Department of Marine Resources
Site Review #2011-25
(South of Hog Island)
(Damariscotta River)

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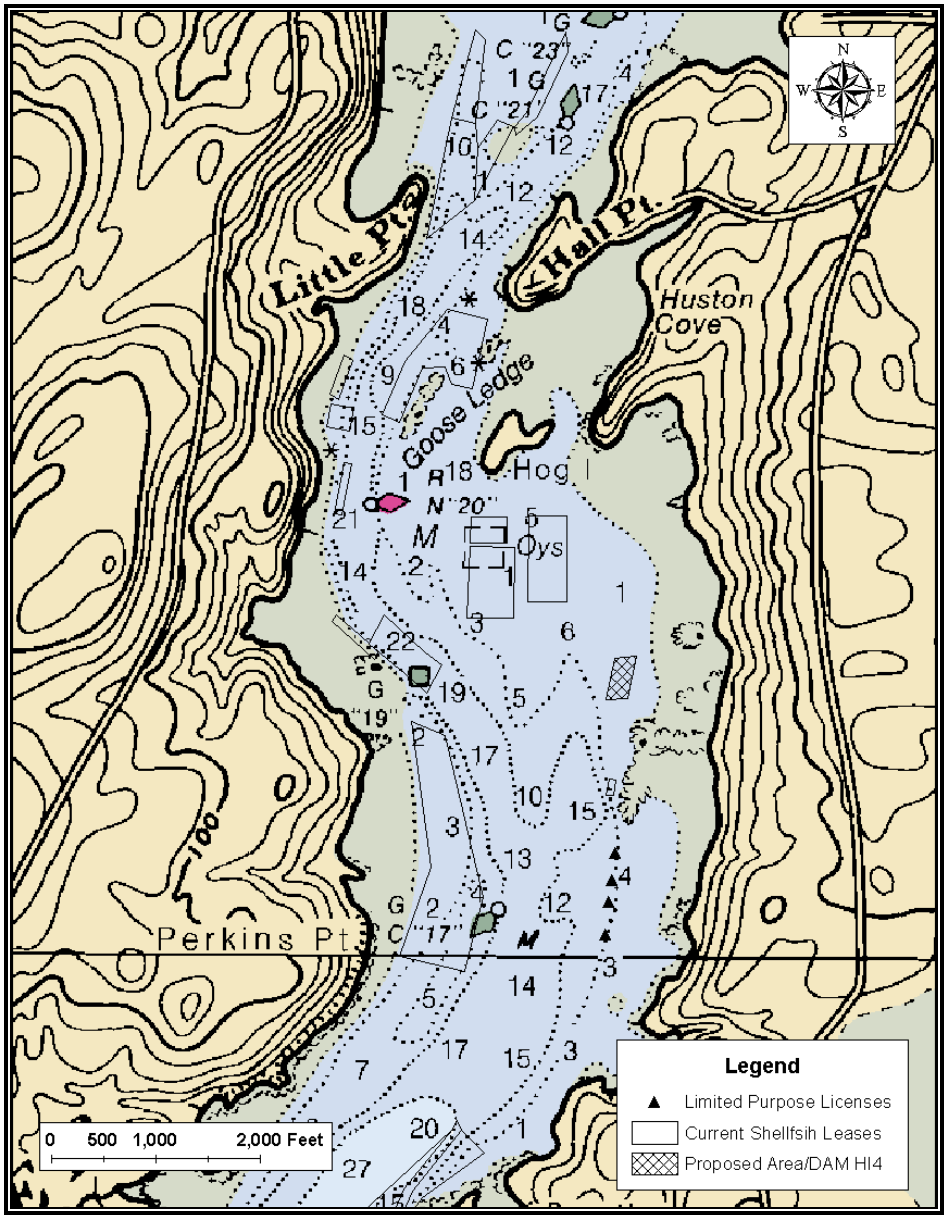

Figure 1*

Location: South of Hog Island, Damariscotta River, Damariscotta, Lincoln County, Maine

Purpose: Bottom culture of American oysters (*Crassostrea virginica*), and European oysters (*Ostrea edulis*)

Site Review and Report Preparation: Jon Lewis and Marcy Nelson July 20, 2012

* *All figures in this report were created in ArcMap version 10.1 using digitized NOAA Nautical Charts or geo-referenced aerial photographs taken at low tide (2004) and provided by The Maine Office of GIS.*

On June 22, 2012, staff from The Maine Department of Marine Resources (MDMR) visited the site proposed for the bottom culture of shellfish south of Hog Island in the Damariscotta River (Figure 1). The applicant is requesting a standard aquaculture lease of 1.89 acres; the same area in which an experimental lease has been held by the applicant since 2008 (DAM HI4). The applicant requests to continue the culture of oysters in this location without the use of containment gear.

DMR staff arrived on site at approximately 10:00 a.m.

General Characteristics

Using SCUBA and an underwater video camera, DMR staff documented the epibenthic ecology of the area. Divers entered the water, on two separate occasions, approximately midway along the southern boundary of the proposed lease site and followed a general direction of 0-30° magnetic to the northern boundary (Figure 2). Divers continued beyond the lease site, meandering to the north and east.

Figure 2*

Bottom Topography and Currents

The topography of the proposed lease exhibits little variation in depth and composition. Sediments consist primarily of mud and shell hash. A small secondary channel runs through the eastern portion of the lease; sediments are firmer and shell hash more predominant in this area. There is a slight increase in water depth from north to south. Extensive tidally exposed mudflats are located to the north and east. A ledge outcrop known as Sugarloaf Ledges in located approximately 200 feet to the southeast. Currents are tidally driven in a northeast/south direction.

Depth

Newcastle, Damariscotta River, Maine
http://tbone.biol.sc.edu/tide

44.0333° N, 69.5367° W

2012-06-22	08:03 EDT	0.09 feet	Low Tide
2012-06-22	14:09 EDT	9.04 feet	High Tide
2012-06-22	20:08 EDT	1.12 feet	Low Tide
2012-06-23	02:10 EDT	10.12 feet	High Tide

Water depths, during the Department's assessment, ranged between 5.5 and 6 feet. Depths were measured at each proposed corner using a transom mounted depth sounder and within the channel using a dive computer. Sounder recordings were obtained between 10:01 and 10:07 a.m.; approximately 2 hours after low water (see above). Correcting for tidal range would derive water depths of roughly 3-4 feet at mean low water (MLW) and 12-13 feet at mean high water (MHW).

Ice

The area of the proposed lease is expected to ice over in some winters. Drift ice from the upper reaches of the river is expected to flow through the lease site. During winter months, buoys may be moved offsite by ice and may have to be reset in the spring.

Position and Distances to Shore

At the time of the Department's visit, the site was marked by four corner buoys. A WASS enabled Global Positioning System (GPS) was used to navigate to and verify the location of each corner. POSAID Positioning Software (Version 2.1) was used to verify the metes and bounds of the proposed area. Distances to shore were determined using the measuring tool in Garmin MapSource 4.12, NOAA Chart #13293, and the application coordinates listed below.

Application Coordinates (Datum WGS84) – 1.91 acres

Corner	Latitude	Longitude	
SW	44° 00' 24.18"N	69° 32' 18.42"W	thence 410.5 feet at 012° True to:
NW	44° 00' 28.14"N	69° 32' 17.22"W	thence 203.2 feet at 083° True to
NE	44° 00' 28.38"N	69° 32' 14.46"W	thence 413.8 feet at 190° True to
SE	44° 00' 24.36"N	69° 32' 15.48"W	thence 215.6 feet at 265° True to SW

Distances to Shore **(Figures 1& 2)**

SE Corner to nearest intertidal (MLW):	201 feet at 159° True.
SE Corner to Sugarloaf Ledges:	200 feet at 170° True.
SE Corner to nearest upland:	882 feet at 112° True.
NE Corner to nearest intertidal (MLW):	159 feet at 084° True.
NE Corner to nearest upland:	824 feet at 073° True.
SW Corner to Day marker "19":	.347 miles at 278° True.
NW Corner to Red Nun "20":	.531 miles at 303° True.
NW Corner to Hog Island:	.385 miles at 326° True.
SW Corner to main navigational channel:	.194 miles at 249° True.
SW Corner to Green Can "17":	.426 miles at 208° True.

Harbormaster

A "Harbormaster Questionnaire" was mailed to Mr. Paul Bryant, Harbormaster for the town of Damariscotta, on September 15, 2011. At the time of this report a response had not been received.

On February 29, 2008, in response to a MDMR query regarding the suitability of the same site for an experimental bottom culture lease Mr. Bryant … "indicated that the proposed lease should not interfere with navigation, that no moorings exist within the proposed lease boundaries, there are no storm anchorages, that riparian landowner access would not be blocked, that limited recreational fishing occurs in the area, and that there are no publicly owned facilities within 1,000 feet of the proposed lease. He further sated that in his opinion the proposed lease site was sufficient distance from the seal haul-out to the south so as not to disturb seals resting on these rocks." (See Maine Department of Marine Resources Site Review Report #2008-04E).

The criteria MDMR uses to determine the suitability of an aquaculture operation to a particular area (DMR Regulations Chapter 2.37(1) (A)) are discussed, with respect to the application, below:

1) Riparian Owners Ingress and Egress

Because there will be no structures on this proposed lease other than corner markers that are very similar to lobster trap buoys, there should be no restriction of shorefront property owner access. No docks were observed within the immediate vicinity of the proposed lease site. The site is adjacent to expansive tidal mud flats and ledges along the eastern shore of the Damariscotta River. The extent of these mud flats and ledges is likely prohibitive to the placement of docks within the immediate surroundings. The nearest observed mooring to the proposed lease site is approximately 600 feet to the north. The applicant is proposing to cultivate oysters freely, without the use of gear; riparian access to moorings, docks and shorefront property will not be precluded. For additional information, see "Harbormaster" section.

2) Navigation

The proposed aquaculture lease site is located east of the designated navigational channel. Due to shallow depths, only those vessels intending to access the nearby shoreline (i.e. riparian landowners and clam harvesters) are expected to transit through the area of the proposed lease. Because this lease application is for bottom culture only, navigation through the area would not be excluded.

3) Fishing

On June 22, 2012 no fishing activity was observed within the lease boundaries, however, based on previous visits to the area and from testimony provided during hearings for surrounding aquaculture leases, recreational and charter angling for striped bass does occur in the area. Shallow water depths likely limit crab and lobster fishing in the area to a rare occurrence. Clams are harvested from the mudflats to the north, east and southeast of the proposed lease area.

Due to shallow water depths and the limited diversity of commercially important species, other forms of fishing (i.e. bottom draggers, urchin and scallop divers, etc.) are not expected within the immediate area.

4) Other Aquaculture Uses

The greatest concentration of shellfish leases in Maine exists in the Damariscotta River region. There are 23 shellfish aquaculture lease sites plus 20 limited purpose licenses (LPAs), totaling 133.82 acres, within the Damariscotta River. Eleven leases and 4 LPAs are located within 1 mile of the proposed lease and are presently growing American and/or European oysters (Figure 3). More detailed descriptions of the lease sites in the Damariscotta River can be found in the Aquaculture Lease Inventory published by the Maine Department of Marine Resources (http://www.maine.gov/dmr/aquaculture/aqualeaseinventory.htm).

The proposed activities will not interfere with access to existing aquaculture sites within the river.

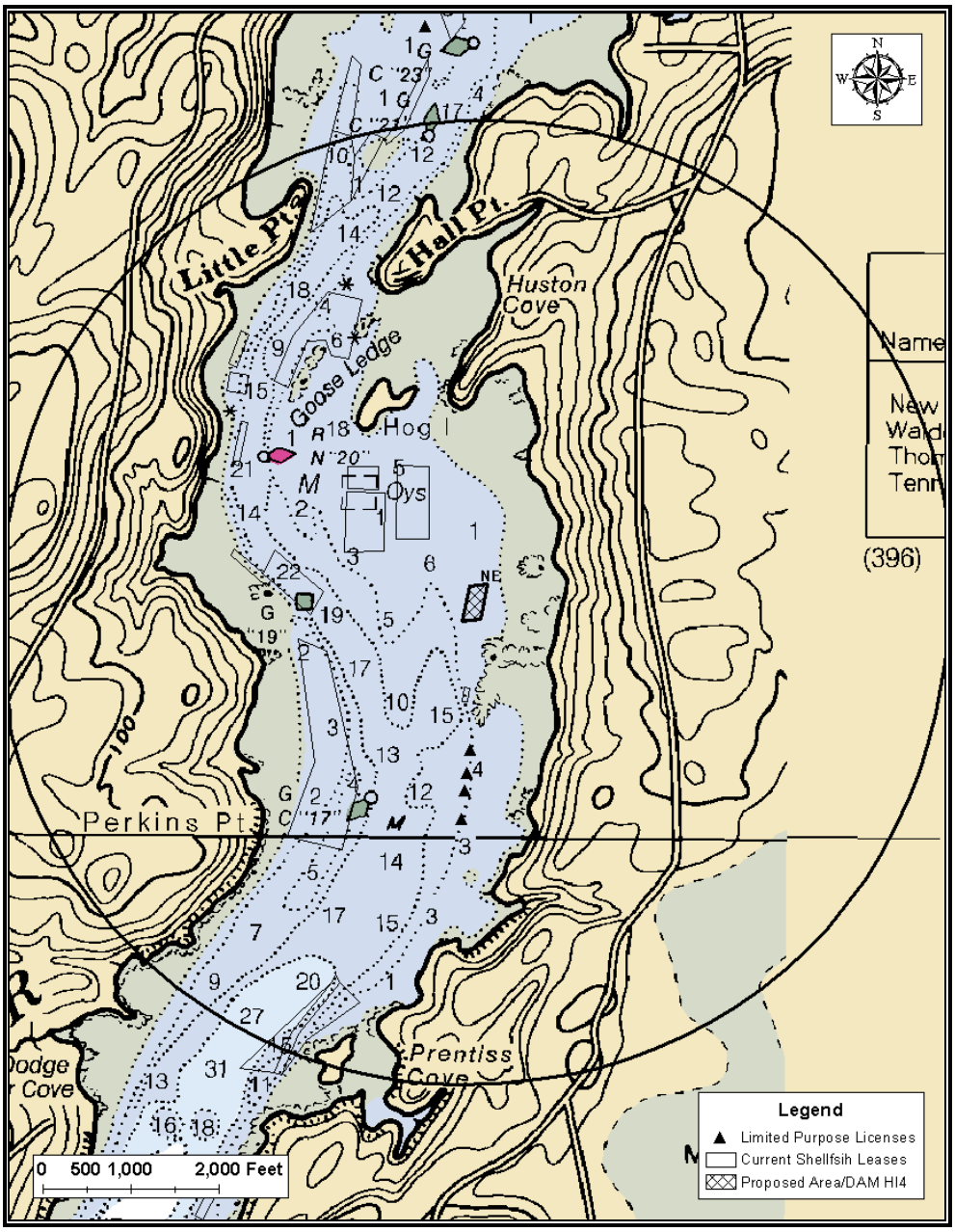

Figure 3

5) Existing System Support

Flora and fauna from underwater video observations

On June 22, 2012, Maine Department of Marine Resources (MDMR) staff documented the relative abundance of epibenthic macroflora and fauna observed using SCUBA and underwater video.

Two divers entered the water at the south end of the proposed lease site and swam meandering, independent courses to the northern end of the proposed lease and beyond; following a general direction of 030° magnetic. Underwater visibility was less than 5 feet.

The dives occurred from 10:40 a.m. - 10:58 a.m. and 11:21 a.m. - 11:41 a.m. Maximum depths obtained during the dives were 8 feet and 10 feet, respectively.

Bottom sediments are a mixture of thick mud and scoured secondary channel. The small channel is characterized by firmer mud overlaid with shell hash, primarily that of soft-shell clams (*Mya arenaria*).

No eel grass (*Zostera marina*) and limited other rooted or attached vegetation was observed.

Flora and fauna observed and relative abundance is as follows:

Brown Benthic Diatoms – abundant as mats over the mud
Sand (mud) shrimp (*Crangon septemspinosa*) – common
American oyster (*Crassostrea virginica*) – common; abundant in patches
Hermit crab (*Pagarus spp*) - common
Green crab (*Carcinus maenus*) - common
Rock/Jonah crab (*Cancer sp.*) – rare to common
Smooth Cord Weed (*Chorda filum*) – common in patches where there was shell hash or other structures to attach to
Red Beard Sponge (*Microciona prolifera*) – rare
Horseshoe Crab (*Limulus polyphemus*) –1 mating pair
Brushy Red Weed (*Cystoclonium purpureum*) – rare
Sea Lettuce (*Ulva lactuca*) – rare

Wildlife

According to data available at the Maine Office of GIS and produced by the Maine Department of Inland Fisheries and Wildlife (MDIF&W) the tidal flats surrounding the proposed lease area are considered "Tidal Waterfowl and Wading Bird Habitat". This is a designation assigned to the majority of tidal mudflats equaling 12.5 acres or more in size (http://www.maine.gov/ifw/wildlife/habitat_data/significant_habitat_data.htm).

A questionnaire was sent to the MDIF&W on September 15, 2011. At the time of this report a response had not been received.

Harbor seals (*Phoca vitulina*) have been observed on the southernmost of the Sugarloaf Ledges (Figure 2). It appears seals will use this particular location as a high-tide haul-out for the purposes of resting, temperature regulation, etc. The proposed activities are unlikely to interfere with the use of Sugarloaf Ledges by harbor seals.

6) Interference with Public Facilities

No public facilities are located within 1,000 feet of the proposed lease.

7) Lighting

The applicant indicates that no lighting would be used at the proposed lease site.

8) Noise

The applicant has indicated he will tend the site, if granted, using 3 vessels; a 21' Carolina skiff with a 90 HP engine and two 17' Boston Whaler skiffs with 50 HP engines. These vessels are of a size and horsepower comparable with other commercial and recreational activities on the river and along the coast of Maine.

9) Visual Impact

There will be no structures placed in the water other than buoys marking the perimeter of the proposed lease site. These buoys would be very similar to lobster buoys that are frequently seen in the surrounding area.

10) Water Quality Classification

The area of the proposed lease is classified as open/approved to the harvest of shellfish. In the event of a water quality or red tide/PSP (Paralytic Shellfish Poisoning) closure, the applicant would be prohibited from harvesting until the area is reopened by the DMR.