STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANET T. MILLS
GOVERNOR

MELANIE LOYZIM
COMMISSIONER

May 5, 2021

Megan Sorby
Kingfish Maine
33 Salmon Farm Road
Franklin, ME. 04634
megan@kingfish-maine.com

Sent via electronic mail
Delivery confirmation requested

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0037559
Maine Waste Discharge License (WDL) Application #W009238-6F-A-N
Proposed Draft MEPDES Permit *NEW*

Dear Ms. Sorby,

Attached is a proposed draft MEPDES permit and Maine WDL which the Department proposes to issue for your facility as a final document after opportunity for your review and comment. By transmittal of this letter, you are provided with an opportunity to comment on the proposed draft permit and its special and standard conditions. If it contains errors or does not accurately reflect present or proposed conditions, please respond to this Department so that changes can be considered.

By copy of this letter, the Department is requesting comments on the proposed draft permit from various state and federal agencies and from any other parties who have notified the Department of their interest in this matter. The Department is also posting this draft on its website as well as other supporting materials.

The comment period begins on May 5, 2021 and ends on Monday, June 7, 2021. All comments on the proposed draft permit must be received in the Department of Environmental Protection office on or before the close of business Monday, June 7, 2021. Failure to submit comments in a timely fashion will result in the proposed draft/license permit document being issued as drafted.

Comments in writing should be submitted to my attention at the following address:

Maine Department of Environmental Protection
Bureau of Water Quality
Division of Water Quality Management
17 State House Station
Augusta, ME 04333-0017
Cindy.L.Dionne@maine.gov

If you have any questions regarding the matter, please feel free to contact me.

Sincerely,

Cindy L. Dionne
Division of Water Quality Management
Bureau of Water Quality
ph: 207-287-7823

Enc.

ec: Brian Kavanah, DEP
Don Witherill, DEP
Gregg Wood, DEP
Pamela Parker, DEP
Clarissa Trasko, DEP
Rob Mohlar, DEP
Angela Brewer, DEP
Lori Mitchell, DEP
Jay Clement, ACOE
Sean Mahoney, CLF
Kathleen Leyden, DACF
Environmental Review, DMR
Alex Rosenberg, USEPA
Nathan Chien, USEPA
Richard Carvalho, USEPA
Kirk F. Mohney, MHPC
Dale Mitchell, Passamaquoddy Tribal Government
Anna Harris, USFWS
David Bean, NOAA
Anastasia Fischer, Eastern Maine Conservation Initiative
Maine DEP Website

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

KINGFISH MAINE	)	MAINE POLLUTANT DISCHARGE
JONESPORT, WASHINGTON COUNTY, MAINE	)	ELIMINATION SYSTEM PERMIT
LAND BASED AQUACULTURE	)	AND
ME0037559	)	WASTE DISCHARGE LICENSE
W009238-6F-A-N **APPROVAL**	)	**NEW**

In compliance with the applicable provisions of *Pollution Control*, 38 M.R.S. §§ 411 – 424-B, *Water Classification Program*, 38 M.R.S. §§ 464 – 470, and *Federal Water Pollution Control Act*, Title 33 U.S.C. § 1251, and applicable rules of the Department of Environmental Protection (Department), the Department has considered the application of KINGFISH MAINE (Kingfish or permittee), for a new combination Maine Pollutant Discharge Elimination System (MEPDES) permit/Maine Waste Discharge License (WDL)(collectively permit) with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

On August 7, 2020, Kingfish submitted an application to the Department for a new MEPDES permit/WDL for the daily maximum discharge of 28.7 million gallons per day (MGD) of treated wastewater associated with a land-based recirculating aquaculture system (RAS) to Chandler Bay, Class SB, in Jonesport, Maine. The total 28.7 MGD flow is made up of 6.5 MGD of fish culture or process water, whereas 22.2 MGD is water used for heat recovery in the facility (not process water). The permittee proposes to rear Yellowtail Kingfish (*Seriola lalandi*) from on-site broodstock, through each life stage to harvest and initial processing. At full production, the facility will be able to produce 8,000 metric tons or 16 million pounds of fish per year. Kingfish proposes to begin construction once all permits have been obtained.

On August 17, 2020, the Department formally accepted the application as complete and deemed the application acceptable for processing pursuant to 06-096 C.M.R. Chapter 2, *Rules Concerning the Processing of Applications and other Administrative Matters* (June 9, 2018).

PERMIT SUMMARY

This permit establishes:

1. Technology-based numeric limitations for flow, biochemical oxygen demand (BOD), total suspended solids (TSS) and pH;

2. A requirement to seasonally (May – October) monitor the effluent for total phosphorus, total ammonia (as N) total kjeldahl nitrogen, nitrate + nitrite nitrogen;

3. A monthly average water quality-based mass limitation for total nitrogen;

4. A requirement for the permittee to conduct a dye study to more accurately determine the mixing characteristics of the treated effluent discharge from the facility with the receiving water;

5. A requirement to conduct seasonal (May – October) ambient water quality monitoring in Chandler Bay;

6. A requirement for the facility to develop and maintain an Operations & Maintenance (O&M) Plan for the production facility and the wastewater treatment facility;

7. Best practicable treatment (BPT) and General Reporting requirements consistent with National Effluent Guidelines (NEG) found at 40 Code of Federal Regulations (CFR), Part 451 – *Concentrated Aquatic Animal Production Point Source Category*;

8. A requirement for the permittee to meet with the Department's permitting and compliance inspection staff 90 days prior to commencement of operations, to review the permit limitations, monitoring requirements and reporting requirements;

9. Daily maximum concentration limits for formalin based off of 1-hour or 24-hour treatment types; and

10. A finding by the Department pursuant to the antidegradation provisions under *Classification of Maine waters*, 38 M.R.S. § 464(4)(F), for nitrogen as it pertains to eelgrass as an indicator.

CONCLUSIONS AND FINDINGS

BASED on the findings in the attached **DRAFT** Fact Sheet dated May 5, 2021, and subject to the Conditions listed below, the Department makes the following CONCLUSIONS AND FINDINGS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below its classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with State law.

3. The provisions of the State's antidegradation policy, *Classification of Maine waters*, 38 M.R.S. § 464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) Where the standards of classification of the receiving waterbody are not met, the discharge will not cause or contribute to the failure of the waterbody to meet the standards of classification;

   (d) Where the actual quality of any classified receiving waterbody exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing water quality of any waterbody, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment as defined in 38 M.R.S. § 414-A(1)(D).

ACTION

THEREFORE, the Department APPROVES the application of KINGFISH MAINE to discharge a daily maximum flow of 28.7 MGD of treated wastewater associated with a land-based RAS to Chandler Bay, Class SB in Jonesport, Maine, subject to the attached conditions and all applicable standards and regulations:

1. "*Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable to All Permits*," revised July 1, 2002, copy attached.

2. The attached Special Conditions, including any effluent limitations and monitoring requirements.

3. This permit becomes effective upon the date of signature below and expires at midnight five (5) years after that date. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the terms and conditions of this permit and all subsequent modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [*Maine Administrative Procedure Act*, 5 M.R.S. § 10002 and *Rules Concerning the Processing of Applications and Other Administrative Matter*s, 06-096 CMR 2(21)(A) (last amended June 9, 2018)].

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

DONE AND DATED AT AUGUSTA, MAINE, THIS ___ DAY OF _____ 2021.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
For Melanie Loyzim, Commissioner, Department of Environmental Protection

Date of initial receipt of application: August 7, 2020

Date of application acceptance: August 17, 2020

Date filed with Board of Environmental Protection _____

This Order prepared by Cindy L. Dionne, Bureau of Water Quality

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge treated **wastewater associated with a land-based RAS from Outfall #001A OR Outfall #001B** to Chandler Bay. Such discharges are limited and must be monitored by the permittee as specified below:[(1)]

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow *[50050]*	Report MGD *[03]*	28.7 MGD *[03]*	---	---	Continuous *[99/99]*	Meter *[MR]*
Biochemical Oxygen Demand[(2)] (BOD_5) *[00310]*	1,626 lbs./day *[26]*	2,711 lbs./day *[26]*	30 mg/L *[19]*	50 mg/L *[19]*	3/Week *[03/07]*	Composite[(3)] *[24]*
Total Suspended Solids(TSS) [(2)] *[00530]*	1,626 lbs./day *[26]*	2,711 lbs./day *[26]*	30 mg/L *[19]*	50 mg/L *[19]*	3/Week *[03/07]*	Composite[(3)] *[24]*
Total Kjeldahl Nitrogen (as N) *[00625]* ***(May – Oct)***	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Composite[(3)] *[24]*
Nitrate + Nitrite Nitrogen (as N) *[00630]* ***(May – Oct)***	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Composite[(3)] *[24]*
Total Nitrogen (as N) [(2,4)] *[00600]* ***(May – Oct)***	1,580 lbs./day*[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Calculated[(3)] *[CA]*
Fish on Hand *[45604]*	---	Report Metric Tons *[41]*	---	---	1/Month *[01/30]*	Calculated *[CA]*
Total Phosphorus[(5)] *[00665]* ***(May – Oct)***	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Composite[(3)] *[24]*
Total Ammonia (as N) *[00610]* ***(May – Oct)***	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Grab *[GR]*
Temperature *[00011]* ***(June 1 – Sept 1)***	---	---	---	Report °F *[15]*	1/Day *[01/01]*	Measure *[MS]*
pH (Std. Units) *[00400]*	---	---	---	6.0-9.0 *[12]*	3/Week *[03/07]*	Grab *[GR]*
Formalin[(6)] *[51064]* *1-Hour Treatment Maximum*	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	45 mg/L *[19]*	1/Occurrence *[01/OC]*	Calculated *[CA]*
Formalin[(6)] *[51064]* *24-Hour Treatment Maximum*	Report lbs./day *[26]*	Report lbs./day *[26]*	Report mg/L *[19]*	25 mg/L *[19]*	1/Occurrence *[01/OC]*	Calculated *[CA]*
Total Residual Chlorine[(7)] *[50060]*	---	---	0.1 mg/L *[19]*	0.3 mg/L *[19]*	1/Day *[01/01]*	Grab *[GR]*
Fish Oil and Grease *[00552]*	39 lbs./day *[26]*	96 lbs./day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	2/Week *[02/07]*	Grab *[GR]*
Production[(8)] *[00145]* *(Yellowtail Kingfish)*	Report lbs./day *[26]*	Report lbs./day *[26]*	---	---	Daily *[01/01]*	Measured *[MS]*

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes

1. **Sampling** – All effluent monitoring must be conducted following the last treatment unit prior to discharging to the receiving water. Samples must be taken at the discharge reservoir or as otherwise approved by the Department. All monitoring must be conducted so as to be representative of end-of-pipe effluent characteristics. Any change in sampling location must be approved by the Department in writing. The permittee must conduct sampling and analysis in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136 b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136 or c) as otherwise specified by the Department. Samples that are sent out for analysis must be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services for wastewater. Samples that are sent to a laboratory operated by a waste discharge facility licensed pursuant to *Waste discharge licenses*, 38 M.R.S. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 CMR 263 (last amended December 19, 2018). If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR).

2. **BOD, TSS and Total nitrogen** - The monthly average and daily maximum limitations for BOD, TSS, and total nitrogen may be subject to a statistical evaluation at the end of the term of this permit to assist the Department in establishing best practicable treatment standards for the RAS industry.

3. **Composite sample –** A sample consisting of a minimum of eight grab samples collected at equal intervals during a 24-hour period (or a lesser period as specified in Special Condition A on monitoring and reporting) and combined proportional to the flow over that same time period.

4. **Total nitrogen (as N) – Monthly** – The permittee is required to report the monthly average, and daily maximum mass and concentrations for each month (May – October) of each year by adding the total kjeldahl nitrogen values to the nitrate + nitrite nitrogen values for each sampling event. See **Attachment A** of this permit for *Protocol for Nitrogen and Phosphorus Sample Collection and Analysis for Waste Water and Ambient Marine Waters.*

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes (cont'd)

5. **Total phosphorus** – See **Attachment A** of this permit for *Protocol for Nitrogen and Phosphorus Sample Collection and Analysis for Waste Water and Ambient Marine Waters.*

6. **Formalin** – If sampling for Formalin is to occur, the sample must be taken from the discharge reservoir. Limits of 25 mg/L and 45 mg/L must be attained at the discharge reservoir prior to facility discharge to Chandler Bay.

   Formalin monitoring must be conducted when in use at the facility and must be reported as calculated effluent mass and concentration values via Department approved methodology.

   The following calculation must be applied to assess the total mass of formalin discharged per occurrence (lbs./day):

   Formalin applied (gallons) x 9.03[1] (lbs./gallon) = Total formalin in effluent (lbs./day)

   The permittee must provide this information and calculations to the Department in a document accompanying the monthly electronic DMR. The formalin limit corresponds to two types of treatments:

   1. One hour per day treatment typical of hatchery and rearing facility discharges; and

   2. Maximum of up to 24 hours of treatment and discharge for addressing emergency conditions at the facility.

   Formalin discharges lasting longer than 1-hour in duration must be conducted no more frequently than once every four days. The permittee must provide a list of dates on which treatments greater than 1-hour were performed, and the length of time of each such treatment, with each monthly electronic DMR.

   For instances when a permittee has not used formalin for an entire reporting period, the permittee must report "N9" for this parameter on the monthly electronic DMR.

[1] Per Material Safety Data Sheet, Parasite-S has a specific gravity of 1.0775-1.0865 giving it an average density of 9.03 lbs./gallon.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes (cont'd)

7. **TRC Monitoring** – Limitations and monitoring requirements are in effect any time elemental chlorine or chlorine-based compounds are utilized to disinfect the discharge(s). The permittee must utilize a USEPA-approved test method capable of bracketing the TRC limitations specified in this permitting action. For instances when a facility has not disinfected with chlorine-based compounds for an entire reporting period, the facility must report "N9" on the electronic DMR.

8. **Production -** Production refers to the pounds of fish live weight, processed per day at the facility.

B. NARRATIVE EFFLUENT LIMITATIONS

1. The permittee must not discharge effluent that contains a visible oil sheen, foam or floating solids at any time which would impair the uses designated for the classification of the receiving waters.

2. The permittee must not discharge effluent that contains materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the uses designated for the classification of the receiving waters.

3. The discharge must not discharge effluent that impart visible discoloration, taste, turbidity, toxicity, radioactivity or other properties in the receiving waters which would impair the usages designated for the classification of the receiving waters.

4. The permittee must not discharge effluent that lowers the quality of any classified body of water below such classification or lowers the existing quality of any body of water if the existing quality is higher than the classification.

C. TREATMENT PLANT OPERATOR

The person who has management responsibility over the treatment facility must hold a Maine **Grade V,** Biological Treatment certificate (or higher) or must be a Maine Registered Professional Engineer pursuant to *Sewage Treatment Operators*, 32 M.R.S. § 4171-4182 and *Regulations for Wastewater Operator Certification*, 06-096 C.M.R. 531 (effective May 8, 2006). All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

SPECIAL CONDITIONS

D. AUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on August 17, 2020; 2) the terms and conditions of this permit; and 3) only from Outfall #001A or Outfall#001B. Discharges of wastewater from any other point source are not authorized under this permit and must be reported in accordance with Standard Condition D(1)(f), *Twenty-four-hour reporting*, of this permit.

E. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee must notify the Department of the following:

1. Any substantial change in the volume or character of pollutants being introduced into the wastewater collection and treatment system.

2. For the purposes of this section, adequate notice must include information on:

   a. The quality and quantity of wastewater introduced to the wastewater collection and treatment system; and

   b. Any anticipated change in the quality and quantity of the wastewater to be discharged from the treatment system.

F. MONITORING AND REPORTING

Electronic Reporting

NPDES Electronic Reporting, 40 CFR 127, requires MEPDES permit holders to submit monitoring results obtained during the previous month on an electronic discharge monitoring report to the regulatory agency utilizing the United States Environmental Protection Agency (USEPA) electronic system.

Electronic Discharge Monitoring Reports (DMRs) submitted using the USEPA NetDMR system, must be:

1. Submitted by a facility authorized signatory; and
2. Submitted no later than **midnight on the 15th day of the month** following the completed reporting period.

SPECIAL CONDITIONS

F. MONITORING AND REPORTING (cont'd)

Documentation submitted in support of the electronic DMR may be attached to the electronic DMR. Toxics reporting must be done using the DEP toxsheet reporting form. An electronic copy of the Toxsheet reporting document must be submitted to the Department compliance inspector as an attachment to an email. In addition, a hardcopy form of this sheet must be signed and submitted to the compliance inspector, or a copy attached to the NetDMR submittal will suffice. Documentation submitted electronically to the Department in support of the electronic DMR must be submitted no later than midnight on the 15th day of the month following the completed reporting period.

G. DYE STUDY

Within 12 months of the effective date of this permit, the permittee must submit a plan to the Department for review and approval that includes a scope of work and schedule to conduct a dye study to ensure the accuracy of the analysis of the mixing characteristics of the effluent being discharged with the receiving water.

To assess in practice, the mixing characteristics of the treated effluent and the receiving water, **a dye study must be conducted the first summer (in July or August) following the facility discharging at full buildout (to include heat recovery water and culture systems) and/or with approval from Department staff.** The dye study must be conducted in July or August and at a full range of tidal stages.

Within 6 months of completion of the dye study, the permittee must submit a report to the Department that characterizes the mixing conditions in the receiving water and depicts the radial propagation of measured dilution factors associated with the discharge, to the point where the dye concentration is below the instrument detection level.

The information derived from this dye study will assist the Department in verifying the hydrodynamics of the receiving water and dilution factors associated with the discharge.

SPECIAL CONDITIONS

H. AMBIENT WATER QUALITY MONITORING

Within 6 months of the effective date of this permit, the permittee must submit an ambient water quality monitoring plan to the permittee's Compliance contact for review and approval by the Department's Division of Environmental Assessment (DEA), to monitor four (4) sampling stations established by the Department. *[ICIS code 22099]* See **Attachment D** of the Fact Sheet for the approved water quality monitoring sampling sites (blue boxes on Attachment). The proposed monitoring plan must conform with a Department-approved sampling plan or Quality Assurance Project Plan (QAPP), to be submitted for approval at least 60 days (March 1st) prior to the start of the ambient water quality monitoring program.

All ambient water quality sampling and analysis must be conducted by using Maine accredited labs, or as otherwise specified by the Department.

Beginning May 1, 2022, the permittee must commence ambient monitoring at the four (4) designated sites established by the Department's DEA at a frequency of every three (3) weeks between May 1st and October 31st of each year. Each monitoring event must be conducted during a four-hour sampling window on the second half of an ebb or flood tide. Minimum parameters to be monitored via sonde are temperature, salinity, pH, dissolved oxygen, chlorophyll *a,* and turbidity. Minimum parameters to be monitored via grab samples are total phosphorus, total kjeldahl nitrogen, nitrate + nitrite nitrogen, chlorophyll *a* and phaeophytin.

On or before December 31st of each year, the permittee must submit a report to the Department summarizing the data collected from the ambient water quality monitoring plan and report any data trends or anomalies. [*ICIS code 22099]* The report must be accompanied by quality checked sonde and grab sample data as well as laboratory reports for all grab sample analyses. All grab sample data must be submitted to the Department in Electronic Data Deliverable format per requirements detailed at https://www.maine.gov/dep/maps-data/egad/#ed .

SPECIAL CONDITIONS

I. OPERATIONS AND MAINTENANCE (O&M) PLAN

Within 6 Months after commencement of operations, the permittee must submit a written Operation & Maintenance (O&M) Plan for the facility. The plan must provide a systematic approach by which the permittee must at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. An acceptable O&M plan must ensure the following items are adequately addressed:

1. Solids Control

    a. Methods and practices to ensure efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges to waters of the State.

    b. In order to minimize the discharge of accumulated solids from the settling basin, settling tanks, and production systems, identify and implement procedures for routine cleaning of rearing units and settling tanks, and procedures to minimize any discharge of accumulated solids during the inventorying, grading, and harvesting of aquatic animals in the production system.

    c. Procedure for removal and disposal of mortalities.

2. Materials Storage

    a. Ensure proper storage of drugs[1], pesticides[2], feed, and any other pollutants in a manner designed to prevent spills that may result in the discharge of said pollutants to waters of the State.

    b. Implement procedures for properly containing, cleaning, and disposing of any spilled material that has the potential to enter waters of the State.

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[1] **Drug.** "Drug" means any substance defined as a drug in section 201(g)(1) of the *Federal Food, Drug and Cosmetic Act* [21 U.S.C. § 321].

[2] **Pesticide.** "Pesticide" means any substance defined as a "pesticide" in section 2(u) of the *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)* [7 U.S.C. § 136 (u)].

SPECIAL CONDITIONS

I. OPERATIONS AND MAINTENANCE (O&M) PLAN (cont'd)

3. Structural Maintenance

   a. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.

   b. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.

4. Recordkeeping

   a. Maintain records for fish rearing units documenting the feed amounts and estimates of the numbers and weight of fish.

   b. Maintain records that document the frequency of cleaning, inspections, repairs and maintenance.

5. Training

   a. In order to ensure the proper clean-up and disposal of spilled material adequately, train all relevant personnel in spill prevention and how to respond in the event of a spill.

   b. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment to prevent unauthorized discharges.

By December 31 of each year, **or within 90 days of any process changes or minor equipment upgrades,** the permittee must evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the wastewater treatment facility to ensure that it is up-to-date. The O&M Plan must be kept on-site at all times and made available to Department and USEPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the wastewater treatment facility, the permittee must submit the updated O&M Plan to their Department inspector for review and comment.

SPECIAL CONDITIONS

J. DISEASE CONTROL

The permittee must comply with Maine Department of Inland Fisheries and Wildlife (MDIFW) (freshwater facilities) and Maine Department of Marine Resources (MEDMR) (salmon & marine facilities) fish health laws (12 MRS, §§10051, *Importing of certain marine organisms* 12 M.R.S., § 6071, *Other powers* 12 M.R.S. §10105, *License to cultivate or sell commercially grown and imported fish* 12 M.R.S. §12507 and *Permit to import live freshwater fish or eggs* 12 M.R.S. §12509, as amended). The cited laws include requirements for notification to the appropriate agency within 24-hours of pathogen detection. In addition to the requirements of the MDIFW and MEDMR rules, **the permittee must notify the Department in writing within 24 hours following pathogen detection**, with information on the disease/pathogen, necessary control measures, and the contact information for the veterinarian(s) involved.

1. **General requirements.** All chemicals used at the facility must be applied in compliance with this permit, federal labeling restrictions, and in compliance with applicable statute, Board of Pesticides Control rules and best management practices (BMPs). In accordance with Special Condition D of this permit, the permittee must notify the Department of any substantial change in the volume or character of pollutants being introduced into the wastewater collection and treatment system.

2. **FDA-approved drugs.** All drugs used for disease prevention or control must be approved or authorized by the U.S. Food and Drug Administration (FDA), and all applications must comply with applicable FDA requirements and must only be administered in accordance with label instructions.

    a. Drugs identified in the permittee's application: A list of drugs, chemicals and other compounds proposed and approved for use at the permittee's facility during the term of the permit, was provided by the permittee in its August 17, 2020, General Application for Waste Discharge Permit as Permit **Attachment B**. FDA approved drugs in the permittee's August 17, 2020 application are:

        1. Formalin (Parasite-S)
        2. Tricaine methanesulfonate (Tricane-S® aka MS-222)
        3. PVP Iodine (Ovadine®)
        4. Hydrogen peroxide (35% Perox-Aid®)

    b. Preventative treatments: The discharge of any approved drug administered as a preventative measure is not authorized by this permit, unless the following conditions are met: the drug must be approved by FDA, and the treatment and route of administration must be consistent with the drug's intended use and according to label instructions.

SPECIAL CONDITIONS

J. DISEASE CONTROL (cont'd)

c. Drugs not identified in the permittee's application: When the need to treat or control diseases requires the use of an FDA-approved drug not identified in the application, the permittee must notify the Department verbally or by electronic mail prior to initial use of the drug.

1. The notification must include a description of the drug, its intended purpose, the method of application, the amount, the concentration, the duration of the use, and information on aquatic toxicity.

2. **Within seven (7) days of the initial notification,** the permittee must submit a written report that includes all of the information outlined in Section J.2(c)(1) above.

3. The Department may require submission of an application for permit modification, including public notice requirements, if the drug is to be used for more than a 30-consecutive day period.

4. If, upon review of information regarding the use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may restrict or limit use of the drug.

3. **Extralabel drug use.** Extralabel drug use is not authorized by this permit, unless in accordance with a specific prescription written for that use by a licensed veterinarian.

a. Notification. The permittee must notify the Department orally or by e-mail prior to initial extralabel use of a drug.

1. The notification must include a description of the drug, its intended purpose, the method of application, the amount, concentration, and duration of the use, information on aquatic toxicity, and a description of how and why the use qualifies as an extralabel drug use under FDA requirements.

2. **Within seven (7) days of the initial notification** the permittee must submit a written report that includes all of the information outlined in Section J.3(a)(1) above. Notice must include documentation that a veterinarian has prescribed the drug for the proposed use. A copy of the veterinarian's prescription must be maintained on-site during treatment for Department review.

3. If, upon review of information regarding the extralabel use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may deny, restrict or limit use of the drug.

SPECIAL CONDITIONS

J. DISEASE CONTROL (cont'd)

4. **Investigational New Animal Drug (INAD).** The discharge of drugs authorized by the FDA for use during studies conducted under the INAD program is not authorized by this permit, unless in accordance with specific prior consent given in writing by the Department.

   a. Initial report. The permittee must provide a written report to the Department for the proposed use of an INAD ***within seven (7) days*** of agreeing or signing up to participate in an INAD study. The written report must identify the INAD to be used, method of use, dosage, and disease or condition the INAD is intended to treat.

   b. Evaluation and monitoring. ***At least ninety (90) days prior to initial use*** of an INAD at a facility, the permittee must submit for Department review and approval a study plan for the use of the drug that:

      1. Indicates the date the facility agreed or signed up to participate in the INAD study.

      2. Demonstrates that the minimum amount of drug necessary to evaluate its safety, efficacy, and possible environmental impacts will be used.

      3. Includes an environmental monitoring and evaluation program that at a minimum describes sampling strategies, analytical procedures, evaluation techniques and a timetable for completion of the program. Currently available data or literature that adequately characterizes the environmental fate of the INAD and its metabolite(s) may be proposed for consideration in determinations of environmental monitoring and evaluation programs required by the Department pursuant to this section.

   c. Notification. The permittee must notify the Department verbally or by electronic mail ***no more than forty-eight (48) hours after*** beginning the first use of the INAD under the approved plan.

SPECIAL CONDITIONS

K. 06-096 CMR 530(2)(D)(4) STATEMENT FOR REDUCED/WAIVED TESTING

By December 31 of each calendar year, the permittee must provide the Department with a certification describing any of the following that have occurred since the effective date of this permit ***[ICIS Code 96299]***. See **Attachment E** of the Fact Sheet of this permit for an acceptable certification form to satisfy this Special Condition.

a. Changes in the number or types of waste streams contributing directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;

b. Changes in the operation of the treatment works that may increase the toxicity of the discharge; and

c. Changes in the processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

The Department reserves the right to establish surveillance level chemical specific or priority pollutant testing or other toxicity testing if new information becomes available that indicates the discharge may cause or have a reasonable potential to cause exceedances of ambient water quality criteria/thresholds.

L. COMMENCEMENT OF OPERATIONS

At least 90 days prior to commencing production/operations, the permittee must meet with the Department's permitting and compliance inspection staff to review applicability of the permit limitations, monitoring requirements and reporting requirements. Should the Department determine that the proposed production/operations are significantly different from what was presented in past application materials or subsequently revised and included in permitting actions; the Department may require the applicable party to modify this permit or to file an application for a new permit. In addition, pursuant to Department Rule, Chapter 2 Rules *Concerning the Processing of Applications and Other Administrative Matters*, Section 21*, License Renewals, Amendments and Transfers*, Sub-section C, *Transfers*, a transferee must make application to the Department no later than two (2) weeks after transfer of ownership or entering into a licensee agreement to conduct business on said property. Pending determination on the application for approval of transfer the transferee must abide by all of the conditions of this permit, and is jointly or severally liable with the permittee for any violation of the terms and conditions thereof."

SPECIAL CONDITIONS

M. REOPENING OF PERMIT FOR MODIFICATION

In accordance with 38 M.R.S. § 414-A(5) and upon evaluation of the test results from tests required in the Special Conditions of this permit, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at any time and with notice to the permittee, modify this permit to: (1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

N. SEVERABILITY

In the event that any provision or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit must remain in full force and effect, and must be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

CONTENTS

A. GENERAL PROVISIONS

1. **General compliance**. All discharges shall be consistent with the terms and conditions of this permit; any changes in production capacity or process modifications which result in changes in the quantity or the characteristics of the discharge must be authorized by an additional license or by modifications of this permit; it shall be a violation of the terms and conditions of this permit to discharge any pollutant not identified and authorized herein or to discharge in excess of the rates or quantities authorized herein or to violate any other conditions of this permit.

2. Other materials. Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

(a) They are not

(i) Designated as toxic or hazardous under the provisions of Sections 307 and 311, respectively, of the Federal Water Pollution Control Act; Title 38, Section 420, Maine Revised Statutes; or other applicable State Law; or
(ii) Known to be hazardous or toxic by the licensee.

(b) The discharge of such materials will not violate applicable water quality standards.

3. Duty to comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of State law and the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(a) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act, and 38 MRSA, §420 or Chapter 530.5 for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
(b) Any person who violates any provision of the laws administered by the Department, including without limitation, a violation of the terms of any order, rule license, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

4. Duty to provide information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

5. Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Reopener clause. The Department reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedule of compliance or other provisions which may be authorized under 38 MRSA, §414-A(5).

7. Oil and hazardous substances. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the Federal Clean Water Act; section 106 of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980; or 38 MRSA §§ 1301, et. seq.

8. Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Confidentiality of records. 38 MRSA §414(6) reads as follows. "Any records, reports or information obtained under this subchapter is available to the public, except that upon a showing satisfactory to the department by any person that any records, reports or information, or particular part or any record, report or information, other than the names and addresses of applicants, license applications, licenses, and effluent data, to which the department has access under this subchapter would, if made public, divulge methods or processes that are entitled to protection as trade secrets, these records, reports or information must be confidential and not available for public inspection or examination. Any records, reports or information may be disclosed to employees or authorized representatives of the State or the United States concerned with carrying out this subchapter or any applicable federal law, and to any party to a hearing held under this section on terms the commissioner may prescribe in order to protect these confidential records, reports and information, as long as this disclosure is material and relevant to any issue under consideration by the department."

10. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

11. Other laws. The issuance of this permit does not authorize any injury to persons or property or invasion of other property rights, nor does it relieve the permittee if its obligation to comply with other applicable Federal, State or local laws and regulations.

12. Inspection and entry. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the EPA Administrator), upon presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

B. OPERATION AND MAINTENACE OF FACILITIES

1. General facility requirements.

(a) The permittee shall collect all waste flows designated by the Department as requiring treatment and discharge them into an approved waste treatment facility in such a manner as to

maximize removal of pollutants unless authorization to the contrary is obtained from the Department.

(b) The permittee shall at all times maintain in good working order and operate at maximum efficiency all waste water collection, treatment and/or control facilities.

(c) All necessary waste treatment facilities will be installed and operational prior to the discharge of any wastewaters.

(d) Final plans and specifications must be submitted to the Department for review prior to the construction or modification of any treatment facilities.

(e) The permittee shall install flow measuring facilities of a design approved by the Department.

(f) The permittee must provide an outfall of a design approved by the Department which is placed in the receiving waters in such a manner that the maximum mixing and dispersion of the wastewaters will be achieved as rapidly as possible.

2. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

3. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Bypasses.

(a) Definitions.

(i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this section.

(c) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D(1)(f), below. (24-hour notice).

(d) Prohibition of bypass.

(i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(C) The permittee submitted notices as required under paragraph (c) of this section.

(ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (d)(i) of this section.

6. Upsets.

(a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (c) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;
(ii) The permitted facility was at the time being properly operated; and
(iii) The permittee submitted notice of the upset as required in paragraph D(1)(f) , below. (24 hour notice).
(iv) The permittee complied with any remedial measures required under paragraph B(4).

(d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING AND RECORDS

1. General Requirements. This permit shall be subject to such monitoring requirements as may be reasonably required by the Department including the installation, use and maintenance of monitoring equipment or methods (including, where appropriate, biological monitoring methods). The permittee shall provide the Department with periodic reports on the proper Department reporting form of monitoring results obtained pursuant to the monitoring requirements contained herein.

2. Representative sampling. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. If effluent limitations are based wholly or partially on quantities of a product processed, the permittee shall ensure samples are representative of times when production is taking place. Where discharge monitoring is required when production is less than 50%, the resulting data shall be reported as a daily measurement but not included in computation of averages, unless specifically authorized by the Department.

3. Monitoring and records.

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

(c) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;
(ii) The individual(s) who performed the sampling or measurements;
(iii) The date(s) analyses were performed;
(iv) The individual(s) who performed the analyses;
(v) The analytical techniques or methods used; and
(vi) The results of such analyses.

(d) Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.

(e) State law provides that any person who tampers with or renders inaccurate any monitoring devices or method required by any provision of law, or any order, rule license, permit approval or decision is subject to the penalties set forth in 38 MRSA, §349.

D. REPORTING REQUIREMENTS

1. Reporting requirements.

(a) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section D(4).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

(b) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Transfers. This permit is not transferable to any person except upon application to and approval of the Department pursuant to 38 MRSA, § 344 and Chapters 2 and 522.

(d) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

(e) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(f) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance

has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit.
(B) Any upset which exceeds any effluent limitation in the permit.
(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours.

(iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (f)(ii) of this section if the oral report has been received within 24 hours.

(g) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (d), (e), and (f) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (f) of this section.

(h) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

2. Signatory requirement. All applications, reports, or information submitted to the Department shall be signed and certified as required by Chapter 521, Section 5 of the Department's rules. State law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained by any order, rule, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

3. Availability of reports. Except for data determined to be confidential under A(9), above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by State law, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal sanctions as provided by law.

4. Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under this Section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Department as soon as they know or have reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) One hundred micrograms per liter (100 ug/l);
(ii) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

(b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following ``notification levels'':

(i) Five hundred micrograms per liter (500 ug/l);
(ii) One milligram per liter (1 mg/l) for antimony;
(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

5. Publicly owned treatment works.

(a) All POTWs must provide adequate notice to the Department of the following:

(i) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA or Chapter 528 if it were directly discharging those pollutants.
(ii) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
(iii) For purposes of this paragraph, adequate notice shall include information on (A) the quality and quantity of effluent introduced into the POTW, and (B) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(b) When the effluent discharged by a POTW for a period of three consecutive months exceeds 80 percent of the permitted flow, the permittee shall submit to the Department a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

E. OTHER REQUIREMENTS

1. Emergency action - power failure. Within thirty days after the effective date of this permit, the permittee shall notify the Department of facilities and plans to be used in the event the primary source of power to its wastewater pumping and treatment facilities fails as follows.

(a) For municipal sources. During power failure, all wastewaters which are normally treated shall receive a minimum of primary treatment and disinfection. Unless otherwise approved, alternate power supplies shall be provided for pumping stations and treatment facilities. Alternate power supplies shall be on-site generating units or an outside power source which is separate and independent from sources used for normal operation of the wastewater facilities.

(b) For industrial and commercial sources. The permittee shall either maintain an alternative power source sufficient to operate the wastewater pumping and treatment facilities or halt, reduce or otherwise control production and or all discharges upon reduction or loss of power to the wastewater pumping or treatment facilities.

2. Spill prevention. (applicable only to industrial sources) Within six months of the effective date of this permit, the permittee shall submit to the Department for review and approval, with or without conditions, a spill prevention plan. The plan shall delineate methods and measures to be taken to prevent and or contain any spills of pulp, chemicals, oils or other contaminates and shall specify means of disposal and or treatment to be used.

3. **Removed substances.** Solids, sludges trash rack cleanings, filter backwash, or other pollutants removed from or resulting from the treatment or control of waste waters shall be disposed of in a manner approved by the Department.

4. **Connection to municipal sewer.** (applicable only to industrial and commercial sources) All wastewaters designated by the Department as treatable in a municipal treatment system will be cosigned to that system when it is available. This permit will expire 90 days after the municipal treatment facility becomes available, unless this time is extended by the Department in writing.

F. DEFINITIONS. For the purposes of this permit, the following definitions shall apply. Other definitions applicable to this permit may be found in Chapters 520 through 529 of the Department's rules

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For bacteria, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. Except, however, bacteriological tests may be calculated as a geometric mean.

Average weekly discharge limitation means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best management practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Composite sample means a sample consisting of a minimum of eight grab samples collected at equal intervals during a 24 hour period (or a lesser period as specified in the section on monitoring and reporting) and combined proportional to the flow over that same time period.

Continuous discharge means a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved States as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Flow weighted composite sample means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab sample means an individual sample collected in a period of less than 15 minutes.

Interference means a Discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
(2) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum daily discharge limitation means the highest allowable daily discharge.

New source means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or
(b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Pass through means a discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR parts 122, 123 and 124. Permit includes an NPDES general permit (Chapter 529). Permit does not include any permit which has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

Person means an individual, firm, corporation, municipality, quasi-municipal corporation, state agency, federal agency or other legal entity.

Point source means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

Pollutant means dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or byproducts, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works ("POTW") means any facility for the treatment of pollutants owned by the State or any political subdivision thereof, any municipality, district, quasi-municipal corporation or other public entity.

Septage means, for the purposes of this permit, any waste, refuse, effluent sludge or other material removed from a septic tank, cesspool, vault privy or similar source which concentrates wastes or to which chemicals have been added. Septage does not include wastes from a holding tank.

Time weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected over a constant time interval.

Toxic pollutant includes any pollutant listed as toxic under section 307(a)(1) or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing section 405(d) of the CWA. Toxic pollutant also includes those substances or combination of substances, including disease causing agents, which after discharge or upon exposure, ingestion, inhalation or assimilation into any organism, including humans either directly through the environment or indirectly through ingestion through food chains, will, on the basis of information available to the board either alone or in combination with other substances already in the receiving waters or the discharge, cause death, disease, abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in such organism or their offspring.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole effluent toxicity means the aggregate toxic effect of an effluent measured directly by a toxicity test.

ATTACHMENT A

Protocol for Nitrogen and Phosphorus Sample Collection and Analysis for Waste Water and Ambient Marine Waters

Approved analytical methods for waste water are reproduced below from Electronic Code of Federal Regulations (e-CFR), Title 40 § 136.3, Table 1B. See e-CFR footnote text where indicated. Laboratories performing analyses for waste water must be accredited by the Maine Center for Disease Control's Division of Environmental and Community Health per Laboratory Accreditation Rules, effective date December 19, 2018. Ambient water sampling methods should conform with approved analytical methods listed for waste water to enable greatest data comparability.

PARAMETER	METHODOLOGY	EPA	STANDARD METHODS	ASTM	USGS/AOAC/OTHER
Kjeldahl Nitrogen - Total (as N) (mg/L)	Manual digestion[20] and distillation or gas diffusion, followed by any of the following:		4500-N_{org} B-2011 or C-2011 and 4500-NH_3 B-2011	D3590-11 (A)	I-4515-91 [45]
	Titration		4500-NH_3 C-2011		973.48 [3]
	Nesslerization			D1426-08 (A)	
	Electrode		4500-NH_3 D-2011 or E-2011	D1426-08 (B)	
	Semi-automated phenate	350.1, Rev. 2.0 (1993)	4500-NH_3 G-2011 4500-NH_3 H-2011		
	Manual phenate, salicylate, or other substituted phenols in Berthelot reaction based methods		4500-NH_3 F-2011		See footnote.[60]
	Automated gas diffusion, followed by conductivity cell analysis				Timberline Ammonia-001.[74]
	Automated methods that do not require manual distillation				
	Automated phenate, salicylate, or other substituted phenols in Berthelot reaction based methods colorimetric (auto digestion and distillation)	351.1 (Rev. 1978)[1]			I-4551-78.[8]
	Semi-automated block digestor colorimetric (distillation not required)	351.2, Rev. 2.0 (1993)	4500-N_{org} D-2011	D3590-11 (B)	I-4515-91.[45]
	Block digester, followed by Auto distillation and Titration				See footnote.[39]
	Block digester, followed by Auto distillation and Nesslerization				See footnote.[40]

	Block Digester, followed by Flow injection gas diffusion (distillation not required)				See footnote.[41]
	Digestion with peroxdisulfate, followed by Spectrophotometric (2,6-dimethyl phenol)				Hach 10242.[76]
	Digestion with persulfate, followed by Colorimetric				NCASI TNTP W10900.[77]
Nitrate-Nitrite (as N) (mg/L)	Cadmium reduction, Manual		4500-NO_3^- E-2011	D3867-04 (B)	
	Cadmium reduction, Automated	353.2, Rev. 2.0 (1993)	4500-NO_3^- F-2011	D3867-04 (A)	I-2545-90.[51]
	Automated hydrazine		4500-NO_3^- H-2011		
	Reduction/Colorimetric				See footnote.[62]
	Ion Chromatography	300.0, Rev. 2.1 (1993) and 300.1, Rev. 1.0 (1997)	4110 B-2011 or C-2011	D4327-03	993.30.[3]
	CIE/UV		4140 B-2011	D6508-10	D6508, Rev. 2.[54]
	Enzymatic reduction, followed by automated colorimetric determination				I-2547-11,[72] I-2548-11,[72] N07-0003.[73]
	Spectrophotometric (2,6-dimethylphenol)				Hach 10206.[75]
Phosphorus - Total (mg/L)	Digestion,[20] followed by any of the following:		4500-P B(5)-2011		973.55.[3]
	Manual	365.3 (Issued 1978)[1]	4500-P E-2011	D515-88 (A)	
	Automated ascorbic acid reduction	365.1 Rev. 2.0 (1993)	4500-P (F-H)-2011		973.56,[3] I-4600-85.[2]
	ICP/AES[4 36]	200.7, Rev. 4.4 (1994)	3120 B-2011		I-4471-97.[50]
	Semi-automated block digestor (TKP digestion)	365.4 (Issued 1974)[1]		D515-88 (B)	I-4610-91.[48]
	Digestion with persulfate, followed by Colorimetric				NCASI TNTP W10900.[77]

Sample Collection: Collection of effluent or ambient samples should follow the subsequent procedures. Where procedures differ for sample type, specific instructions are provided.

Effluent samples: Nutrient analyses should be conducted on composite samples unless a facility's permit specifically designates grab sampling for a particular parameter. Composite samples must be collected in new, clean (washed with dilute H_2SO_4 or HCl), or autoclaved individual bottles or a single jug made of glass or polyethylene. Effluent sampler hoses should be cleaned, as needed. From the composite sample container or the original grab sample container, a well-mixed aliquot of sample must be used to triple rinse new or clean sample containers, and then the sample containers filled to the recommended volume per laboratory requirements.

Ambient samples: Surface water samples should be collected as a single grab in a container of sufficient volume for all analyses at a given water column location. One new, clean (washed with dilute H_2SO_4 or HCl), or autoclaved jug or bottle should first be triple rinsed with ambient surface water, the grab sample collected, and then a small volume of the grab sample used to triple rinse any individual sample bottles not containing preservative. Finally, a well-mixed aliquot of ambient surface water from the original grab container should be transferred to individual sample containers in volume sufficient to meet laboratory requirements.

If specified by the method, nitrate-nitrite samples only should be filtered immediately after collection from the composite or original grab sample either by pre-rinsed syringe and filter tip or using a pre-rinsed filter manifold. Filters should be sterile and have 0.45 µm pore size.

Sample Identification: The Chain of Custody form and sample bottle labels, as appropriate, must include facility name, sample location, sample type (grab or composite), sample date and time (starting/end date and times for composite samples), preservation information, and analysis to be completed.

Sample Preservation and Handling: During compositing or after a grab is collected, the sample must be held at 0-6 °C (without freezing). If the sample is being shipped to a commercial laboratory or analysis cannot be performed the day of collection, then the sample must be preserved using H_2SO_4 to obtain a sample pH of <2 SU, and refrigerated at 0-6 °C (without freezing) until receipt by the laboratory. The holding time for a preserved sample of TKN, nitrate-nitrate or TP is 28 days from sample collection. All shipped samples should be accompanied by a completed Chain of Custody form.

Sampling QA/QC: If an effluent composite sample is being collected using an automated sampler, then a blank must be run once per month on the composite sampler. Distilled or deionized water should be drawn into the sample jug or bottle using the sample collection line, allowed to remain in the jug or bottle for 24 hours, preserved, and then analyzed for the parameter of interest.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC methods that are presented in their own parameter-specific Standard Operating Procedures (SOPs).

ATTACHMENT B

KINGFISH MAINE CHEMICAL LIST

Chemical	Trade Name	Application	Method	Max Dosage	Areas of Potential Use
Hydrochloric Acid		pH Balancing, Cleaning Equipment	Diluted and Applied	n/a	Hatchery/Growout
Sodium Hydroxide		pH Balancing, Cleaning Equipment	Diluted and Applied	n/a	Hatchery/Growout
Demineralized water		Calibrating Equipment	n/a	n/a	Hatchery/Growout/Processing
Sodium Bicarbonate		pH Balancing	Diluted and Applied	n/a	Hatchery/Growout
Sodium Hypochlorite		Cleaning and Disinfecting Equipment	Diluted and Applied	150ppm	Hatchery/Growout/Processing
Sodium Thiosulfate		Neutralizing Sodium hypochlorite	Added to water in proportion to sodium hypochlorite used	300ppm	Hatchery/Growout
Hydrogen Peroxide	Perox-aid, Perosan	Cleaning Equipment; External Fish Treatments	Spray or Bath Immersion	1000ppm	Hatchery/Growout
Formalin	Parasite-S	Extrernal Fish Treatment	Bath Treatment	200ppm	Hatchery/Growout
PVP Iodine	Ovadine	Disinfection of Fish Eggs	Bath Treatment	100ppm	Hatchery
Tricaine Methanesulfonate	MS-222, Tricane-S	Anesthesia	Bath Treatment	750ppm	Hatchery/Growout
Antimicrobial Hand Soap		General Cleaning	n/a	n/a	Hatchery/Growout/Processing
Citric Acid		General Cleaning	Diluted and Applied	n/a	Hatchery/Growout/Processing
Pentapotassium bis (peroxymonosulphate) bis(sulphate) & Sodium Dodecylbenzene Sulfonate	Virkon Aquatic	Cleaning & Disinfecting Equipment	Diluted and Applied	10g/l	Hatchery/Growout/Processing
Phosphoric Acid		Cleaning Processing Equipment	Diluted and Applied	As per label instructions	Processing
Chlorinated Alkaline		Cleaning Processing Equipment	Diluted and Applied	As per label instructions	Processing
Didecyldimethylammonum Chloride		Cleaning & Disinfecting Processing Equipment	Diluted and Applied	As per label instructions	Processing
Ferric Chloride					Hatchery/Growout
Ammonium Chloride		Biofilter Startup	Diluted and Applied	n/a	Hatchery/Growout
Sodium Nitrite		Biofilter Startup	Diluted and Applied	n/a	Hatchery/Growout
Methanol		Carbon source for Denitrification	Diluted and Applied	n/a	
Ethanol		Carbon source for Denitrification	Diluted and Applied	n/a	
MicroC		Carbon source for Denitrification	Diluted and Applied	n/a	

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
WASTE DISCHARGE LICENSE

PROPOSED DRAFT FACT SHEET

Date: **May 5, 2021**

MEPDES PERMIT: **ME00037559**
WASTE DISCHARGE LICENSE: **W009238-6F-A-N**

NAME AND ADDRESS OF APPLICANT:

KINGFISH MAINE
33 Salmon Farm Road
Franklin, ME. 04634

COUNTY: **WASHINGTON**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

9 Dun Garvin Road
Jonesport, ME. 04649

RECEIVING WATER / CLASSIFICATION: **Chandler Bay, Class SB**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER:

Ms. Megan Sorby
E-mail: megan@kingfish-maine.com
Tel: (502) 387-8673

1. APPLICATION SUMMARY

On August 7, 2020, Kingfish Maine (Kingfish/permittee) submitted an application to the Department of Environmental Protection (Department) for a new Maine Pollutant Discharge Elimination System (MEPDES) permit/Waste Discharge License (WDL) for the daily maximum discharge of 28.7 million gallons per day (MGD) of treated wastewater associated with a land based recirculating aquaculture system (RAS) to Chandler Bay, Class SB, in Jonesport, Maine. Kingfish also submitted an application to the Department of Conservation, Agriculture, and Forestry (DACF) Submerged Lands Program for a Submerged Lands Lease.

The total 28.7 MGD flow is made up on 6.5 MGD of fish culture or process water, whereas 22.2 MGD is water used for heat recovery in the facility (not process water). The permittee proposes to rear Yellowtail Kingfish (*Seriola lalandi*) from on-site broodstock, through each life stage to harvest and initial processing. At full production, the facility will be able to produce 8,000 metric tons or 16 million pounds of fish per year. Kingfish proposes to begin construction once all permits (including but not limited to, a future Natural Resources Protection Act or NRPA filing) have been obtained.

a. Application - On August 7, 2020, Kingfish submitted an application to the Department for a new MEPDES permit/WDL for the daily maximum discharge of 28.7 million gallons per day (MGD) of treated wastewater associated with a land based recirculating aquaculture system (RAS) to Chandler Bay, Class SB, in Jonesport, Maine. See **Attachment A** of this Fact Sheet for a location map. The total 28.7 MGD flow is made up on 6.5 MGD of fish culture or process water, whereas 22.2 MGD is water used for heat recovery in in the facility (not process water). The permittee proposes to rear Yellowtail Kingfish (*Seriola lalandi*) from on-site broodstock, through each life stage to harvest and initial processing. At full production, the facility will be able to produce 8,000 metric tons or 16 million pounds of fish per year. Kingfish proposes to begin construction once all permits have been obtained.

   On August 17, 2020, the Department formally accepted the application as complete and deemed the application acceptable for processing pursuant to 06-096 C.M.R. Chapter 2, *Rules Concerning the Processing of Applications and other Administrative Matters* (June 9, 2018).

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1. APPLICATION SUMMARY (cont'd)

b. Source Description -The facility is a proposed land-based recirculating aquaculture facility for the culture and grow out of 6,000-8,000 metric tons per year of Yellowtail Kingfish (*Seriola lalandi*). The application also includes the potential for processing onsite. Intake water for the facility is described in several locations in the Kingfish application:

"Kingfish Maine will also be drawing water from Chandler Bay, allowing for ongoing monitoring of the water quality. Our intake pipes will be located at approximately half the distance, or 1,312 ft (400m) from shore along the same trajectory as the effluent pipes…We do not utilize water from any other sources than Chandler Bay (99.4%) or private on-site wells (0.6%).…The facility will take in 19,812 gallons per minute (gpm) of seawater from Chandler Bay through two seawater intake pipes." This leaves approximately 140 gpm to be pumped from onsite wells. The total intake amount will "go through large particle filtration and then be piped to the pump station to be split in two ways.

1. Heat Recovery Water
15,410gpm (3500m^3/hr) of seawater will go through heat exchangers where Kingfish Maine will extract the thermal energy in the water in a countercurrent flow system. This energy will be utilized in heating the temperature of the water in the culture systems to our target range. This heat recovery water does not come in contact with culture water or fish. It has reduced suspended solids and colder temperature than when it was taken into the pump station but is otherwise unaltered from its natural state. Therefore, it will not go through any further treatment but will go directly to the discharge reservoir prior to being discharged in Outfall A or B.

2. Culture System & Processing Water
4,402 gpm (1000m^3/hr) of seawater will be filtered for medium and fine solids and sent to a holding tank, which will feed hatchery, growout, and processing operation.

Culture System Water- Water leaving the culture tanks will go through mechanical filtration, which removes large and fine solids, within the recirculating system (40-60um). After mechanical filtration, new ("make up") water will be added and an equal amount of water will leave the culture system and go through heat exchangers, where we will recover all possible thermal energy from the discharged culture water by utilizing a countercurrent flow system and heat pumps with the *Heat Recovery Water.* The energy will be redirected back to maintain target water temperature in the culture systems. After this step, the culture system water will then be piped to the discharge water filtration system. In this system, water will go through large and fine solids filtration (mechanical, 100um), followed by biofilters for the reduction of nutrient load, and finally, sterilization. The water will then combine with other effluent sources in the discharge reservoir prior to being discharged in Outfall A or B.

1. APPLICATION SUMMARY (cont'd)

Processing Water-The processing plant will use a small amount of the total seawater listed above in addition to a maximum of 107 gpm ($25m^3$/hr) of freshwater as well. All water utilized in processing plant will be collected and go through its own dedicated filtration system first, consisting of a primary flocculation to bind fats, oils, and other biproducts of processing; mechanical filtration to remove solids and bound materials; then a secondary flocculation and water clarification. It will then progress to the main discharge water filtration system, where it will combine with the outflow from the culture systems, go through the same filtration steps, meaning this water, just as the culture water, has redundant filtration systems prior to discharge. It will finally go to the discharge reservoir with all filtered water prior to being discharged in Outfall A or B."

Total Flow: 28.7 million gallons per day, of which

- 6.5 million gallons is for the culture and processing of fish ("culture water", "processing water"), and
- 22.2 is used in reclaiming thermal energy from the water prior to discharge ("heat recovery water")"

See **Attachment B** of this Fact Sheet for a process flow schematic for the facility.

c. Wastewater Treatment - "The wastewater discharge from the proposed Kingfish facility will include a combination of heat recovery water and culture water from the RAS."

1. *Heat Recovery water* - "The heat recovery water includes only water that is taken from Chandler Bay and cycled through heat exchangers to remove heat energy. Heat recovery water does not interact with any RAS processes involved in growing fish and, thus, is identical to ambient seawater conditions in Chandler Bay in all aspects (e.g., salinity, nutrient characteristics) except for water temperature. During most times of the year, the temperature of water returned to Chandler Bay is anticipated to be approximately 5 degrees (F) below (i.e., colder than) ambient conditions due to the heat recovery process that will be used by Kingfish to maintain growing conditions in the culture tanks.[2]" *Footnote included here*: [2]This is expected to be true throughout the year with the only exception of when surface water temperatures in Chandler Bay reach freezing. Wastewater discharges during these times will be the same temperature as ambient surface water." As stated previously under "Source Description," "This heat recovery water does not come in contact with culture water or fish. It has reduced suspended solids and colder temperature than when it was taken into the pump station but is otherwise unaltered from its natural state. Therefore, it will not go through any further treatment but will go directly to the discharge reservoir prior to being discharged in Outfall A or B."

1. APPLICATION SUMMARY (cont'd)

2. *Culture and processing water* - "The culture water from the RAS facility includes water that interacts with RAS processes involved in growing fish. Culture water from the hatchery and grow-out tanks in which yellowtail kingfish will be raised at the facility will be discharged to Chandler Bay. The suspended solids and nutrient (primarily phosphorus and nitrogen) content of the culture water, as well as the biological oxygen demand (BOD) condition of the culture water, may be present at levels above ambient conditions in Chandler Bay."

   "Water leaving the culture tanks will go through mechanical filtration, which removes large and fine solids, within the recirculating system (40-60um). After mechanical filtration, new ("make up") water will be added and an equal amount of water will leave the culture system and go through heat exchangers, where we will recover all possible thermal energy from the discharged culture water by utilizing a countercurrent flow system and heat pumps with the *Heat Recovery Water.* The energy will be redirected back to maintain target water temperature in the culture systems. After this step, the culture system water will then be piped to the discharge water filtration system. In this system, water will go through large and fine solids filtration (mechanical, 100um), followed by biofilters for the reduction of nutrient load, and finally, sterilization. The water will then combine with other effluent sources in the discharge reservoir prior to being discharged in Outfall A or B."

   Processing Water – "The processing plant will use a small amount of the total seawater listed above in addition to a maximum of 107 gpm (25m3/hr) of freshwater as well. All water utilized in processing plant will be collected and go through its own dedicated filtration system first, consisting of a primary flocculation to bind fats, oils, and other biproducts of processing; mechanical filtration to remove solids and bound materials; then a secondary flocculation and water clarification. It will then progress to the main discharge water filtration system, where it will combine with the outflow from the culture systems, go through the same filtration steps, meaning this water, just as the culture water, has redundant filtration systems prior to discharge. It will finally go to the discharge reservoir with all filtered water prior to being discharged in Outfall A or B.

   As mentioned in "Summary of Kingfish Maine Water Use & Filtration", solids filtration for the culture water, both large and fine particles, will occur using fish exclusion barriers and drum or disc filters to remove solids down to 40-60um in the culture systems, and 100um in the additional wastewater treatment system. The solids collected in the processing area will be filtered utilizing similar mechanical filtration and, if required, include chemical flocculants for improved clarification and removal."

"All solid waste will be combined and trucked offsite for disposal. Kingfish Maine is exploring secondary uses for any waste from processing activities on site, such as composting with Coast of Maine Organic Products Inc., an organic compost producer located in East Machias, ME. Due to the high or concentrated salt level in our sludge, options for additional uses are limited, but we continue to explore all new technology for making use of this nutrient rich material."

1. APPLICATION SUMMARY (cont'd)

Sanitary wastewater generated at the facility will be handled with an onsite septic system to be constructed after all applicable permits are obtained.

The process flow diagram in **Attachment B** of this Fact Sheet shows how water and contaminants are treated and then discharged into Chandler Bay.

Intake and Outfall Structures – "Our intake pipes will be located at approximately half the distance, or 1,312 ft (400m) from shore along the same trajectory as the effluent pipes." The outfall pipes are 48" diameter and will be place approximately 30 feet below the mean low water at their discharge point. The discharge point is 2,624 feet from the shore of the site.

"The point of discharge (Outfall A) will be equipped with a multiport diffuser, equipped with duckbill style valves to maintain consistency effluent flow rate. Ports will be oriented upward from the seafloor."

"This outfall (Outfall B) is redundant for Outfall A, i.e. it only operates when A is not (i.e., for cleaning and maintenance); flow is the same as A and NOT in addition to A. The point of discharge will be equipped with a multiport diffuser, equipped with duckbill style valves to maintain consistency effluent flow rate. Ports will be oriented upward from the seafloor."

"Kingfish Maine…incorporated a diffuser design on the end of each effluent pipe in order to aid in improved dispersion and mixing of the flow; this includes a six-port diffuser, each measuring 8.3 inches (211mm) with duckbill-style valves as well as an additional three, capped ports for redundancy and cleaning."

See **Attachment C** of this Fact Sheet for a schematic of the outfall and intake pipes.

2. CONDITIONS OF PERMITS

Conditions of licenses, 38 M.R.S. § 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require the application of best practicable treatment (BPT), be consistent with the federal Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, *Certain deposits and discharges prohibited,* 38 M.R.S. § 420 and Department rule *Surface Water Toxics Control Program,* 06-096 C.M.R. ch 530, require the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants,* 06-096 C.M.R. ch 584 and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

3. RECEIVING WATER QUALITY STANDARDS

Classifications of estuarine and marine waters, 38 M.R.S. § 469(7), classifies "all estuarine and marine waters lying within the boundaries of Washington County and that are not otherwise classified (which includes the area of the discharge) are Class SB waters." *Standards for classification of estuarine and marine waters*, 38 M.R.S. § 465-B(2), describes the standards for Class SB waters as follows:

A. *Class SB waters must be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other estuarine and marine life. The habitat must be characterized as unimpaired.*

B. *The dissolved oxygen content of Class SB waters may not be less than 85% of saturation. Between April 15th and October 31st, the number of enterococcus bacteria in these waters may not exceed a geometric mean of 8 CFU per 100 milliliters in any 90-day interval or 54 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval. The number of total coliform bacteria or other specified indicator organisms in samples representative of the waters in shellfish harvesting areas may not exceed the criteria recommended under the National Shellfish Sanitation Program, United States Food and Drug Administration.*

C. *Discharges to Class SB waters may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There may be no new discharge to Class SB waters that would cause closure of open shellfish areas by the Department of Marine Resources. For the purpose of allowing the discharge of aquatic pesticides approved by the department for the control of mosquito-borne diseases in the interest of public health and safety, the department may find that the discharged effluent will not cause adverse impact to estuarine and marine life as long as the materials and methods used provide protection for nontarget species. When the department issues a license for the discharge of aquatic pesticides authorized under this paragraph, the department shall notify the municipality in which the application is licensed to occur and post the notice on the department's publicly accessible website.*

4. RECEIVING WATER QUALITY CONDITIONS

The State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, prepared by the Department pursuant to Sections 303(d) and 305(b) of the federal Clean Water Act, lists Chandler Bay, Jonesport in:

- Category 5D – *Estuarine and Marine Waters Impaired by Legacy Pollutants* due to elevated levels of PCBs and other persistent, bioaccumulating substances in tomalley**.**

  All estuarine and marine waters capable of supporting American lobster are listed in Category 5-D for shellfish consumption due to elevated levels of PCBs and other persistent, bioaccumulating substances in tomalley. Also included in a statewide marine consumption advisory is a variety of saltwater finfish and shellfish based on elevated mercury, PCB and dioxin levels. Safe eating guidelines for sensitive populations are presented at the following website: www.maine.gov/dhhs/mecdc/environmental-health/eohp/fish/saltwater.htm

The Department has made a best professional judgment (BPJ) determination based on information gathered to date and the information in this Fact Sheet that as permitted, the discharge will not cause or contribute the failure of the receiving water to meet the standards of its ascribed classification and the designated uses of the waterbody will continue to be maintained and protected. If future modeling or ambient water quality monitoring determines the discharge is causing or contributing to the non-attainment of standards, this permit will be re-opened pursuant to Special Condition M, *Reopening of Permit For Modification*, to impose more stringent limitations to meet water quality standards.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

a. Flow: This permitting action is establishing a daily maximum flow limitation of 28.7 MGD for Outfall #001A or Outfall #001B based on information provided by the permittee.

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5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

b. Dilution Factors: *Enforcement generally* 38 M.R.S. § 451, states in relevant part:

After adoption of any classification by the Legislature for surface waters or tidal flats or sections thereof, it is unlawful for any person, firm, corporation, municipality, association, partnership, quasi-municipal body, state agency or other legal entity to dispose of any pollutants, either alone or in conjunction with another or others, in such manner as will, after reasonable opportunity for dilution, diffusion or mixture with the receiving waters or heat transfer to the atmosphere, lower the quality of those waters below the minimum requirements of such classifications, or where mixing zones have been established by the department, so lower the quality of those waters outside such zones, notwithstanding any exemptions or licenses which may have been granted or issued under sections 413 to 414-B.

The department may establish a mixing zone for any discharge at the time of application for a waste discharge license. The department shall attach a description of the mixing zone as a condition of a license issued for that discharge. After opportunity for a hearing in accordance with section 345-A, the department may establish by order a mixing zone with respect to any discharge for which a license has been issued pursuant to section 414 or for which an exemption has been granted by virtue of section 413, subsection 2.

The purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.

Where no mixing zones have been established by the department, it is unlawful for any person, corporation, municipality or other legal entity to dispose of any pollutants, either alone or in conjunction with another or others, into any classified surface waters, tidal flats or sections thereof, in such manner as will, after reasonable opportunity for dilution, diffusion, mixture or heat transfer to the atmosphere, lower the quality of any significant segment of those waters, tidal flats or sections thereof, affected by such discharge, below the minimum requirements of such classification, and notwithstanding any licenses which may have been granted or issued under sections 413 to 414-B.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Surface Water Toxics Control Program, 06-096 CMR ch. 530, § 4(A)(2)(a) (calculation of dilution factors) states in part:

> *For discharges to the ocean, dilution must be calculated as near-field or initial dilution, or that dilution available as the effluent plume rises from the point of discharge to its trapping level, at mean low water level and slack tide for the acute exposure analysis, and at mean tide for the chronic exposure analysis using appropriate models determined by the Department such as MERGE, CORMIX or another predictive model.*

Modeling for Near-field and Far-field Dilution

The United States Environmental Protection Agency (USEPA) supports the use of the CORMIX model for calculating near-field dilution factors. Page 76 of the *USEPA Technical Support For Water Quality Based Toxics Control, March 1991*, states in relevant part;

> *The first model, CORMIX may be the most useful to regulators since it is an expert system that guides the user in selecting an appropriate modeling strategy for rivers or estuaries.*
>
> *CORMIX is a series of software elements for the analysis of a submerged buoyant or nonbuoyant discharge containing conventional or toxic pollutants and entering into stratified or unstratified watercourses, with emphasis on the geometry and dilution characteristics of the initial mixing zone.*

Near-Field Dilution

Near-field dilution factors are applicable to pollutants that have the potential for an immediate adverse effect on the flora or fauna of a marine ecosystem. For example, marine organisms react to elevated levels of toxic pollutant such as total metals within hours or days of being exposed. Therefore, estimating acute and chronic dilution factors with a steady state model such as the CORMIX model is supported by Department rules and USEPA technical support documents.

From the Kingfish application: "We performed both near-field modelling using CORMIX and far-field modeling using TUFLOW, a 3-dimensional far-field model, of the facility's effluent in order to locate the outfall in a position that would maximize mixing and dispersion. Kingfish Maine assessed modelling results for effluent points progressively farther from shore in order to achieve the point of maximum mixing and dispersion with minimal disturbance to local activity."

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Far-field dilution

Far-field dilution factors are applicable to pollutants that have the potential for a more subtle and or systemic types of effects on the flora or fauna of a marine ecosystem, or pollutants that exert their influence on broader time scales. For example, biochemical oxygen demand (BOD_5) decays over time and takes five days after being discharged to exert its implied influence on ambient dissolved oxygen. Eutrophication associated with excessive nitrogen loadings happens on significantly broader spatial and time scales in marine systems such as Chandler Bay, due in large part to the very dynamic nature of the bay.

Unlike the CORMIX model that is supported by Department rules and USEPA technical support documents for estimating near-field acute and chronic dilution factors, there currently are no state or federal rules or statutes that designate acceptable methodologies to model far-field dilution. Therefore, modeling personnel must use BPJ to select modeling tools that are most appropriate for a particular receiving water and discharge characteristics.

Title 38 M.R.S. § 451 provides some guidance regarding dilution factors that may be considered by the Department:

> *In determining the extent of any mixing zone to be established under this section, the department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the department's judgment will enable it to establish a reasonable mixing zone for such discharge.*

For this permitting action, Kingfish used a three-dimensional, far field model called TUFLOW to estimate the far-field dilution factors for the discharge to Chandler Bay.

The Department's practice is to use a more normalized condition, such as the mean, for far-field dilution factor purposes. The staff summarized the rationale for the Department's use of a more normalized condition in this context as it more accurately reflects the impact (or lack thereof) of nitrogen and BOD on the receiving water given the longer response times (3-14 days) associated with pollutants.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Based on Department staff's review and analysis of Kingfish's application, the Department finds that the proposed near-field factor (acute and chronic 60:1) and far-field dilution factor (173:1) are appropriate and will be utilized for the discharge. The Department finds use of the CORMIX model and the TUFLOW models are supported by Department rule and the USEPA for estimating the geometry and dilution characteristics of the receiving waters and the resulting dilution factors are based on a sound scientific rationale and meet the dilution licensing criteria established in 38 M.R.S., § 451 and 06-096 CMR ch. 530.

Special Condition G, *Dye Study,* of this permit requires the permittee to conduct a dye study once operations have commenced and a steady state flow of 28.7 MGD has been achieved. The information derived from this dye study will assist the Department in further assessing the hydrodynamics of the receiving water and dilution factors associated with the discharge.

c. Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS):

Classifications of estuarine and marine waters 38 M.R.S.§ 469, states that all estuarine and marine waters lying within the boundaries of coastal counties of the State of Maine and that are not otherwise classified are Class SB waters. See also 38 M.R.S. §469(7) (regarding waters of Washington County).

Standards for classification of estuarine and marine waters, 38 M.R.S. § 465-B(2), states in relevant part:

Class SB waters. Class SB waters shall be the 2nd highest classification

B. The dissolved oxygen content of Class SB waters may not be less than 85% of saturation."

C. Discharges to Class SB waters may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community.

Classification of Maine waters, 38 M.R.S. § 464 (4)(F)(3): states in relevant part:

The department may only issue a discharge license pursuant to section 414-A or approve water quality certification pursuant to the Federal Water Pollution Control Act, Section 401, Public Law 92-500, as amended, if the standards of classification of the water body and the requirements of this paragraph are met. The department may issue a discharge license or approve water quality certification for a project affecting a water body in which the standards of classification are not met if the project does not cause or contribute to the failure of the water body to meet the standards of classification.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Conditions of licenses, 38 M.R.S. § 414-A(1)(D), states in relevant part (emphasis added):

The discharge will be subject to effluent limitations that require application of the best practicable treatment. "Effluent limitations" means any restriction or prohibition including, but not limited to, effluent limitations, standards of performance for new sources, toxic effluent standards and other discharge criteria regulating rates, quantities and concentrations of physical, chemical, biological and other constituents that are discharged directly or indirectly into waters of the State. "Best practicable treatment" means the methods of reduction, treatment, control and handling of pollutants, including process methods, and the application of best conventional pollutant control technology or best available technology economically achievable, for a category or class of discharge sources that the department determines are best calculated to protect and improve the quality of the receiving water and that are consistent with the requirements of the Federal Water Pollution Control Act, as amended, and published in 40 Code of Federal Regulations. If no applicable standards exist for a specific activity or discharge, the department must establish limits on a case-by-case basis using best professional judgment, after consultation with the applicant and other interested parties of record. In determining best practicable treatment for each category or class, the department shall consider the existing state of technology, the effectiveness of the available alternatives for control of the type of discharge and the economic feasibility of such alternatives.

BOD_5 is a measurement of dissolved oxygen that is used by aerobic microorganisms when decomposing organic matter in water. Elevated BOD_5 discharged into a receiving water can cause the ambient dissolved oxygen to be depleted. TSS are solids in water that can be trapped by a filter. Elevated levels of TSS can settle to the bottom of receiving water and impact the resident biological community.

Currently, there are no state or federally promulgated best practicable treatment (BPT) numeric standards for BOD_5 and TSS for land-based RAS facilities. In 2002, the USEPA promulgated standards for RAS facilities based on narrative best management practices (BMPs) controls but opted not to establish numerical standards for BOD_5 and TSS at that time. However, the Department has historically been more stringent than the federally promulgated standards and has established numeric limitations for both parameters. The Department has issued MEPDES permits/WDLs for other RAS facilities establishing monthly average and daily maximum concentration limits of 30 mg/L and 50 mg/L respectively for BOD_5 and TSS based on Department BPJ of BPT for RAS facilities. These limits were based on BPT recommendations included in USEPA's 2002 proposed draft National Effluent Guidelines for TSS for re-circulated fish hatchery wastewater receiving a secondary level of treatment and the Department's long-standing view of the relationship between TSS and BOD_5. **For the proposed discharge from the Kingfish facility, mass limits will be calculated based on the monthly average flow limit of the fish culture wastewater of 6.5 MGD**, the applicable concentration limits of 30 mg/L and 50 mg/L (based on the Department's historic practice and BPJ) and a conversion factor of 8.34 lbs./gal for water.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

The limits are therefore calculated as follows:

Monthly average: (6.5 MGD)(30 mg/L)(8.34 lbs./gal) = 1,626 lbs./day

Daily maximum: (6.5 MGD)(50 mg/L)(8.34 lbs./gal) = 2,711 lbs./day

The Department staff modeled the impact of the BPT discharge levels calculated above for BOD_5 and TSS on the ambient dissolved oxygen and determined the discharge would not have a discernable influence on ambient dissolved oxygen. The proposed discharge of BOD_5 at 30 mg/L has the potential to increase ambient BOD_5 concentrations by up to 0.17 mg/L, based on a far-field dilution factor of 173:1 (30 mg/L/173 = 0.17 mg/L).

BOD is exerted at an approximate rate of 20% per day (20% per day for 5 days equals 100%), which would suggest a relative influence on dissolved oxygen of approximately 0.17 mg/L (0.17 mg/L/5 = 0.03 mg/L). This degree of influence is significantly less than what could be measured within a reliable degree of accuracy. Dissolved oxygen monitoring instrumentation is only accurate to within plus or minus 0.1 mg/L.

The pipes will discharge at approximately 30 feet below the mean low water mark and will be fitted with a multiport diffuser designed to enhance mixing with the receiving water. Based on Department staff's review and analysis, the Department finds that establishing an application of BPT-based limitations for BOD_5 and TSS will enable Kingfish's discharge to meet the dissolved oxygen standard licensing criteria of 85% saturation and will not cause or contribute to failure of the receiving water to meet the standards of its assigned classification.

d. Total Nitrogen (TN) – *Classification of Maine Waters,* 38 M.R.S. § 464*,* sets forth provisions governing the states antidegradation policy and states in relevant part:

3. The department may only issue a discharge license pursuant to section 414-A or approve water quality certification pursuant to the Federal Water Pollution Control Act, Section 401, Public Law 92-500, as amended, if the standards of classification of the water body and the requirements of this paragraph are met. The department may issue a discharge license or approve water quality certification for a project affecting a water body in which the standards of classification are not met if the project does not cause or contribute to the failure of the water body to meet the standards of classification.

5. The department may only issue a discharge license pursuant to section 414-A or approve water quality certification pursuant to the United States Clean Water Act, Section 401, Public Law 92-500, as amended, which would result in lowering the existing quality of any water body after making a finding, following opportunity for public participation, that the action is necessary to achieve important economic or social benefits to the State and when the action is in conformance with subparagraph (3). That finding must be made following procedures established by rule of the board.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Conditions of licenses, 38 M.R.S. §414-A (1)(D) states in relevant part:

The Department shall issue a license for a discharge of pollutants only if it finds that:

The discharge will be subject to effluent limitations that require application of the best practicable treatment. "Effluent limitations" means any restriction or prohibition including, but not limited to, effluent limitations, standards of performance for new sources, toxic effluent standards and other discharge criteria regulating rates, quantities and concentrations of physical, chemical, biological and other constituents that are discharged directly or indirectly into waters of the State. "Best practicable treatment" means the methods of reduction, treatment, control and handling of pollutants, including process methods, and the application of best conventional pollutant control technology or best available technology economically achievable, for a category or class of discharge sources that the department determines are best calculated to protect and improve the quality of the receiving water and that are consistent with the requirements of the Federal Water Pollution Control Act, as amended, and published in 40 Code of Federal Regulations. If no applicable standards exist for a specific activity or discharge, the department must establish limits on a case-by-case basis using best professional judgment, after consultation with the applicant and other interested parties of record. In determining best practicable treatment for each category or class, the department shall consider the existing state of technology, the effectiveness of the available alternatives for control of the type of discharge and the economic feasibility of such alternatives.

Nitrogen is generally the limiting nutrient for primary productivity in marine waters. Discharges of excess quantities of immediately bioavailable nitrogen can cause algal blooms in the receiving waters, which can lead to negative impacts to dissolved oxygen levels. Immediately bioavailable nitrogen typically consists of dissolved inorganic forms, including nitrate (NO_3^-), nitrite (NO_2^-), and ammonium (NH_4^+). Total kjeldahl nitrogen (TKN) is the sum of organic nitrogen, ammonia (NH_3), and ammonium (NH_4^+).

To calculate Total Nitrogen (TN), the concentrations of nitrate and nitrite are determined and added to TKN. With the exception of ammonia, nitrogen is not acutely toxic; thus, at this time, the Department considers a far-field dilution model to be most appropriate when evaluating the more systemic types of influences associated with nitrogen in the marine environment.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Currently there are no state or federally promulgated BPT standards for land-based RAS facilities and the State of Maine has not promulgated numeric ambient water quality criteria for TN. Since 2015, on a case-by-case basis, Department staff have completed reasonable potential (RP) analyses upon renewal of wastewater discharge licenses for those facilities that discharge nitrogen directly to marine waters of the state. To date, the Department's RP analyses have generally utilized two TN threshold values to address aquatic life use of Maine's marine waters that the Department staff believe are appropriate here and are as follows:

- 0.32 mg/L for protection of eelgrass, when historically mapped as present within close proximity to the discharge in question; and

- 0.45 mg/L for protection of dissolved oxygen, when eelgrass has not been historically mapped within close proximity to the discharge in question.

The Department's definition of "close proximity" with regard to eelgrass has been eelgrass located approximately 0.5 km from the wastewater outfall, or by BPJ based on known eelgrass resources.

The Department finds that using these thresholds values is consistent with the Department's past practices and is appropriate for Kingfish's permit.

The 0.32 mg/L TN threshold value the Department currently uses as the threshold value for the protection of eelgrass is a concentration used regionally by USEPA permitting staff.

The USEPA decision to use 0.32 mg/L was due to its numerical midpoint between 0.34 mg/L, a concentration deemed protective of eelgrass by the Massachusetts Estuary Project, and 0.30 mg/L, an average concentration from the lower Piscataqua River where the Department observed epiphytic growth on eelgrass that resulted in a 2012 impaired waters listing due to eelgrass loss. The TN threshold value of 0.45 mg/L used for the protection of dissolved oxygen originates from a New Hampshire Department of Environmental Services (NH DES) guidance document for the Great Bay estuary (NH DES 2009), and was utilized in an EPA-issued wastewater discharge license in the Taunton River estuary in Massachusetts (EPA 2015).

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

During Maine Department of Marine Resources surveys in 1997 and 2009, eelgrass beds were mapped as present as close as 1.0 and 1.4 km, respectively, to the west of the Kingfish outfall location **(Attachment D)**. Although eelgrass has not been documented in "close proximity" to the Kingfish outfall location, the permittee's TUFLOW FV modeling estimates suggest that a maximum effluent nitrogen contribution of approximately 0.038 mg/L will occur along the shallow subtidal shoreline in the location of historically mapped eelgrass. Due to this proposed effluent influence on eelgrass habitat, the Department is using BPJ to apply the nitrogen threshold value of 0.32 mg/L for the protection of eelgrass as well as the nitrogen threshold value of 0.45 mg/L for the protection of dissolved oxygen in the far field.

See **Attachment D** of this Fact Sheet for map of eelgrass locations.

The far-field dilution factor to be assessed for the eelgrass and dissolved oxygen threshold values is 173:1 based on the most confining physical feature, the intertidal and shallow subtidal shoreline located to the west and northwest of the outfall. The application of this far field dilution factor is detailed in the below "Discussion of Antidegradation" section. In addition to the nitrogen threshold values, the Department's staff utilize a weight of evidence approach to determine attainment of water quality standards and place a greater weight on ambient water chemistry and biological data, including dissolved oxygen, pH, and chlorophyll *a* to determine whether the discharge, if permitted, will cause or contribute to violations of water quality.

A paucity of data exist for characterizing ambient water column conditions in the vicinity of the outfall during the May to October time period considered by the Department as most environmentally sensitive. Total nitrogen concentrations from these months are only available from a single site in outer Chandler Bay that was sampled by the EPA once during each of 2004, 2005, 2009 and 2010 **(Attachment D)**. To establish a background TN concentration for the purposes of evaluating possible nitrogen impacts from a neutrally buoyant wastewater plume, Department staff averaged surface and mid-water data from this site for the four sampling events to approximate representative water column condition at the outfall location. Based on this calculation, the Department will utilize a mean TN value of 0.26 mg/L for the ambient concentration at the outfall location and for the antidegradation calculations as follows.

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5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Analysis of Dissolved Oxygen as the Environmental Response Indicator

Given:

Critical water quality threshold = 0.45 mg/L
Background concentration = 0.26 mg/l
Kingfish's proposed discharge concentration of total nitrogen = 6.6 mg/L
Far field factor = 173:1 (calculated by Kingfish and accepted by the Department as described in Section 5(b) of this Fact Sheet)

Finding: Remaining Assimilative Capacity Calculation

Remaining Assimilative Capacity (RAC) Concentration
Threshold – Background = RAC
0.45 mg/L – 0.26 mg/L = 0.19 mg/L

Total RAC Concentration for Kingfish Discharge
Dilution Factor x RAC = Total RAC for Kingfish Discharge
173 x 0.19 mg/L = 32.87 mg/L

Concentration threshold to perform Anti-deg analysis (finding 20% of RAC)
RAC for Kingfish Discharge x 0.2 (or 20%) = 20% Anti-deg threshold
32.87 mg/L x 0.2 = **6.6 mg/L**

The threshold for performing anti-deg analysis for this discharge is 6.6 mg/L. Kingfish is proposing to discharge at 6.6 mg/L, therefore, the Kingfish discharge does not exceed the anti-degradation provision threshold of 20% of the RAC for dissolved oxygen as an environmental response indicator.

Conversion of Proposed Kingfish Concentration Discharge to Pounds
Flow x Conversion Factor x Concentration = lbs./day
28.7 MGD x 8.34 x 6.6mg/L = 1,580 lbs./day

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Analysis of Eelgrass as the Environmental Response Indicator

Given:

Critical water quality threshold - 0.32 mg/L
Background concentration – 0.26 mg/l
Kingfish's proposed discharge concentration – 6.6 mg/L
Dilution factor: 173:1

Finding: Proposed effluent limitation

Remaining Assimilative Capacity (RAC) Concentration
Threshold – Background = RAC
0.32 mg/L – 0.26 mg/L = 0.06 mg/L

Total RAC Concentration for Kingfish Discharge
Dilution Factor x RAC = Total RAC for Kingfish Discharge
173 x 0.06 mg/L = 10.38 mg/L

Concentration threshold to perform Anti-deg analysis (finding 20% of RAC)
RAC for Kingfish Discharge x 0.2 (or 20%) = 20% Anti-deg threshold
10.38 mg/L x 0.2 = **2.1 mg/L**

The threshold for performing anti-deg analysis for this discharge is 2.1 mg/L. Kingfish is proposing to discharge at 6.6 mg/L, therefore, Kingfish has triggered the anti-degradation provision threshold of 20% of the RAC for their discharge.

Conversion of 20% Concentration Threshold to Pounds
Flow x Conversion Factor x Concentration = lbs./day
28.7 MGD x 8.34 x 2.1 mg/L = 503 lbs./day

Conversion of Proposed Kingfish Concentration Discharge to Pounds
Flow x Conversion Factor x Concentration = lbs./day
28.7 MGD x 8.34 x 6.6 mg/L = 1,579.76 (or 1,580) lbs./day

What percent of the Total RAC is Kingfish proposing to use?
Proposed Kingfish Discharge ÷ Total RAC x 100 = Percent of Total RAC that Kingfish is proposing to use:

6.6 mg/L ÷ 10.38 mg/L x 100 = 64%

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Based on the Department staff's review and analysis and the record information as described in this Fact Sheet, the Department finds that Kingfish's proposed discharge concentration of 6.6 mg/L would not meet the default antidegradation licensing criteria threshold of 2.1 mg/L at full flow. The proposed discharge value of 6.6 mg/L would consume 64% of the remaining assimilative capacity of the receiving water.

The determination that the proposed discharge would consume 64% of the remaining assimilative capacity for nitrogen as it pertains to eelgrass is not a determination that there is toxicity related to the discharge nor is it a determination that the discharge is in violation of any water quality criterion or standard.

At 6.6 mg/L, According to the State's antidegradation policy, and the staff's historical practice and best professional experience and judgment, this would be considered a lowering of water quality and the applicant would only be able to meet the standard if it established and the Department made the findings required by 38 M.R.S. § 464(4)(F)(5). This permit therefore limits Kingfish's discharge to the antidegradation threshold for dissolved oxygen at 6.6 mg/L or 1,580 lbs./day. See Section 6 of this Fact Sheet for further discussion of the State's antidegradation policy.

e. Temperature - *Regulations Relating to Temperature*, 06-096 C.M.R. ch. 582, states in relevant part:

SUMMARY: These rules provide safeguards for fresh and salt water fauna in lakes and rivers of the state, by establishing instream limits on temperature resulting from thermal discharges.

and

5. Tidal Water Thermal Discharges – No discharge of pollutants shall cause the monthly mean of the daily maximum ambient temperatures in any tidal body of water, as measured outside the mixing zone, to be raised more than 4 degrees Fahrenheit nor more than 1.5 degrees Fahrenheit from June 1 to September 1. In no event shall any discharge cause the temperature of any tidal waters to exceed 85 degrees Fahrenheit at any point outside a mixing zone established by the Board.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Analysis of Temperature

Department staff reviewed and analyzed Kingfish's proposed discharge from the standpoint of applicable temperature criteria and note the following:

The factors of a worst-case scenario for the applicant's discharge at the full flow of 28.7 MGD would be as follows:

- Using a "critical period" (June 1 – September 1) from the above referenced Department Rule to derive the mean ambient daily maximum temperature of 14°C (56°F); website: https://live.seatemperature.org/north-america/united-states/jonesport.htm and;

- Using the maximum facility discharge temperature of 15°C (59°F), identified by the applicant in its application.

Calculation to assess the impacts of the discharge temperature are as follows:

Given:

An acute near-field dilution factor is the most conservative dilution factor for this analysis as temperature impacts to the environment are greatest shortly after being discharged to the receiving water.

Facility Effluent flow = 28.7 MGD (from the application)
Receiving water volume = 1693 MG - calculated from the acute near-field dilution factor of 60:1 as such:
60 x 28.7 MG = 1722
1722 MG - 28.7 MG = 1693 MG

Critical period average ambient temperature = 56 °F (14° C)
Facility daily max effluent temperature = 59 °F (15° C)

Find the change in temperature (ΔT):

$$\frac{(59°F)(28.7\ MGD) + (56°F)(1693\ MGD)}{1722\ MGD} = 56°F$$

56°F -56°F = **0°F < 1.5°F**

Based on Department's staff review and analysis and the record information as described in this Fact Sheet, the Department finds that this worst-case scenario of a change of 0°F for the critical period of June 1 to September 1 would be below 1.5°F, and thus meet the criteria in 06-096 C.M.R ch, 582. The Department has established a monitoring requirement to confirm the effluent discharge temperature.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

f. Total Phosphorus – In the marine environment, nitrogen is considered the controlling nutrient that may cause or contribute to water quality issues such as algal blooms. However, total phosphorus may be a minor contributing factor as well. This permit is establishing a monitoring requirement for total phosphorus to determine the nutrient loading from the discharge to Chandler Bay.

g. Fish on Hand - This permitting action is establishing a reporting requirement for monthly average and daily maximum mass of fish on hand. This parameter is intended to enable both the Department and the permittee to evaluate management practices at the facility and trends in effluent quality and receiving water impacts as it relates to fish being held on site at any given time. A minimum monitoring frequency of once per month is based on the Department's BPJ of the monitoring frequency necessary to accurately characterize facility effluent conditions.

h. Toxics - Department rule *Surface Water Toxics Control Program,* 06-096 C.M.R ch. 530 requires the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants,* 06-096 C.M.R ch. 584. Chapter 530 §(2)(D)(5) states *"The Department may waive or reduce testing or replace testing with requirements adequate to characterize the toxicity of identified pollutants when a discharger provides information adequate to:*

a. Identify all toxic pollutants present or demonstrate that no toxic pollutants are used in its processes in toxic amounts;

b. Demonstrate that chemicals used in or formed by the discharger's industrial processes are not known or suspected to result in the formation of toxic pollutants in toxic amounts; and

c. Demonstrate the discharger does not process or treat waters known or suspected to contain toxic pollutants."

Kingfish's application provided a list of cleaners and therapeutants that may be used at the facility.

i. pH – This permitting action is establishing a pH range limit of 6.0 – 9.0 standard units (SU), which is considered by the Department as a BPT for fish hatcheries and rearing facilities and consistent with the pH limit established in discharge permits for those facilities.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

j. Formalin – Formalin is a drug used to treat fungal infections and external parasites of finfish and finfish eggs.

Neither the Department nor USEPA have promulgated ambient water quality criteria for formalin. Using best professional judgment, the Department has established water quality based thresholds for formalin based on Whole Effluent Toxicity (WET) testing on the water flea (*Ceriodaphnia dubia*) for 48-hour acute toxicity. For one-hour treatments, which are typical of most hatchery and rearing facility operations, the Department has established an ambient water quality threshold of 45 mg/L. Rarely, certain circumstances require use of formalin to control disease on additional rearing structures which results in the discharge of formalin for periods longer than the typical one-hour period for normal disease treatment. To ensure water quality standards are met and that formalin is not discharged at levels that would be toxic to aquatic life in the receiving water, the Department has established an ambient water quality threshold of 25 mg/L based on best professional judgment for a maximum 24-hour treatment period.

k. Total Residual Chlorine (TRC): Limitations on TRC are specified to ensure that ambient water quality standards are maintained and that BPT technology is being applied to the discharge. Department permitting actions impose the more stringent of either a water quality-based or BPT-based limit.

1. With dilution factors as determined previously, end-of-pipe (EOP) water quality-based concentration thresholds for TRC may be calculated as follows:

Acute (A) Criterion	Chronic (C) Criterion	A & C Dilution Factors	Calculated Acute Threshold	Chronic Threshold
0.013 mg/L	0.0075 mg/L	60:1(A) 173:1 (C)	0.78 mg/L	1.3 mg/L

2. BPT-Based Limit

a. The Department has established a daily maximum BPT-based limitation of 1.0 mg/L for facilities that disinfect their effluent with elemental chlorine or chlorine-based compounds.

b. For facilities that need to dechlorinate the discharge in order to meet water quality based thresholds the Department has established daily maximum and monthly average BPT-based limits of 0.3 mg/L and 0.1 mg/L, respectively.

Kingfish proposes to dechlorinate the effluent prior to discharge in order to achieve compliance with the water quality-based thresholds. The calculated acute water quality-based threshold of 0.78 mg/L is less stringent than the daily maximum BPT-based limit of 0.3 mg/L and therefore daily maximum BPT-based limit of 0.3 mg/L is established in this permitting action.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

The monthly average BPT-based limit of 0.1 mg/L is more stringent than the calculated chronic water quality-based threshold of 1.3 mg/L and is therefore being established in this permitting action.

l. Fish Oil and Grease (O&G) – There are no National Effluent Guidelines for Yellowtail Kingfish, therefore this permitting action is establishing O&G effluent mass limits and concentration limits based on the NEGs for tuna processing 40 CFR, Part 408, Subpart N, *Standards of performance for new sources* that establish technology based mass limits of a monthly average of 0.76 lbs./1,000 lbs. of tuna processed and a daily maximum of 1.9 lbs./1,000 lbs. of tuna processed. Pursuant to USEPA guidance for development of NEG based effluent limits, these rates are multiplied by the projected average production value of 50,706 lbs./day to yield conventional mass limits of a monthly average of 39 lbs./day and a daily maximum of 96 lbs./day. The calculations are as follows:

The calculations are as follows:

Monthly average: 50,706 lbs./day (0.76 lbs./1,000 lbs.) = 39 lbs./day

Daily maximum: 50,706 lbs./day (1.9 lbs./1,000 lbs.) = 96 lbs./day

As for concentration limits, the Department applied the NEG production based monthly average and daily maximum limits of 0.76 lbs./1,000 lbs. and 1.9 lbs./1,000 lbs. respectively, to ensure BPT was being achieved under all production regimes.

The permit establishes requirements for grab sampling at a minimum frequency of twice per week.

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6. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY

The State of Maine's antidegradation policy states that water quality that exceeds the minimum applicable standards will be managed by the Department for the environmental, economic, and social benefit of the State. *See* 38 M.R.S. §§414-A(1)(C), 464(4)(F)(5) and addressed in the Conclusions section of this Permit. Where a new or increased discharge is proposed, the Department determines whether the discharge will result in a lowering of existing water quality. Pursuant to the policy, the Department must:

A. Determine whether the discharge will use greater than 20% of the remaining assimilative capacity for a water quality parameter. If the Department finds that the discharge does use greater than 20% of the remaining assimilative capacity for that water quality parameter, then,

B. The Department must determine whether the discharge will result in a lowering of existing water quality.

The Department has identified that the Kingfish nitrogen proposes to discharge greater than 20% of the remaining assimilative capacity for nitrogen as it relates to eelgrass as the indicator thresholds.

In any case where the new or increased discharge will consume greater than 20% of the remaining assimilative capacity for dissolved oxygen or other water quality parameter, the Department considers it a lowering of water quality.

Therefore, the Department has determined that the proposed nitrogen discharge from the Kingfish facility will result in a lowering of water quality as it relates to eelgrass habitat.

Where the Department determines that a new or increased discharge will result in a lowering of existing water quality, the Department may then examine whether the lowering of water quality is necessary to achieve important economic or social benefits to the State. *See* 38 M.R.S. §§414-A(1)(C), 464(4)(F)(5). In making this determination pursuant to the statutory standard, the Department staff generally considers the following on a case-by-case basis consistent with its historical practice and best experience and judgment as reflected in its non-binding Antidegradation Waste Discharge Program Guidance dated June 13, 2001 developed in consultation with the USEPA (only relevant parts included):

6. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY (cont'd)

A. Whether the lowering of water quality is necessary to accommodate new or increased commercial activity or industrial production while providing that (1) the discharge consistently complies with applicable effluent limitations requiring application of best practicable treatment or new source performance standards and (2) any existing treatment facility is appropriate and is optimally maintained.

B. The economic and social benefits that would result from the lowering of water quality. These benefits may include, but are not limited to, increases in employment, increases in local or regional income or purchasing power, increases in the community tax base, correction of an environmental or public health problem or nuisance situation (e.g., removal of overboard discharges or failing or substandard septic systems) and improved community stability. In the case of a lowering of water quality due to community growth, benefits may include an assessment of the economic and social consequences that would result if the new or increased discharge and the resulting lowering of water quality were not approved.

C. The technical availability, economic feasibility, and environmental effectiveness of alternatives that could reduce or eliminate the lowering of water quality. Alternatives may include, but are not limited to, alternative discharge locations, non-discharging alternatives, alternative methods of production, improved process controls, wastewater minimization technologies, improved wastewater treatment facility operation and maintenance, alternative wastewater treatment methodologies, and advanced treatment beyond applicable technology requirements.

The Department will address each of these items using the permittee's application materials as well as the "Economic and Fiscal Impacts of a proposed Recirculating Aquaculture Facility in Jonesport, Maine" document as well as technical support information submitted to the Department by Kingfish during the Preliminary draft comment stage.

A. Whether the lowering of water quality is necessary to accommodate new or increased commercial activity or industrial production while providing that

(1) the discharge consistently complies with applicable effluent limitations requiring application of best practicable treatment or new source performance standards and

(2) any existing treatment facility is appropriate and is optimally maintained.

Kingfish has demonstrated that the technology it proposes will comply with effluent limits that require best practicable treatment. Information submitted by the permittee during the Preliminary draft comment stage details processes employed by the industry, advanced technologies, and results in Kingfish implementing the highest level of technology that can reasonably be applied.

6. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY (cont'd)

B. The economic and social benefits that would result from the lowering of water quality. These benefits may include, but are not limited to, increases in employment, increases in local or regional income or purchasing power, increases in the community tax base, correction of an environmental or public health problem or nuisance situation (e.g., removal of overboard discharges or failing or substandard septic systems) and improved community stability. In the case of a lowering of water quality due to community growth, benefits may include an assessment of the economic and social consequences that would result if the new or increased discharge and the resulting lowering of water quality were not approved.

The Department requested the State of Maine Department of Economic and Community Development (DECD) review the Kingfish proposal for economic impacts as required pursuant to 38 M.R.S. §464(4)(F)(5). The DECD determination letter indicates that "Washington County, ME, meets the federal criteria for economic distress." Also, "Maine DECD also finds that the economic and social benefits associated with the Kingfish project include increases in employment, increases in local/regional income, increases in the community tax base, and improved community resiliency. These benefits are directly related to the creation of jobs with higher per capita income than the County average as well as economic impacts during construction and annual facility operations."

The Maine DECD determined that "the economic benefits to Washington County and to the State of Maine are significant and will create needed jobs and investment in rural Maine."

C. The technical availability, economic feasibility, and environmental effectiveness of alternatives that could reduce or eliminate the lowering of water quality. Alternatives may include, but are not limited to, alternative discharge locations, non-discharging alternatives, alternative methods of production, improved process controls, wastewater minimization technologies, improved wastewater treatment facility operation and maintenance, alternative wastewater treatment methodologies, and advanced treatment beyond applicable technology requirements.

Email from Kingfish representative Megan Sorby dated 3/1/2021:
"Kingfish evaluated all alternatives that are applicable to a marine RAS facility, which included alternative site location, discharge pipe lengths, and various effluent treatment methods. This site in Jonesport, Maine provides for the least impact with respect to land and water resource concerns while still providing the critical site components our facility would need to operate, such as space, access to good quality seawater, and existing infrastructure."

6. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY (cont'd)

More explicitly, the following alternatives were considered:

1. Alternative discharge point – From the Kingfish application "In our modelling, we also completed model runs at a location further from shore that demonstrated greater dilution of a critical parameter, nitrogen. However, in order to achieve this, the discharge point was approximately 2 miles from shore in order to avoid depth limitations to tidal mixing caused by the presence of two islands, Ballast and Mark Islands.

Rejected: "Locating the discharge at this point not only presents an economic limitation for Kingfish Maine but also requires far greater impact to the seafloor and to local fishing activity, in direct contrast to the main concerns voiced by the community. Assessing these factors, the placement of our discharge point at 2,624 ft (800m) and intake at 1,312 ft (400m) from shore of the site is the most favorable option."

2. Land application of treated wastewater.

Rejected: "Land application of our effluent would not be permissible due to the salinity of the water and surrounding watershed protection concerns."

3. Removing or decreasing effluent flow during critical periods.

Rejected: "Our effluent quality is stable across the operation cycle. As evidenced by the results of our near-field and far-field modeling, there is not strong variability in the tidal cycle conditions. Combining these two characteristics, there is not a benefit to be gained from retaining discharge for a period during that cycle, i.e., there is not a critical period that designates one time frame as more sensitive to receiving effluent than another."

Kingfish has submitted detailed technical information for the proposed land-based aquaculture facility. This information outlines alternatives for the industry as well as the most progressive technologies.

Therefore, pursuant to 38 M.R.S. §§414-A(1)(C), 464(4)(F)(5), the Department has determined that the new proposed discharge from Kingfish will result in a lowering of existing water quality (as it related to eelgrass as an indicator for nitrogen), and that the lowering of water quality is necessary to achieve important economic or social benefits to the State.

6. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY (cont'd)

The Department has also determined that:

1. Existing in-stream water use will be maintained and protected;
2. The discharge is not to an outstanding nation resource water;
3. The standards of the assigned classification will be met in all receiving water affected by the discharge or that the discharge will not cause or contribute to the failure of the receiving waters to meet standards;
4. Actual water quality is maintained and protected where any criterion of water quality exceeds the minimum standards of the next highest classification.

The Department finds the existing and designated water uses will be maintained and protected and the discharge as permitted will not cause or contribute to the failure of the receiving water to meet standards for Class SB classification. Therefore, the Department finds that as permitted, the discharge will meet the antidegradation requirements set forth in 38 M.R.S., § 464 (4)(F).

7. PUBLIC COMMENTS

Public notice of this application was made in the *Machias Valley* Observer newspaper on or about July 8 and July 15, 2020. The Department receives public comments on an application until the date a final agency action is taken on the application. Those persons receiving copies of draft permits must have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to *Application Processing Procedures for Waste Discharge Licenses,* 06-096 C.M.R. ch. 522 (effective January 12, 2001).

Pursuant to 38 M.R.S. §464(4)(F) the Department made notice of the draft finding for antidegradation in the *Machias Valley Observer* newspaper on or about May 5, 2021. The notice stated that the anticipated discharge is necessary to achieve important economic or social benefits to the State and that the project will not cause or contribute to the failure of the waterbody to meet the standards of its assigned classification. Noticed persons must have at least 30 days in which to submit comments on the draft finding or to request a public hearing, pursuant to *Application Processing Procedures for Waste Discharge Licenses,* 06-096 C.M.R. ch. 522 (effective January 12, 2001).

8. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

Cindy Dionne
Division of Water Quality Management
Bureau of Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7823
e-mail: cindy.l.dionne@maine.gov

9. RESPONSE TO COMMENTS

Reserved until the close of 30-day public comment period.

ATTACHMENT A

MAP REFERENCE: USGS JONESPORT QUADRANGLE 2018

Gartley & Dorsky
ENGINEERING SURVEYING
CAMDEN, ME (207) 236-4365
WWW.GARTLEYDORSKY.COM

KINGFISH MAINE
Jonesport, Maine
RAS Facility

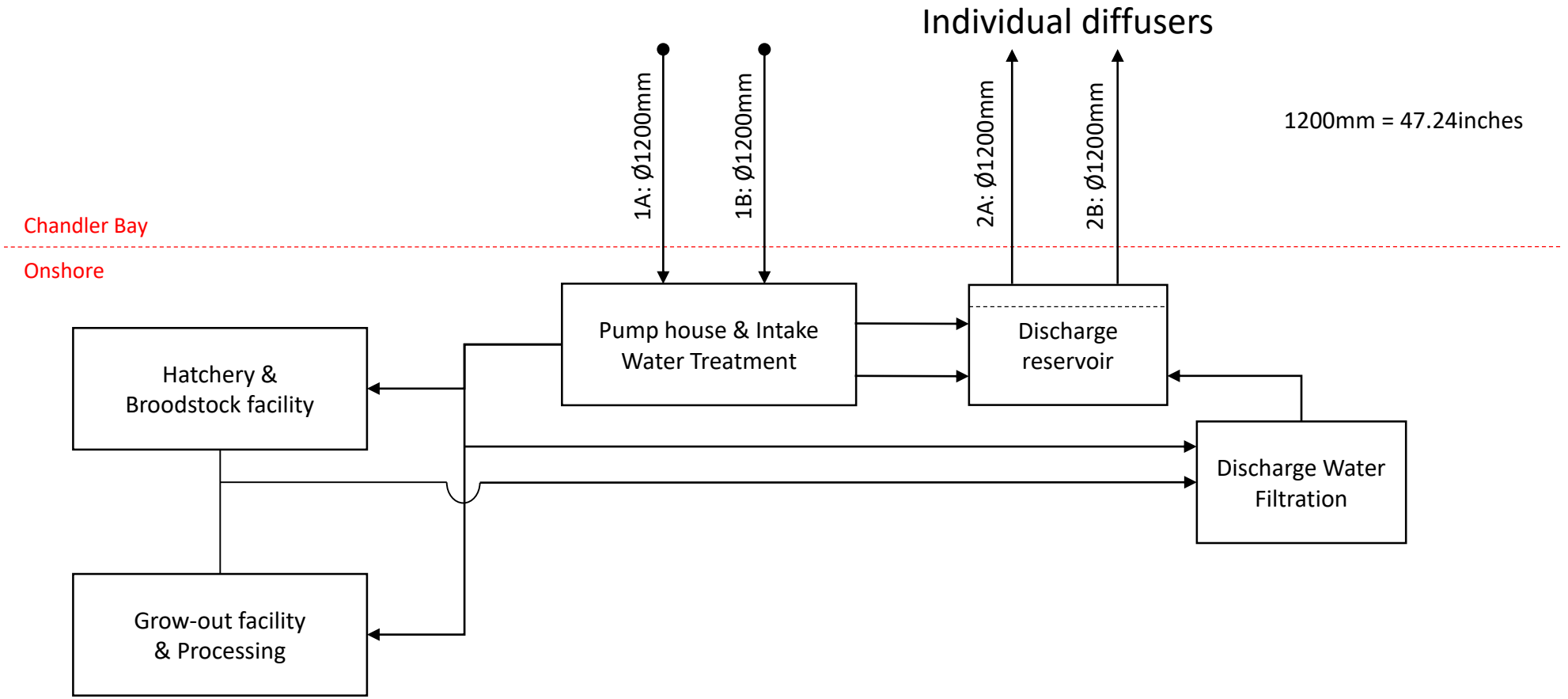
JUNE, 2020

19412

SITE LOCATION EXHIBIT

ATTACHMENT B

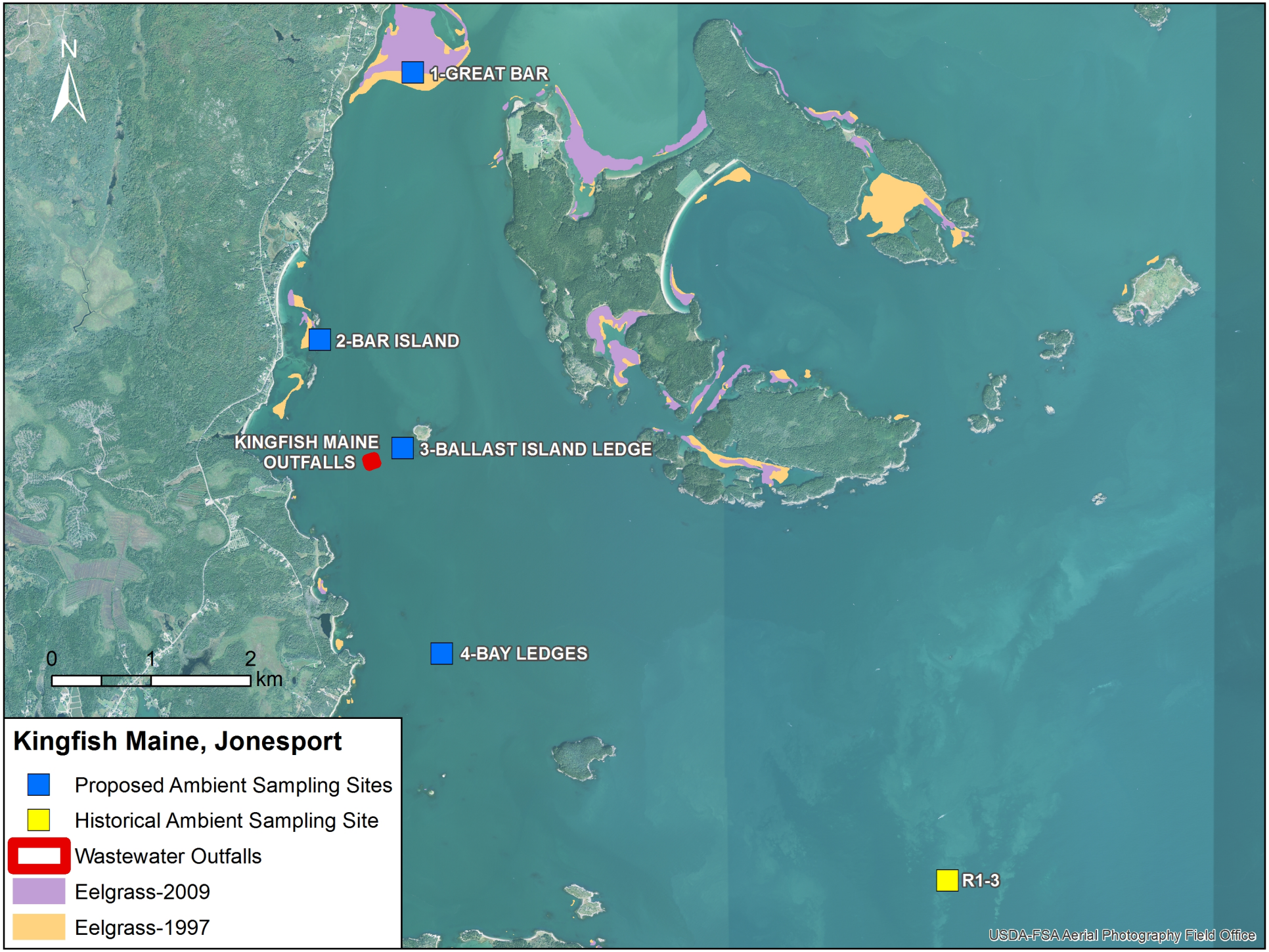
CONCEPTUAL FLOW DIAGRAM – INTAKE & EFFLUENT



ATTACHMENT C

LEGEND
SUBJECT PARCEL PROPERTY LINE
APPROXIMATE PROPERTY LINE
SETBACK LINE
IRON ROD FOUND
IRON PIPE FOUND
5/8" REBAR SET (4/23/2020)
GRANITE MONUMENT FOUND
EXISTING CONTOUR
EXISTING CONTOURS (BATHYMETRIC)
UTILITY POLE
OVERHEAD UTILITY LINE
STREAM
POSSIBLE STREAM (SEE NOTE #6)
DRAINAGE COURSE (SEE NOTE #6)
TEST PIT
BORING & GROUND ELEVATION
POST
DUG WELL
TREE
BUSH
VEGETATION
LITTORAL ZONE OF SURVEYED PARCEL
CHANDLER BAY
A/K/A ENGLISHMAN BAY
ZONE VE (EL 15')
W.W. WOOD PROPERTIES, LLC
BOOK 4301, PAGE 266
TAX MAP 8, LOT 23
93.2 ACRES
MAINE COAST HERITAGE TRUST
1 BOWDOIN MILL ISLAND #201
TOPSHAM, ME 04086
KENT T. INGVES
756 WATERMAN ROAD
LEBANON, CT 06249
PAULA STAHL
46 BELLEVUE STREET
WILLIMANTIC, CT 06226
BOOK 4607, PAGE 208
TAX MAP 8, LOT 26
UNITED STATES OF AMERICA
USCG
BOOK 4301, PAGE 266
TAX MAP 8, LOT 20
AGNES EVA SAWYER PATTERSON
18 FROST LANE
ORONO, MAINE 04473
BOOK 2286, PAGE 196
(SEE BOOK 567, PAGE 313)
TAX MAP 8, LOT 1
POPPLESTONE BEACH
LITTLE POND BEACH
NATT POINT
DUN GARVIN ROAD
MASON BAY ROAD
JOSH WOODWARD LN
FIRE ROAD
GREENWOOD CEMETERY
ELMER SAWYER'S POINT ROAD
MEAN HIGH WATER (MHW) EL.=5.9'
MEAN LOW WATER (MLW) EL.=-6.3'
2020 HIGHEST ANNUAL TIDE (HAT) AS PUBLISHED BY NOAA FOR SHOPPEE POINT ELEVATION =8.3' (SEE NOTE #3)
LIMIT OF SPECIAL FLOOD HAZARD AREA ZONE VE (EL 15')
250' SHORELAND ZONE
75' SETBACK SEE NOTE #6
SEE NOTE #9
PROJECTED INTAKE
N:325974.53 E:1228097.98
OUTFALL A
OUTFALL B
N:326455.50 E:1229322.29
N:326498.71 E:1229448.24
N:326352.60 E:1229353.82
N:326395.47 E:1229480.09
1534'± [467.66m]
858'± [261.78m]
1/2" REBAR WITH "G&D CONTROL" CAP FLUSH WITH GRND. ELEV.=23.13' (SEE NOTE #3)
PLAN REFERENCES:
1) "TOPOGRAPHIC SURVEY, KINGFISH MAINE" BY GARTLEY & DORSKY ENGINEERING & SURVEYING DATED FEBRUARY 11, 2020 AND AS REVISED.
NOTES FROM PLAN REF. 1:
1) ALL DIRECTIONS ARE REFERENCED TO THE MAINE COORDINATE SYSTEM OF 1983 (2011), EAST ZONE, BASED ON AN RTK GPS SURVEY. ALL DISTANCES ARE GRID DISTANCES. THE COMBINED FACTOR IS 0.99996999.
2) ELEVATIONS ARE REFERENCED TO NAVD 1988 BASED ON STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 17, 2019 AND PROCESSED THROUGH THE NATIONAL GEODETIC SURVEY'S ONLINE POSITIONING USER SERVICE (OPUS). TIDAL DATUMS WERE CALCULATED USING NOAA'S VERTICAL DATUM TRANSFORMATION SOFTWARE (VDATUM).
GRAPHIC SCALE
(IN FEET)
1 inch = 200 ft.
SHEET TITLE: EXHIBIT 2
SCALE: 1" = 200'
DATE: JULY 27, 2020
DRAWN BY: JAM
CLIENT/PROJECT: KINGFISH MAINE
LOCATION: ROUTE 187
TOWN: JONESPORT COUNTY: WASHINGTON STATE: MAINE
Gartley & Dorsky ENGINEERING SURVEYING
59 Union Street, Unit 1, P.O. Box 1031 Camden, ME 04843-1031
Ph (207) 236-4365 Fax (207) 236-3055 Toll Free 1-888-282-4365
165 Main Street Suite 2D P.O. Box 1072 Damariscotta, Maine 04543
Ph. (207) 790-5005
STATE OF MAINE
WILLIAM LANE
No. 7577
LICENSED
PROFESSIONAL ENGINEER
PROJ. NO. 2019-412
EX2

ATTACHMENT D


N
1-GREAT BAR
2-BAR ISLAND
KINGFISH MAINE OUTFALLS
3-BALLAST ISLAND LEDGE
4-BAY LEDGES
R1-3
0
1
2
km
Kingfish Maine, Jonesport
Proposed Ambient Sampling Sites
Historical Ambient Sampling Site
Wastewater Outfalls
Eelgrass-2009
Eelgrass-1997
USDA-FSA Aerial Photography Field Office

ATTACHMENT E

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAPTER 530.2(D)(4) CERTIFICATION

MEPDES#_____Facility Name_____

Since the effective date of your permit, have there been;		NO	YES Describe in comments section
1	Increases in the number, types, and flows of industrial, commercial, or domestic discharges to the facility that in the judgment of the Department may cause the receiving water to become toxic?	☐	☐
2	Changes in the condition or operations of the facility that may increase the toxicity of the discharge?	☐	☐
3	Changes in storm water collection or inflow/infiltration affecting the facility that may increase the toxicity of the discharge?	☐	☐
4	Increases in the type or volume of hauled wastes accepted by the facility?	☐	☐

COMMENTS:

Name (printed): _____

Signature:_____Date: _____

This document must be signed by the permittee or their legal representative.

This form may be used to meet the requirements of Chapter 530.2(D)(4). This Chapter requires all dischargers having waived or reduced toxic testing to file a statement with the Department describing changes to the waste being contributed to their system as outlined above. As an alternative, the discharger may submit a signed letter containing the same information.

Scheduled Toxicity Testing for the next calendar year

Test Conducted	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
WET Testing	□	□	□	□
Priority Pollutant Testing	□	□	□	□
Analytical Chemistry	□	□	□	□
Other toxic parameters [1]	□	□	□	□

Please place an "X" in each of the boxes that apply to when you will be conducting any one of the three test types during the next calendar year.

[1] This only applies to parameters where testing is required at a rate less frequently than quarterly.