



Figure 1: Area map created in ArcMap version 9.3 using NOAA Chart #13316.

Location: South of High Head off Newbury Neck, Blue Hill Bay, Surry, Hancock County, Maine.

Purpose: Experimental raft culture of blue mussels (*Mytilus edulis*)

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Figure 2: Vicinity map created in ArcMap version 9.2 using geo-referenced aerial photographs taken at low tide (2008) and provided by The Maine Office of GIS.

On July 22, 2011 Maine Department of Marine Resources (MDMR) Scientist Marcy Nelson visited the proposed experimental aquaculture lease located off the southeastern side of Newbury Neck in Blue Hill Bay in the town of Surry, Maine. MDMR staff arrived on site at approximately 7:15 a.m.; the tide was at mid-ebb stage.

Blue Hill Harbor, Maine <http://tbone.biol.sc.edu/tide>

22 July 2011

44.4083° N, 68.5633° W

04:20 EDT	9.40 feet	High Tide
10:30 EDT	1.45 feet	Low Tide
16:44 EDT	9.84 feet	High Tide
23:07 EDT	1.64 feet	Low Tide

The applicant is requesting **4.0 acres** for the suspended culture of blue mussels. Structures would consist of up to three 40'X40' mussel rafts (see application for details).

The proposed lease is bounded to the north and west by undeveloped uplands and to the south and east by the open waters of northern Blue Hill Bay and the Union River (Figure 1). The adjacent uplands at Newbury Neck are comprised of steep rocky shoreline giving

way to mature forest (Figure 3).



Figure 3: From the west corner of the proposed site looking west to the mainland. July 22, 2011

Based on the best available charting (NOAA Chart #13316) and the application, water depths within the proposed lease area range between 10 and 60 feet at mean low water (MLW); the western boundary runs parallel with the adjacent shore and the ~10 foot contour while the majority of the area occupies depths ranging from ~30 to 60 feet at MLW. Tidal range in the area is about 10 feet. The subtidal topography within the proposed lease area slopes from northwest to southeast, becoming more gradual with increasing water depths. Depending upon the tidal stage, currents run in a northeast/southwest direction.

Mr. Gray is requesting to deploy a maximum of 3 standard mussel rafts, each of which would hold up to 400 seeded dropper ropes measuring 50 feet in length (for a diagram see Appendix B: “Cross Sectional View”). At low water there is the potential, in the shallower portions of the lease to the west, for the dropper ropes to drag on bottom.

Position and Distances to Shore

A WASS enabled Global Positioning System (GPS) was used to navigate to each corner of the proposed lease, as described in the application. On July 22, 2011, a single buoy designated the northern corner of the proposal. POSAID Positioning Software was used to verify distances and bearings between corners. Distances to shore were determined using the measuring tool in ArcMap version 9.3, geo-referenced aerial photographs taken at low tide in 2008, and the application coordinates listed below.

Application Coordinates – 4.0 acres (Figure 2)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
West	44° 23' 00.02"N	68° 27' 40.85"W	<i>then 563 feet at 52° True to</i>
North	44° 23' 03.45"N	68° 27' 34.74"W	<i>then 310 feet at 142° True to</i>
East	44° 23' 01.04"N	68° 27' 32.12"W	<i>then 563 feet at 232° True to</i>
South	44° 22' 57.61"N	68° 27' 38.22"W	<i>then 310 feet at 322° True to "West".</i>

Distances to Shore

Northwest boundary to nearest point of land (MLW)	~80 feet @ 320°T
North corner to intertidal spur, High Head (MLW)	~129 feet @ 023°T
South corner to nearest point of land (MLW)	~780 feet @ 227°T
South corner to nearest point of land, Goose Rock (MLW)	~890 feet @ 207°T
East corner to nearest point of land, Bartlett Island	~1.5 miles @ 130°T
East corner to nearest point of land, Oak Point	~1.6 miles @ 052°T

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

(1) Riparian Owners Ingress and Egress

According to the tax maps provided in the application, the surrounding uplands are owned by Mr. Hans Huber. On July 22, 2011 there were no nearby docks or moorings with which the proposed activities might interfere. Two residences are located at Burnt Point more than 2,200 feet to the southwest. A tidally exposed sand/mud bar extends from Newbury Neck to Goose Rock, limiting direct navigation between Burnt Point and the requested area (Figures 2 and 4-6).

A pier and float are located on the western side of Burnt Point, ~2800 feet to the southwest (straight-line distance, Figure 2) and beyond the influence of the proposed lease.



Figure 4: Photograph taken at the south corner of the proposed site looking southwest between Goose Rock and Newbury Neck, towards Burnt Point. July 22, 2011



Figure 5: From the east corner looking southwest. July 22, 2011.



Figure 6: From the west corner looking south southwest. July 22, 2011

Additional homes are noted around the northern point of High Head and more than 1,000 feet from the proposed farm.

A private sand beach is located in the cove between Goose Rock and Burnt Point. A second, smaller beach is located ~650 feet to the southwest of the proposed lease (Figures 2 and 6). Vessels may anchor in the surrounding area to access this beach.



Figure 6: From west corner looking southwest towards nearest beach (~650 feet). July 22, 2011.

(2) Navigation

The proposed lease area is tucked between Goose Rock and High Head, outside of the primary navigation corridor (Figure 1). More than 1.5 miles of traversable waters lie to the south and east. According to Steve Bemiss, Harbormaster for the town of Surry, the proposed activities will not interfere with navigation in designated channels (Harbormaster Questionnaire, June 13, 2011).

(3) Fishing

On July 22, 2011 a single vessel was observed hauling lobster traps to the east of High Head. Several trap buoys were observed scattered throughout the area, along the 60 foot contour and deeper (see Figure 2 for the nearest observed buoy). Additional commercial fishing for lobster, crab or scallops may occur in the general vicinity. The harbormaster for the town of Surry, Mr. Steve Bemiss, indicated the presence of lobster, scallop and ground fishing within the area (Harbormaster Questionnaire, June 13, 2011).

Recreational hook and line fishing may also occur in the near shore areas adjacent to the proposed lease.

(4) Other Aquaculture Uses

The names and distances to the MDMR leases nearest the proposal are listed below. Distances were measured, straight-line, in ArcMap 9.2.

The applicant (Mr. Gray) has a 6 acre aquaculture lease for the raft culture of blue mussels located off the northeast side of Long Island (BHB LI2), approximately 1.7 miles to the west.

Maine Cultured Mussels operates a 51.42 acre aquaculture lease for the long-line culture of blue mussels off the east side of Long Island (BHB LI3), approximately 2.7 miles to the southwest.

Mr. Warren Pettegrow has a pending, 50 acre aquaculture lease application for the cage culture of American oysters (*Crassostrea virginica*) in Goose Cove, Trenton, more than 4 miles to the northeast.

Mr. Joseph Porada holds 3 experimental leases for the suspended and bottom culture of quahogs (*Mercenaria mercenaria*) in Goose Cove, Trenton, approximately 4.7 miles to the northeast.

Maine Cultured Mussels operates a 15 acre aquaculture lease for the long-line culture of blue mussels off the east side of Hardwood Island (BHB HI2), approximately 5.2 miles to the south.

Mr. Evan Young has a 2.3 acre aquaculture lease for the raft culture of blue mussels off the east side of Hardwood Island (BHB HI), approximately 5.3 miles to the south.

Mr. Evan Young also has a 19 acre aquaculture lease for the suspended culture of blue mussels in Blue Hill Salt Pond (BHB SP), approximately 5.4 miles to the southwest.

The proposed activities are unlikely to interfere with existing aquaculture operations in the region. For more information on aquaculture activities in the Mount Desert Island region please visit: <http://www.maine.gov/dmr/aquaculture/leaseinventory/index.htm>.

(5) Existing System Support

According to records available at MDMR, there are no documented eelgrass (*Zostera marina*) beds within the proposed area. The western portion of the proposed lease exhibits a rocky

subtidal area with steep gradient that is more conducive to various algal species (i.e. kelps). Water depths and subsequent light attenuation in the flat portions of the lease site (45 to 60 feet) likely prevent the proliferation of eelgrass in the area.

See the application for a description of flora and fauna observed during a SCUBA dive conducted by the applicant in March 2011. With the exception of some migration by lobsters (*Homarus americanus*) to warmer offshore waters during the winter months, little seasonal variation in the ecology of the area is expected.

Wildlife

According to data collected by The Maine Department of Inland Fisheries and Wildlife (MDIF&W) and available on the State of Maine GIS server (gisdatabase.dafs.state.me.us) the area under consideration is not located within a designated “Essential Wildlife Habitat” or “Significant Wildlife Habitat”. On May 12, 2011 MDIF&W was mailed a copy of the application and a review form. At the time of this writing the Department had received no response.

A harbor seal (*Phoca vitulina*) haul-out is located along the intertidal ledges of Jed Island in Morgan Bay. Jed Island is more than 1.8 miles to the northwest (straight-line distance) of the proposed lease (Figure 1). Green Island and its surrounding smaller intertidal ledges, approximately 3.2 miles to the east of the proposal, is a well-known pupping location for harbor seals. The proposed activities are unlikely to interfere with resting and pupping activities occurring at either of these locations.

(6) Interference with Public Facilities

There are no public docking facilities or beaches within 1000 feet of the proposed lease.

(7) Water Quality Classification

The proposed lease is in an area currently classified by the Department of Marine Resources Public Health Division as “Conditionally Open” for the harvest of shellfish; this classification is dependent upon the proper functioning of the Ellsworth Waste Water Treatment Plant. Harvest of product from the proposed lease, if granted, will be subject to any changes in Water Quality Classification by The Department of Marine Resources Division of Public Health.