 90:24, 91:6, 91:22, 92:20, 93:2 stewarding 121:21 stick 28:12, 35:25 stinred 33:21 Stone 140:16, 140:24, 141:8, 141:13 stop 14:16, 80:18, 95:12, 147:24, 148:12 stopped 2:8 storms 16:17, 46:18 straight 62:15, 62:19 stratedy 23:3 stratification 47:7, 47:11, 47:16, 47:18,	49:12, 50:11, 51:1, 51:4, 52:23, 52:25, 53:15, 75:20, 136:23, 137:2, 137:14 stratified 53:15 stream 14:20, 101:18, 101:19 Street 156:12 strength 72:4 strict 82:6, 82:8 strong 22:10, 49:8, 49:12, 50:10, 51:5, 52:23, 53:6, 96:7, 107:9, 107:21 stronger 37:4 structure 27:5, 39:3, 124:6 studied 58:9, 141:1 studies 18:23, 27:17, 75:16, 94:13, 94:22, 95:19, 96:18, 108:16, 132:1, 140:9, 140:17, 140:22, 141:3, 145:4, 145:6, 145:16, 146:6 study 27:20, 60:24, 61:4, 61:7, 94:25, 101:8, 105:8, 105:15, 106:6, 107:13, 108:19, 109:5, 120:20,	<pre>studying 140:12 stuff 11:19, 15:16, 125:18 subbay 46:14 submission 5:8, 6:3 submit 4:7, 121:3 submitted 5:10, 28:19, 69:6, 88:13, 88:14, 121:4, 145:18 submitting 3:21, 4:6, 151:13 substance 25:10, 39:25, 40:17 substances 13:22, 14:6, 21:18, 25:12, 63:9 substitutes 113:19, 115:5 successful 57:16 sufficient 57:18, 79:12, 98:12 Sugar 66:2, 132:9, 132:13, 132:16, 132:17 suggest 89:4 suggesting 60:17 suggest 79:10 sulfides 105:18, 106:2 summarize 78:15 summarize 78:15 summarize 78:15 summarize 78:15 summarize 78:15</pre>	52:2, 52:10, 53:1, 53:2, 81:18, 90:6, 98:16, 132:5 tended 76:7, 76:8, 76:9 tendency 53:6 tends 37:4, 41:25, 47:24, 48:3, 48:5, 48:6, 49:21, 51:24, 51:25, 52:4, 75:15 termination 117:24 terrible 65:25 territory 109:20 Testing 43:1, 65:11, 71:6, 88:12, 111:25, 124:23, 125:6 tests 28:7, 46:20, 47:12, 53:20 Thanks 28:22, 56:5, 79:21, 80:23, 84:15, 99:21, 141:25 themselves 65:1 theory 153:13 thermcoline 46:12, 50:25 they'lu 88:21, 88:23 they've 35:13, 92:24 thick 50:6 thinking 19:9, 68:14, 135:6, 140:25, 143:2, 144:9 third-party 111:11 Thorndike	107:12, 133:17, 156:9 thoughtfully 122:15 thousand 29:23, 101:14 thousand. 55:10, 55:14, 55:15 thousands 57:11, 68:23, 72:25, 143:19 threat 83:19, 83:20 three 2:11, 3:13, 55:7, 55:19, 63:15, 83:10, 83:13, 101:20, 115:13 three-dimension al 51:24, 89:21, 92:4 three-quarters 103:21 three-dimension al 51:24, 89:21, 92:4 three-quarters 103:21 three. 124:20 threshold 79:11 throughout 49:21, 98:16, 126:19 throw 58:14 thmoy 58:14 thmoy 58:14 throw 58:14 throw 58:14 throw 58:14 throw 58:14 throw 58:14 throw 58:13, 74:9, 74:13, 91:19, 97:6, 97:22, 98:2, 98:13 tickes 32:1, 51:3, 51:5, 98:5, 98:10 timeline 12:16, 12:24 tissue 144:15 Tockay 8:8,	20:11, 24:1, 27:24, 62:14, 64:3, 82:18, 82:24, 85:20, 135:10, 135:20, 136:9, 137:20, 140:4, 152:3, 152:21 together 9:24, 10:2, 10:14, 34:11, 39:21, 124:7 tomorrow 140:4 tons 26:2, 130:10, 130:13 took 38:6, 38:7, 40:2 top 47:24, 50:14, 144:15 topic 84:12 Total 15:3, 26:1, 27:13, 27:20, 152:21 totally 64:11, 123:19, 155:4 touch 122:21 touched 27:19 toward 139:3 towards 12:21, 48:5 town 65:25, 67:11, 82:6 toxic 13:21, 14:6, 14:22, 61:15, 61:17, 102:17, 102:17, 102:17, 102:19 trace 8:21 traceability 8:21 track 45:12 tracked 98:20, 122:21 tracked 98:20, 122:21

201

	44.00 45.44		150.11		
traffic 44:23	44:22, 45:14,		153:11	waters 6:22,	whole 10:11,
trained 128:3	100:1,		Ward 100:6,	13:16, 77:9,	23:25, 34:9,
training 60:22,	110:13,	< U >	110:10	125:13, 150:4	39:20, 51:6,
123:15, 124:1 TRANSCRIPT 2:1,	129:21 Trying 18:1,	ultimate 95:8 ultimately	warm 48:17 warmer 48:13,	watershed 48:24, 84:25,	63:17, 100:14,
4:14, 4:23,	30:13, 31:13,	51:14, 96:5	135:14,	85:2	101:1,
4:25, 44:11,	33:23, 42:12,	ultra 60:4	138:25	waves 39:6,	105:13,
121:10, 157:5	82:18, 82:23,	ultraviolet	warming 134:23,	51:17, 52:2	107:2,
transfusion	97:18,	68:18	134:24	ways 18:6,	108:21,
60:3	139:15,	unclear 126:12	warms 137:2	42:22, 48:9,	113:14,
transition	147:10, 152:9	underneath	washed 37:11,	70:10, 102:2,	136:8, 144:7,
48:21	TSS 15:5,	29:20	73:21, 75:5,	102:11,	154:7
transitions	15:14, 15:15, 15:18, 15:20,	understand 5:2, 5:6, 7:14,	109:15,	117:10, 127:20	wide 24:1 wiggle 152:16
50:20 transparency	15:23, 15:24,	18:17, 29:5,	109:23 Washington 9:13	weak 50:11	wild 58:15,
100:8	16:1, 19:6,	30:25, 32:7,	WASIE 1:1,	wealth 47:16	77:6, 80:11,
transport 8:17	26:4, 26:10,	40:9, 42:13,	14:20, 15:19,	weather 31:6,	80:14, 91:25
transported	40:12, 87:4,	42:19, 43:23,	17:23,	48:18, 48:19	wildlife 38:3
48:5, 48:7	99:12, 108:11	50:1, 50:15,	101:17,	website 5:15,	Wind 39:6,
trap 105:14	turbulence	63:25, 65:21,	101:19,	5:17, 145:9	46:16, 47:12,
trapped 15:7, 49:22, 49:24,	34:24, 39:20, 50:12, 51:6,	66:22, 67:18, 72:23, 86:19,	107:5, 109:10	week 99:3 weekly 126:25,	51:11, 51:16, 51:18, 51:19,
53:6, 53:9,	52:1, 52:3,	94:2, 97:19,	wasted 109:11 wastewater	153:5	51:20, 51:24,
53:15, 60:1	52:4	104:9, 115:8,	11:7, 16:6,	weeks 34:20,	52:2, 52:5,
treat 11:21,		118:19,	16:25, 20:19,	35:2, 72:16,	52:7, 52:8,
23:5, 73:2,	Turn 7:6, 16:16, 28:21,	119:22,	20:22, 21:19,	73:22, 74:21,	100:22,
73:5	36:21, 43:7,	131:13,	21:20, 21:23,	75:10, 90:8,	101:4, 101:8,
treated 11:18	43:14, 66:11,	155:17	26:6, 27:2,	97:8, 98:16,	101:9
treating 12:4,	69:3, 102:23	understanding	29:22, 39:9,	98:19, 98:22, 99:5, 153:25	winds 74:25
18:3, 21:22, 22:11, 85:7,	two-dimensional 51:12, 52:11,	31:5, 56:3, 56:5, 91:4,	39:12, 65:16, 65:24, 79:2,	weigh $95:10$	winter 12:17, 46:12, 48:22
96:14, 133:23	89:15	95:5, 97:20,	79:6, 104:18,	Wejisue 100:23	wintertime
trend 87:6	two-page 6:7	121:21,	104:23,	Welcome 2:2,	48:21, 48:25,
tricking 144:8	type 30:18,	130:24,	124:11,	56:6, 76:24,	138:7, 138:21
tried 47:1,	73:13, 112:20	131:7,	134:5,	77:24, 82:11	wisely 140:5
95:23, 131:1	types 13:18,	152:20,	147:21,	welfare 25:20	wish 5:18
trillions 96:9,	13:19, 14:4,	153:16	149:9, 149:14	Wells 3:12, 85:10	within 38:4,
103:24, 106:24	14:6, 21:18, 23:16, 24:6,	understood 93:23	Watch 33:13, 37:8, 74:11,	85:10 West 76:10,	41:16, 48:10, 49:24, 50:7,
trip 57:1	38:11	unfortunately	75:14, 84:4,	92:23, 99:1	53:6, 53:13,
trivial 122:19	typical 80:2,	44:17	98:21	wetland 3:7	77:14, 78:25,
Troy 1:8, 1:12	150:18	unfriendly	watching 74:2,	whatever 68:16,	79:1, 87:2,
true 61:12,	Typically 11:2,	81:10	74:5, 74:15,	88:9, 91:14,	89:23, 94:15,
61:13, 96:22,	12:3, 14:4,	Union 111:14	121:16,	148:9	126:21,
124:16, 157:4 truly 120:21,	15:1, 20:20, 21:19, 64:2,	unique 22:1 United 59:3,	121:24, 121:25	whether 13:17, 49:19, 67:1,	127:24, 152:6, 155:4,
148:15	71:9, 71:19,	82:11	waterfall	126:12,	157:3
trusty 118:16	72:1, 72:9,	University	108:23	129:24,	without 6:23,
try 8:4, 24:16,	73:12, 97:17,	57:2, 58:3,	waterfront	130:25	59:12, 64:13,
30:24, 31:1,	143:24	67:2, 102:20	146:25	whoever 6:17	86:3, 125:21,
		205			207
		205			207
until 6:19,	11:13, 11:15,	vertically	131:7	write-ups 81:17	207
43:18, 98:17,	26:8, 26:14,	vertically 53:18, 92:7	wonderful 56:8,	writing 78:1,	207
43:18, 98:17, 115:13,	26:8, 26:14, 30:14, 35:19,	vertically 53:18, 92:7 veterinarian	wonderful 56:8, 80:19	writing 78:1, 110:6	207
43:18, 98:17, 115:13, 151:12	26:8, 26:14, 30:14, 35:19, 38:5, 38:12,	vertically 53:18,92:7 veterinarian 60:21	wonderful 56:8, 80:19 wondering	writing 78:1, 110:6 written 5:15,	207
43:18, 98:17, 115:13, 151:12 updates 151:15	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries	wonderful 56:8, 80:19 wondering 93:13,	writing 78:1, 110:6	207
43:18, 98:17, 115:13, 151:12	26:8, 26:14, 30:14, 35:19, 38:5, 38:12,	vertically 53:18,92:7 veterinarian 60:21	wonderful 56:8, 80:19 wondering	writing 78:1, 110:6 written 5:15,	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23,	vertically 53:18,92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22,59:8,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y ></pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 uppra 32:19, 50:4, 52:3,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WOODSUM 1:17 words 23:20,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Unp 57:14,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viability 92:9 viability 92:9 viability 92:9 viability 92:9 viability 92:9 viability 92:9 viability 92:2, view 40:23, 41:17, 84:3, 122:2 views 84:7	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WOODSUM 1:17 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WOODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USD 24:23, 70:2, 111:10	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WOODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USBA 24:23, 70:2, 111:10 using 9:4,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 Woodsom 2:4 Woodsom 2:4 Woodsom 1:17 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Unup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USB 35:25 USB 35:25 USB 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USBA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 virus 57:6, 57:7, 57:19.	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WOODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 23:20, 25:7, 63:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USB 35:25 USB 35:25 USB 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 121:16, 122:1, 124:9,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19,	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16,</pre>	207
$\begin{array}{c} 43:18, 98:17, \\ 115:13, \\ 151:12 \\ \mbox{updates} 151:15 \\ \mbox{updating} 151:14 \\ \mbox{upfrade} 94:20 \\ \mbox{upprade} 94:19 \\ \mbox{uppred} 22:19, \\ 50:4, 52:3, \\ 52:20, 89:23 \\ \mbox{upward} 41:21 \\ \mbox{urge} 81:11, \\ 110:4 \\ \mbox{Urup} 57:14, \\ 62:3, 62:9 \\ \mbox{usage} 9:3 \\ \mbox{USB} 35:25 \\ \mbox{USB} 35:25 \\ \mbox{USB} 24:23, \\ 70:2, 111:10 \\ \mbox{using} 9:4, \\ 23:23, 73:13, \\ 135:10, \\ 139:10, 142:6 \\ \mbox{UV} 22:9, 22:25, \\ 142:5 \\ \end{array}$	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16, variations 137:24, 139:16, varies 47:20, 49:19, 53:7, 88:20, 89:1, variety 24:1, 108:10, various 13:18, 20:10, 20:22,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V >	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3</pre>	207
43:18, 98:17, 115:13, 15:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vacation 122:4	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 viata 16:18	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:12, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V >	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3</pre>	207
43:18, 98:17, 115:13, 15:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vacation 122:4 vaccinated 58:21, 59:5 vaccinating	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:24, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Uhup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinated 58:21, 59:5 vaccinating 143:5	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, 38:14, 38:17, values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16, variation 12:11, 46:13, 63:4, 139:17, variations 137:24, 139:16, varies 47:20, 49:19, 53:7, 88:20, 89:1, variety 24:1, 108:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20, 150:20, 38:12,	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 vist 111:23 vital 16:18 volume 39:25, 40:1, 122:19	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 workd 21:8, 81:14,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 young 58:1</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinated 58:21, 59:5 vaccination 143:5 vaccination	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variable 52:8 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 varicus 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20 vary 49:21	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 123:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinated 58:21, 59:5 vaccinating 143:13,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:2, 21:3, 23:9, 25:24, 72:18, 55:24, 72:19, 95:22, 150:20 vary 49:21 varying 36:25,	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 visit 111:23 visit 111:23 vilate 89:25, 40:1, 122:19 volunteered 58:3</pre>	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 53:24 worked 2:11, 10:20, 12:18, 12:21, 15:12, 19:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:24, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinated 58:21, 59:5 vaccination 143:5 vaccination	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 varicety 24:1, 108:10 varicety 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20 vary 49:21 vary 49:21 vary 36:25, 38:10	vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 23:20, 25:7, 73:11 words 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13,	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25 years 2:7, 2:15, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 123:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Uhup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinated 58:21, 59:5 vaccinating 143:5 vaccination 143:13, 143:14	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10, 20:22, 21:3, 23:9, 25:24, 72:18, 55:24, 72:19, 95:22, 150:20, vary 49:21 varying 36:25, 38:10 vegetable 113:10,	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 viral 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 works 25:4, 25:9, 153:2 works 21, 135:19</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 young 58:1</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinating 143:5 vaccination 143:13, 143:14 vaccinations 73:3 vaccine 59:2,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17, values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20 vary 49:21 varying 36:25, 38:10 vegetable 113:10, 114:3	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:19, 73:14, 144:6 visit 111:23 viral 16:18 volume 39:25, 40:1, 122:19 volumteered 58:3 < W > W. 68:13 walked 9:25, 107:8</pre>	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 workd 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 young 58:10 younself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 	$\begin{array}{c} 26:8, 26:14, \\ 30:14, 35:19, \\ 38:5, 38:12, \\ 38:13, 38:14, \\ 38:17 \\ \mbox{values} 26:19, \\ 26:22, 26:23, \\ 38:9, 126:25, \\ 130:5, \\ 150:21, \\ 150:21, \\ 150:22 \\ \mbox{variable} 52:8 \\ \mbox{varying} 36:25, \\ \mbox{38:10} \\ \mbox{vegetable} \\ \mbox{113:10, 114:3} \\ \mbox{vegetables} \\ \mbox{vegetables} \\ \mbox{variable} 52:8 \\ \mbox{variable} 52:8 \\ \mbox{vegetables} \\ \m$	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visut 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 walked 9:25, 107:8 wanted 11:1,</pre>	<pre>wonderful 56:8, 80:19 wonderring 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodscm 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 works 25:4, 25:9, 153:2 works 21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourg 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:17, 136:21,</pre>	207
$\begin{array}{c ccccc} & 43:18, & 98:17, \\ & 115:13, \\ & 151:12 \\ & updates 151:15 \\ & updating 151:14 \\ & upflow 94:20 \\ & upgrade 94:19 \\ & upgrade 94:19 \\ & upgrade 94:19 \\ & upgrad 94:12 \\ & urge 81:11, \\ & 110:4 \\ & Urup 57:14, \\ & 62:3, & 62:9 \\ & usage 9:3 \\ & USDA 24:23, \\ & 70:2, & 111:10 \\ & using 9:4, \\ & 23:23, & 73:13, \\ & 139:10, & 142:6 \\ & UV & 22:9, & 22:25, \\ & 142:5 \\ & < V > \\ & vaccination \\ & 143:13, \\ & 143:14 \\ & vaccinations \\ & 73:3 \\ & vaccine 59:2, \\ & 142:4 \\ & 144:19 \\ & 144:19 \\ & 110 \\ & updates 112 \\ & updates 122 \\ & updates 122$	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:2, 21:3, 23:9, 25:24, 72:18, 55:24, 72:19, 95:22, 150:20 vary 49:21 varying 36:25, 38:10 vegetable 113:15, 114:3 vegetables 113:13	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3</pre>	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:24, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 121:16, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 134:13, 135:11, 136:17, 136:21, 136:25,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinating 143:5 vaccination 143:13, 143:14 vaccinations 73:3 vaccine 59:2, 143:4, 144:3, 144:19 vaccines 58:24,	$\begin{array}{c} 26:8, 26:14, \\ 30:14, 35:19, \\ 38:5, 38:12, \\ 38:13, 38:14, \\ 38:17 \\ \mbox{values} 26:19, \\ 26:22, 26:23, \\ 38:9, 126:25, \\ 130:5, \\ 150:21, \\ 150:21, \\ 150:22 \\ \mbox{variable} 52:8 \\ \mbox{varying} 36:25, \\ \mbox{38:10} \\ \mbox{vegetable} \\ \mbox{113:10, 114:3} \\ \mbox{vegetables} \\ \mbox{vegetables} \\ \mbox{variable} 52:8 \\ \mbox{variable} 52:8 \\ \mbox{vegetables} \\ \m$	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visut 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 walked 9:25, 107:8 wanted 11:1,</pre>	wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourg 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:17, 136:21,</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upprade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vacation 122:4 vaccination 143:15, vaccinations 73:3 vaccine 59:2, 143:4, 144:3, 143:14, vaccines 58:24, 143:11, 	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:1, 108:10 variety 24:2, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 150:20, 150:20, 150:20, vary 49:21 varying 36:25, 38:10 vegetables 113:13 vendors 10:7 Vemont 65:24, 67:11	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 virat 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 wanted 11:1, 13:16, 84:16, 94:9, 94:11, 97:19, 104:11,</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13 Wright 68:13</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 121:16, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 134:13, 135:11, 136:17, 136:21, 136:22, 142:15, 147:9</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USB 35:25 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccinating 143:5 vaccination 143:13, 144:19 vaccines 58:24, 143:11, 143:17,	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22, variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 varicety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20 vary 49:21 vary 10, 51:7, 38:10 vegetables 113:15, 114:3 vegetables 113:13 vembors 10:7 Vermont 65:24, 67:11 versus 67:6,	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 wanted 11:1, 13:16, 84:16, 94:9, 94:11, 97:19, 104:11, 105:4,</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodLands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13 Wright. 70:8, 76:12, 76:22</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourg 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:25, 142:15, 147:9 < Z ></pre>	
$\begin{array}{c} 43:18, 98:17, \\ 115:13, \\ 15:12 \\ \mbox{updates } 151:15 \\ \mbox{updating } 151:14 \\ \mbox{upflow } 94:20 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:121 \\ \mbox{urge } 81:11, \\ 110:4 \\ \mbox{urge } 81:11, \\ 110:4 \\ \mbox{urge } 81:12, \\ 110:4 \\ \mbox{urge } 9:3 \\ \mbox{ussge } 9:4, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 1:4:13, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:12, \\ ussge$	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20 varying 36:25, 38:10 vegetables 113:15, 114:3 vendors 10:7 Vernuch 65:24, 67:6, 101:15,	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visut 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 walked 9:25, 107:8 wanted 11:1, 13:16, 84:16, 94:9, 94:11, 97:19, 104:11, 105:4, 128:24,</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13 Wright 68:13 Wright 68:13 Wright 68:13</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:17, 136:25, 142:15, 147:9 < Z > Zero 138:5</pre>	207
43:18, 98:17, 115:13, 151:12 updates 151:15 updating 151:14 upflow 94:20 upgrade 94:19 upper 32:19, 50:4, 52:3, 52:20, 89:23 upward 41:21 urge 81:11, 110:4 Urup 57:14, 62:3, 62:9 usage 9:3 USDA 24:23, 70:2, 111:10 using 9:4, 23:23, 73:13, 135:10, 139:10, 142:6 UV 22:9, 22:25, 142:5 < V > vaccination 143:13, 143:14 vaccinations 73:3 vaccine 59:2, 143:8, 143:11, 143:17, 144:2, 144:20 validate 54:2,	$\begin{array}{c} 26:8, 26:14, \\ 30:14, 35:19, \\ 38:5, 38:12, \\ 38:13, 38:14, \\ 38:17 \\ values 26:19, \\ 26:22, 26:23, \\ 38:9, 126:25, \\ 130:5, \\ 150:21 \\ variable 52:8 \\ variable 52:8 \\ variable 52:8 \\ variable 513, \\ 150:22 \\ variable 513, \\ 137:16 \\ variation \\ 12:11, 46:13, \\ 63:4, 139:17 \\ variations \\ 137:24, \\ 139:16 \\ varies 47:20, \\ 49:19, 53:7, \\ 88:20, 89:1 \\ variety 24:1, \\ 108:10 \\ vary 49:21 \\ vary 13:15, \\ 113:13 \\ vendors 10:7 \\ vemons 10:7 \\ vemons 65:24, \\ 67:11 \\ versus 67:6, \\ 101:15, \\ 102:15 \\ \end{array}$	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 viral 58:22, 70:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visit 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 wanted 11:1, 13:16, 84:16, 94:9, 94:11, 97:19, 104:11, 105:4, 128:24, 146:18, 150:3</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woodlands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 works 25:4, 25:9, 153:2 works 25:4, 25:9, 153:2 works 25:4, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13 Wright 70:8, 72:22, 73:25, 76:12, 76:22 write 31:19, 84:9, 141:14</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourg 58:10 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:25, 142:15, 147:9 < Z ></pre>	
$\begin{array}{c} 43:18, 98:17, \\ 115:13, \\ 15:12 \\ \mbox{updates } 151:15 \\ \mbox{updating } 151:14 \\ \mbox{upflow } 94:20 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:19 \\ \mbox{upprade } 94:121 \\ \mbox{urge } 81:11, \\ 110:4 \\ \mbox{urge } 81:11, \\ 110:4 \\ \mbox{urge } 81:12, \\ 110:4 \\ \mbox{urge } 9:3 \\ \mbox{ussge } 9:4, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 9:5, \\ \mbox{ussge } 1:4:13, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:14, \\ \mbox{ussge } 1:4:12, \\ ussge$	26:8, 26:14, 30:14, 35:19, 38:5, 38:12, 38:13, 38:14, 38:17 values 26:19, 26:22, 26:23, 38:9, 126:25, 130:5, 150:21, 150:22 variable 52:8 variables 137:16 variation 12:11, 46:13, 63:4, 139:17 variations 137:24, 139:16 varies 47:20, 49:19, 53:7, 88:20, 89:1 variety 24:1, 108:10 various 13:18, 20:10, 20:22, 21:3, 23:9, 25:13, 27:18, 55:24, 72:19, 95:22, 105:20, 150:20 varying 36:25, 38:10 vegetables 113:15, 114:3 vendors 10:7 Vernuch 65:24, 67:6, 101:15,	<pre>vertically 53:18, 92:7 veterinarian 60:21 veterinaries 71:7 veterinary 25:22, 59:8, 71:11, 71:12, 73:18 via 65:17 viability 92:9 viable 81:11 view 40:23, 41:17, 84:3, 122:2 views 84:7 vigorously 11:21 violating 153:13 virus 57:6, 57:7, 57:19, 57:22, 68:16, 72:9, 72:19, 73:14, 144:6 visut 111:23 vital 16:18 volume 39:25, 40:1, 122:19 volunteered 58:3 < W > W. 68:13 walked 9:25, 107:8 wanted 11:1, 13:16, 84:16, 94:9, 94:11, 97:19, 104:11, 105:4, 128:24,</pre>	<pre>wonderful 56:8, 80:19 wondering 93:13, 120:16, 128:18, 140:12, 152:20 woollands 133:11 Woodsom 2:4 WODSUM 1:17 words 23:20, 25:7, 73:11 work 7:15, 9:9, 9:21, 10:10, 30:22, 36:2, 43:9, 65:15, 68:9, 140:6, 152:5 worked 2:11, 53:24 working 2:7, 10:20, 12:18, 12:21, 15:12, 69:21, 71:2, 119:24, 127:4, 127:6, 146:25 works 25:4, 25:9, 153:2 world 21:8, 81:14, 105:13, 108:21, 135:19 Worst 62:23, 71:1, 71:17, 73:4 Wow 138:12 wrap 101:2 Wright 68:13 Wright 68:13 Wright 68:13 Wright 68:13</pre>	<pre>writing 78:1, 110:6 written 5:15, 87:1, 87:9 < Y > year 84:19, 94:18, 109:5, 130:13, 139:22, 151:24, 151:24, 151:25, 2:20, 18:21, 58:2, 58:9, 63:15, 93:13, 102:21, 105:16, 110:23, 115:13, 115:14, 122:1, 124:9, 130:16, 131:5, 135:2, 136:12, 152:3 yourself 59:22, 60:7, 105:15 Yup 36:21, 45:6, 65:9, 66:19, 67:22, 73:24, 86:6, 132:24, 136:17, 136:17, 136:25, 142:15, 147:9 < Z > Zero 138:5</pre>	

General Application for WDL/MEPDES Permit

Public Notice Certification

Attachment 17

STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE GOVERNOR

October 16, 2018

Elizabeth Ransom Ransom Consulting, Inc.

RE: Waiver of Pre-Submission Meeting

Elizabeth,

This letter is to document discussions at the September 12, 2018 pre-application meeting regarding combining the pre-application and pre-submission meeting required under the Department's *Rule Concerning the Processing of Applications and Other Administrative Matters* (Chapter 2). The Department acknowledges that it formally waives the requirement for a pre-submission meeting pursuant to Chapter 2 § 10(D).

Thank you,

Kevin Martin Compliance & Procedures Specialist Maine Department of Environmental Protection

AUGUSTA 17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017 (207) 287-7688 FAX: (207) 287-7826 BANGOR 106 HOGAN ROAD, SUITE 6 BANGOR, MAINE 04401 (207) 941-4570 FAX: (207) 941-4584 PORTLAND 312 CANCO ROAD PORTLAND, MAINE 04103 (207) 822-6300 FAX: (207) 822-6303 PRESQUE ISLE 1235 CENTRAL DRIVE, SKYWAY PARK PRESQUE ISLE, MAINE 04769 (207) 764-0477 FAX: (207) 760-3143

web site: www.maine.gov/dep



PAUL MERCER COMMISSIONER

NORDIC AQUACULTURE

PRE-APPLICATION/PRE-SUBMISSION MEETING Wednesday, September 12, 2018 DEP -Central Maine Regional Office Ray Building, Room LW-3, 10:00 AM - Noon

Elizabeth Ransom gave a quick overview of the project as follows

- Full build out at approximately 31,000 metric tons,
- Facility will be built in two phases generally speaking. The first phase will include a water treatment plant and waste water treatment facility and smolt and grow out tanks. Phase II will include additional smolt and grow out tanks. Total construction time around 6 years.
- A fish processing plant is envisioned in the future but no plans have been prepared as of yet.
- Nordic has secured an easement for the intake and outfall structures to be located approximately 1,000 1,500 meters of shore. The pipes will be buried in the inter-tidal zone. The terminus of the intake pipe will be approximately 55 feet below mean low water and the terminus of the discharge outfall pipe will be located approximately 35 feet below mean low water.
- There was an extensive discussion on modeling that was conducted to support the application. Modelling indicates the discharge plume will likely only influence Western Penobscot Bay between the main land and the western side of Islesboro. The applicant has been conducting limited ambient water quality monitoring to establish baseline conditions in the vicinity of the discharge location.
- The application will contain a discussion on waste water treatment and expected discharge values for biochemical oxygen demand ((BOD), total suspended solids (TSS) and total nitrogen.
- Nordic expects to hold a public informational meeting during the first week of October.
- Nordic anticipates submitting the application for a discharge permit on or about the third week of October.



Form DEPLW1999-19 Revised: February 21, 2018

Maine Department of Environmental Protection Waste Discharge Permit Application

Food Processing Facilities

This form must be attached to the General Application for a Waste Discharge License/MEPDES Permit (Form DEPLW0105-B2003)

Please answer all questions completely, using additional pages as necessary with responses clearly identified by item number on this form.

- 1. Facility Name: ______ NPDES # ME _____
- 2. Attach a drawing showing the water flow through the facility. Please include the sources and volumes of intake water, operations contributing to wastewater discharges, treatment units and outfalls with numbers corresponding to those in the general application.

See Attachment 1.

- 3. Is chlorine used in the process or is the intake water chlorinated? <u>Yes</u> If so, what is the concentration of chlorine in the final effluent(s)? <u>Yes</u>
- 4. List chemicals used for sanitation or disinfection during production or clean-up operations, and maximum discharge concentrations.

Nordic Aquafarms will use approved sanitation or disinfection products for cleaning the food processing facility. See Attachment 3 for a list of compounds.

- List chemicals used in products or processing, and maximum discharge concentrations.
 See Attachment 3 for a list of compounds.
- 6. If boiler blowdown or non-contact cooling water is discharged, please complete EPA form 2E. Not Applicable.
- 7. How are sanitary wastes disposed of?

8. Please complete the attached table of products and productions rates. Complete a separate block for each product or type of production.

Product Name: _____

Pounds per day			Processing p	period(s) each					
proc	essed		y	ear	Daily effluent flows				
Average	Maximum	Total pounds per year processed	Total weeks per year	During the months of	Average	Maximum			
The number	Describe processing operation The numbers above represent live weights. The final product is a head on, gutted salmon. The fish are humanely slaughtered, gutted and placed on ice.								
Fish process		ment nt through a 0.4 micr total final discharge.	on filter prior to	entering the WW	/TP and steri	lized by UV-C			

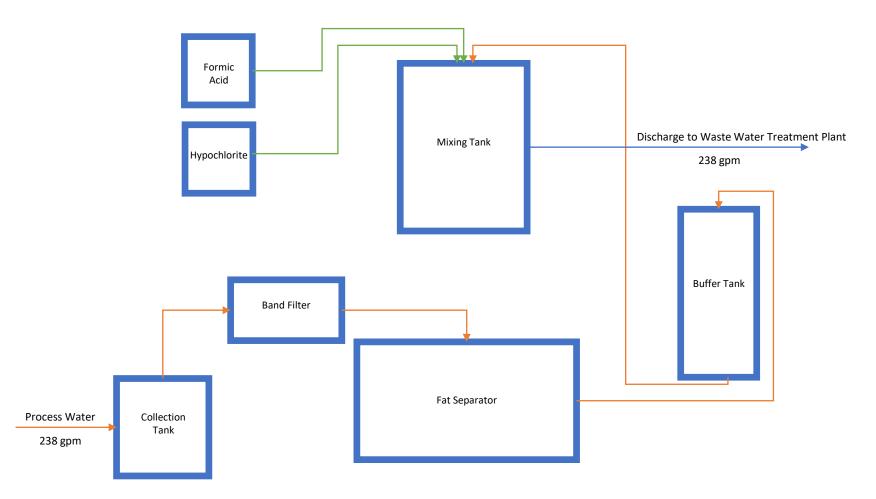
Product Name: _____

Pounds	per day		Processing p	period(s) each			
proc	essed		y	ear	Daily eff	Daily effluent flows	
Average	Maximum	Total pounds per	Total weeks	During the	Average	Maximum	
		year processed	per year	months of			
Describe pro	ocessing oper	ation					
_							
Type of was	stewater treat	ment					

Product Name:

Pounds	per day		Processing p	period(s) each			
proce	essed		y	ear	Daily eff	Daily effluent flows	
Average	Maximum	Total pounds per	Total weeks	During the	Average	Maximum	
		year processed	per year	months of			
Describe pro	ocessing oper	ation					
Type of was	stewater treat	ment					

NAF Fish Processing Facility – Process Water Treatment



Water used during fish processing originates from the municipal Belfast Water District supply. Wastewater generated undergoes initial disinfection and filtering prior to travelling to the Wastewater Treatment Plant. At the Wastewater Treatment Plant, fish processing water is blended with smolt and grow-out facility production water and undergoes full chemical and biological treatment prior to discharge into Belfast Bay.

Chlorine Disinfection of Fish Processing Water

All process water from fish processing will be subject to disinfection in a holding tank prior to discharge. In line with disinfection processes in the Norwegian industry, the initial chlorine concentration in the holding tank for processing water will be 50 milligrams per liter (mg/L). Processing water will remain in the holding tank for approximately 20 minutes until the chlorine has reacted and been reduced to a maximum concentration of 10 mg/L. The fish processing water is then released from the holding tank and mixed with production water from the growout and smolt production units on its way to the waste water treatment plant. Dilution with the wastewater from smolt and grow-out production units should result in a chlorine concentration of 0.4 mg/L. Further, reactions with biological matter during the intermixing with production waters and the waste water treatment process will significantly reduce concentrations prior to effluent discharge into Belfast Bay.

Chemicals for the Fish Farm

Note: Annual usage estimates represent approximate quantity required given a product is the only one used for this application. The quantities needed will be dependent on the site-specific conditions experienced which are difficult to establish prior to operations and are indicated as estimates only. Likely a fraction of the estimated annual use of each of these products will be used. All products listed will be used according to label.

Cleaners

Detergents

Aqualife[®] Multipurpose Cleaner. A biodegradable, nonhazardous cleaner that is designed specifically for use in fish hatcheries, aquaculture facilities, fish & food processing plants, & agricultural farms. Active ingredients: sodium hydroxide (1-5%), the product is phosphate free, contains no volatile organic compounds and is NSF certified for use in food processing facilities. Used according to the label at dilutions of 1:20. Approximate annual use: 2232 gallons/year (8449 l/year).

Gil Save[®]**.** High-foaming chlorinated, alkaline, liquid detergent, Gil Save is designed for foam and high pressure spray cleaning of meat and poultry plants, breweries, dairies and canneries. It is a complete product containing alkalis, water conditioners, chlorine and high-foaming wetting agents. Gil Save is an effective cleaner of food processing equipment by removing fatty and protein soils, pectin, mold, yeast and organic greases. Active ingredients: sodium hydroxide (7-9%), sodium hypochlorite (3-4%). Use according to label at concentrations of 0.2-3% (¼-4 oz/gal). Approximate annual use: 678 gallons/year (2567 l/year).

Clean in Place (CIP)

Gil Super CIP®. A heavy-duty, chelated-liquid caustic cleaner for use in CIP, boil-out, soak, spray clean and atomization cleaning systems, Gil Super CIP is formulated to remove protein, fatty and carbonized soils typically found in dairy and food processing. Active ingredients: sodium hydroxide (49%). Used according to label at 0.1-3% (1/8-4 oz/gal). Approx. annual use: 5840 gallons/year (22107 l/year).

Gil Hydrox®. A concentrated organic, liquid acid cleaner, Gil Hydrox rapidly removes milk/beer stone, alkaline/hard water film and stains/protein build-up from dairy and food processing equipment. It is specially formulated for use in CIP, spray and acid rinse operations. Active ingredients: glycolic acid (29-31%). Used according to label at 0.3-1.5% (½-2 oz/gal). Approx. annual use: 5840 gallons/year (22107 l/year).

Disinfectants/Sanitizers

Bleach. Active ingredient: sodium hypochlorite (8%) in concentrated form. Typically used at 100-1000 ppm for general cleaning/disinfection. Approximate annual use: 1500 gallons/year (5700 l/year).

Ozone. Ozone can be dissolved into water to provide an aqueous ozone solution that is stable, safe, easy to control, leaves no residue and has been granted GRAS approval by both the USDA and FDA for direct contact with food. This water containing ozone can replace chlorine as an antimicrobial agent or be used to supplement existing water rinses and achieve improved antimicrobial intervention. This is now a common application to sanitize fillet machines, cutting tables, knives, and all equipment that may be used in the seafood processing areas. Approximate annual use: TBD. Concentration in discharge = 0 ppm

Virkon® Aquatic. A powerful cleaning and disinfecting solution with efficacy against fish viruses, bacteria, fungi, and molds. Virkon® Aquatic is EPA registered (except in California where registration is pending) for the disinfection of environmental surfaces associated with aquaculture. Active ingredient: Potassium monopersulfate (21.4%). Used in accordance with label as a general cleaner and in footbaths. Working solution strengths normally range from 0.5% - 2.0%. Approx. annual use: 1100 lbs/year (500 kg/year).

Zep FS Formula 12167® Chlorinated Disinfectant and Germicide. A liquid chlorine sanitizer and deodorant for use in all types of food-handling establishments. Authorized as no rinse sanitizer for equipment. Provides deodorizing activity by destroying bacteria which generate many disagreeable odors. Can also be used to sanitize commercial laundry. Active ingredients: Sodium hypochlorite (5-10%) and sodium hydroxide (1-3%). Used according to label, effective at concentrations as low as 0.3% (1 oz/ 2 gallons). USDA applicable and EPA and Maine registered. Approx. annual use: 1980 gallons/year (7495 l/year).

Therapeutants

Compounds Potentially Used:

Note: the quantities needed will be dependent on the site-specific conditions experienced which are difficult to establish prior to operations and so are indicated as estimates only. All products listed will be used according to label use or a licensed veterinarian's prescription.

Parasite-S, Formalin-F, and Formacide-B. (Formalin). Active ingredient 37% formaldehyde. Used periodically according to the label if needed to alleviate fish health issues due to *saprolegniasis*, external protozoa and monogenetic trematodes. Typical dose rates from 25 ppm to 1,000 ppm. Approximate annual use: 925 gallons/year (3500 l/year).

Finquel® or Tricane-S. (Tricaine methanesulfonate). Used periodically in accordance with the label to reduce stress on the fish when handling small numbers for examination. Typical dose rates of 15-330 mg/L. Approximate annual use: 1.1 lbs/year (500 g/year).

Halamid® Aqua. (Chloramine-T). Active ingredients N-chloro, p-toluenesulfonamide and sodium salt trihydrate. Used periodically according to the label if needed to alleviate fish health issues due to bacterial gill disease. Typical dose range 12-20 ppm. Approximate annual use: 1100 lbs/year (500 kg/year).

Ovadine® (PVP lodine). A buffered 1% lodine solution (lodophor) specifically formulated for use in disinfecting fish eggs. It contains a 10% Povidone-lodine (PVP lodine) complex, which provides 1% available iodine. Used according to the label at dose rates of 50 -100 ppm as available iodine solution. Estimated usage: 160 gallons/year (600 l/year).

Compounds Rarely Used Only in Emergency Situations:

Praziquantel. Considered as 100% active. Can be used if fish are suffering from trematode/cestode infections. Typical dose ranges from 5-200 ppm depending on length of standing bath treatment. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Potassium permanganate. Considered as 97% active. Can be used if fish are suffering from certain parasites and fungal infections in younger fish life-stages. Typical dose range 1.5-2.5 ppm. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Terramycin® 200. (oxytetracycline dehydrate, 44% active): Can be used as an in-feed treatment (maximum of 0.08 g active oxytetracycline/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Aquaflor®. (florfenicol; 50% active). Can be used as an in-feed treatment (maximum of 15 mg/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Romet® 30/Romet® TC. (sulfadimethoxine/ormetoprim, 30% active or 20% active, respectively). Can be used as an in-feed treatment (maximum of 50 mg/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Waste Water Treatment

Formic Acid (85%). Used for pH correction of fish processing water prior to disinfection with sodium hypochlorite. Approx. annual use: 18200 gallons/year (69000 l/year).

Bleach. Active ingredient: sodium hypochlorite (15%). Used to disinfect water used in fish processing. Applied at concentration of 50 mg/l. Estimated discharge concentration: 0.4 mg/l. Approx. annual use: 14800 gallons/year (56000 l/year).

Methanol. Used as supplemental carbon source in waste water treatment plants to stimulate denitrification processes. Approx. annual use: 1.5 million gallons/year (5.6 million l/year).

Please n	rint or tv	ne in the	e unshaded	areas only

2D NPDES EPA I.D. NUMBER (copy from Item 1 of Form 1)

New Sources and New Dischargers Application for Permit to Discharge Process Wastewater

I. Outfall Location

For each outfall, list	the latitude	and longitu	de of its loc	ation to the	nearest 15	seconds ar	nd the name of the receiving water.	
Outfall Number		Latitude			Longitude		Receiving Water (name)	
(list)	Deg.	Min.	Sec.	Deg.	Min.	Sec.		
Outfall 1	44	23	40	68	58	25	Belfast Bay	
II. Discharge Date (\	When do yo	ou expect to	begin disch	narging?)		1		

A reduced volume discharge is anticipated to begin in early 2020, with volume increasing in stages as the development progresses.

III. Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

Outfall Number	1. Operations Contributing Flow (<i>List</i>)	2. Average Flow (Include Units)	3. Treatment (Description or List codes from Table 2D-1)
Outfall 1			

effluent, and by showing	e drawing showing the I treatment units labeled average flows between ities), provide a pictoria	d to corres i intakes, c	pond to the r	nore de eatmen	etailed descriptions in t units, and outfalls.	n Item III-A. Construe If a water balance o	ct a water balance of annot be determined	n the line drawing d (e.g., for certain
	torm runoff, leaks, or sp		y of the disch	narges o	_		seasonal?	
	S (complete the followi	ng table)		1. Fred		on IV)	2. Flow	
	Outfall		a. Day		b. Months	a. Maximum Daily	b. Maximum	
	Number		Per We	ek	Per Year	Flow Rate	Total Volume	c. Duration
			(specify ave	aye)	(specify average)	(in mgd)	(specify with units)	(in days)
IV Production								
IV. Production	pplicable production-ba	ased efflue	nt quideline	or NSP	S for each outfall I	ist the estimated lev	el of production (pro	piection of actual
production leve	I, not design), expresse	ed in the te	erms and un	its used	in the applicable e	ffluent guideline or N	NSPS, for each of th	
	duction is likely to vary,			iternati			Not Applicable.	
Year	A. Quantity Per Day	B. Units (Of Measure		c. Ope	eration, Product, Mat	terial, etc. (specify)	

CONTINUED FROM THE FRONT	EPA I.D. NUM	BER (copy from Item 1	of Form 1)	Outfall Number					
V. Effluent Characteristics									
A and B: These items require you to repo	a different set of po	llutants and should I	be completed in	he pollutants to be discharged from each of your accordance with the specific instructions for that sary.					
Each part of this item requests you to pro for all pollutants in Group A, for all outfalls B should be reported only for pollutants	General Instructions (See table 2D-2 for Pollutants) Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.								
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)		4. Source (see instructions)					

CONTINUED FROM THE FRONT	EPA I.D. NUMBER (copy from Item 1 of Form 1)
C. Use the space below to list any of the po discharged from any outfall. For every pollu	llutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be tant you list, briefly describe the reasons you believe it will be present.
1. Pollutant	2. Reason for Discharge
VI. Engineering Report on Wastewater Treatm	
A. If there is any technical evaluation conce appropriate box below.	erning your wastewater treatment, including engineering reports or pilot plant studies, check the
Report Available	No Report
B. Provide the name and location of any exis production processes, wastewater constitute	ting plant(s) which, to the best of your knowledge resembles this production facility with respect to ents, or wastewater treatments.
Name	Location

EPA I.D. NUMBER (copy from Item 1 of Form 1)

VII. Other Information (Optional)

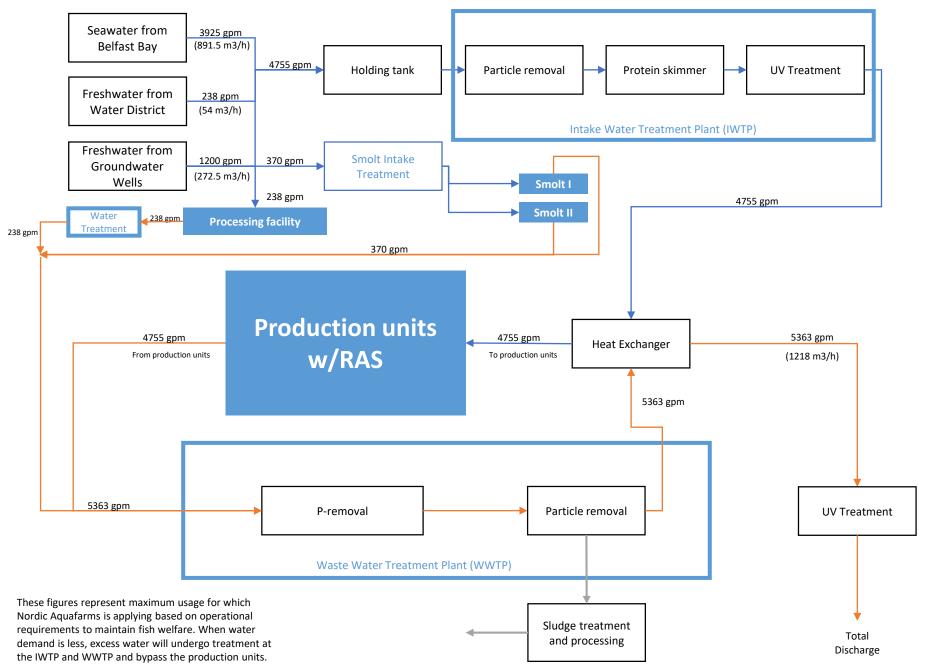
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Official Title (<i>type or print</i>)	B. Phone No.
C. Signature	D. Date Signed

EPA Form 2D - Question III.B. - Attachment 1





Gross / Net Discharge Figures - Belfast, Maine Facility

The table below summarizes our gross discharge of nutrients (before waste water treatment) and net discharge (after treatment).

Smolt before treatment 226,748 198,405 68,248 17,118 2 kg/year Phase 1 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 1 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total 57,143 62,857 10,400 859 1 kg/year Total 57,143 62,857 10,400 859 1 kg/year Metore treatment 57,143 62,857 10,400 859 1 kg/year Total 571 629 1,560 9 1 kg/year MWTP degree of removal 6,755,078 5,923,551 1,636,527 211,048 27 kg/year Oncentration 6.33	Discharge Dudget. 55 000 W						-
before treatment after treatment 226,748 198,405 68,248 17,118 2 kg/year Phase 1 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 1 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total 571 629 1,560 9 1 kg/year after treatment 57,5078 5,923,551 1,636,527 211,048 27 kg/year Total 5162 673 5.8 0.07 kg/year MWTP degree of removal 99% 99% 99% 0.003 mg/L WWTP degree of removal 99% 99% 99% 0% 0% Smolt Phase 1 Phase 2 Facility Units		TSS	BOD	Total N	Total P	NH3	Uni
after treatment 2,267 1,984 10,237 171 2 kg/year Phase 1 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Processing Facility before treatment 32,356 28,311 116,841 965 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total	Smolt						
Phase 1 PB before treatment 3,235,594 32,356 2,831,144 28,311 778,939 116,841 965 12 8 kg/year Phase 2 PB before treatment 3,235,594 32,356 2,831,144 28,311 778,939 116,841 965 12 965 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total 571 629 1,560 9 1 kg/year Concentration 6,755,078 5,923,551 1,636,527 211,048 27 kg/year before treatment 67,551 59,236 245,479 2,110 27 kg/year Mathematical free treatment 67,551 59,236 245,479 2,110 27 kg/year Multiple 633 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Smolt Phase 1 Phase 2 Facility Units Picessing Smolt Phase 1 Phase 2	before treatment	226,748	198,405	68,248	17,118	2	kg/year
before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Phase 2 PB before treatment 3,235,6 28,311 116,841 965 12 kg/year Phase 2 PB before treatment 3,235,6 28,31,144 778,939 96,535 12 kg/year Processing Facility before treatment 32,356 28,311 116,841 965 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total 57,143 62,857 10,400 859 1 kg/year after treatment 57,143 62,857 10,400 859 1 kg/year Total 5 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,555,078 5,923,551 1,636,527 211,048 27 kg/year Ocncentration 6.33 5.55 23.0 0.20 0.003 mg/L	after treatment	2,267	1,984	10,237	171	2	kg/year
after treatment 32,356 28,311 116,841 965 12 kg/year Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year after treatment 32,356 28,311 116,841 965 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year Total 57,143 62,857 10,400 859 1 kg/year before treatment 57,143 62,857 10,400 859 1 kg/year Total 571 629 1,560 9 1 kg/year after treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume 1,218 <td< td=""><td>Phase 1 PB</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Phase 1 PB						
Phase 2 PB before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year after treatment 32,356 28,311 116,841 965 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year after treatment 571 629 1,560 9 1 kg/year before treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year after treatment 67,551 59,236 23,0 0.20 0.003 mg/L VWTP degree of removal 99% 99% 99% 85% 0% bischarge Volume 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year	before treatment	3,235,594	2,831,144	778,939	96,535	12	kg/year
before treatment 3,235,594 2,831,144 778,939 96,535 12 kg/year Processing Facility softer treatment 57,143 62,857 10,400 859 1 kg/year after treatment 571 629 1,560 9 1 kg/year Total	after treatment	32,356	28,311	116,841	965	12	kg/year
after treatment 32,356 28,311 116,841 965 12 kg/year Processing Facility before treatment 57,143 62,857 10,400 859 1 kg/year after treatment 57,143 62,857 10,400 859 1 kg/year Total 571 629 1,560 9 1 kg/year before treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year after treatment 63.3 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% WWTP degree of removal 99% 99% 54 m3/h Discharge Volume 84 540 54 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume <td>Phase 2 PB</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Phase 2 PB						
Processing Facility before treatment 57,143 571 62,857 629 10,400 1,560 859 9 1 kg/year Total Total 57,151 5,923,551 1,636,527 211,048 27 kg/year after treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 6,755,078 5,923,651 245,479 2,110 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume Smolt Phase 1 Phase 2 Facility Units 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year	before treatment	3,235,594	2,831,144	778,939	96,535	12	kg/year
before treatment 57,143 62,857 10,400 859 1 kg/year after treatment 571 629 1,560 9 1 kg/year Total 59,23,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,23,651 1,636,527 2,110 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% bischarge Volume Smolt Phase 1 Phase 2 Facility Units 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year	after treatment	32,356	28,311	116,841	965	12	kg/year
after treatment 571 629 1,560 9 1 kg/year Total	Processing Facility						
Total before treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year 185 162 673 5.8 0.07 kg/day Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Processing Smolt Phase 1 Phase 2 Facility Units 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year	before treatment	57,143	62,857	10,400	859	1	kg/year
before treatment 6,755,078 5,923,551 1,636,527 211,048 27 kg/year after treatment 67,551 59,236 245,479 2,110 27 kg/year 185 162 673 5.8 0.07 kg/year Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume Smolt Phase 1 Phase 2 Facility Units 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h 1 1	after treatment	571	629	1,560	9	1	kg/year
after treatment 67,551 59,236 245,479 2,110 27 kg/year 185 162 673 5.8 0.07 kg/day Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume Smolt Phase 1 Phase 2 Facility Units 84 540 540 54 m3/h 735,840 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h 540 540 540 540 540 54 <td>Total</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Total						
185 162 673 5.8 0.07 kg/day Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume Smolt Phase 1 Phase 2 Facility Units 103 A 1,218 m3/h 540 54 m3/year m3/year	before treatment	6,755,078	5,923,551	1,636,527	211,048	27	kg/year
Concentration 6.33 5.55 23.0 0.20 0.003 mg/L WWTP degree of removal 99% 99% 99% 85% 0% WWTP degree of removal 99% 99% 99% 85% 0% Discharge Volume Smolt Phase 1 Phase 2 Facility Units 84 540 540 54 m3/h 735,840 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h	after treatment	67,551	59,236	245,479	2,110	27	kg/year
Smolt Phase 1 Phase 2 Facility Units Discharge Volume 84 540 540 54 m3/h Total Discharge Volume 1,218 m3/h		185	162	673	5.8	0.07	kg/day
Smolt Phase 1 Phase 2 Facility Units Discharge Volume 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h	Concentration	6.33	5.55	23.0	0.20	0.003	mg/L
Smolt Phase 1 Phase 2 Facility Units Discharge Volume 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h	WWTP degree of removal	99%	99%	99%	85%	0%	1
Smolt Phase 1 Phase 2 Facility Units Discharge Volume 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h							-
Discharge Volume 84 540 540 54 m3/h 735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h M3/h					-		
735,840 4,730,400 4,730,400 473,051 m3/year Total Discharge Volume 1,218 m3/h					1		
Total Discharge Volume 1,218 m3/h	Discharge Volume	84	540	540	54	m3/h	
•		735,840	4,730,400	4,730,400	473,051	m3/year	
10,669,691 m3/year	Total Discharge Volume	1,218	m3/h				
	-	10,669,691	m3/year				

Discharge Budget: 33 000 MT production of Atlantic Salmon, Nordic Aquafarms, Maine

The process for achieving final discharge figures is a two-step process: 1) reduction of nutrients in the RAS system itself; and 2) final reductions in the centralized waste water treatment system.

Calculation of Nitrogen, Phosphorus and Biological Oxygen Demand (BOD) for Sashimi Royal Facility

Water Analysis (difference outlet - inlet)									
Sample	1	2	3	4	5	6	7	8	
Trial Date	19-01-2018	13-02-2018	14-03-2018	13-04-2018	23-05-2018	11-06-2018	02-07-2018	30-08-2018	
BOD mg/l	28	7.5	21	6.6	11.00	28	35	44	
Total N mg/l	90	59	89	87	72.00	90	29	79	
Total P mg/l	10	4.5	6.5	3.8	4.20	10	7.3	8.3	
Flow m3/day	470	433	479	640	835.00	Flow missing	726	1544	
Comment									
<u>Estimated discharge per day</u> BOD Total N	[kg/day] 13.16 42.30	[kg/day] 3.53 27.73	[kg/day] 9.87 41.83	[kg/day] 3.10 40.89	[kg/day] 5.17 33.84	[kg/day]	[kg/day] 16.45 13.63	[kg/day] 20.68 37.13	Average [kg/day] 10.28 33.91
Total P	4.70	1.95	3.11	2.43	3.51		5.30	12.82	4.83
BI5 Total N								3.	ic ton/year] 8 ton 4 ton
Total P								1.	8 ton

* Table translated from Danish using Google Translate.

The data presented above from the Danish Sashimi Royal facility operated by Nordic Aquafarms has been included to demonstrate compliance with monthly effluent monitoring. Although the facility is a smaller capacity and is raising a different fish species than the planned Maine facility, many monitored parameters will be the same. Additionally, waste water treatment procedures planned for Maine will be state of the art and result in significant improvements to effluent concentrations.

Form DEPLW1999-18 Revised: February 21, 2018

Maine Department of Environmental Protection Waste Discharge Permit Application

Fish Rearing Facilities

This form must be attached to the General Application for a Waste Discharge License. (Form DEPLW0105-B2003)

Please answer all questions completely, using additional pages as necessary with responses clearly identified by item number on this form.

1. Facility Name:

- 2. Source(s) of water supply and average monthly flow of each:
- 3. Is any of the hatching or rearing water heated or cooled by mixing with water from another source, use heat exchangers, etc? Yes If ves, explain listing the volumes and maximum temperatures of each source.
- 4. Type(s) of feed used:

5. Amount of feed used.	Average:	lbs/day	Maximum:	lbs./day
	5	•		

6. Month(s) of maximum feeding:

7. Species of fish raised:

8. Maximum quantity of fish at any time.

Due to the continuous production flow concept, the quantity of fish will be quite stable. Fish will be introduced into the facility every month, as the harvest will be a daily process. Since it is not determined if all the units will be in sync or off-sync, it is difficult to tell the exact quantity of fish, but if it is assumed all units are in sync the facility should be at a maximum quantity of 8,039,682 fish or 13,550 metric tons (29,872,637 lbs) of fish. The facility will not have its own broodstock.

9. Attach a drawing showing the number, size and arrangement of all rearing tanks.

See Attachment 2 for tank layouts of grow-out modules and smolt units.

- 10. Attach a list of all disinfectants used, giving for each the name, ingredients, frequency of use, concentration of use, and total quantity used per year. See Attachment 3.
- 11. Attach a list of drugs and/or therapeutic agents used, giving for each a name, ingredients, frequency of use, concentration of use, and total quantity used per year.

See Attachment 3.



NPDES #ME



Water Sources and Temperature Control

Water temperature in the production environment is kept constant at 13°C (55°F) throughout the year. This temperature has been set based on our experience and assessments of ideal temperature for salmon, while this temperature is also proven to keep early sexual maturation of the fish at a minimum level in land-based systems. Smaller units related to hatching and pre-smolt production will be run at slightly lower temperatures.

The fresh and seawater sources to be used hold a slightly lower temperature than this through the year, upward to 11°C (52°F), based on our local temperature measurements. Water sources are on-site wells and seawater to be drawn in through the planned water intake system 1.9 kilometers (1.2 miles) off-shore at a depth of 13.7 meters (45 feet). A smaller supplementary fresh water supply is also available from the Belfast Water District, according to established local contracts.

Given that the process equipment and the biomass in the system does contribute energy and heat, the primary temperature control need is cooling. The cooling need will be greatest in the summer season when sea and air temperatures rise. In Maine, with low water temperatures, the need for cooling is still limited compared to many other alternative locations. Air-based cooling systems integrated in the production modules will ensure stable temperatures in the production environment throughout the year. Given that air is used as the cooling medium, this cooling process will not have an effect on the discharge water temperature.

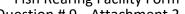
Given temperature differences between the intake water and the production water most of the year, these water flows are crossed in heat-exchangers to recapture energy. Given that the intake water will hold a lower temperature than the discharge water, this process will have a slight cooling or no temperature effect on the discharge water, rather than a heating effect.

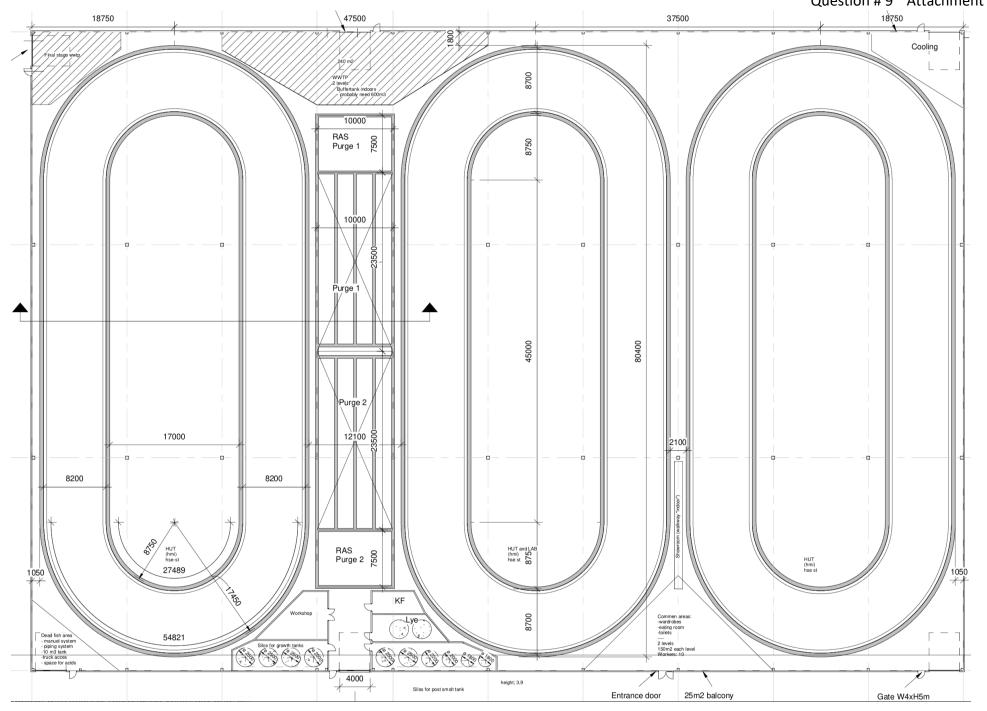
We anticipate temperature gains from the mechanical components used for solids removal, denitrification and U.V. disinfection in our waste water treatment plant.

The temperature of discharge water will be approximately 15-18°C (59-65°F) through the year. This will remain constant through the seasons.

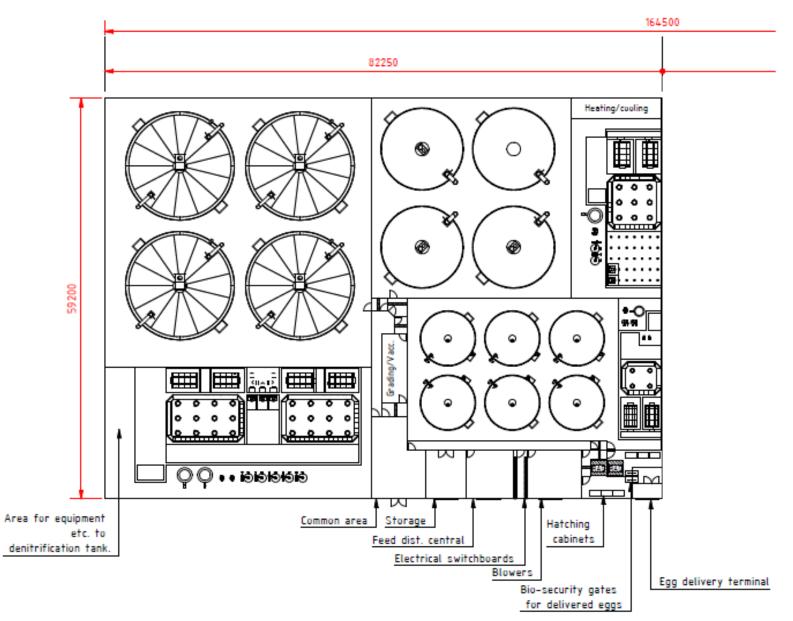
Grow-Out Module Tank Layout

Fish Rearing Facility Form Question # 9 Attachment 2





Smolt Unit



Chemicals for the Fish Farm

Note: Annual usage estimates represent approximate quantity required given a product is the only one used for this application. The quantities needed will be dependent on the site-specific conditions experienced which are difficult to establish prior to operations and are indicated as estimates only. Likely a fraction of the estimated annual use of each of these products will be used. All products listed will be used according to label.

Cleaners

Detergents

Aqualife[®] Multipurpose Cleaner. A biodegradable, nonhazardous cleaner that is designed specifically for use in fish hatcheries, aquaculture facilities, fish & food processing plants, & agricultural farms. Active ingredients: sodium hydroxide (1-5%), the product is phosphate free, contains no volatile organic compounds and is NSF certified for use in food processing facilities. Used according to the label at dilutions of 1:20. Approximate annual use: 2232 gallons/year (8449 l/year).

Gil Save[®]**.** High-foaming chlorinated, alkaline, liquid detergent, Gil Save is designed for foam and high pressure spray cleaning of meat and poultry plants, breweries, dairies and canneries. It is a complete product containing alkalis, water conditioners, chlorine and high-foaming wetting agents. Gil Save is an effective cleaner of food processing equipment by removing fatty and protein soils, pectin, mold, yeast and organic greases. Active ingredients: sodium hydroxide (7-9%), sodium hypochlorite (3-4%). Use according to label at concentrations of 0.2-3% (¼-4 oz/gal). Approximate annual use: 678 gallons/year (2567 l/year).

Clean in Place (CIP)

Gil Super CIP®. A heavy-duty, chelated-liquid caustic cleaner for use in CIP, boil-out, soak, spray clean and atomization cleaning systems, Gil Super CIP is formulated to remove protein, fatty and carbonized soils typically found in dairy and food processing. Active ingredients: sodium hydroxide (49%). Used according to label at 0.1-3% (1/8-4 oz/gal). Approx. annual use: 5840 gallons/year (22107 l/year).

Gil Hydrox®. A concentrated organic, liquid acid cleaner, Gil Hydrox rapidly removes milk/beer stone, alkaline/hard water film and stains/protein build-up from dairy and food processing equipment. It is specially formulated for use in CIP, spray and acid rinse operations. Active ingredients: glycolic acid (29-31%). Used according to label at 0.3-1.5% (½-2 oz/gal). Approx. annual use: 5840 gallons/year (22107 l/year).

Disinfectants/Sanitizers

Bleach. Active ingredient: sodium hypochlorite (8%) in concentrated form. Typically used at 100-1000 ppm for general cleaning/disinfection. Approximate annual use: 1500 gallons/year (5700 l/year).

Ozone. Ozone can be dissolved into water to provide an aqueous ozone solution that is stable, safe, easy to control, leaves no residue and has been granted GRAS approval by both the USDA and FDA for direct contact with food. This water containing ozone can replace chlorine as an antimicrobial agent or be used to supplement existing water rinses and achieve improved antimicrobial intervention. This is now a common application to sanitize fillet machines, cutting tables, knives, and all equipment that may be used in the seafood processing areas. Approximate annual use: TBD. Concentration in discharge = 0 ppm

Virkon® Aquatic. A powerful cleaning and disinfecting solution with efficacy against fish viruses, bacteria, fungi, and molds. Virkon® Aquatic is EPA registered (except in California where registration is pending) for the disinfection of environmental surfaces associated with aquaculture. Active ingredient: Potassium monopersulfate (21.4%). Used in accordance with label as a general cleaner and in footbaths. Working solution strengths normally range from 0.5% - 2.0%. Approx. annual use: 1100 lbs/year (500 kg/year).

Zep FS Formula 12167® Chlorinated Disinfectant and Germicide. A liquid chlorine sanitizer and deodorant for use in all types of food-handling establishments. Authorized as no rinse sanitizer for equipment. Provides deodorizing activity by destroying bacteria which generate many disagreeable odors. Can also be used to sanitize commercial laundry. Active ingredients: Sodium hypochlorite (5-10%) and sodium hydroxide (1-3%). Used according to label, effective at concentrations as low as 0.3% (1 oz/ 2 gallons). USDA applicable and EPA and Maine registered. Approx. annual use: 1980 gallons/year (7495 l/year).

Therapeutants

Compounds Potentially Used:

Note: the quantities needed will be dependent on the site-specific conditions experienced which are difficult to establish prior to operations and so are indicated as estimates only. All products listed will be used according to label use or a licensed veterinarian's prescription.

Parasite-S, Formalin-F, and Formacide-B. (Formalin). Active ingredient 37% formaldehyde. Used periodically according to the label if needed to alleviate fish health issues due to *saprolegniasis*, external protozoa and monogenetic trematodes. Typical dose rates from 25 ppm to 1,000 ppm. Approximate annual use: 925 gallons/year (3500 l/year).

Finquel® or Tricane-S. (Tricaine methanesulfonate). Used periodically in accordance with the label to reduce stress on the fish when handling small numbers for examination. Typical dose rates of 15-330 mg/L. Approximate annual use: 1.1 lbs/year (500 g/year).

Halamid® Aqua. (Chloramine-T). Active ingredients N-chloro, p-toluenesulfonamide and sodium salt trihydrate. Used periodically according to the label if needed to alleviate fish health issues due to bacterial gill disease. Typical dose range 12-20 ppm. Approximate annual use: 1100 lbs/year (500 kg/year).

Ovadine® (PVP lodine). A buffered 1% lodine solution (lodophor) specifically formulated for use in disinfecting fish eggs. It contains a 10% Povidone-lodine (PVP lodine) complex, which provides 1% available iodine. Used according to the label at dose rates of 50 -100 ppm as available iodine solution. Estimated usage: 160 gallons/year (600 l/year).

Compounds Rarely Used Only in Emergency Situations:

Praziquantel. Considered as 100% active. Can be used if fish are suffering from trematode/cestode infections. Typical dose ranges from 5-200 ppm depending on length of standing bath treatment. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Potassium permanganate. Considered as 97% active. Can be used if fish are suffering from certain parasites and fungal infections in younger fish life-stages. Typical dose range 1.5-2.5 ppm. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Terramycin® 200. (oxytetracycline dehydrate, 44% active): Can be used as an in-feed treatment (maximum of 0.08 g active oxytetracycline/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Aquaflor®. (florfenicol; 50% active). Can be used as an in-feed treatment (maximum of 15 mg/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Romet® 30/Romet® TC. (sulfadimethoxine/ormetoprim, 30% active or 20% active, respectively). Can be used as an in-feed treatment (maximum of 50 mg/kg fish/day) if fish are suffering from certain bacterial infections. Used as needed/intermittent or emergency use only, according to label use or as prescribed by a licensed veterinarian. Approx. annual use: 0 lbs/year (0 kg/year).

Waste Water Treatment

Formic Acid (85%). Used for pH correction of fish processing water prior to disinfection with sodium hypochlorite. Approx. annual use: 18200 gallons/year (69000 l/year).

Bleach. Active ingredient: sodium hypochlorite (15%). Used to disinfect water used in fish processing. Applied at concentration of 50 mg/l. Estimated discharge concentration: 0.4 mg/l. Approx. annual use: 14800 gallons/year (56000 l/year).

Methanol. Used as supplemental carbon source in waste water treatment plants to stimulate denitrification processes. Approx. annual use: 1.5 million gallons/year (5.6 million l/year).



Maine Department of Environmental Protection Waste Discharge Permit Application

Outfall Information DEPLW0102 Revised: 02/22/2018

This form must be attached to the General Application for a Waste Discharge License / MEPDES Permit (Form DEPLW0105-B2003)

Please answer all questions completely, using additional pages as necessary with responses clearly identified by item number on this form.

- 1. Facility Name: ______MEPDES # ME _____
- 2. Attach a plan of the treatment facility or discharge sources showing the location of each outfall and the receiving water. Please number each outfall with the corresponding number from the permit application. See Attachment 1.
- 3. For each outfall, provide the following information. Please use additional forms as necessary to describe all outfall locations.

A. Outfall name: Outfall	number:
--------------------------	---------

B. Flow discharged. Average: _____MGD Maximum: _____MGD

C. Diameter of outfall pipe: _____inches

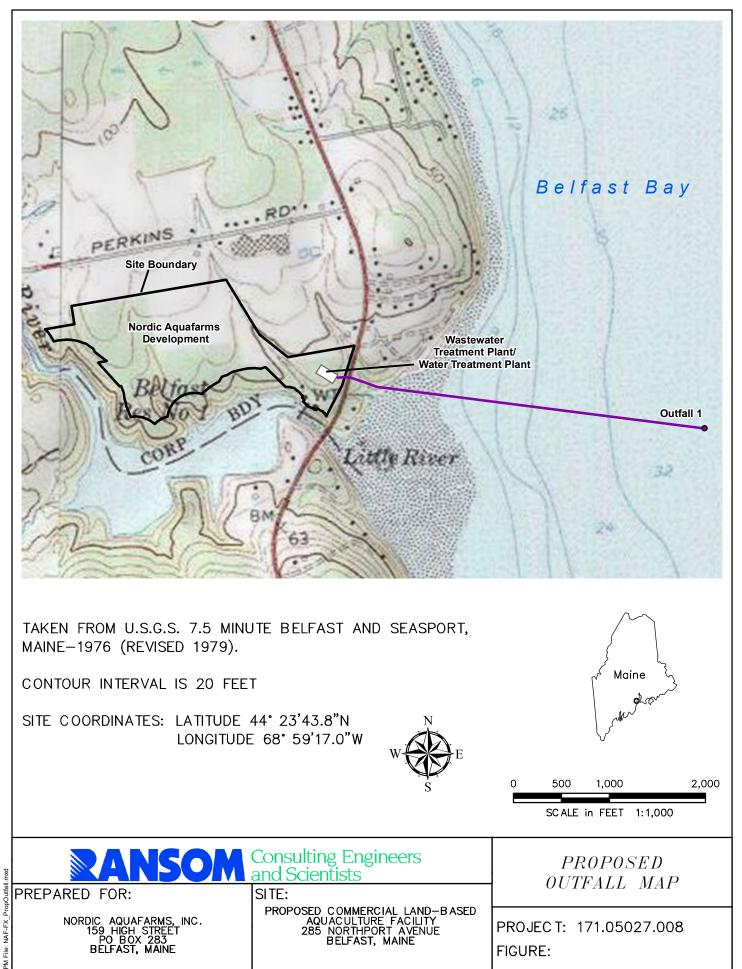
D. Depth below mean low water at outlet: ______feet

E. Describe any diffusers, mixers or similar structures used to disperse the effluent. Please include drawings or diagrams as appropriate. (use a separate sheet)

The discharge location will be equipped with a multi-port diffuser to enhance the distribution of effluent into the receiving water. Consideration is being given to the installation of flexible duckbill style valves on the diffuser ports. Compared to an open pipe port the duckbill valves can effectively reduce flow area to maintain greater exit velocity from the ports during lower effluent flow rate situations.

A. Outfall name: _____ Outfall number: _____

- B. Flow discharged. Average: _____MGD Maximum: _____MGD
- C. Diameter of outfall pipe: _____inches
- D. Depth below mean low water at outlet: ______feet
- E. Describe any diffusers, mixers or similar structures used to disperse the effluent. Please include drawings or diagrams as appropriate.



Questions from the October 4, 2018 Public Information Meeting

1. Is Nordic Aquafarms ("Nordic") willing to look at a living column to monitor Bay conditions like the one done by Green Wave out of Connecticut?

The concept of a living column to assess in-situ impacts of discharge water on live organisms in Penobscot Bay is an interesting approach and will be included in the sampling program if requested by the Maine Department of Environment Protection (DEP).

2. A concern was expressed about "dead zones" in the ocean, and a request was made for scientific studies regarding "dead zones" in the ocean, which were defined by the questioner as areas with elevated dissolved organic carbon. What are the dissolved organic carbon levels in the effluent?

Many parameters can be measured to assess hypoxic conditions that lead to oceanic "dead zones". Dissolved oxygen is a typical parameter that is monitored to assess the potential for hypoxic conditions. As discussed during the public information meeting, dissolved oxygen concentrations in the effluent are at levels that allow for growth of sensitive sea life such as lobsters.

3. Will you allow the public to view or conduct sampling?

Sampling will be conducted as required by any final permit in accordance with specific protocols outlined in said permit. We have been contacted by groups with a documented science and/or environmental background that are interested in assisting with this sampling, and Nordic will discuss such future cooperative sampling opportunities.

4. What are tank collapse procedures if the fish tanks fail?

Details pertaining to site development will be included in the Site Location of Development permit, which will include a description of the tanks and construction method to prevent risk if a tank were to collapse.

5. How will Nordic handle a clog in the effluent line?

An inspection and maintenance protocol will be established to preserve the longevity and efficacy of the discharge pipeline. Given the dimensions of the pipeline is it not considered prone to clogs as flow will be continuous and discharge salinity is anticipated to discourage marine growth. Additional pages of questions were submitted in writing by area residents following the Public Information Meeting. Many of these questions are addressed directly in the MEPDES permit application and included modelling reports, while others will be more appropriately addressed by information included in future permits, such as the Site Location of Development permit. Nordic has split these questions into general categories, to which Nordic Aquafarms has provided additional comment.

I. <u>Treatment and Containment of viruses and disease.</u>

1. Specifically, how will disease, viruses and sea lice will be managed within the facility and prevented from being transmitted to Penobscot Bay where they could impact wild populations.

One of the major benefits of RAS is the ability to control the culture environment and prevent disease. All egg batches will be sourced from a reputable breeder with a staff veterinarian supervising a routine screening procedure for salmon diseases. Upon receipt, eggs will be further screened and quarantined in collaboration with independent fish health experts. The most likely source of disease risk would be the sea water used. All water entering the facility will be treated with ultra violet (UV) light (see Attachment F) using technology that is proven to neutralize parasites, bacteria and viruses. The internal RAS system will continuously treat the recirculating water; preventing the growth of any pathogens within the RAS system. Finally, all water leaving the facility will be treated with membrane filters and UV as well. We will also work with a licensed veterinarian, who is experienced in aquaculture, to assist us in adapting our established biosecurity measures to US requirements and conditions.

2. What is the impact of salmon feed on nutrient levels in discharge effluent?

Knowledge of feeds currently available in the market allows Nordic to make the conservative estimates presented in the MEPDES application. Successful applicants for a MEPDES permit are given maximum limits which their discharge must stay below. We have a wide range of feed options within the discharge limits being applied for. As feed composition may change over time; we cannot specify use of a specific feed at this time. Any feed used will be in compliance with USDA and FDA requirements.

3. What is the impact of salmon pheromones on organisms in Belfast Bay?

Discharge dispersion models suggest that the contents of the discharge will quickly be dispersed to background levels. Most pheromones should be removed by the filtration equipment. Based on the dispersion models, the filtration technology Nordic will use, and the surveys of the sea life surrounding the discharge location, the discharge will not have significant negative impacts on fish populations in the bay.

The following provides responses to specific written questions submitted at the conclusion of the Public Information Meeting. Questions have been consolidated into categories in order to avoid duplication. Nordic understands that responses to these questions are not required but has attempted to respond to all questions.

I. <u>Viruses/disease:</u>

1. 2018, CBC news reported "Virus at 2 Nova Scotia land-based fish facilities results in 600,000 salmon being killed ... Aquaculture Minister Keith Colwell said Thursday the two facilities are located close to each other but wouldn't name them." If Nordic has a disease outbreak, will it be required by law to disclose the location to the public?

Nordic will follow all reporting requirements in the U.S. and Maine. We cannot speak to the biosecurity measures of these two Canadian facilities. Nordic Aquafarms will install significant upgraded biosecurity measures compared to most of the industry in addition to implementing our best practices for land-based operations, to prevent pathogenic material from entering or leaving the facility. We are not a net pen operation putting fish into the ocean.

2. If you have a disease or virus outbreak, will the tanks continue to circulate the disease into Penobscot Bay?

Pathogenic materials will be unable to enter or leave the facility. The primary source of pathogens for RAS facilities is the water source they use. We will use proven disinfection technology at our intake to prevent pathogenic material from entering the facility. The tanks circulate on an internal water treatment loop that has UV disinfection integrated into the RAS for continuous disinfection of system water. Grow-out and processing tanks drain to a waste water treatment system that has micro-filtration to remove particles as small as 0.4 microns (a human hair is 50 microns). This is small enough to remove bacteria. For comparison, rod shaped Escherichia coli bacteria are 1 micron by 2 microns in size. After micro-filtration water is treated with a 300 mJ/cm3 dose of UV light for final disinfection prior to discharge.

3. We are going to require you to have, in place, a plan to halt all circulation into the bay should a virus or disease outbreak in your tanks. Please explain in detail the steps that you would take.

Pathogenic material will be unable to enter or leave our facility. We have extensive standard operating procedures (SOPs) for contingency situations at our European facilities. These SOPs, best practices, and biosecurity measures will be adapted and further expanded for our Belfast facility.

Our modules and tanks are separate entities and do not share water or materials from one module to the next. Materials and water from one module cannot and will not move from one module to another. This separation of modules provides an additional layer of biosecurity for the facility. If one of our trained marine biologists were to observe something of concern, our SOPs require them to immediately report this to their supervisor. The fish in question would be removed and sent for further testing by an accredited lab and U.S. certified veterinarian. The recommendation of the veterinarian would then be followed. NORDIC will follow all regulations and reporting requirements in the U.S. and Maine.

4. Disease Vectors - According to Dr. Stephen Ellis, about I 0% of caged salmon are sent to market early because they are diseased with infectious salmon anemia (ISA) virus infections. Aquaculture industry has developed markets for the smaller, yet diseased fish, unbeknownst to the consumer. Can the sold fish, the cartons, or the destroyed fish all spread viruses and diseases?

Nordic Aquafarms is a land-based operator with significantly reduced risk of disease. We do not sell fish with disease and have extensive internal procedures to prevent, detect and take action in relation to risk of disease. The FDA and USDA inspect, regulate, and certify fish sold to U.S. consumers to ensure they are free of disease through testing, inspections and explicit regulations and oversight.

The regulating authorities do not allow infected fish to be sold to the public. For example. in 2001 and 2002, 1.5 million salmon were ordered to be eradicated by the Maine Dept. Of Marine Resources and the USDA APHIS in response to an ISA outbreak in Cobscook Bay, Maine where approximately 50% of the salmon in the state were being grown at that time. 1.5 million pounds is about 10% of the estimated 18 million pounds of salmon in Cobscook Bay at the time of the ISA outbreak.

Nordic Aquafarms does not raise fish in cages. We will employ pathogen excluding technologies to prevent pathogenic material from entering the facility. The ability to safe guard our facility from pathogens that may be present in Penobscot Bay provides a distinct separation between land-based recirculating aquaculture systems and net pen grown fish. Our fish will be inspected and evaluated by Federal, State and private accredited labs to ensure we only produce and sell safe, premium quality fish. We will use a detailed HAACP plan in our facility and we will meet or exceed all state and federal regulations.

5. Can you provide scientific studies that prove that your outflow pipe into the bay can unequivocally not spread diseases, viruses or sea lice to other sea life, who then become carriers.

The methods NORDIC will use to prevent pathogenic material and parasites from entering or leaving the facility are well documented and understood. A multi-step process will be employed to prevent the any potential pathogenic material or sea lice from entering or leaving the facility. We will micro-filter our effluent to remove particles through a 0.4-micron filter provided by Mitsubishi. Mitsubishi has applied and proven this technology in many industrial, and municipal settings around the world. Many of these successful applications are documented on Mitsubishi's website at: https://www.m-

chemical.co.jp/sterapore/en/pdf/Mitsubishi_chemical_STERAPORE_Hollow_fiber_membrane_MBR_ Case_report_EN.pdf.

For reference the smallest object the human eye can see is 40 microns, and the rod-shaped E. coli bacteria is 1 micron by 2 microns in size. While not every bacterium has been precisely measured for size, bacteria are thought to range from slightly less than 1 micron to 5 microns in size. Sea lice will be unable to pass through this filter. As a final step all effluent water will receive a 300mJ/cm3 dose of ultra violet light for disinfection prior to discharge.

UV light and its ability to effectively kill viruses and diseases is well documented:

Amoah, K., Craik, S., Smith, D.W. and Belosevic, M. 2005. *Inactivation of Cryptosporidium oocysts and Giardia cysts by ultraviolet light in the presence of natural particulate matter*, AQUA, J. Wat. Supply 54(3): 165-178.

Ballester, N.A. and Malley, J.P. 2004. *Sequential disinfection of adenovirus type 2 with UV-chlorinechloramine*, J. Amer. Wat. Works Assoc., 96(10): 97-102.

Batch, L.F., Schulz, C.R. and Linden, K.G. 2004. *Evaluating water quality effects on UV disinfection of MS2 coliphage*, J. Amer. Wat. Works Assoc., 96(7): 75-87.

Battigelli, D.A., Sobsey, M.D. and Lobe, D.C. 1993. *The inactivation of Hepatitis A virus and other model viruses by UV irradiation*, Wat. Sci. Tech., 27(3-4): 339-342.

Belosevic, M., Craik, S.A., Stafford, J.L. Neumann, N.E., Kruithof, J. and Smith, D.W. 2001. *Studies* on the resistance/reaction of Giardia muris cysts and C. parvum oocysts exposed to medium-pressure ultraviolet radiation, FEMS Microbiol. Lett., 204(1): 197-204.

Bolton J.R. and Linden, K.G. 2003. *Standardization of methods for fluence (UV Dose) determination in bench scale UV experiments*. J. Environ. Eng. 129(3): 209-216

Bukhari, Z., Abrams, F. and LeChevallier, M. 2004. *Using ultraviolet light for disinfection of finished water*, Water Sci. Tech., 50(1): 173-178.

Caballero, S., Abad, F.X., Loisy, F., Le Guyader, F.S., Cohen, J., Pinto, R.M. and Bosch, A. 2004. *Rotavirus virus-like particles as surrogates in environmental persistence and inactivation studies*, Appl. Env. Microbiol. 70(7): 3904-3909.

Campbell, A.T. and Wallis, P. 2002. *The effect of UV irradiation on human-derived Giardia lamblia cysts*, Wat. Res., 36(4): 963- 969.

Carlson, D.A., Seabloom, R.W., DeWalle, F.B., Wetzler, T.F., Engeset, J., Butler, R., Wangsuphachart, S. and Wang, S. 1985. *Ultraviolet disinfection of water for small water supplies*. US EPA Report No. EPA/600/S2-85/092.

Chang, J.C.H., Osoff, S.F., Lobe, D.C., Dorfman, M.H., Dumais, C.M., Qualls, R.G. and Johnson, J.D. 1985. *UV inactivation of pathogenic and indicator microorganisms*, Appl. Environ. Microbiol., 49(6): 1361-1365.

Clancy, J.L., Bukhari, Z., Hargy, T.M., Bolton, J.R., Dussert, B.W. and Marshall, M.M. 2000. Using UV to inactivate Cryptosporidium – Even extremely low dosages of ultraviolet light can be highly effective for inactivating Cryptosporidium oocysts, J. Amer. Wat. Works Assoc., 92(9): 97-104.

Clancy, J.L., Marshall, M.M., Hargy, T.M. and Korich, D.G. 2004. *Susceptibility of five strains of Cryptosporidium parvum oocysts to UV light*, J. Amer. Wat. Works Assoc., 96(3), 84-93.

Craik, S.A., Finch, G.R., Bolton, J.R. and Belosevic, M. 2000. *Inactivation of Giardia muris cysts using medium-pressure ultraviolet radiation in filtered water*, Wat. Res., 34(18): 4325-4332.

Craik, S.A., Weldon, D., Finch, G.R., Bolton, J.R. and Belosevic, M. 2001. *Inactivation of Cryptosporidium parvum oocysts using medium- and low-pressure ultraviolet radiation*, Wat. Res., 35(6): 1387-1398.

Gerba, C.P., Gramos, D.M. and Nwachuku, N. 2002. *Comparative inactivation of enteroviruses and adenovirus 2 by UV light*, Appl. Environ. Microbiol., 68(10): 5167-5169.

Giese, N. and Darby, J. 2000. Sensitivity of microorganisms to different wavelengths of UV light: implications on modeling of medium pressure UV systems, Wat. Res., 34(16): 4007-4013.

Harris, G.D., Adams, V.D., Sorensen, D.L. and Curtis, M.S. 1987. *Ultraviolet inactivation of selected bacteria and viruses with photoreactivation of the bacteria*, Wat. Res., 21(6): 687-692.

Hayes, S.L., Rice, E.W., Ware, M.W. and Schaefer III, F.W. 2003. *Low pressure ultraviolet studies for inactivation of Giardia muris cysts*, J. Appl. Microbiol., 94(1): 54-59.

Hijnen, W.A.M., Beerendonk, E.F. and Medema, G.J. 2006. *Inactivation credit of UV radiation for viruses, bacteria and protozoan (oo)cysts in water; a review*, Wat. Res., 40(1): 3-22.

Hoyer, O. 1998. *Testing performance and monitoring of UV systems for drinking water disinfection*, Wat. Supply, 16(1-2): 424-429.

Huffman, D.E., Gennaccaro, A., Rose, J.B. and Dussert, B.W. 2002. *Low- and medium-pressure UV inactivation of microsporidia Encephalitozoon intestinalis*, Wat. Res., 36(12): 3161-3164.

Husman, A.M.D., Bijkerk, P., Lodder, W., Van den Berg, H., Pribil, W., Cabaj, A., Gehringer, P., Sommer, R. and Duizer, E. 2004. *Calicivirus inactivation by nonionizing 253.7-nanometerwavelength (UV) and ionizing (Gamma) radiation*, Appl. Environ. Microbiol., 70(9): 5089-5093. Johnson, A.M., Linden, K., Ciociola, K.M., De Leon, R., Widmer, G. and Rochelle, P.A. 2005. *UV inactivation of Cryptosporidium hominis as measured in cell culture*, Appl. Environ. Microbiol., 71(5): 2800-2802.

Joux, F., Jeffrey, W.H., Lebaron, P. and Mitchell, D. L. 1999. *Marine bacterial isolates display diverse responses to UV-B radiation*, Appl. Environ. Microbiol., 65(9): 3820-3827.

Karanis, P., Maier, W.A., Seitz, H.M. and Schoenen, D. 1992. UV sensitivity of protozoan parasites, Aqua, 41: 95-100.

Lazarova, V. and Savoye, P. 2004. *Technical and sanitary aspect of wastewater disinfection by ultraviolet irradiation for landscape irrigation*, Wat. Sci. Technol., 50(2): 203-209.

Liltved, H. and Landfald, B. 1996. *Influence of liquid holding recovery and photoreactivation on survival of ultraviolet-irradiated fish pathogenic bacteria*, Wat. Res., 30(5): 1109-1114.

Linden, K.G., Batch, L. and Schulz, C. 2002a. UV disinfection of filtered water supplies: water quality impacts on MS2 dose-response curves, Proceedings Amer. Wat. Works Assoc. Annu. Conf., Amer. Wat. Works Assoc., Denver, CO.

Linden, K.G., Shin, G.-A., Faubert, G., Cairns, W. and Sobsey, M.D. 2002b. UV disinfection of Giardia lamblia cysts in water, Environ. Sci. Techol., 36(11): 2519-2522.

Mamane-Gravetz, H. and Linden, K.G. 2004. UV disinfection of indigenous aerobic spores: Implications for UV reactor validation in unfiltered waters, Wat. Res., 38(12): 2898-2906.

Marshall, M.M., Hayes, S., Moffett, J., Sterling, C.R. and Nicholson, W.L. 2003. *Comparison of UV inactivation of three Encephalitozoon species with that of spores of two DNA repair-deficient Bacillus subtilis biodosimetry strains*, Appl. Environ. Microbiol., 69(1): 683-685.

Martin, E.L., Reinhardt, R.L., Baum, L.L., Becker, M.R., Shaffer, J.J. and Kokjohn, T.A. 2000. *The effects of ultraviolet radiation on the moderate halophile Halomonas elongata and the extreme halophile Halobacterium salinarum*, Can. J. Microbiol., 46(2): 180-187.

Maya, C., Beltran, N., Jimenez, B. and Bonilla, P. 2003. *Evaluation of the UV disinfection process in bacteria and amphizoic amoebae inactivation*, Wat. Sci. Technol.: Wat. Supply, 3(4): 285-291.

Meng, Q.S. and Gerba, C.P. 1996. *Comparative inactivation of enteric adenoviruses, poliovirus and coliphages by ultraviolet irradiation*, Wat. Res., 30(11): 2665-2668.

Mofidi, A.A., Meyer, E.A., Wallis, P.M., Chou, C.I., Meyer, B.P., Ramalingam, S. and Coffey, B.M. 2002. *The effect of UV light on the inactivation of Giardia lamblia and Giardia muris cysts as determined by animal infectivity assay*, Wat. Res., 36(8): 2098-2108.

Morita, S., Namikoshi, A., Hirata, T., Oguma, K., Katayama, H., Ohgaki, S., Motoyama, N. and Fujiwara, M. 2002. *Efficacity of UV irradiation in inactivating C. parvum oocysts*, Appl. Environ. Microbiol., 68(11): 5387-5393.

Nieuwstad, T.J. and Havelaar, A.H. 1994. *The kinetics of batch ultraviolet inactivation of bacteriophage MS2 and microbiological calibration of an ultraviolet pilot plant*, J. Environ. Sci. Health, A29(9): 1993-2007.

Oguma, K., Katayama, H. and Ohgaki, S. 2002. *Photoreactivation of E. coli after low- or medium pressure UV disinfection determined by an endonuclease sensitive site assay*, Appl. Environ. Microbiol., 68(12), 6029-6035.

Oguma, K., Katayama, H. and Ohgaki, S. 2004. *Photoreactivation of Legionella pneumophila after inactivation by low- or medium-pressure ultraviolet lamp*, Wat. Res., 38(11): 2757-2763.

Oppenheimer, J.A., Hoagland, J.E., Laine, J.-M., Jacangelo, J.G. and Bhamrah, A. 1993. *Microbial inactivation and characterization of toxicity and by-products occurring in reclaimed wastewater disinfected with UV radiation*, Conf. on Planning, Design and Operation of Effluent Disinfection Systems, Whippany, NJ, May 23-25, 1993, Wat. Environ. Fed., Alexandria, VA.

Otaki, M., Okuda, A., Tajima, K., Iwasaki, T., Kinoshita, S. and Ohgaki, S. 2003. *Inactivation differences of microorganisms by low pressure UV and pulsed xenon lamps*, Wat. Sci. Technol., 47(3): 185-190.

Rauth, A.M. 1965. *The physical state of viral nucleic acid and the sensitivity of viruses to ultraviolet light*, Biophys. J., 5: 257-273.

Rice, E.W. and Hoff, J.C. 1981. *Inactivation of Giardia lamblia cysts by ultraviolet irradiation*, Appl. Environ. Microbiol., 42(3): 546-547.

Shin, G.-A., Linden, K.G. and Sobsey, M.D. 2000. *Comparative inactivation of Cryptosporidium parvum oocysts and coliphage MS2 by monochromatic UV radiation*, Proceedings of Disinfection 2000: Disinfection of Wastes in the New Millennium, New Orleans, Water Environment Federation, Alexandria, VA.

Shin, G.-A., Linden, K.G., Arrowood, M.J. and Sobsey, M.D. 2001. *Low-pressure UV inactivation and DNA repair potential of C. parvum oocysts*, Appl. Environ. Microbiol., 67(7): 3029-3032.

Shin, G.A., Linden, K.G. and Sobsey, M.D. 2005. *Low pressure ultraviolet inactivation of pathogenic enteric viruses and bacteriophages*, J. Environ. Engr. Sci., 4: S7-S11.

Sommer, R., Weber, G., Cabaj, A., Wekerle, J., Keck, G., and Schauberger, G. 1989. UV inactivation of microorganisms in water. Zbl. Hyg. 189: 214-224.

Sommer, R., Haider, T., Cabaj, A., Pribil, W. and Lhotsky, M. 1998. *Time dose reciprocity in UV disinfection of water*, Water Sci. Technol., 38(12): 145-150. Sommer, R., Cabaj, A., Sandu, T. and Lhotsky, M. 1999. *Measurement of UV radiation using suspensions of microorganisms*, J. Photochem. Photobiol., 53(1-3): 1-5.

Sommer, R., Lhotsky, M., Haider, T. and Cabaj, A. 2000. *UV inactivation, liquid-holding recovery, and photoreactivation of E. coli O157 and other pathogenic E. coli strains in water*, J. Food Protection, 63(8): 1015-1020.

Sommer, R., Pribil, W., Appelt, S., Gehringer, P., Eschweiler, H., Leth, H., Cabaj, A. and Haider, T. 2001. *Inactivation of bacteriophages in water by means of non-ionizing (UV-253.7 nm) and ionizing (gamma) radiation: A comparative approach*, Wat. Res., 35(13): 3109- 3116.

Thurston-Enriquez, J.A., Haas, C.N., Jacangelo, J., Riley, K. and Gerba, C.P. 2003. *Inactivation of feline calcivirus and adenovirus type 40 by UV radiation*, Appl. Environ. Microbiol., 69(1): 577-582.

Thompson, S.S., Jackson, J.L., Suva-Castillo, M., Yanko, W.A., Jack, Z.E., Kuo, J., Chen, C.L., Williams, F.P. and Schnurr, D.P. 2003. *Detection of infectious human adenoviruses in tertiary-treated and ultraviolet-disinfected wastewater,* Wat. Environ. Res., 75(2): 163-170.

Tosa, K. and Hirata, T. 1998. HRWM-39: *Photoreactivation of Salmonella following UV disinfection*, IAWQ 19th Biennial International Conference, Vol. 10, Health Related Water Microbiology.

Tosa, K. and Hirata, T. 1999. *Photoreactivation of enterohemorrhagic E. coli following UV disinfection*, Wat. Res., 33(2): 361-366.

Tree, J.A., Adams, M.R. and Lees, D.N. 1997. *Virus inactivation during disinfection of wastewater by chlorination and UV irradiation and the efficacy of F+ bacteriophage as a 'viral indicator'*, Wat. Sci. Technol., 35(11-12): 227-232.

Tree, J.A., Adams, M.R. and Lees, D.N. 2005. *Disinfection of feline calicivirus (a surrogate for Norovirus) in wastewaters*, J. Appl. Microbiol., 98: 155-162.

Wiedenmann, A., Fischer, B., Straub, U., Wang, C.-H., Flehmig, B. and Schoenen, D. 1993. Disinfection of Hepatitis A virus and MS-2 coliphage in water by ultraviolet irradiation: Comparison of UV-susceptibility, Wat. Sci. Tech., 27(3-4): 335-338.

Wilson, B.R., Roessler, P.F., Van Dellen, E., Abbaszadegan, M. and Gerba, C.P. 1992. *Coliphage MS-2 as a UV water disinfection efficacy test surrogate for bacterial and viral pathogens, Proceedings, Water Quality Technology Conference*, Nov 15-19, 1992, Toronto, Canada, pp. 219-235, Amer. Wat. Works Assoc., Denver, CO.

Wu, Y., Clevenger, T. and Deng, B. 2005. *Impacts of goethite particles on UV disinfection of drinking water*, Appl. Environ. Microbiol., 71(7): 4140-4143.

Yaun, B.R., Sumner, S.S., Eifert, J.D. and Marcy, J.E. 2003. *Response of Salmonella and E. coli* 0157:H7 to UV energy, J. Food Protection, 66(6): 1071-1073.

Zimmer, J.L. and Slawson, R.M. 2002. *Potential repair of E. coli DNA following exposure to UV radiation from both medium- and low-pressure UV sources used in drinking water treatment*, Appl. Environ. Microbiol., 68(7): 3293-3299.

Zimmer, J.L., Slawson, R.M. and Huck, P.M. 2003. *Inactivation and potential repair of C. parvum following low- and medium-pressure ultraviolet irradiation*, Wat. Res., 37(14): 3517-352.

6. Erik Heim said that UV light will be used to treat outflow water. Please provide scientific studies that prove UV light is effective in killing viruses and diseases.

Please see answer 5A.

7. The food for the fish is a vector for the spread of disease, especially as Nordic is stating that their feed mix will likely include smaller fish from abroad. Please provide the current protocols for testing for viruses and disease in the fish food.

Spreading of disease in feed is very rare. Feed suppliers who transmit disease would go out of business if their product posed a disease threat to producers.

Nordic Aquafarms has not chosen a final feed provider. However, we can look to Skrettings (also located in Maine) protocols as a fair description of current rigorous practice for testing fish feed in their production process. A statement read by George Demos of Skretting at the October 4th public informational meeting held by Nordic Aquafarms, confirmed that Skretting has both internal procedures for any disease prevention and are also fully compliant with all laws and regulations in the US. Our experience is that the larger feed suppliers is rigorous in this regard.

8. Journalist Mark Hume reported in the Globe and Mail, updated May 11, 2018 "The action, filed with the Federal Court by Ecojustice on behalf of Alexandra Morton, alleges the Minister of Fisheries and Oceans (DFO) acted "unlawfully" by issuing a license to Marine Harvest Canada Inc. to allow the farm to transfer fish carrying piscine reovirus (PRV)." The virus is deadly and causes heart and skeletal muscle inflammation in fish. "She said she first detected PRV last year when she tested samples of farmed salmon bought at Vancouver supermarkets. The Cohen Commission of Inquiry, which examined the collapse of sockeye stocks in the Fraser, warned that fish farms could be passing diseases to wild salmon. Ms. Morton said PRV could be to blame for the collapse of Fraser stocks." The Piscinc reovirus began in Norway, home to massive aquaculture facilities. Question: The Aquaculture industry has caused enormous unintended consequences. Can you provide scientific peer reviewed studies not conducted by the industry itself, that can prove that your RAS system's outflow pipe will not negatively affect wild stocks of fish?

Nordic Aquafarms Inc. outflow pipe will not negatively affect wild stocks of fish. The discharge levels we are applying for are the best in the industry. We will apply best applicable technology to ensure pathogenic material cannot enter or leave the facility. The statement above describes a British Colombian net pen farm. NORDIC will site their facility on privately owned land where extensive barriers will prevent interaction with wild fish stocks. Similar methods of fish escapement have been used successfully for many years at other large Maine RAS facilities. Wolters, Masters, Vinci, and Summerfelt, 2009 describe fish exclusion, U.V. disinfection, and solids capture at a facility completed in 2007. The NCWMAC as described in Wolters 2009 paper in Aquaculture Engineering is sited next to an even larger RAS facility owned and operated by the University of Maine. The University of Maine facility was privately owned prior to the University purchasing it and has been in operation for several decades. Many different species have been raised at this facility over the decades. Both facilities discharge into Taunton Bay. Taunton Bay narrows considerably at low tide and is quite long. So much so it is typically referred to as the Taunton River. There have been no documented negative effects on wild fish stocks from the outflow pipe of these RAS facilities.

9. Please explain in detail which diseases you will regularly monitor for?

Pathogenic materials are unable to enter or leave our facility. We have extensive SOPs for all contingency situations at our European facilities. These SOPs, best practices, and biosecurity measures will be adapted for our Belfast facility. We have had no instances of disease outbreaks at our Danish facilities, as can be certified by our veterinarian. Nordic Aquafarms does not use antibiotics or vaccines in these facilities.

If one of our trained marine biologists were to observe something of concern they will be required by SOPs to immediately report this to their supervisor. The fish in question would be removed and sent for further testing by an accredited lab and U.S. certified veterinarian. The recommendation of that veterinarian would then be followed. Fish will be regularly sent to accredited labs for testing for all and any infections.

10. Explain exact levels of disease that would trigger a shut-down of flow into the Bay.

Pathogenic materials are unable to enter or leave the facility. The primary source of pathogens for RAS facilities is the water source they use. We will use proven disinfection technology at our intake to prevent any pathogenic material from entering the facility. All tanks circulate water through an internal water treatment loop that has UV disinfection integrated into the RAS for continuous disinfection of system water.

All tanks drain to a WWTP that has micro-filtration to remove particles as small as 0.4 microns. This is small enough to remove bacteria. For comparison rod shaped Escherichia coli bacteria are 1 micron by 2 microns in size. After micro-filtration all water is treated with a 300 mJ/cm3 dose of U.V. light for disinfection prior to discharge.

We have extensive SOPs for all contingency situations at our European facilities. These SOPs, best practices, and biosecurity measures will be adapted for our Belfast facility. Our modules are separate entities and do not share water or materials from one module to the next. If one of our trained marine biologists were to observe something of concern they will be required to immediately report this to their supervisor. The fish in question would be removed and sent for further testing in an accredited lab by a U.S. certified veterinarian. The recommendation of that veterinarian would then be followed, and any prescribed treatment documented

11. In the event of a mass die off of fish, please provide detailed information that, explains all of your flows of water, filters, fish, food stocks, equipment, and employees leaving the plant.

We have extensive SOPs for all contingency situations at our European facilities. These SOPs, best practices, and biosecurity measures will be adapted for our Belfast facility. All employees entering and leaving the facility will always pass through multiple biosecurity barriers so that no pathogenic materials enter or leave the facility. Feed will be stored in rodent proof containers separate from the fish modules to ensure both quality and biosecurity of the feed is maintained at all times. All equipment involved would be properly cleaned and disinfected. All water would be disinfected, properly treated, and drained. Any mortalities would be properly disposed of in adherence to state and federal regulations 12. Can you prove that you will not send diseases into the bay? Please provide documentation on these claims.

A disease is the symptom of cell damage from infection by viruses, bacteria, or other microbes.

Nordic Aquafarms has operated without disease outbreaks at its Danish facilities for 3 years; and the Belfast facility will have significantly upgraded biosecurity measures compared to these. The methods we will use to prevent pathogenic materials and parasites from entering or leaving the facility are well documented and understood. A multi-step process will be employed in our waste water treatment plant to ensure no pathogenic material can pass find its way to the bay. We will micro-filter our effluent to remove particles through a 0.4-micron filter provided by Mitsubishi. Mitsubishi has documented successful applications of this technology at industrial and municipal facilities around the globe. Many of these installations are listed on their website at: https://www.m

chemical.co.jp/sterapore/en/pdf/Mitsubishi_chemical_STERAPORE_Hollow_fiber_membrane_M BR_Case_report_EN.pdf.

For reference the smallest object the human eye can see is 40 microns, and the rod-shaped E. coli bacteria is 1 micron by 2 microns in size. While not every bacterium has been precisely measured for size, bacteria are thought to range from slightly less than 1 micron to 5 microns in size. As a final step all effluent water will receive a 300mJ/cm3 disinfecting dose of ultra violet light prior to discharge. U.V. light and its ability to effectively kill viruses, bacteria, other microbes, and diseases is well documented.

13. Can you prove that you will not send viruses into the bay? Please provide documentation on these claims.

See previous answers.

14. How will you handle diseased fish? Massive die-offs

See previous answers.

II. <u>Feed</u>

1. I have heard from Erik Heim that the fish food could be anything from insects to plants to smaller fish to waste from chicken and pig slaughterhouses. What the fish actually will eat turns out to have ramifications for Penobscot Bay and beyond, including distant marine systems. Questions: Nordic has claimed to be capturing a high percentage of phosphorus. Please explain methods used to remove phosphorus?

We are using commercially available and proven water treatment technology that have been used in aquaculture, waste water treatment and drinking water treatment. Rotating drum filters remove particles as small as 0.03 mm which contain phosphorous. Membrane Bioreactors (MBR) remove solids as small as 0.0004 mm and remove phosphorous by chemical precipitation. Mixed Bed Bioreactors (MBBRs) also remove some dissolved phosphorous via aerobic and anaerobic processes. Water is continuously filtered as it recirculates in the fish tanks. A small portion of the water in the fish tanks (1% of total volume each day) is exchanged continuously. All water is treated again at the waste water treatment plant prior to being discharged.

2. Provide the data on how dissolved phosphorous levels in the outflow pipe change depending upon the diet fed to fish in containment.

The amount of phosphorous in the discharge would be proportional the amount in the feed. 99 percent of the phosphorous is removed in our waste water treatment plan before discharge of process water. Regardless of what feed we use we will be required to stay below the numbers we are permitted for.

3. If you are permitted to discharge certain levels of phosphorus, and later change the diet, will you commit to maintaining target levels?

Yes. We are required by law to stay within any limits we are permitted for. Thus, we apply for a limit that we are confident we will not exceed.

4. A quote from the study in Aquaculture Engineering: "Total phosphorous (most of which was dissolved) was 4 times greater in the culture water of RAS that received the FMF (Fishmeal-free) diet, e.g., 4.3 ± 0.1 mg/L v. 0.9 ± 0.0 mg/L for the FM (Fishmeal) Diet. This was the first research attempt to formulate a fishmeal-free diet for Atlantic salmon with this ingredient profile and one of few studies to demonstrate uncompromised Atlantic salmon performance when feeding a diet without fishmeal. Dissolved Phosphorous levels can increase by four times simply by feeding fish a fishmeal-free diet that contains mixed nut meal, poultry meal, wheat flour, and com protein concentrate. Could a diet change at a future date cause 4 times the phosphorous to enter the bay?

See above. We are not legally allowed to exceed the limits we are permitted for.

5. Will you feed fish slaughterhouse waste that includes any of the following: Pig blood or byproducts, chicken slaughterhouse waste, GMO com, GMO soy?

We will not use GMO's. Our feed will be USDA and FDA approved. We have not yet chosen a specific feed to use at our facility.

6. Aquaculture literature sites experiments in feeding the sludge back to the salmon and making chemical-based food stocks as ingredients to the fish pellets. What artificial inputs might the food contain?

We will not feed fish sludge to the salmon, a practice we are not familiar with. Nordic Aquafarms is focused on sourcing a sustainably produced feed with natural components. Salmon feed is FDA and USDA regulated.

7. How will your salmon get their color? Will these chemicals be in the pipe?

Natural antioxidants.

 Ethoxyquin, a known carcinogen, is used to reduce rancidity and the chance of combustion during the transport of salmon feed, and its ingredients. That chemical then shows up in farmgrown salmon. Will NORDIC's fish feed contain this chemical? If yes, will it then be present in your discharge water? If not, how will you avoid it?

We are focused on identifying and sourcing feed made with natural ingredients. We have not yet chosen a specific feed to use. Our feed will be USDA and FDA approved.

2. Will your fish feed contain soy? If it will, that means your discharge will contain known carcinogenic pesticides and fungicides associated with growing commercial soy, which is also genetically modified.

Our feed will not contain GMO's or carcinogenic compounds. It is possible that our feed will contain some soy. The production and use of salmon feed are regulated by the FDA and USDA. We are committed to identifying and using a sustainably produced feed.

III. <u>Pheromones</u>

 Sea Lice, kairomones, pheromones -- Studies conducted by the aquaculture industry and researchers have come to understand that salmon pheromones, kairomones and "fish smell" attract sea lice. Although the land-based salmon might be safe from sea lice, the outflow pipe will attract sea lice. How will this affect other species in the bay and wild salmon that are listed as endangered species? Might this make salmon recovery more difficult? Parasites depend on higher densities of hosts to multiply and survive. They can become a problem in scenarios with high densities of these hosts. In RAS systems the host is removed from the ocean. Any lice are removed through the intake filters. Thus, populations of sea lice cannot be supported near the outfall.

- 2. An 11-year study in Port Mouton Bay, Atlantic Canada was released June 28, 2018. "Our results indicate that average market lobster catches per unit effort (CPUE) was significantly reduced by 42% and berried lobster counts by 56% in feed compared to fallow periods. Moreover, both market and berried lobster CPUE tended to be lower in fishing region 2, which included the fish farm, and higher in region 5, furthest away from the farm." The study reported:
- 3. Lobster "sniff' the odor seascape with their antennules and chemoreceptors found on their legs
 - Odors are used to locate food, find mates, detect predators and avoid environmental stresses
 - Sulphides and ammonium have toxic and behavioral effects on adults and other lobster life stages
 - In laboratory studies, 50% of lobsters die within 3 .3 days in low oxygen, low sulphides (5.5 μ M) and ammonium (17 μ M) conditions (Draxler et al. 2005)
 - Berried lobster is very sensitive to odours and temperature
 - Berried lobster show retreat behavior at 50 μ M sulphide
 - (Butterworth et al. 2004); at 500 μM and regular oxygen conditions, 50% of lobster died in 22.5 hr.

The filtration technology we employ will prevent these conditions from occurring. They are potentially relevant to assess in relation to net pen operations.

- 4. Further, the study cited the effects of nitrogen pollution include:
 - Decrease in water quality
 - Increase in epiphyte growth on eelgrass
 - Increase in benthic algae
 - Increase in nuisance or "slime" algae

Please take the study's finding one by one and provide scientific data to show that your outflow pipe will not have similar negative impact.

By employing state of the art water treatment technologies, we reduce solids, phosphorous, biochemical oxygen demand (BOD) by 99%. Total nitrogen is reduced by 85%. Oceanographic

models were done to simulate the effects of the residual discharge contents (see Attachment I). The results of these models indicated the effluent would disperse quickly. We are confident this will prevent significant effects on surrounding water quality and fauna and will be monitoring developments. Note that this is a multi-phase development project to take place over a number of years. Significant amounts of monitoring data will be available before further expansion. This permit application is for a fully expanded facility.

5. Research suggests that pheromones and, more specifically, kairomones, produced by the salmon will present in the discharge water. Would you comment on the potential effects of these on wild salmon and other finfish species in our Bay?

The main concentrations will be in the feces that is filtered out and composted or reused in other bi-product value enhancement processes. Material negative effects from the discharge are not anticipated as the discharge is quickly diluted in a large bay system.

6. Please provide scientific data to prove that the outflow odor plume will not have any effect on berried lobsters.

Addressing questions 3 and 4 above:

Dive surveys of the discharge area showed low occurrence of receptors (sea life) at the outfall location. Solids, phosphorous and biochemical oxygen demand will be reduced by 99%. We are confident that the rapid dispersal of residual quantities of these components to background levels will prevent significant negative environmental impacts.