

Department of Marine Resources
Site Review #2017-15E

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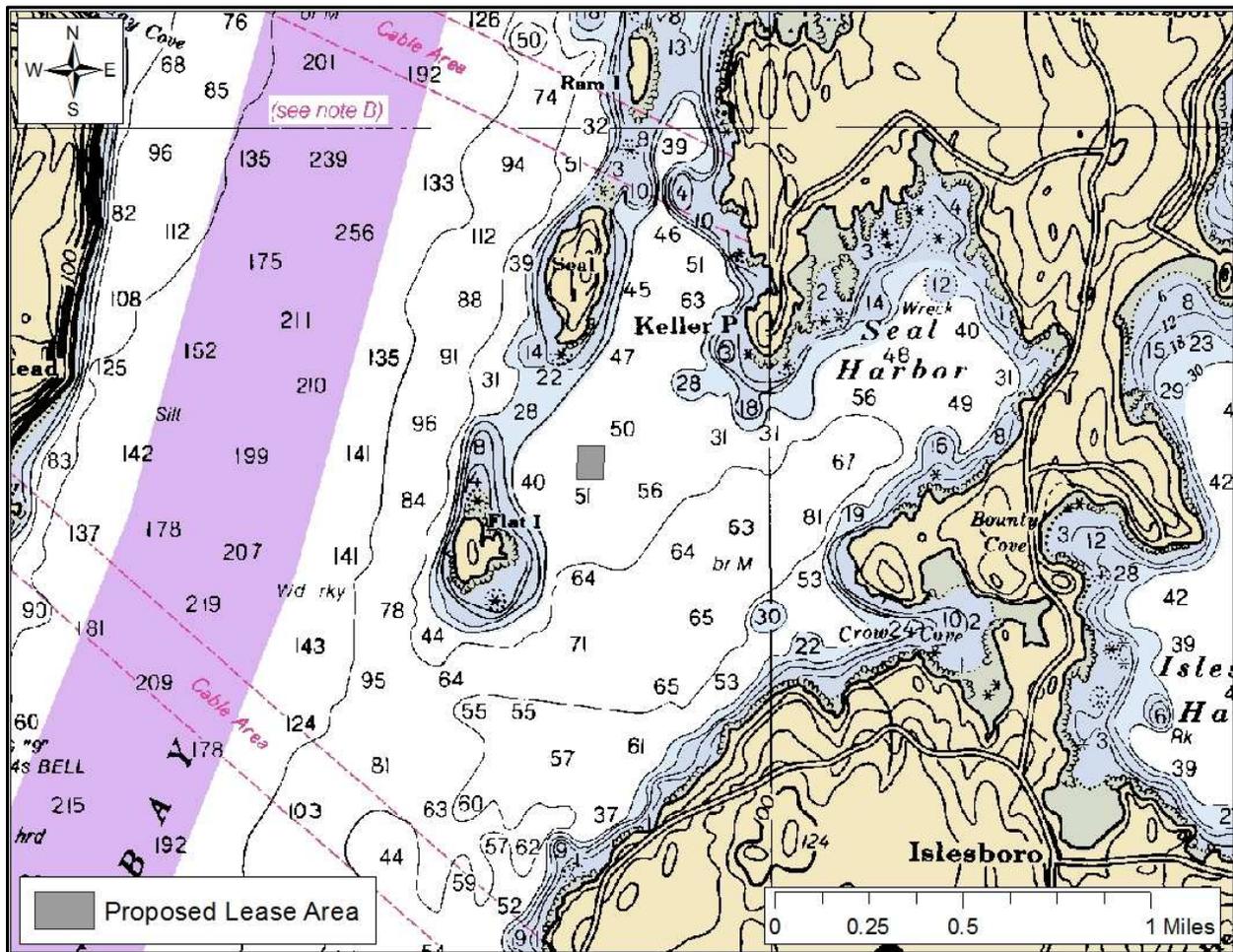


Figure 1: Vicinity map¹

Location: Northeast of Flat Island, Penobscot Bay, Islesboro, Waldo County, Maine

Purpose: Experimental lease for the suspended culture of blue mussels (*Mytilus edulis*)

Site Review by: Marcy Nelson and Flora Drury

Report Preparation by: Flora Drury, Marcy Nelson, and Jon Lewis

January 8, 2018

¹ All figures in this report were created in ArcMap version 10.4 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by The Maine Office of GIS (Low_Tide_2004).

On December 20, 2017 Maine Department of Marine Resources (MDMR) Scientists Marcy Nelson and Flora Drury visited the proposed experimental aquaculture lease. Josh and Shey Conover, the owners of Islesboro Marine Enterprises, transported MDMR staff to the proposed lease site.

MDMR staff arrived on site at approximately 9:50am; the tide was in the mid flood stage.

The applicant, Islesboro Marine Enterprises, is requesting 4.00 acres northeast of Flat Island in Penobscot Bay for the suspended culture of shellfish. The applicant plans to deploy up to twelve mussel rafts for the wild spat collection and suspended culture of blue mussels.

General Characteristics

The proposed lease occupies subtidal waters off the west coast of Islesboro, between Seal and Flat Islands (Figure 1). Flat Island, located to the southwest of the proposed site, is an undeveloped island owned by the Maine Department of Inland Fisheries and Wildlife (Image 1). The Flat Island shoreline is composed mostly of rock, with a small beach located on the island's eastern shore. Seal Island, located to the north of the proposed lease site, has a rocky shoreline leading to a forested upland (Image 2). MDMR staff observed one residential building from the proposed lease site, along with a partially constructed pier, ramps, floats, and moorings on the island's east side (Image 3). The proposed lease is located to the west of Seal Harbor, Islesboro Island (Image 4). The Islesboro shoreline is rocky, leading to a residential and forested upland. A publicly-owned pier is located within Seal Harbor.



Image 1: Looking southwest at Flat Island from the southwest corner of the proposed lease site (December 20, 2017).



Image 2: Looking north at Seal Island from the southwest corner of the proposed lease site (December 20, 2017).



Image 3: Ramps, floats, and partially constructed pier located on the eastern shore of Seal Island (December 20, 2017).



Image 4: Looking northeast, towards Keller Point and Seal Harbor, from the southwest corner of the proposed lease (December 20, 2017).

Position and Distances to Shore

POSAID Positioning Software was used to calculate distances and bearings between proposed lease corners. Distances to shore were determined using ArcMap 10.4.1, digitized NOAA Charts, digital orthophotography provided by the Maine Office of GIS (*Low_Tide_2004*), and the application coordinates.

The corner coordinates provided in the application describe an area of 4.03 acres in size. To ensure the proposed experimental lease, if granted, is no greater than the allowable 4.00 acres, MDMR staff reduced the boundaries accordingly. These changes amounted to a reduction of 2.88 feet in length along the east and west boundaries and less than one foot in length along the north and south boundaries.

WGS84 Revised Coordinates - 4.00 acres (Figure 2)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NW	44° 19' 15.840" N	68° 55' 37.020" W then 465.00 feet at 180.00° True to
SW	44° 19' 11.248" N	68° 55' 37.020" W then 375.00 feet at 90.00° True to
SE	44° 19' 11.248" N	68° 55' 31.862" W then 465.00 feet at 0.00° True to
NE	44° 19' 15.840" N	68° 55' 31.862" W then 375.00 feet at 270.00° True to NW.

<u>Approximate Distances (Figures 1 & 2):</u>	
NW Corner to Nearest Point Seal Island (MLW)	~1,350 feet to the north
NE Corner to Nearest Seal Island Mooring	~1,637 feet to the north
NE Corner to End of Seal Island Pier	~1,867 feet to the north
NE Corner to Nearest Point Keller Point, Islesboro (MLW)	~2,250 feet to the northeast
SE Corner to Nearest Point Islesboro (MLW)	~3,375 feet to the southeast
SW Corner to Nearest Point Flat Island (MLW)	~1,160 feet to the southwest
West Boundary to Mainland (MLW)	~1.3 miles to the west

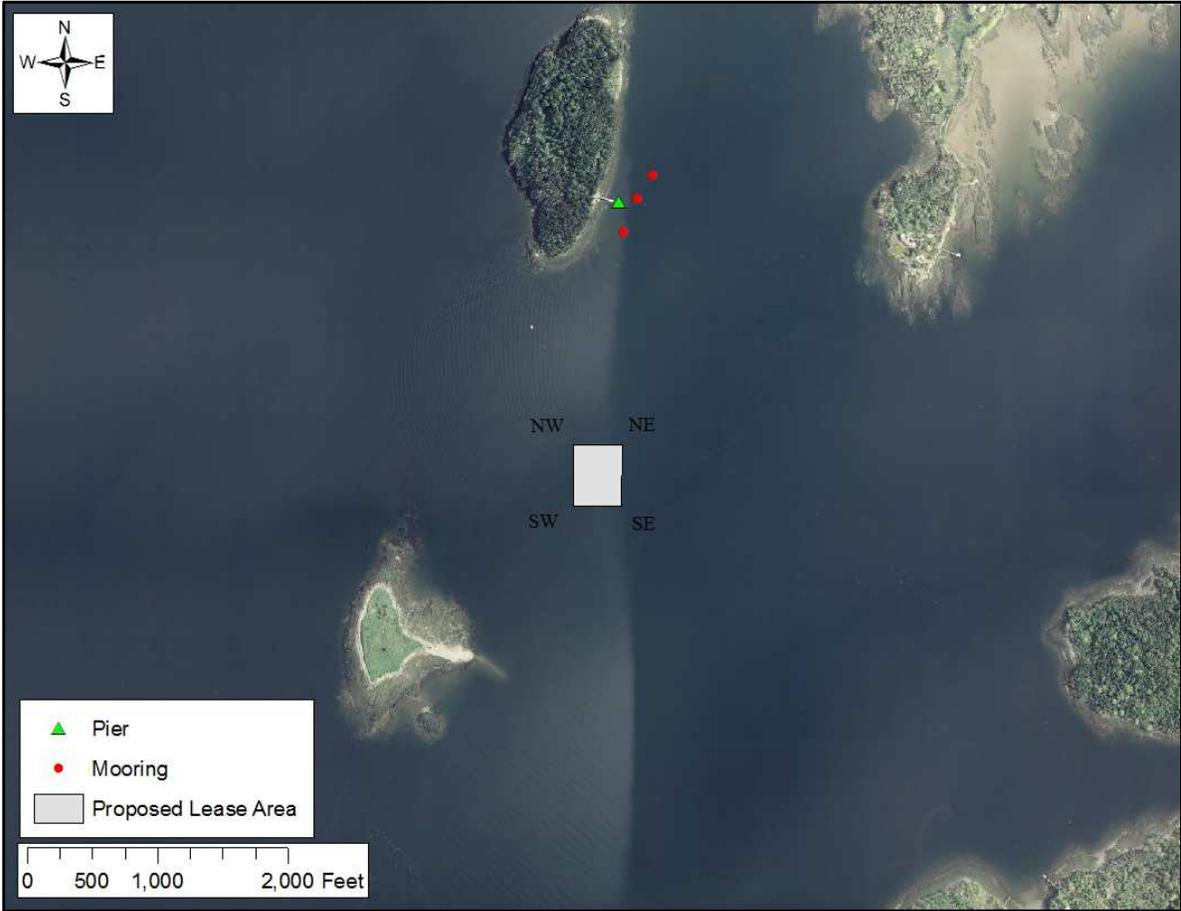


Figure 2: Vicinity map using low tide aerial imagery.

Depth

The predicted time of low tide for Belfast, Maine on December 20, 2017 was 5:51 am. Tidal height was predicted at 1.16 feet above mean low water (MLW). High water was predicted to occur at 12:02 pm with a height of 10.90 feet above MLW. MDMR staff observed the depths of the proposed lease site at approximately 9:50 am.

Belfast, Penobscot Bay, Maine²

(44.4267° N 69.0050° W)

Date	Time	Height (ft)
12/19/17	11:58 PM	9.98 H
12/20/17	5:51 AM	1.16 L
12/20/17	12:02 PM	10.90 H
12/20/17	6:20 PM	0.11 L

At the time of the Department's site assessment, the northern corners of the proposed site sat in 57 feet of water and the southern corners of the proposed lease sat in 58 feet of water. Correcting for tidal variation derives water depths approximately 2.7 feet higher at the nearest high tide (59.7-60.7 feet) and water depths approximately 8.2 feet lower at mean low water (48.8-49.8 feet).

Water Quality Classification

The proposed lease is in an area currently classified by the Department of Marine Resources Water Quality Classification Program as approved for the harvest of shellfish.

The criteria MDMR uses to determine the suitability of an experimental aquaculture operation to a particular area (MDMR Regulations Chapter 2.64(7)(A)) are discussed, with respect to the proposal, below:

(1) Riparian Owners Ingress and Egress

There are no riparian landowners within 1,000 feet of the proposed lease site. Flat Island, the nearest land to the proposed lease site, is located approximately 1,160 feet to the southwest. On December 20, 2017, no moorings, piers, or docks were observed on or around Flat Island. It is likely that Flat Island's main access point is the island's only beach, which is located over 1,300 feet from the proposed lease. Due to this distance, it is unlikely that the proposed lease will interfere with riparian ingress and egress to and from Flat Island.

The nearest moorings observed by MDMR staff on December 20, 2017 were located north of the proposed lease site, off the eastern shore of Seal Island. The closest of these moorings was located 1,637 feet from the proposed lease's northeast corner (Figure 2). A partially constructed pier, along with a ramp and floats, was also observed off the eastern shore of Seal Island (Image 3). The end of the pier, presumably Seal Island's main access point, is located ~1,867 feet to the northeast of the proposed lease site. At the time of MDMR's site visit, an inflatable skiff and a rowboat were

² Data obtained from <http://tbone.biol.sc.edu/tide/tideshow.cgi>

observed on a float that appears to be the island's temporary access point (Image 5). It is unlikely that the proposed lease will interfere with riparian ingress and egress to and from Seal Island due to its distance from this island.



Image 5: Pier and floats off the eastern shore of Seal Island (December 20, 2017).

(2) Navigation

The proposed lease occupies subtidal water between Seal, Flat, and Islesboro Islands (Figures 1 and 2).

A mooring field and publicly-owned pier are located within Seal Harbor, which is located over 2,500 feet to the east of the proposed lease. Boat traffic entering and exiting Seal Harbor from the main channel that separates Flat Island and Islesboro Island should not be impacted by the proposed lease, located over 1,100 feet to the north. Boats navigating between Flat Island and Seal Island will have more than 1,150 feet of navigable water to the west/southwest of the proposal and more than 1,050 feet of navigable water to the north of the proposal, with mean low water depths greater than or equal to those experienced when traveling between the two islands. Measuring from the same 10-foot contour lines, the width of the channel between Seal and Flat Islands, at its narrowest, is ~1,310 feet.

The Islesboro Harbormaster, in a questionnaire received by MDMR on November 20, 2017, stated that the proposed lease does not interfere with navigation in designated channels.

(3) Fishing and Water-Related Uses

On December 20, 2017, no commercial or recreational fishing was observed within the boundaries of the proposed lease. Due to the timing of MDMR’s site visit, fishing and other water-based activities that may occur on or near the proposed lease during the warmer months were not observed. Both the applicant and the Islesboro harbormaster indicate that lobster fishing occurs near the proposed lease during certain times of year. Per the Islesboro Harbormaster, there “might be 10-15 lobster traps effected” by the proposed lease. The harbormaster also stated that the proposal would cause “minimal effect to recreational fishing.”³

(4) Other Aquaculture Uses

No existing aquaculture leases or licenses are located within one mile of the proposed experimental lease (Figure 3). The nearest existing aquaculture site to the proposal is CART316, a Limited Purpose Aquaculture (LPA) license permitted for the suspended culture of American/eastern oysters (*Crassostrea virginica*) located 3.4 miles to the south of the proposed lease.

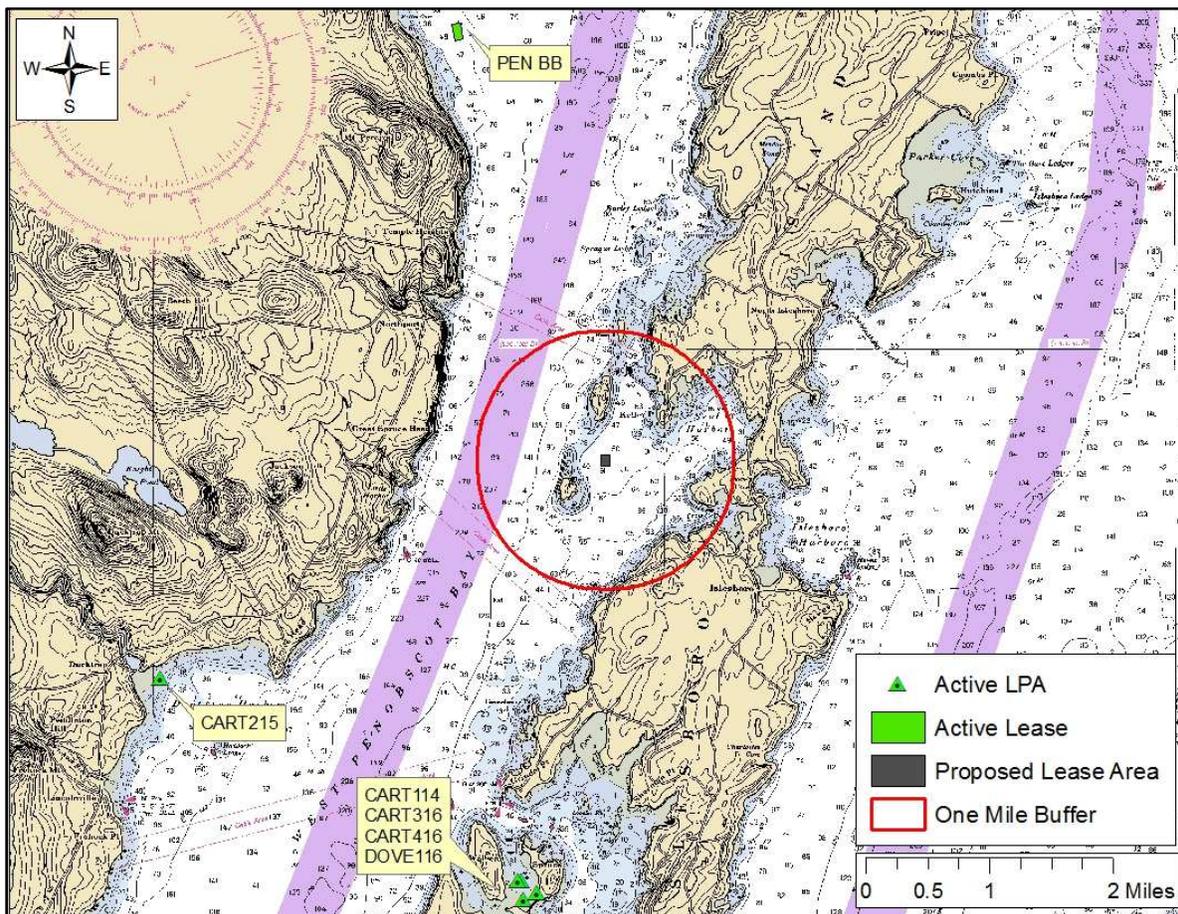


Figure 3: Other aquaculture uses in the vicinity of the proposed lease area.

³ Harbormaster Questionnaire, November 20, 2017

(5) Existing System Support

Eelgrass

Historical eelgrass (*Zostera marina*) cover data collected by MDMR indicates that, in 2004, no eelgrass was present within the proposed lease (Figure 4). According to these data, the closest eelgrass bed to the proposed lease in 2004 was approximately one mile to the southeast.



Figure 4: Historical eelgrass (*Z. marina*) distribution in vicinity of proposed lease.⁴

Wildlife

According to GIS (Geographic Information System) data maintained by MDIF&W and available through the Maine Office of GIS, Flat Island, located 1,160 feet to the southwest of the proposed lease, is a seabird nesting island owned by the Maine Department of Inland Fisheries and Wildlife (Image 1). Both tidal wading bird and waterfowl habitat and bald eagle (*Haliaeetus leucocephalus*) nesting habitat is located within a mile of the proposed site (Figure 5).

On November 16, 2017, John Perry (Environmental Review Coordinator, MDIFW) responded, by email, to a “Request for Agency Review and Comment” with the following:

⁴ Figure created using data sourced from The Maine Office of GIS (Eelgrass 2010).

“MDIFW has discussed with the applicant our concerns that placing suspended aquaculture in close proximity to known Seabird Nesting Islands (in this case Flat Island, which is owned by MDIFW for the protection of nesting sea birds) may create the opportunity for problems with eiders. As a result, MDIFW staff instructed that the applicant purchase netting that is suitable for excluding eiders without causing mortality. MDIFW will not issue depredation permits to lethally remove eiders in the event that they do begin to create issues with the aquaculture operations.”



Figure 5: Endangered, Threatened, or of Special Concern Habitat⁵, Tidal Wading Bird and Waterfowl Habitat⁶, and Seabird Nesting Islands⁷ in the vicinity of the proposed lease site

(6) Source of Organisms to be Cultured

The applicant proposes to cultivate wild blue mussel seed that has been collected on the proposed lease site.

⁵ Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.ETSC”

⁶ Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”

⁷ Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.Sni”

(7) Interference with Public Facilities

The proposed lease is not within 1,000 feet of any beach, park, or docking facility owned by federal, state, or municipal government. It should be noted that Flat Island, located 1,160 feet to the southwest of the proposed lease, is owned by the State of Maine and designated as a State Wildlife Management Area.