

ORIGINAL

C: APPLICATION COVER SHEET FOR AN EXPERIMENTAL LEASE

Name: Maine Fresh Sea Farms, LLC

Address: 256 Lower Round Pond Road

City: Bristol

County: Lincoln

State, zip: Maine, 04539

Telephone: business 207-380-6478 home 207-563-8086 cell 207-380-6478

Email address: mainefreshseafarms@gmail.com

RECEIVED

DEC 30 2015

Maine Department of
Marine Resources

COMPLETE 2-16-16

Location of lease site: town South Bristol county Lincoln waterbody Clark Cove, Damariscotta R.

Additional description: Contiguous with DAM CC2 (partially occupies the original footprint of FISC CD4 which was reduced in size in 2007)

Total acreage requested (4-acre maximum): 3.9 acres

Growing Area # 23-C Water Quality Classification Open/Approved

Type of culture (circle): Bottom (no gear) Suspended (gear in the water and/or on the bottom) Net Pen (finfish)

Name of species to be cultivated, common and scientific names:

Native species approved for and included in DAM CC2. These are:

Laminaria saccharina, Alaria esculenta, Laminaria digitata, Agarum cribrosum, Palmaria palmata, Porphyra spp, Chondrus crispus, Ulva lactuca, Gracilaria tikvahiae, Chorda tomentosa, Agardhiella spp, Desmarestia viridis, Scytosiphon spp, and Petalonia spp.

Name and address of the source of seed stock, juveniles, smolts, etc., to be cultivated:

Maine Fresh Sea Farms nursery located in incubator space at the Darling Marine Center

Maine Sea Grant nursery at the Cooperative Center for Aquaculture Research

Amount of application fee enclosed: \$100
(\$100 payable to: Treasurer, State of Maine)

I hereby state that the information included in this application is true and correct and that I have read and understand the requirements of the Department's rules governing aquaculture.

Signature: Seth Barker Date: 12-30-2015
Seth Barker, managing partner, Maine Fresh Sea Farms, LLC

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes

or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

PART D: EXPERIMENTAL LEASE APPLICATION INFORMATION

Applications must be typed and reproducible. Please use 8 1/2" x 11" paper. Using the numbering system below, an experimental application for aquaculture lease must provide the following information:

1. Location of Proposed Lease.

This is an important part of the experimental lease application. A well-documented, high quality site location will help to eliminate the need for a site review. A poor quality description will require a time consuming verification of the site location by the Department of Marine Resources.

A. Vicinity Map.

Using a NOAA Chart or USGS topographic map, show the general vicinity of the lease. Be sure to show the waters, shorelands, and lines of mean high and mean low water within the vicinity of the lease. Provide an arrow indicating true north. Show the approximate lease boundaries.

Please see Figure 1.

B. Boundary Description.

Describe the boundaries of the proposed lease site. Be sure to provide a description of how you developed the location description. For example, did you scale it from a NOAA chart or USGS map, did you use a compass and measuring device, did you use a GPS unit (was it Differential GPS), was it done by a certified land surveyor, etc.? Provide a drawing with all sides, directions, distances, and/or coordinates labeled. Use one of the following methods for describing the boundaries:

1) Coordinate Description.

Provide geographic coordinates for each corner of the lease site in latitude and longitude as accurately as possible (e.g., to the nearest second or fraction of a second). Identify the datum on the map or chart used to develop these coordinates. The datum will be shown on the map or chart you are using.

Coordinates are shown as NAD83 (datum) in Figure 2. These were generated using a GIS. In addition to the graphic attached, the boundaries and coordinates are available as a shape file. Figure 3 provides lengths in feet of the sides of the lease. These were measured using a GIS measurement tool.

OR

2) Metes and Bounds Description.

Starting at a fixed point on land, provide the direction (specify magnetic compass direction or true direction) and distance to one corner of the lease. Provide the direction and distance for each side of the lease. (For example: From the large boulder on shore, follow a compass bearing of 15° true for distance of 355 feet to the southeast corner of the lease site, then following a compass bearing of 38° true for 1,235 feet, etc. - This is a rough example of a metes and bounds description.)

2. **Land Owners** (*Who are your neighbors and do you have their permission to use their land?*) Attach a copy of a tax map or chart showing the location of the lease and the waters and shorelands within the general vicinity of the lease. List the name and address of every riparian owner of land within 1000 feet of the lease and the location of their property marked as shown on the map. If you need to use riparian property to access the lease site, or the lease activities would take place on intertidal land, provide written permission from every owner of such property to be used. The map and list of riparian owners must be certified by the tax collector or clerk of the municipality in which the lease is located as being an accurate copy of this information as maintained by the municipality. *The applicant must provide to the department proof of access to the lease area. If access will be across riparian land, the applicant shall provide to the department the written permission of every riparian owner whose land will be used to access the lease area (Sec. 1. 12 MRSA §6072-A, sub-§§8).*

Please find attached Figure 4, a map showing the location of the lease with the tax map parcels and parcel IDs. A list of riparian owners within 1000 ft is provided in Table 1. Both the map and list were certified by the South Bristol Town Clerk on December 23, 2015.

A letter is attached that provides verification that MFSF has permission for access. Access is provided by the Myers family to and from the wharf at Mudfog Lane, Clark Cove, Walpole. This is the Myers property (Map 28, Lot 2)

3. **Research Program and Operation**

Provide a concise description of the scientific or commercial research and development study you will be conducting on the experimental lease site. Describe:

A. **The purpose and design of the study.**

This lease will be used for farm trials and intensive growing of seaweeds. We have had several years of experience with sugar kelp, fewer with Alaria, and dulse, and have done only limited trials with other species. With this application we plan to move into a shallower portion of Clark Cove with less current and essentially no conflict with lobstering.

Concurrent with this shift into shallower water, we will be modeling current flows and seaweed growth in relation to these flows and nutrient and temperature regimes. Seaweed growth and biomass will be monitored and if the modeling and in-situ measurements prove out then we will apply for a standard lease.

B. **The species, amount and proposed source of the organisms to be grown.** (Note: You may apply to grow more than one species).

We will do farm trials on species listed on the application cover sheet and larger scale growout on sugar kelp, Alaria, and dulse. The amount of each species will vary but the primary crops during the winter season (September to June) will be sugar kelp, Alaria, and dulse. We will investigate candidate species for the warmer periods, May through October also.

Seedlings will be raised at the MFSF nursery in the Darling Marine Center incubator space and/or a nursery maintained by Maine Sea Grant at the Cooperative Center for Aquaculture Research.

C. **A description of the culture and harvesting techniques to be used.**

Crops will be grown on horizontal longlines 3 to 10 feet below the surface depending in the species. Experimental work will be done with seeded netting (see Porphyra net frame) will

be used and in the initial several months (time period to be determined) the netting in the case of *Porphyra* will be exposed for several hours several times during the week. Harvesting will be from a small (18-19 ft) boat or pontoon boat (24 ft max) and will be primarily by hand. If power equipment is used it will be run off a small hydraulic power pack. The gear will be monitored regularly and harvesting will be in season (presently February through June but this schedule will be modified as additional species are added). These activities will generally occur 1-2 days a week but may occur for 4-5 days during a week when major harvests take place near the end of the season.

D. The expected length of the study.

These activities will be for the duration of the lease period (three years).

E. Specify whether the research is for scientific OR commercial research and development. Note: Results of scientific research will be part of the public record.

The research is commercial research and development.

4. Existing Uses (*Who uses or travels over the site now and why?*)

Describe the existing uses of the proposed lease area, including commercial and recreational fishing activity, moorings, navigation and navigational channels, and use of the area by riparian owners for ingress and egress. Include the type, volume, time, duration, location and amount of activity. A signed statement from a Department Biologist or Marine Warden may be submitted to verify this information.

No use is presently being made of the proposed lease area other than a single mooring used by Pemaquid Mussel that will be relocated. Presently Clark Cove is used for multiple purposes though. There is an existing lease which is authorized for raft culture of mussels, seaweed cultivation, and other species, several lobster boats fish out of the cove but do not set gear in the proposed lease area, and two rafts for holding oysters are present. There is also a sailboat which is moored outside the lease area and closer to shore. All moorings with the exception of one used by the mussel operation are outside the proposed lease. The proposed lease will not interfere with any of these activities and is not used for navigation.

No recreational fishing has been observed in the cove though it does take place in the main stem of the Damariscotta River.

Because the proposed lease is centered in Clark Cove, it will not interfere with the ingress and egress of riparian owners. Those who use the cove are accustomed to aquaculture activities in the cove as this area has been used for aquaculture since the early 70s.

5. Exclusive Use (*Who will be restricted from the site?*)

Describe the degree of exclusive use required by the project and the impact on existing or potential uses of the area. Will others be allowed access to the site? Will fishing be allowed on the site? Will you request that certain types of activities be restricted? If so, please explain.

Once longlines are installed it will be difficult for others to make use of those designated areas. The exception might be the occasional kayak which would not be hindered from passing through the area with lines. There will be periods when lines are removed so it is conceivable that someone could fish in the cleared area (mackerel fishing for example) but as stated earlier, recreational fishing has not been observed nor is there lobstering or other commercial fishing activity. We do not feel that limited access to the lease will interfere with existing activities.

6. Description of the Proposed Lease Site

A. Environmental Characterization. (Written description or video)

NOTE: If your application involves structures, a permit from the U.S. Army Corps of Engineers will be required. The ACOE requires that the Environmental Characterization be in written form. A video will fulfill only the DMR requirements. If you are using structures, a single written description will satisfy both the ACOE and DMR requirements.

Describe the environment of the proposed lease site and your reasons for deciding that this site would work for your intended purposes. This may be done either by submitting a written description of the area, or, if no structures are involved, by submitting a video of the area. Both methods should include the following:

1. The bottom characteristics (mud, sand, gravel, rocky, ledge or some mix, etc.);
The bottom is exclusively mud and suitable for mooring installation. Observations have been made at various times using a drop camera and by diver while during mooring installations in September and October, 2015. Few organisms were observed at the mud surface, cancer crabs being most frequent but not commonly seen.
2. Approximate depths at low and high tides;
Water depth is between 20 and 40 feet at low water. Tide averages about 10.5 feet.
3. Topography (flat, steep, rough, etc.);
The topography is relatively flat and slopes gently away from shore.
4. Plants and animals (flora and fauna) by species or common names, and described as abundant, common, or rare;
Cancer crabs – rare
Amphipod tubes – common
Attached vegetation - none
5. Approximate current speed and direction; and
At maximum flow, currents vary from 0.5 to 1 knot and are generally in a counter clockwise direction within the cove.
6. The general shoreline and upland characteristics.
The shoreline is generally rocky with unconsolidated sediments in pockets around the cove. Much of the intertidal sediment is mixed fines with a preponderance of gravel and cobble. There are no large exposed flats. The uplands are mixed hard and softwood, primarily oak, fir, and spruce. There are several mowed fields (one with a long abandoned apple orchard) and two fenced horse pastures towards the center of the land surrounding the cove.
7. Presence and extent of submerged aquatic vegetation, i.e. eelgrass, within the proposed lease area. (If eelgrass is present, sketch in the limits of the beds on the vicinity map.
No eelgrass is present.

NOTE: If you are submitting a video it is recommended that you contact the DMR Aquaculture Environmental Coordinator (207-633-9500) to develop a filming method that will adequately describe your proposed lease site.

B. Environmental Impact.

Describe how you think your husbandry and harvesting techniques might affect the physical and ecological environment around the lease site.

There should be no physical or environmental impacts from the proposed husbandry or harvesting. In fact, seaweed has been cited as possibly mitigating ocean acidification to a certain extent. More research needs to be conducted before any mitigation by activities in this lease can be assumed.

This area is not categorized by IF&W as Essential Habitat, see Figure 5, (<http://www.maine.gov/ifw/wildlife/endangered/> , accessed Dec. 27, 2015).

There are no known eagle's nests in the area. This is based on first-hand knowledge, recent lease applications, (DAM LW2), and GIS data (2013) of known eagle nesting sites (<https://www.arcgis.com/home/webmap/viewer.html?webmap=5aa77d8ff7bc419f82a1a26d5712262b>, accessed Dec. 27, 2015) made available online by USF&W.

Provide the shellfish growing area classification for the area of the proposed lease. The classifications are available at either the town office or from the Public Health Division of DMR. Contact information is available at the DMR website: www.maine.gov/dmr/rm/public_health The area is open/approved. Please see attached map, Figure 6, (http://www.maine.gov/dmr/rm/public_health/closures/23-C.pdf, accessed Dec. 27, 2015).

7. Structures (if applicable)

If your operations require the use of nets, ropes, trays, or any object (structure) other than the organism to be grown directly on the bottom or buoys to mark the corners of the lease site, you must submit the following:

A. Plan View. Provide a drawing of the maximum area to be utilized by the structure(s) and moorings of the proposed lease. This drawing should include a layout of the lease boundaries and the location of all proposed markings. Please note that all moorings must be contained within the lease site.

Please see Figure 7. for an overview of the horizontal line layout in the proposed lease. Line spacing is anticipated to be 20 ft. The lease will be marked as shown in the plan view. All moorings will be within lease boundaries. A nori net frame may be installed between the lines. The plan and cross sectional view of the net frame is shown in Figure 8. This frame has received earlier approval for use in DAM CC.

B. Cross Sectional View. Provide a drawing and description of the mooring system used to anchor your structure(s) to the sea floor. Provide dimensions and materials used. Label all parts. Provide depth from the bottom of your structure(s) to the sea floor during both mean low water and mean high water.

Please see Figure 9. for an overview and a list of materials.

8. Discharge (if applicable)

If your operation will discharge anything into the water such as feed (pellets, kelp, etc.) or chemical additives (therapeutants, chemical treatments, etc.) you must submit a video of the bottom using a method prescribed by the Department. **The video must be filmed between April 1 and November 15.** Please note that this video can also fulfill the DMR requirements of Item 10, Description of Proposed Lease Site. Further sampling may be required by DMR, or DEP, depending on the characteristics of the site or the proposed activities.

There will be no discharge.

9. **Marking**

According to Department rules, all lease sites are to be marked with a floating device, such as a buoy, which displays the lease identifier assigned by the Department and the words "SEA FARM" in letters of at least 2 inches in height in colors contrasting to the background of the device. The marked floating devices shall be displayed at each corner of the lease area that is occupied or at the outermost corners. If such marking requirements are unnecessary or impractical in your proposed location, provide information as to why that is so and suggest alternate markings.

Standard marking will be used.

10. **Escrow Account or Performance Bond and Rental Fee**

A. **Escrow Account or Performance Bond.** Provide documentation confirming that the applicant has read MDMR Aquaculture Regulations 2.40 and that upon issuance of a lease by MDMR the lessee will either open an escrow account or obtain a performance bond, depending on the category of lease as follows:

<u>Lease Category</u>	<u>Amount of Required Escrow or Performance Bond</u>
No structure, no discharge	None
No structure, discharge	\$ 500.00
Structure, no discharge	\$
Total combined area of all structures on lease:	
≤400 square feet	\$1,500.00
>400 square feet	\$5,000.00
Structure, discharge	\$ 25,000.00

I have read MDMR Aquaculture Regulations 2.40.

A letter that confirms our land based access and use of the dock is attached.

An escrow or performance bond will be set up as required.



Seth Barker

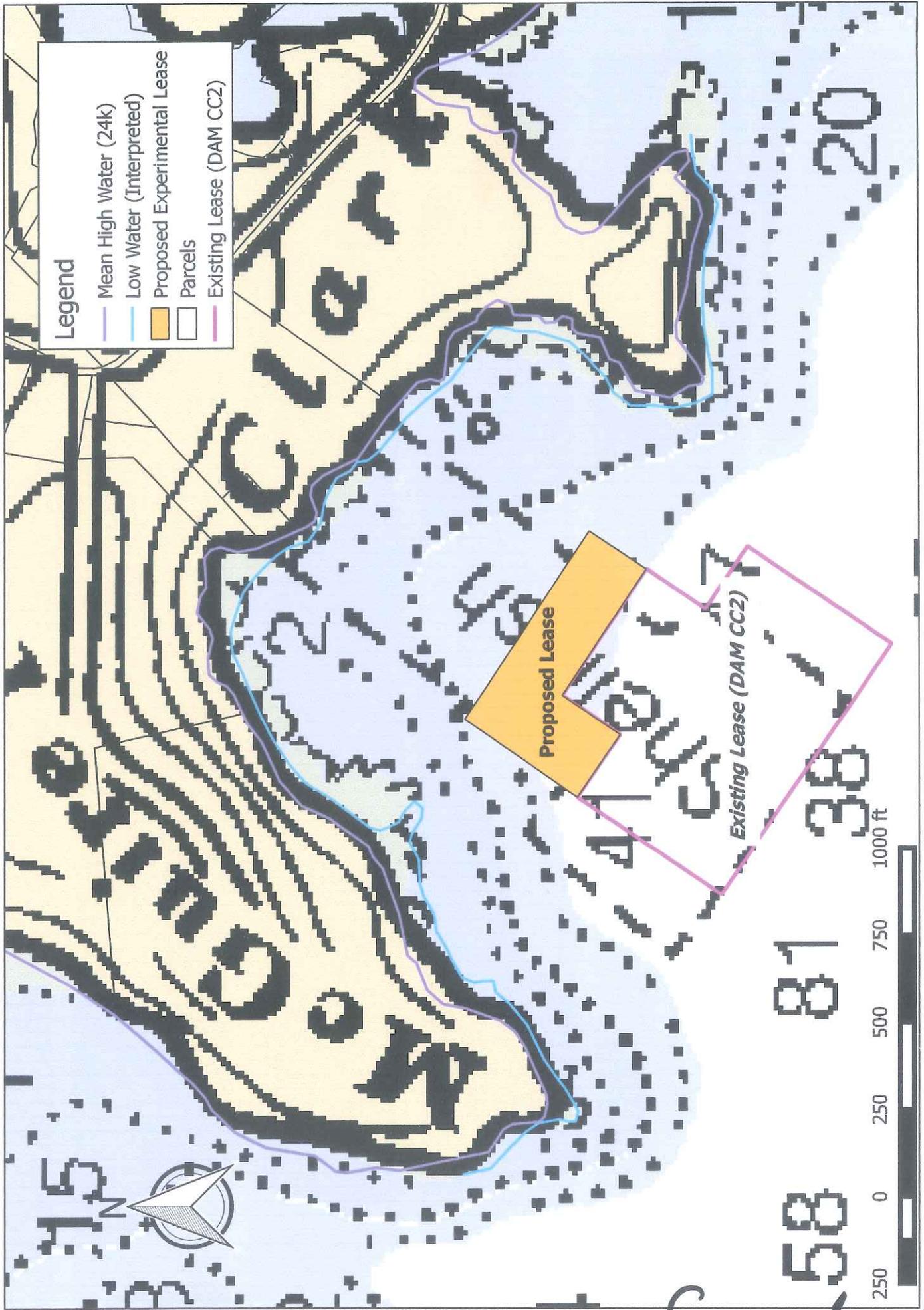
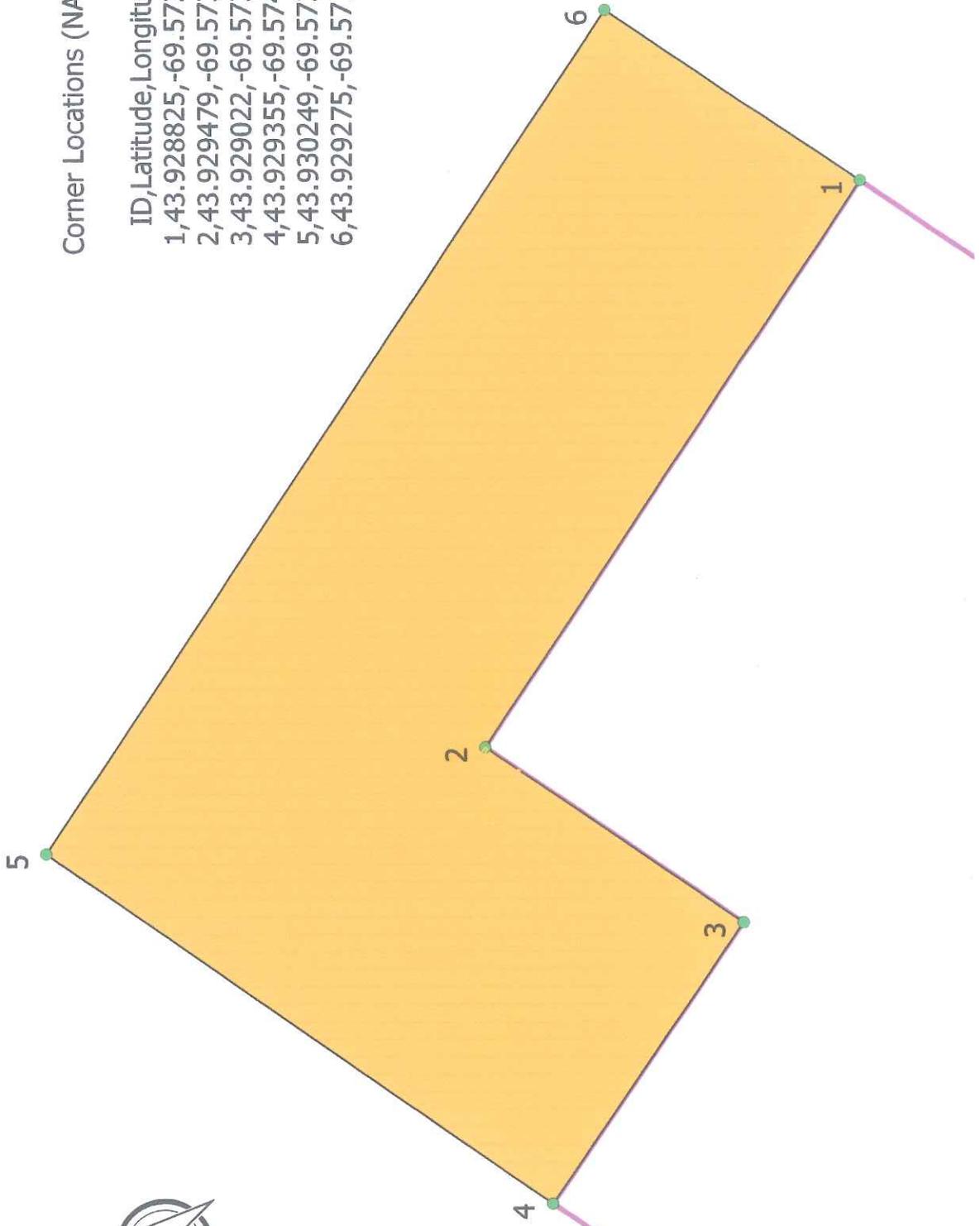
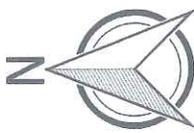


Figure 1.



Corner Locations (NAD83)

ID	Latitude	Longitude
1	43.928825	-69.572179
2	43.929479	-69.573563
3	43.929022	-69.573986
4	43.929355	-69.574672
5	43.930249	-69.573828
6	43.929275	-69.571767

Figure 2^{9.}

Boundary Measurements

Side Length (feet)

1-2	435.5
2-3	200.4
3-4	217.8
4-5	394.4
5-6	648.6
6-1	196.7

Please note - Sides are not parallel so sum of lengths will differ.

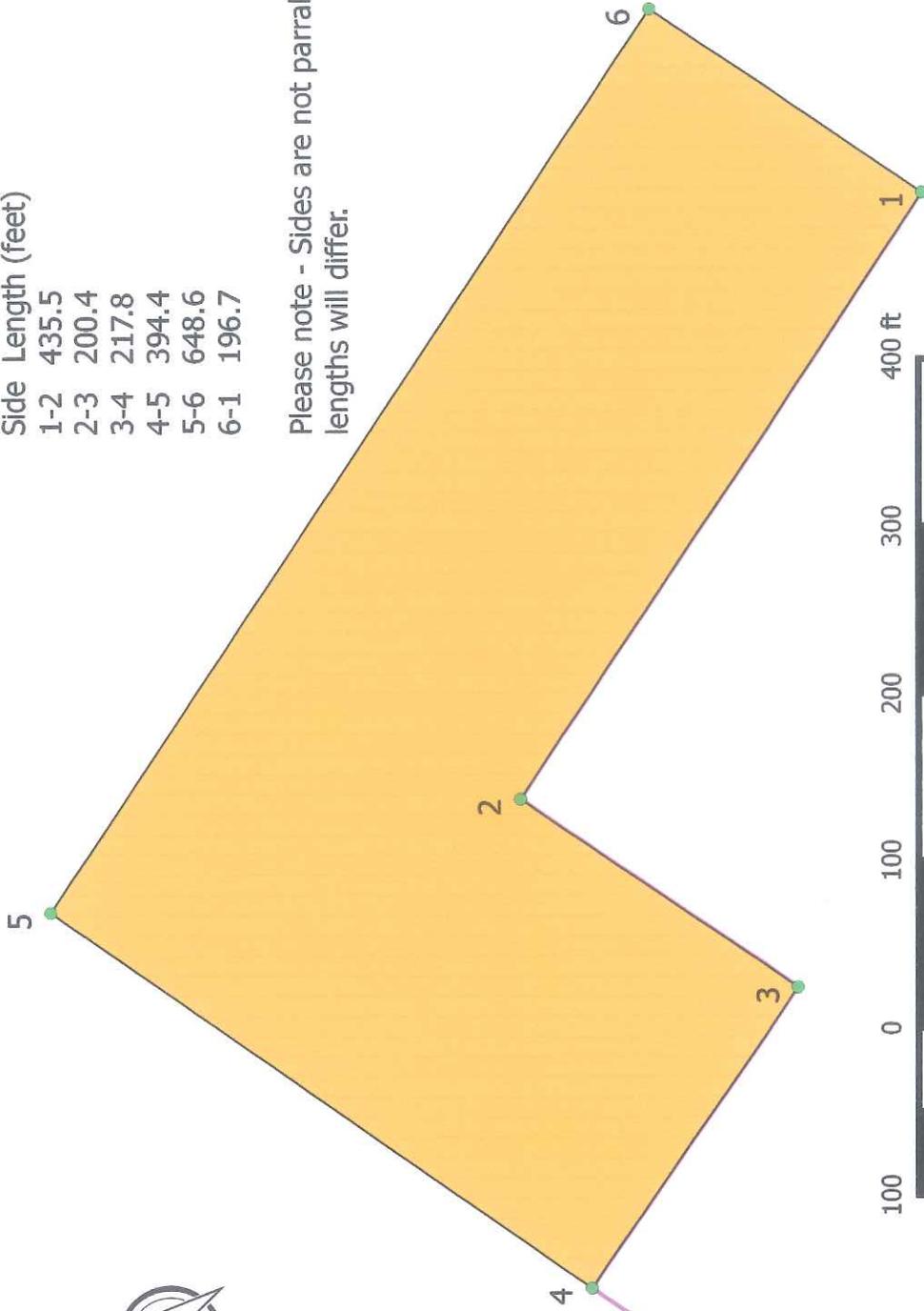
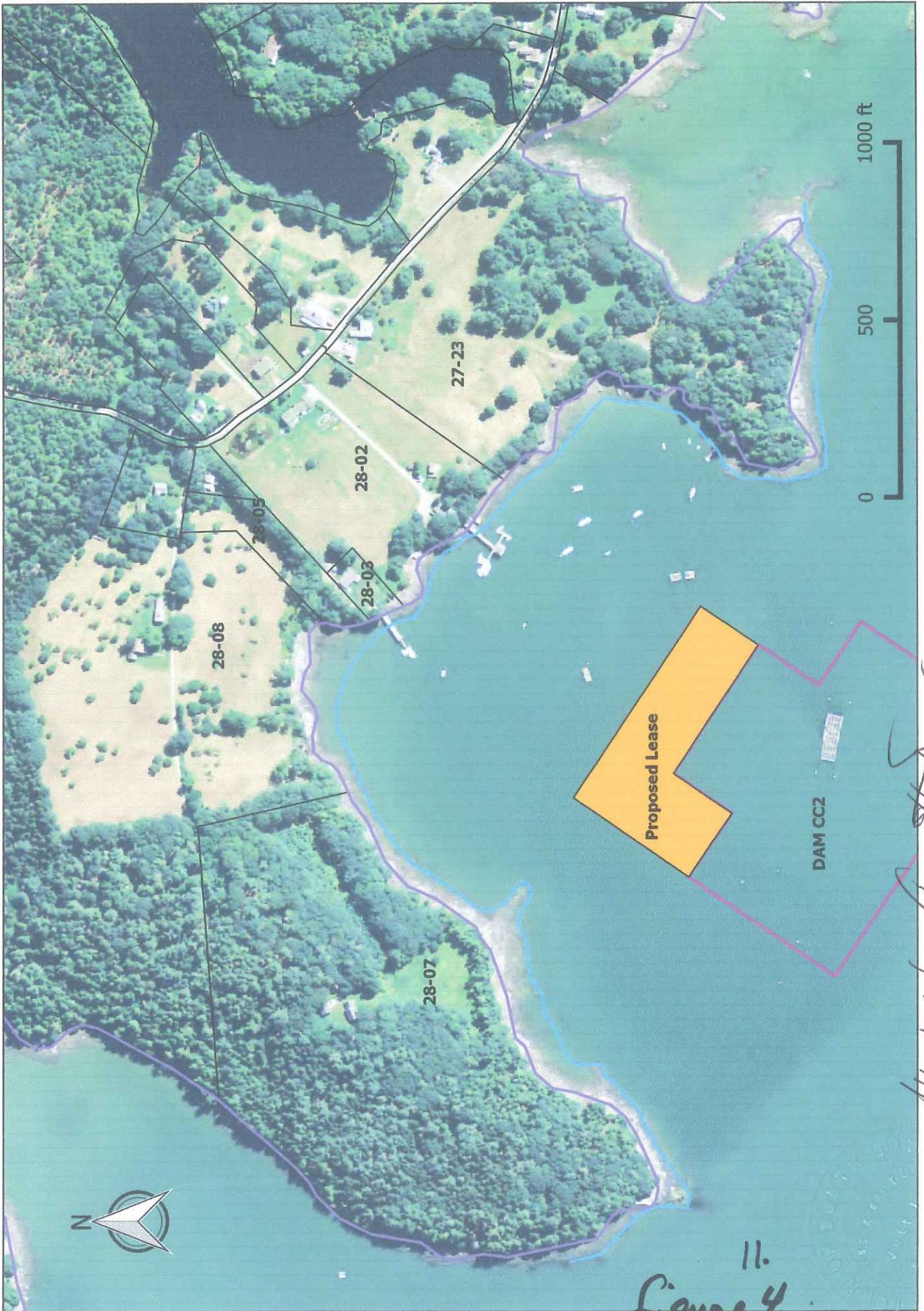


Figure 3. 10.



Attested by *Carroll J. Gorman*
 12/23/15 Town Clerk

11.
 Figure 4.

Table 1. Riparian Owners within 1000 ft of proposed lease, Clark Cove, Walpole, Maine

28-07

University of Maine
Darling Marine Center
Walpole, Maine 04573

28-08

Rounds Revocable Trust
7 Orchard Drive
Walpole, Maine 04573

28-05

John and Athar Rounds
7 Orchard Drive
Walpole, Maine 04573

28-03

David Rice
P.O. Box 15
Walpole, Maine 04573

28-02

Julia Myers
35 Schooner St.
Unit 117
Damariscotta, Maine 04573

27-23

Dirk and Linda Brunner
331 Clarks Cove Road
Walpole, Maine 04573

12.

Attested by: *[Signature]*
12/23/2015 *[Signature]*



Proposed Lease in relation to IF&W Essential Habitat map locations, accessed and a copy made from the IF&W web site on Dec. 27, 2015

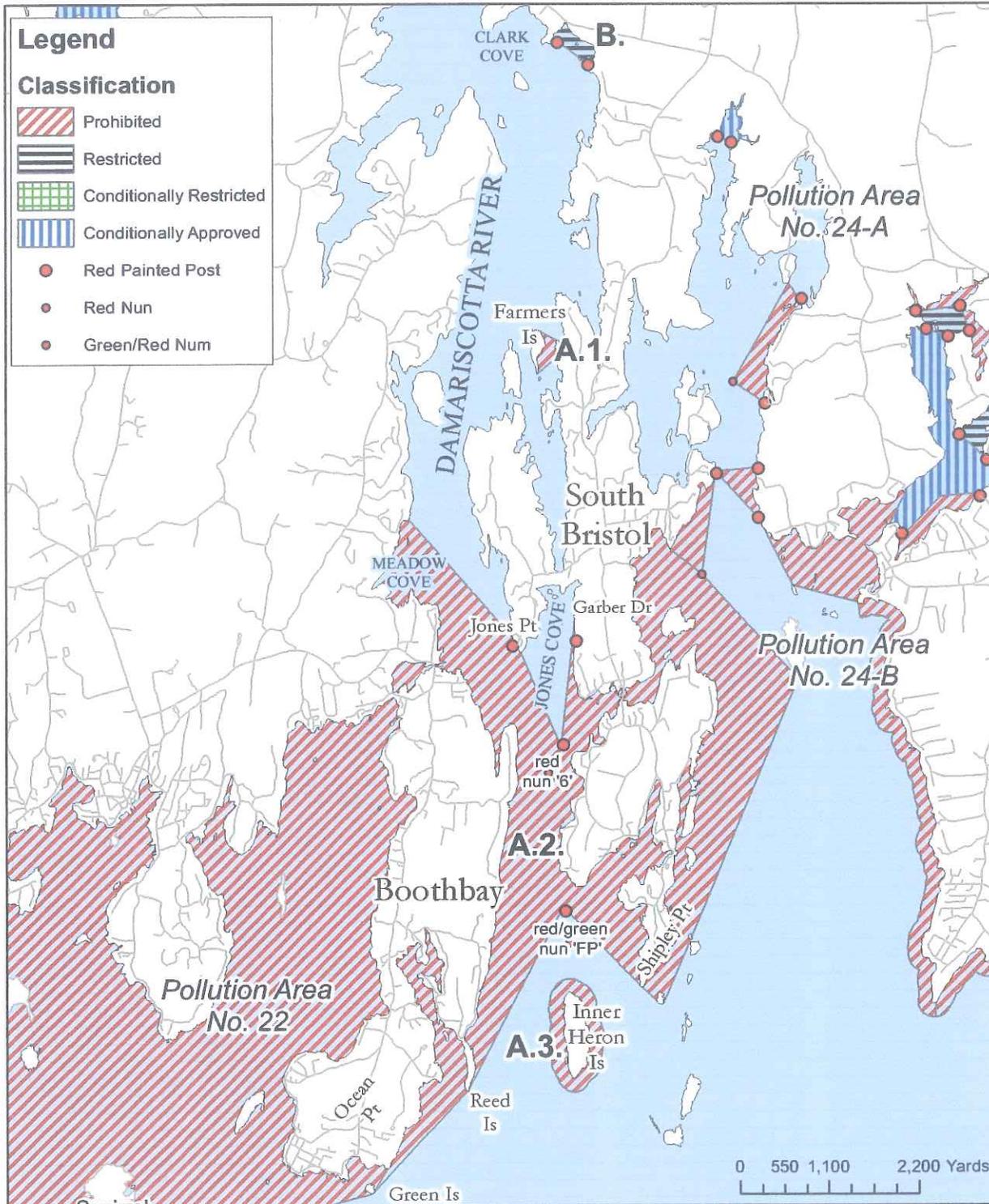
figure 5.



Maine Department of Marine Resources

Pollution Area No. 23-C

Lower Damariscotta River (Boothbay, South Bristol)



14.

Figure 6.

Plan View - Longline Layout

Longlines - 530 ft. long (approx.)
Separation - 20 ft.
End Floats - 17"x23"
Line Floats - 5"x12", spaced 50 ft. apart



Lease Markers
(Total of Six)

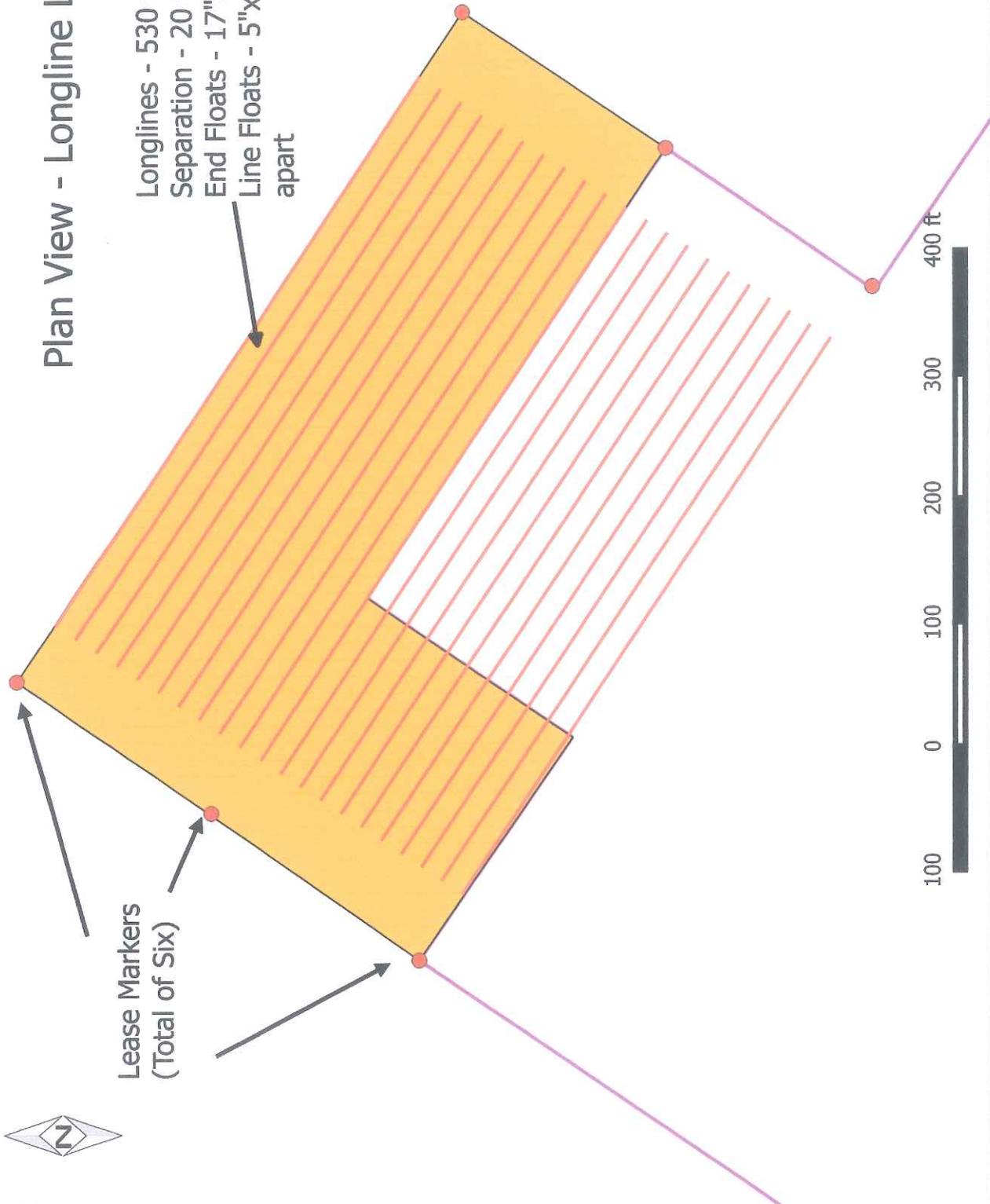
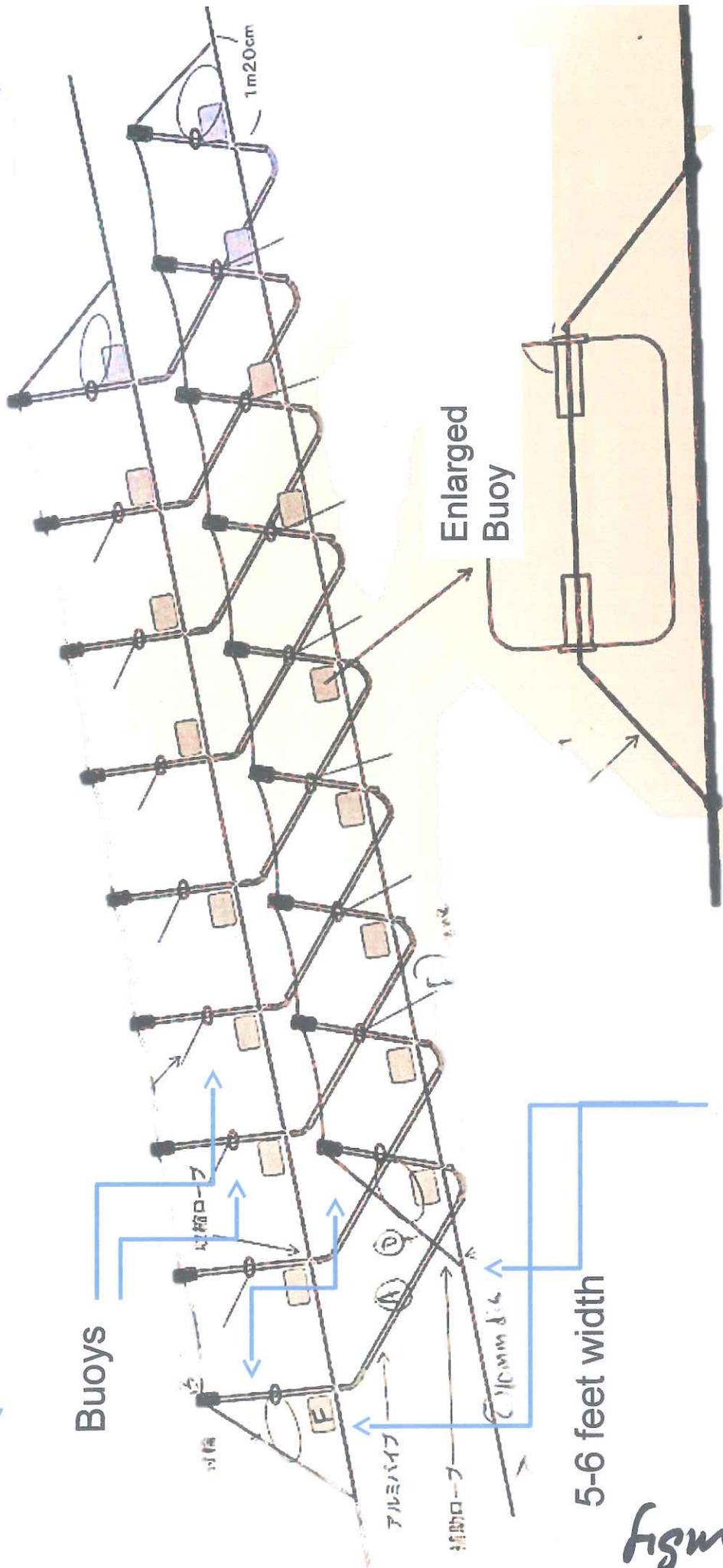


Figure 7.

**Nori net rack diagram
Tended "Up" position, for the occasional exposure of
nets**

Nets attached to raft for
tended occasional emersion

64 feet

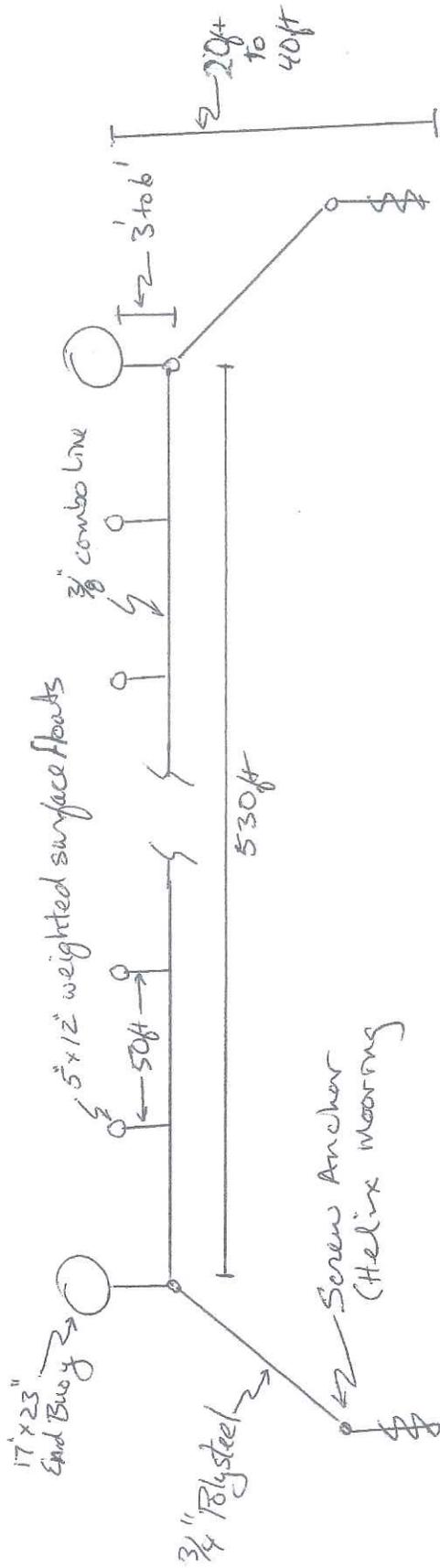


Horizontal Long
Lines, near
surface

16.

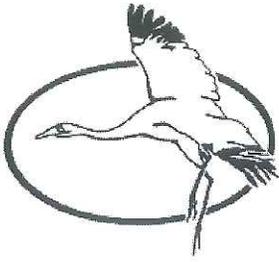
Figure 8.

A single rack, approximately 64 feet long will be used. If additional racks are to be added, MFSF will apply for a modification of the lease to accommodate gear changes. The height of the rack out of water during exposure periods (two to three time each week for several hours) is approximately 3 1/2 feet.



Longline Deployment - Side View

- Helix Anchors - H1066 anchors (10" x 5') or larger
- 3/4" Anchor Chain and shackles
- 3/4" Combo rope (polyester/polypropylene strands), Anchor line and connecting legs
- 3/4" Thimbles
- 3/4" Connecting shackles
- 17" x 23" End floats
- 5" x 12" Longline floats
- 3" x 8" Brick - Longline weights
- 3/8" Neutrally buoyant longline (combo line).



Clarks Cove Enterprises
318 Clarks Cove Road
Walpole, ME 04573
207.563.7123

To whom it may concern:

This is to certify that Maine Fresh Sea Farms LLC is current in its payments for wharfage at Clarks Cove, in Walpole, South Bristol, Maine. Clarks Cove Enterprises maintains the wharf and provides parking and allows product to be taken ashore across the wharf from adjoining aquaculture leases in return for this rent.

Sincerely,

A handwritten signature in cursive script, appearing to read "R. H. Easley".