

Department of Marine Resources
Site Review #2015-13

Johns River Shellfish, LLC.
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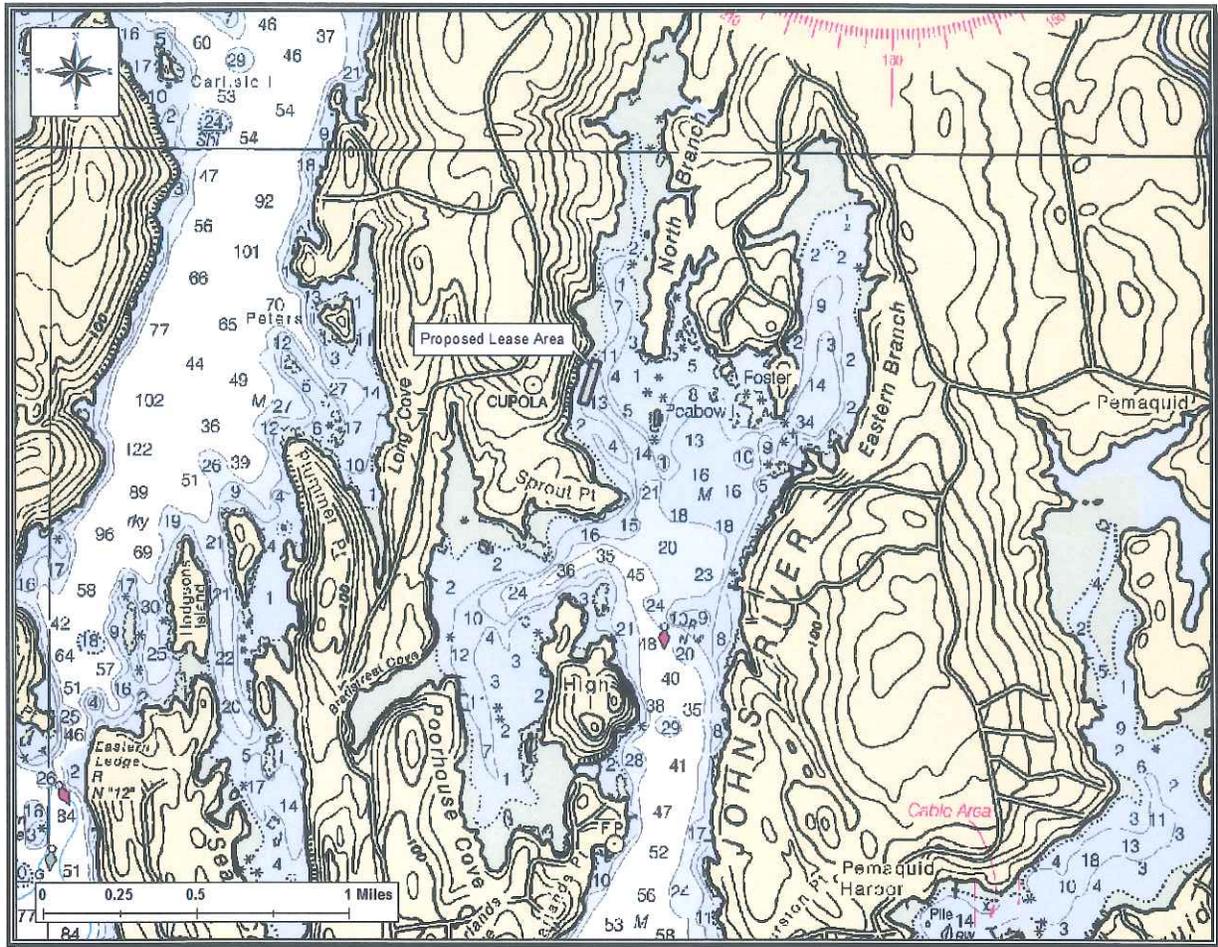


Figure 1: Vicinity map created in ArcMap version 10.1 using digitized NOAA Chart #13293.

Location: West of Peabow Island, Johns River, South Bristol, Lincoln County, Maine

Purpose: Suspended and bottom culture of shellfish: American oysters (*Crassostrea virginica*), European oysters (*Ostrea edulis*), hard clams/quahogs (*Mercenaria mercenaria*), and blue mussels (*Mytilus edulis*).

Site Review: Jon Lewis and Marcy Nelson
Report Preparation: Marcy Nelson and Jon Lewis

August 21, 2015

On July 20, 2015 Maine Department of Marine Resources (MDMR) scientists Jon Lewis and Marcy Nelson conducted a site assessment of the proposed aquaculture lease. Staff arrived on site at 10:40 a.m.

The applicant is applying for a standard (10-year) lease to culture shellfish using a combination of floating and submerged cages, mussel lines, and bottom culture.

Oysters: A maximum of 405 OysterGro™ cages are proposed to be deployed at the surface in 3 parallel sections of 5 lines each (27 cages per line). According to the application, each cage measures 68”L X 42”W X 24”H. This is slightly larger than the typical OysterGro™ cage dimensions and substantially larger than the Go Deep International Ranch system™. Presently, the applicant’s father has 2 Limited Purpose Licenses (LPAs) for the culture of shellfish within the boundaries of the proposed lease area (Figure 2). At the time of the Department’s site assessment, a total of 32 OysterGro™ cages (1 string of 17 cages and another string of 16 cages) occupied the two LPA sites.

In addition, up to 150 bottom cages, measuring 30” X 30” X 4”, may be used for overwintering and the culture of oysters and quahogs. Oysters would also be freely planted (no containment) along the western boundary of the proposed lease, where bottom sediments are coarser and firmer.

Mussels: Along the eastern boundary of the proposed lease the applicant has proposed to install up to three grow lines, each measuring 203 feet in length, for the culture of mussels. 5’ vertical/dropper lines would be equally spaced along each of the grow lines.

Storage and Processing: A “processing raft” measuring 12’ X 18’ X 3’ and supporting a 10’X10’X10’ building, a tumbler, and recessed storage (6’ depth) is proposed for deployment within the southern 60’ of the proposed lease area. Attached to this raft would be a second float of similar dimensions, but without a building, for storing market size shellfish.

General Characteristics

Bottom Topography and Sediment Composition

Throughout the majority of the proposed lease area, the benthos is characterized by a substantial layer of fine sediments with little topographical variation. Ms. Nelson was able to insert her arm more than 2 feet into the mud without significant resistance.

Water depths gradually shallow from east to west. Along the eastern boundary of the proposed lease, near the 5 foot contour, sediments become coarser and include rock, cobble and shell over a layer of firm mud and sand.

Depth

Pemaquid Harbor, Johns Bay, Maine¹		
43.8767° N, 69.5250° W		
July 20, 2015		
High Tide	02:21 EDT	9.32 feet
Low Tide	08:40 EDT	0.31 feet
High Tide	14:53 EDT	8.77 feet
Low Tide	20:54 EDT	1.05 feet
¹ http://tbone.biol.sc.edu/tide/index.html		

The predicted time of low tide for the Johns River area was 08:40 a.m. Tidal height was predicted at 0.31 feet above mean low water (MLW). Depths within the proposed lease site were collected at approximately 10:40 a.m. using a transom mounted depth sounder. Along the nearshore western boundary water depths ranged from 5.5 feet at the northwest corner to 8.0 feet at the southwest corner whereas depths along the outer eastern boundary varied from 13.4 feet at the northeast corner to 14 feet midway along the eastern boundary to 11.3 feet at the southeast corner.

Correcting to MLW (0.0') yields water depths from a minimum of ~3.4 feet at the NW corner to a maximum of ~11.9 feet along the eastern boundary. At mean high water (MHW = MLW + 8.77 feet) depths vary from ~12-15 feet along the nearshore western boundary and ~18-21 feet along the outer eastern boundary.

The applicant intends to freely plant oysters on the bottom within the shallower western portion of the lease site. Water depths at MLW within the remainder of the proposed lease are conducive to the use of the cages and lines described above.

Position and Distances to Shore

On July 20, 2015 each corner of the proposed lease site was marked with a white buoy. MDMR staff used a handheld GPS and the application coordinates to verify buoy placement.

The coordinates and metes and bounds describing the proposed standard lease are below. POSAID Positioning Software was used to verify the distances and bearings between corners.

Distances to shore were approximated using the below coordinates plotted on geo-referenced aerial photographs taken at low tide in 2013 and the measuring tool available in ArcMap 10.1.

Application Coordinates (Datum NAD83/WGS84) – 2.63 acres (Figure 2)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NW	43° 54' 24.66"N	69° 32' 52.68"W then 764.44 feet at 196.98° True to
SW	43° 54' 17.44"N	69° 32' 55.73"W then 150.25 feet at 107.25° True to

SE 43° 54' 17.00"N 69° 32' 53.77"W then 765.41 feet at 16.96° True to
 NE 43° 54' 24.23"N 69° 32' 50.72"W then 149.95 feet at 286.88° True to NW.



Figure 2: Vicinity map created in ArcMap version 10.1 using geo-referenced aerial photographs provided by The Maine Office of GIS (Low Tide 2013).

Distances to shore (Figure 2):

- NW Corner to Nearest Point of Land (MLW): ~70 feet
- Western Boundary to Nearest Point of Land (MLW): ~60 feet
- SW Corner to Nearest Point of Land (MLW): ~75 feet
- Eastern Boundary to Peabow Island (MLW): ~895 feet
- SE Corner to Peabow Island (MLW): ~1,040 feet
- NE Corner to Eastern Shore, Johns River (MLW): ~640 feet

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

On July 20, 2015 three moorings and one dock were observed within the general vicinity of the proposed lease area (Figure 3). The sailing vessel "Island Girl" (Woolwich, ME), was tied to the northern mooring whereas the southern 2 sat empty. An orange polyball, presumably belonging to the applicant, was noted inside the proposed southern boundary. The nearest observed dock was located off the eastern shore of the North Branch, Johns River. A cottage, but no dock, was noted on Peabow Island.

A hand-held GPS unit was used to collect location data for the observed moorings and dock. POSAID Positioning Software was used to calculate their distances and bearings from the proposed lease:

"Island Girl" (43 54' 26.10"N, 69 32' 48.41"W) to NE Corner: 253.88 feet at 221.77° T
SW Mooring (43 54' 15.16"N, 69 32' 52.15"W) to SE Corner: 220.87 feet at 327.52° T
SE Mooring (43 54' 15.70"N, 69 32' 49.63"W) to SE Corner: 330.45 feet at 293.47° T
Dock/Pier (43 54' 27.40"N, 69 32' 42.68"W) to NE Corner: 670.44 feet at 241.39° T



Figure 3: Vicinity map created in ArcMap version 10.1 using geo-referenced aerial photographs provided by The Maine Office of GIS (Low Tide 2013).

The proposed lease parallels the western shore of the Johns River. At MLW it sits roughly 60 feet from the intertidal zone. The shoreline immediately adjacent to the proposed lease consists of sandy/rocky intertidal leading to undeveloped mixed mature forest. Below is a series of images (Figures 4 -11) taken from the “SW Mooring” at 1100 hours on July 20, 2015. They depict the western shoreline from south to north followed by the eastern shore and Peabow Island.

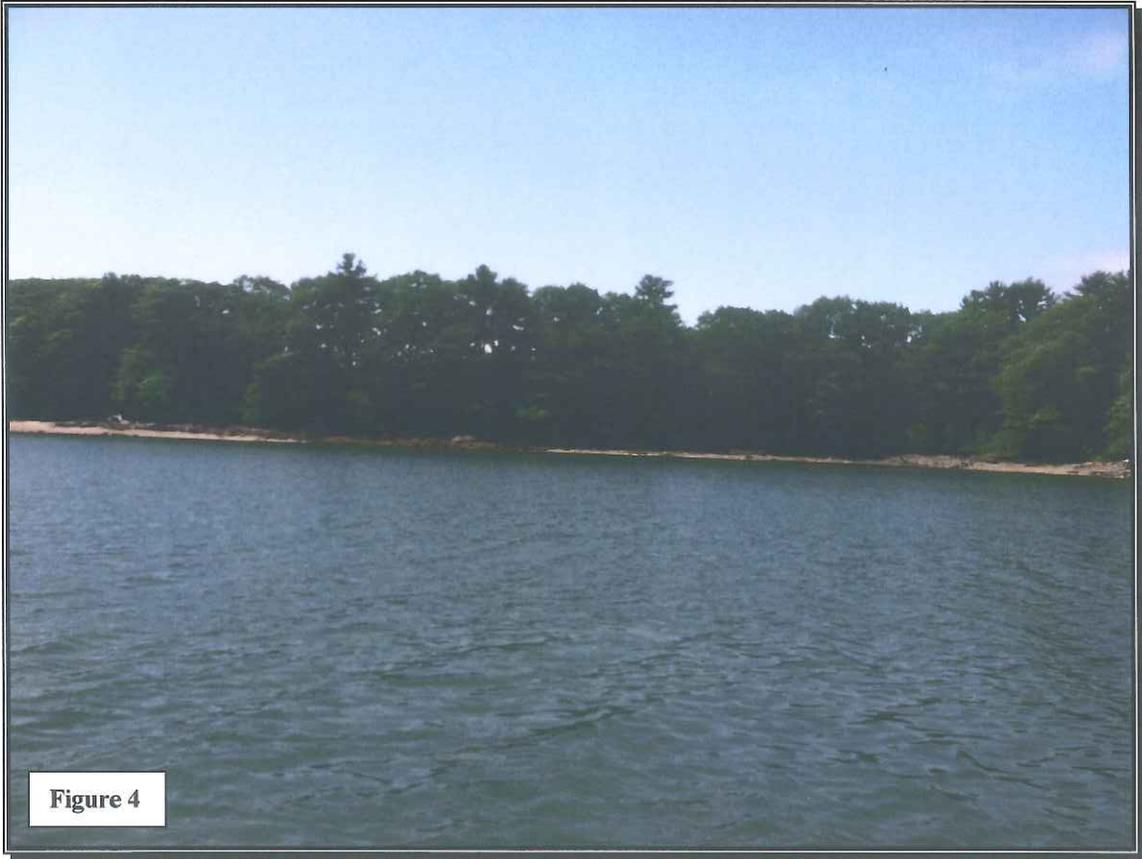


Figure 4



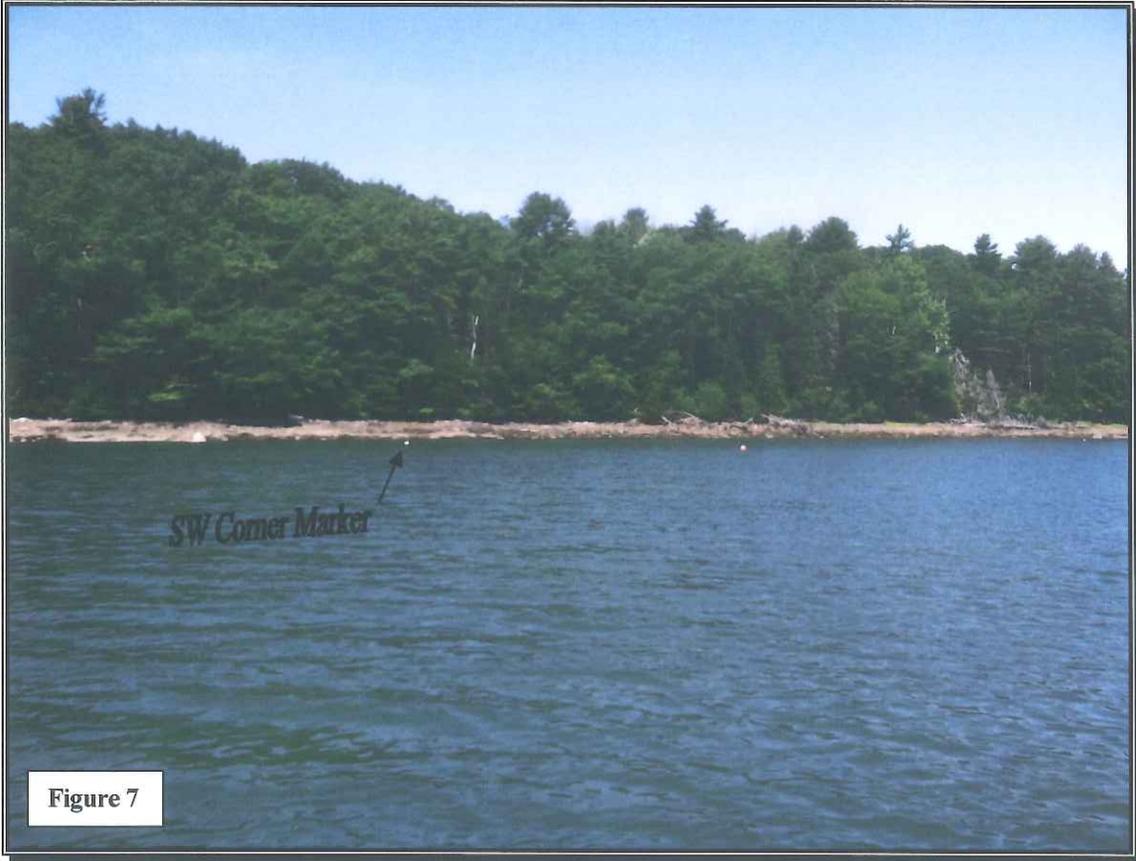


Figure 7



Figure 8

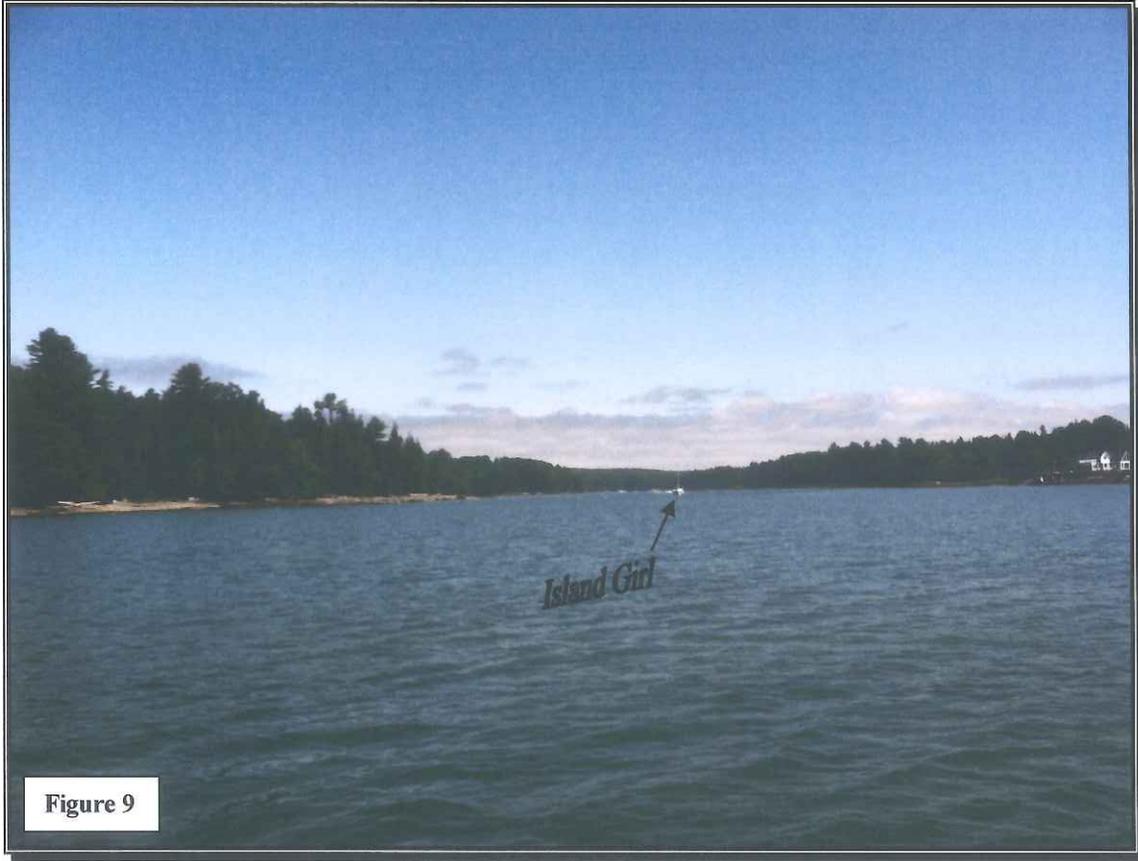


Figure 9

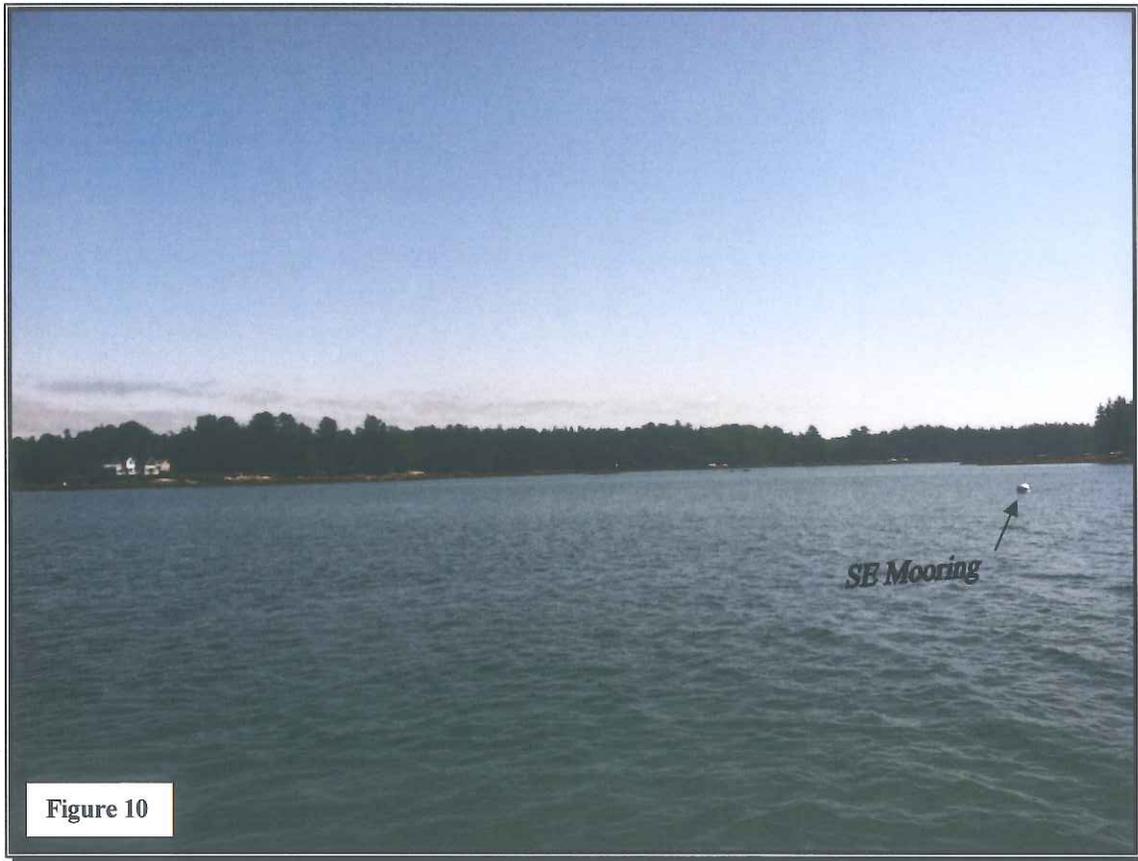
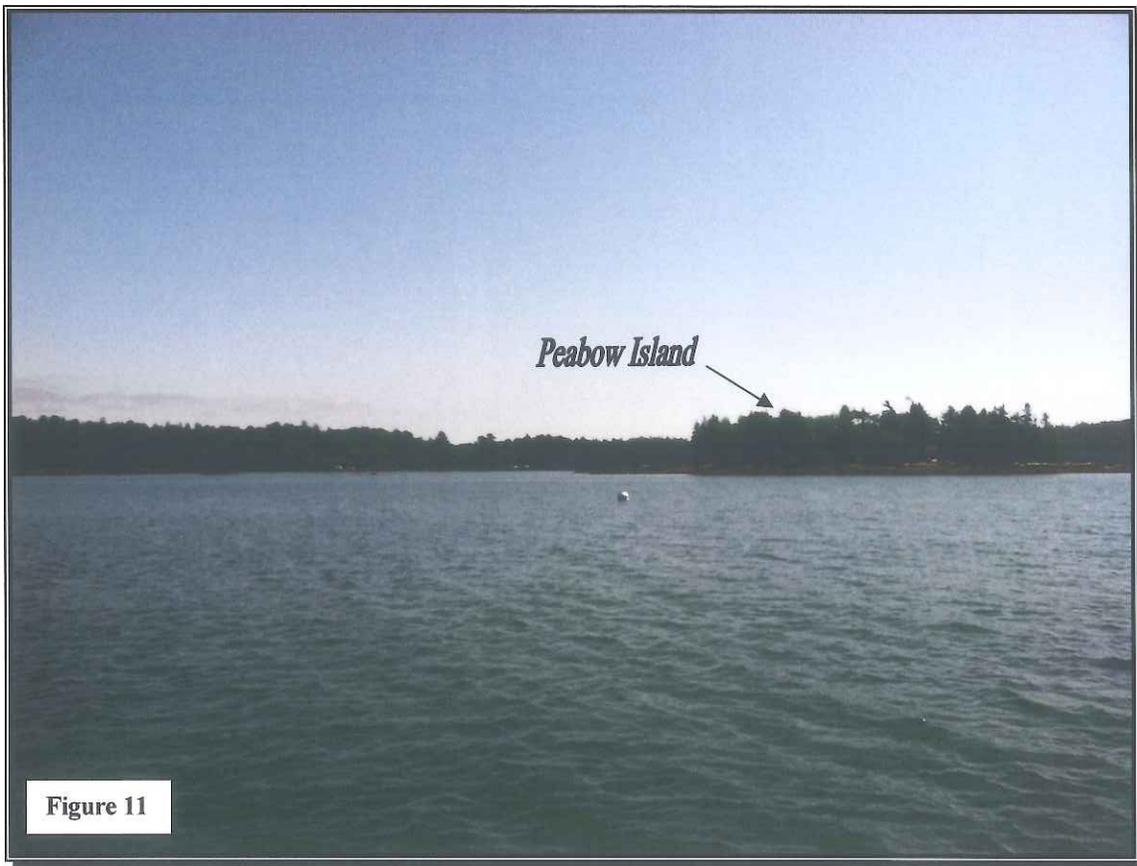


Figure 10



(2) Navigation

The proposed lease is situated between the western shore of the Johns River and the primary navigation channel leading into the North Branch. The northeast corner encroaches on the channel by about 50 feet. A minimum of about 230 feet of navigable water (greater than 5 feet in depth at MLW) would remain to the east of the proposed lease site at all tidal stages.

On July 20, 2015 a single, outboard powered skiff, was observed transiting from the North Branch and turning east between the mainland and Peabow Island, towards the East Branch of the Johns River.

Vessel traffic in the area is, however, expected to be both commercial and recreational in nature. Some lobster fishing is known to occur in the North Branch of the river, upstream from the proposal. Clam harvesting is also present on the tidally exposed mudflats to the north. The proposed activities are unlikely to restrict local fishermen traveling through the area.

Recreational boating

The typical recreational vessel that is likely to transit through the area are skiffs, kayaks, canoes, and jet skis entering the North Branch of the Johns River. Sailboats entering the area are likely to be small or under auxiliary power as the North Branch becomes increasingly narrow to the north.

(3) Fishing

On July 20, 2015 no commercial or recreational fishing was observed within the boundaries, or immediate vicinity, of the proposed lease. Lobster fishing and shellfish harvesting have been observed by MDMR staff (September 27, 2007 and June 28, 2011) to the north of the proposed lease, in the North Branch of the Johns River. The proposed activities will not preclude local fishermen from transiting through the area.

While not directly observed, MDMR is aware of limited clam harvesting to the west of the proposed lease area.

According to information provided by Cecil Burnham, Harbormaster for the town of South Bristol), recreational fishing for striped bass (*Morone saxatilis*) also occurs in the general area (Harbormaster Questionnaire, July 24, 2015).

(4) Other Aquaculture Uses

At present there are no aquaculture leases or licenses, other than those held by the applicant and his father, within the Johns River (Figure 12).

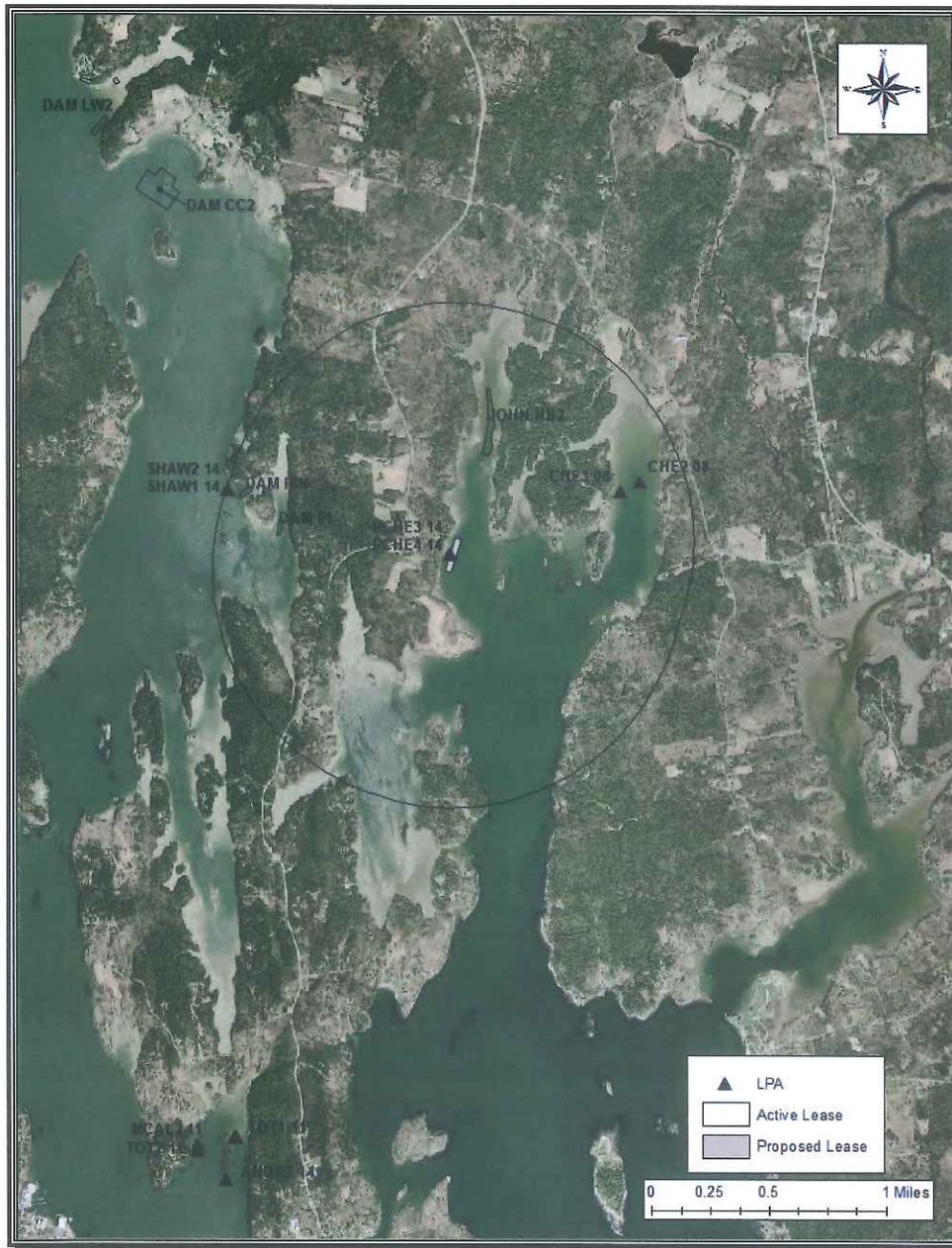


Figure 12: Map depicting existing aquaculture operations and created in ArcMap version 10.1 using geo-referenced aerial photographs provided by The Maine Office of GIS (Low Tide 2013).

(5) Existing System Support

A) Flora and fauna from underwater video observations

On July 20, 2015, Maine Department of Marine Resources (MDMR) staff documented the benthic ecology within the proposed lease area using SCUBA observations and a hand-held digital video recorder contained within an underwater housing (see Figure 2 for a graphic representation of the approximate course followed).

The eastern approximate $\frac{3}{4}$ of the proposed lease area consists of soft mud interspersed with lobster/crab burrows, although no lobsters (*Homarus americanus*) were observed. Sand Shrimp (*Crangon septemspinosa*) and polychaete worms (as evidenced by epibenthic egg sacs) were dominant throughout the transect. No attached or rooted flora was observed.

Sediments within the western $\sim \frac{1}{4}$ of the site are significantly coarser and support the presence of hermit crabs (*Pagurus sp.*), periwinkles (*Littorina sp.*), and other species commonly found in intertidal and shallow subtidal zones.

The relative abundance of epibenthic macro- flora and fauna observed throughout the video transect is described below.

Eastern $\frac{3}{4}$ of Proposed Lease:

Sand Shrimp (*Crangon septemspinosa*) - abundant
Polychaete worm egg sac (Phyllodocidae?) – common to abundant
Unidentified burrows (presumably lobster and/or crab) – common to abundant
Hermit Crab (*Pagurus sp.*) - occasional
Rock Crab (*Cancer sp.*) - occasional
Sugar Kelp (*Saccharina latissima*) – unattached and occasional
Beggiatoa sp. – single patch near decaying seaweed
Unidentified bryozoan - occasional

Western Edge (shallows, \sim 5 feet at time of dive):

Hermit Crab (*Pagurus sp.*) – abundant
Periwinkle (*Littorina sp.*) – abundant
American oyster (*Crassostrea virginica*) – common
Barnacle (*Balanus sp.*) – common on rocks
Knotted wrack (*Ascophyllum nodosum*) - occasional

Two quahogs (*Mercenaria mercenaria*) were observed, at the end of the SCUBA transect, in the shallows to the north of the proposed lease site. A grey seal (*Halichoerus grypus*) was also present in the general area during the Department's assessment.

B) Fisheries and Wildlife

According to GIS (Geographic Information System) data maintained by The Maine Department of Inland Fisheries and Wildlife there are no endangered and threatened species, species of concern (i.e. bald eagle nests), or seabird nesting islands within the Johns River or general area of the proposed lease. The intertidal shoreline to the west of the proposed lease area is designated as moderate to high value tidal wading bird and waterfowl habitat.

(6) Interference with Public Facilities

There are no publicly-owned beaches, conserved lands, or docking facilities within 1000 feet of the proposed lease.

(7) Lighting

No lighting is proposed for use at this lease site. An exception would be made for emergency situations such as a boat malfunction.

(8) Noise

The applicant proposes to use four-stroke outboard power on his processing boats and a 50 h.p. 2-stroke outboard on his primary boat to be used for accessing the site. These outboards are typical of those used throughout coastal Maine. Four-stroke outboards are the quietest gasoline powered outboards available and as indicated in the application, are barely audible at idle.

Other noise inputs include the use of a hydraulic sorter. This sorter is powered by a 10 h.p. Honda engine that is contained within a box, mounted using rubber vibration dampening pads, and has a second muffler installed “downstream” of the factory installed Honda muffler.

The applicant has clearly invested in the best available technology, and made every accommodation to minimize noise intrusion. The lack of residences along the shoreline in proximity to the proposed lease should help to minimize remaining noise effects.

(9) Visual Impact

The applicant proposes to use floating cages and bags to contain the cultured oysters and clams and submerged lines to culture mussels. The surface gear is black in color with black floatation and would protrude a maximum of 24” above the water’s surface.

An 18’ by 12’ work float with a 10 foot square “building” is proposed to be moored within the boundaries of the lease site (see application page 2, Section E). The application states the building would be grey in color with clear corrugated plastic roofing.

(10) Water Quality Classification

The area is currently classified by the Department of Marine Resources Water Quality Classification program as “Open/Approved” for the harvest of shellfish.