

Department of Marine Resources
Site Review #2014-20

Maine Oyster, Inc.
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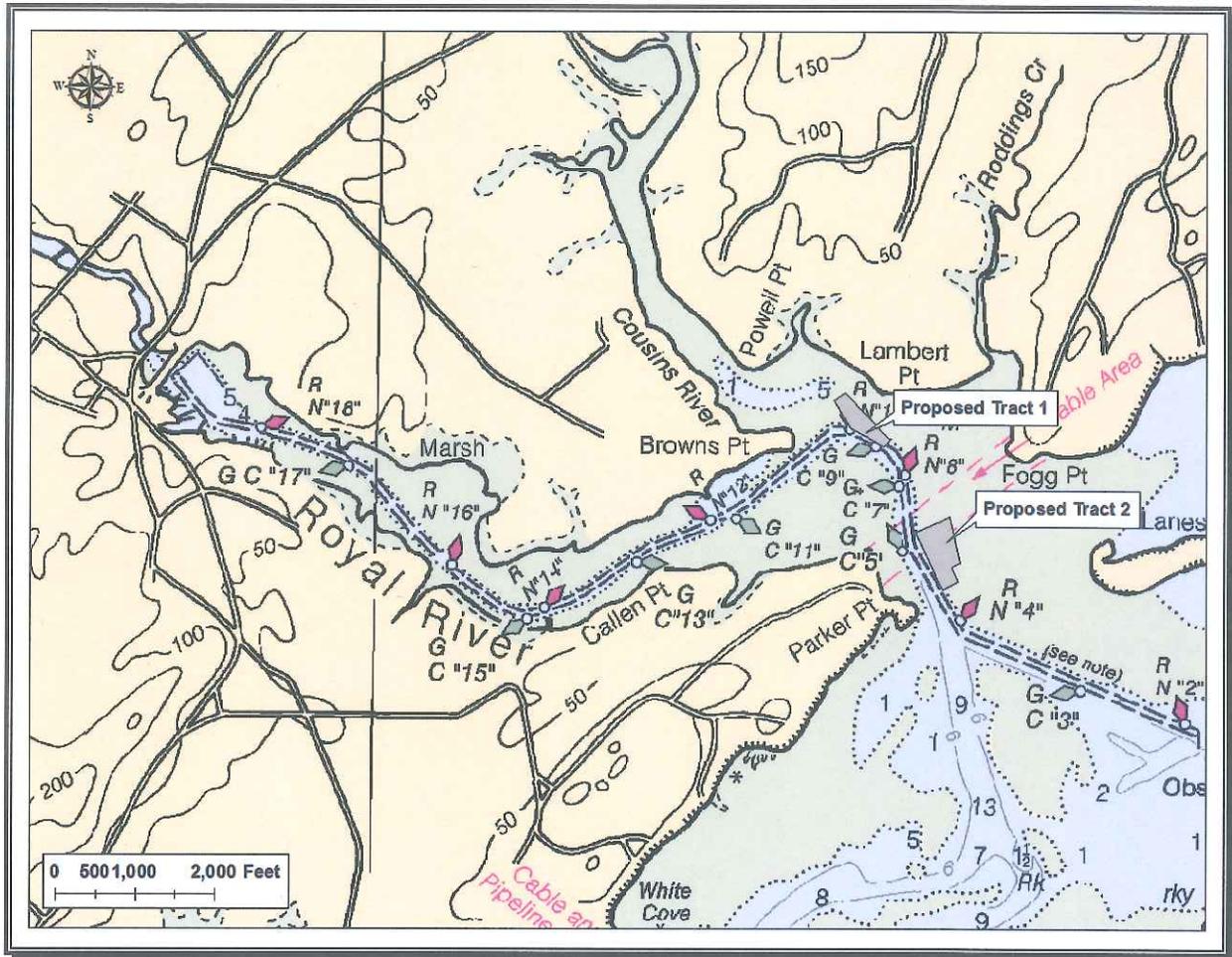


Figure 1: Vicinity map created in ArcMap 10.1 using NOAA Chart #13290 and the application coordinates.

Location: West of Lambert Point (Tract 1) and Lanes Island (Tract 2), Royal River, Casco Bay, Freeport and Yarmouth, Cumberland County, Maine.

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

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

November 2, 2015



Figure 2: Vicinity map created in ArcMap version 10.1 using geo-referenced aerial photographs taken at low tide (2013) and provided by The Maine Office of GIS.

On September 3, 2015 Maine Department of Marine Resources (MDMR) staff Jon Lewis and Marcy Nelson visited the proposed aquaculture lease located in the Royal River in the towns of Freeport and Yarmouth, Maine. Staff arrived on site (Tract 1) at 0900 hours.

General Characteristics

Bottom Topography and Sediment Composition

The topography is comprised of sand to firm mud bottom. Currents run in a north/south direction depending upon tidal stage.

Depth

South Freeport, Casco Bay, Maine
3 September 2015
43.8200° N, 70.1033° W

High Tide	03:12 EDT	10.53 feet
Low Tide	09:18 EDT	-0.80 feet
High Tide	15:37 EDT	10.84 feet
Low Tide	21:54 EDT	-0.83 feet

<http://tbone.biol.sc.edu/tide/>

The predicted time of low tide for South Freeport, Maine was 09:18 hours. Tidal height was predicted at 0.80 feet below mean low water (MLW).

Tract 1 (Lambert Point): DMR staff arrived on site at 09:00 hours to observe the conclusion of the ebb tide. Water depths within proposed Tract 1 during the Department's assessment were greatest along the southwestern boundary (between corners SW1 and W1, Figure 3). This portion of the requested lease area abuts the primary navigation channel for the Royal River. Depths measured, using a transom mounted depth sounder, were approximately 8 feet. The remainder of the proposed lease tract occupies a finger channel leading into the Cousins River. Depths shallow abruptly to less than 3 feet towards the north and east, preventing vessel approach at the remaining three corners. The southeastern (SE1) and northeastern (NE1) corners were sitting on the exposed mud flats at the time of the Department's visit. The northwest (NW1) corner remained submerged during the low tide.

Tract 2 (Lane's Island): Tract 2 of the proposed lease site occupies shallow subtidal waters between the primary navigation channel to the west and extensive mudflats to the east. At 09:40 am on September 3, 2015 water depths along the proposed western boundary measured between 4 and 7 feet. Depths of less than 3 feet prevented vessel approach at the eastern 4 corners of the proposed tract (Figure 4). DMR biologists were able to snorkel and at times crawl through the eastern 2/3rds of the proposed lease which remained submerged during low tide, albeit by as little as 6 inches in some areas.

The applicants are proposing to broadcast oysters freely on the bottom. If granted, no gear will be deployed within this area.

Position and Distances to Shore

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 Garmin MapSource and Google Earth imagery.

Application Coordinates (see Appendix 2 of the application)*

Tract 1 (3.77 acres)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NE1	43° 47' 49.98"N	70° 08' 39.00"W then 820.07 feet at 135.33° True to
SE1	43° 47' 44.22"N	70° 08' 31.14"W then 119.27 feet at 224.51° True to
SW1	43° 47' 43.38"N	70° 08' 32.28"W then 466.94 feet at 298.78° True to
W1	43° 47' 45.60"N	70° 08' 37.86"W then 413.12 feet at 328.54° True to
NW1	43° 47' 49.08"N	70° 08' 40.80"W then 160.42 feet at 55.38° True to NE.

Distances to Shore

W Corner to Red Nun #10	~045 feet @ 255°T
SW Corner to Green Can #9	~093 feet @ 286°T
Western Boundary to Green Can #9	~021 feet @ 206°T
Western Boundary to Brown's Point upland	~660 feet @ 248°T
Eastern Boundary to Lambert Point upland	~331 feet @ 039°T
Eastern boundary to 0.0' tide line	~< 1 foot @ 220°T



Figure 3: Proposed Tract 1 corners and the general course of the MDMR snorkel survey. Orthoimagery source: The Maine Office of GIS (Low_Tide_2013)

Tract 2 (6.60 acres)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NE2	43° 47' 34.63"N	70° 08' 20.70"W then 599.71 feet at 165.00° True to
SE2a	43° 47' 28.91"N	70° 08' 18.58"W then 134.06 feet at 241.09° True to
SE2b	43° 47' 28.27"N	70° 08' 20.18"W then 196.57 feet at 154.35° True to
SE2c	43° 47' 26.52"N	70° 08' 19.02"W then 218.87 feet at 244.81° True to
SW2	43° 47' 25.60"N	70° 08' 21.72"W then 794.63 feet at 334.11° True to
NW2	43° 47' 32.66"N	70° 08' 26.45"W then 466.55 feet at 64.69° True to NE2.

* Note: Application coordinates have been converted to degrees, minutes, and seconds format.

Distances to Shore

SW Corner to Parker Point (MHW)	~420 feet @ 239°T
NW Corner to Parker Point (MHW)	~607 feet @ 246°T
Western Boundary to Parker Point (MLW)	~370 feet @ 250°T
NE Corner to Fogg Point (MHW)	~1250 feet @ 46°T
SE Corner to Lane's Island (MHW)	~1567 feet @ 80°T
SW Corner to western edge of channel (MLW)	~250 feet @ 220°T
NW Corner to western edge of channel (MLW)	~380 feet @ 245°T



Figure 4: Proposed Tract 2 corners and the general course of the MDMR snorkel survey.
Orthoimagery source: The Maine Office of GIS (Low_Tide_2013)

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

(1) Riparian Owners Ingress and Egress

Tract 1: The nearest upland shorefront property is located more than 300 feet to the northeast of the proposed aquaculture lease site while the nearest observed dock is greater than 1,000 feet away (Figures 3 & 5). Extensive intertidal mudflats separate the proposed activities from all shorefront properties. Because no structures other than corner buoys would be placed at the lease site, no physical interference with shorefront property owner access would occur.

Below is a series of images (Figures 5-7) taken from the approximate southern boundary at 0900 hours on September 3, 2015. They depict the shoreline adjacent to the proposed lease; panning northeast to northwest.

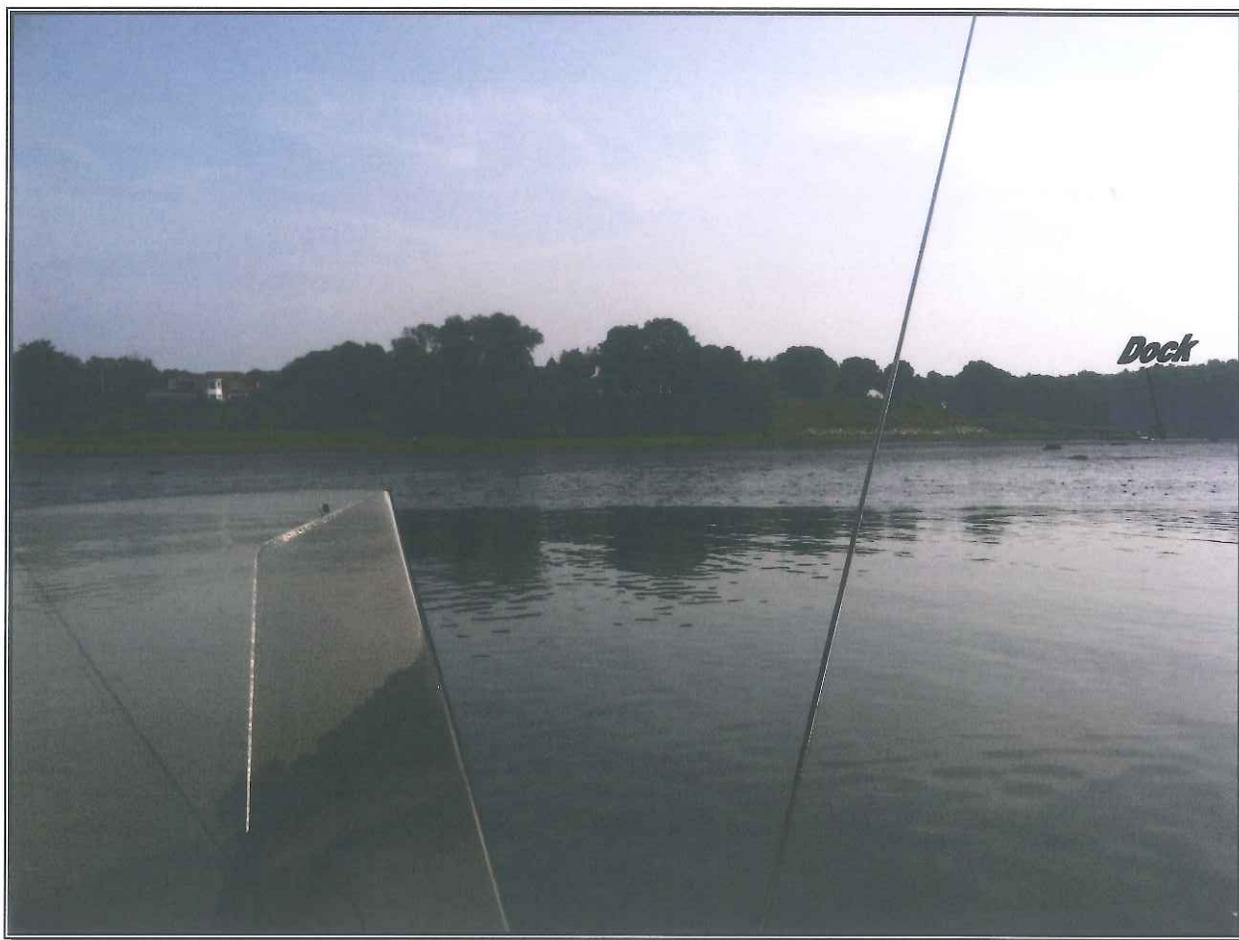


Figure 5



Figure 6



Figure 7

Tract 2: The nearest shore, Parker Point, would be located more than 400 feet from the proposed lease activities at MLW. The primary navigation channel is located between the western boundary of the proposed lease and Parker Point (Figure 2). Extensive mudflats separate the proposed area from riparian property to the north and east at MLW. On September 3, 2015, no docks or moorings were observed within the general vicinity of the proposed lease. The nearest developed riparian property is more than 1200 feet to the northeast (Fogg Point). A small beach is located along the western shore of Lane's Island. The proposed lease site is separated from Lane's Island by more than 1500 feet of tidal mud flats.

No gear is proposed for use at this site. If granted, the proposed activities will not interfere with access to docks and moorings or riparian ingress and egress.

Below are photographs taken on September 3, 2015 (Figure 8); looking east towards Lanes Island from the proposed SW corner (SW2).



Figure 8

Navigation

Tract 1: Because oysters would be placed directly on the bottom, navigation would not be physically obstructed. The proposed lease site is located on an outside (northeasterly) bend of the Royal River channel and at the mouth of the Cousin's River (Figure 3). Harvesting of oysters, either by SCUBA or drag, could create conflicts with other water users that want to enter the Cousins River, or when navigating the Royal River at lower tidal stages. A vessel actively fishing would have right-of-way according to the rules of the road; however, this could create conflict with the large number of other users of the river during summer months. The applicant has successfully operated a lease site within this location since 2011 (Figure 10) and has apparently had no conflict with other users of the area. It can be assumed that their level of giving way to other vessels would continue.

Tract 2: The proposed lease site abuts the eastern edge of the primary navigation channel between Parker Point and Lane's Island. At low water vessels are restricted to the channel proper due to extensive mudflats to the east and Parker Point to the west. Individuals with local knowledge of the area and traveling at higher tidal stages may occasionally transit beyond the boundaries of the channel. During past visits to the Royal and Cousins Rivers, Department staff

noted a substantial amount of recreational and commercial boat traffic in the area. At low water all vessels are restricted to the channel area due to insufficient water depths. At higher tidal stages shallow draft vessels would be able to safely navigate over the lease. No gear (floating or submerged) is proposed for use at this site, if granted. At most, vessel traffic may have to slightly alter course on occasions when the applicant's are drag harvesting their product.

(3) Fishing

Tract 1: On September 5, 2015 no fishing within the boundaries of proposed Tract 1 was observed. One individual was observed harvesting clams or worms on the intertidal flats at Brown's Point; another harvester was noted on the flats surrounding Powell Point (Figure 1). Additional digging for clams and worms is likely to occur in the tidal flats to the north and east.

Tract 2: On September 5, 2015 no fishing within the area of proposed Tract 2 was observed. Digging for clams and worms is, however, likely to occur in the tidal flats to the north and east.

Both tracts of the proposed lease area are subtidal and will not interfere with the harvest of clams and/or worms at MLW (0.0'). During spring tides it is likely the eastern portions of both proposed tracts are exposed for digging.

Recreational fishing is expected to occur throughout the Royal and Cousins Rivers. If granted, no floating or submerged gear, with which fishing lines might entangle, would be employed.

(4) Other Aquaculture Uses

Presently, the applicant operates two experimental aquaculture leases for the bottom culture of American and European oysters in the general locations of proposed Tracts 1 and 2 (CAS Lam and CAS LNI, respectively). Because experimental leases expire after a three year term, the applicant has applied for a standard 10-year lease in the same location. No changes to site dimensions are proposed for Tract 1/CAS LAM, whereas Tract 2/CAS LNI, if granted, would be expanded to the east (Figure 2). Culture methods would remain unchanged.

The nearest other aquaculture activity consists of a limited purpose gear license (LPA) located between proposed Tracts 1 and 2. This LPA is held by the applicant, Ms. Valy Steverlynck (Figure 2). There are no other aquaculture operations within the Cousins or Royal Rivers. For more information on aquaculture in the Casco Bay region please visit:

<http://www.maine.gov/dmr/aquaculture/leaseinventory/index.htm>.

(5) Existing System Support

A) Flora and fauna from underwater video observations

On September 5, 2015, MDMR staff documented the benthic ecology within the proposed lease area using a hand-held digital video recorder contained within an underwater housing. Water depths were too shallow for SCUBA; instead MDMR scientists walked and snorkeled the areas (see Figures 3 & 4 for a graphic representation of the approximate courses followed).

- a. Tract 1 (Lambert Point): The sea bottom within proposed Tract 1 is characterized by firm sand/mud sediments scattered with small rocks and shell fragments from soft-shell clams (*Mya arenaria*) and American oysters. American oysters, presumably planted by the applicant, were the dominant epibenthic species observed on September 5, 2015. Hermit crabs (*Pagurus sp.*) and rock crabs (*Cancer sp.*) were noted occasionally. Sea lettuce (*Ulva lactuca*) and unidentified red weeds were commonly observed attached to shells and rocks.
- b. Tract 2 (West of Lanes Island): Much like proposed Tract 1, this area is characteristic of a shallow subtidal mudflat. At the time of the Department's site assessment, sediments consisted of firm sand/mud scattered with cobble and shell fragments (primarily from soft-shell clams and American oysters). Sea lettuce was again the dominant flora, most abundant in the northern half of the proposed tract. Unidentified red weeds were interspersed throughout. American oysters, hermit crabs and rock crabs were the commonly noted epibenthic fauna.

B) Historical eelgrass (*Zostera marina*)

Eelgrass has been present, historically, in the shallows to the east and south of the proposed lease site (Maine Department of Marine Resources data, 2001). On September 5, 2015, no eelgrass or other rooted vegetation was observed within the boundaries of either tract. The proposed activities will be located a minimum of ~185 feet beyond the documented historical extent of eelgrass in the area. Harvest of market size oysters will be conducted with a small drag pulled behind a skiff. The sediments within the area of the proposed lease are firm compared to the surrounding mudflats and likely to create a relatively minimal plume during drag harvesting.

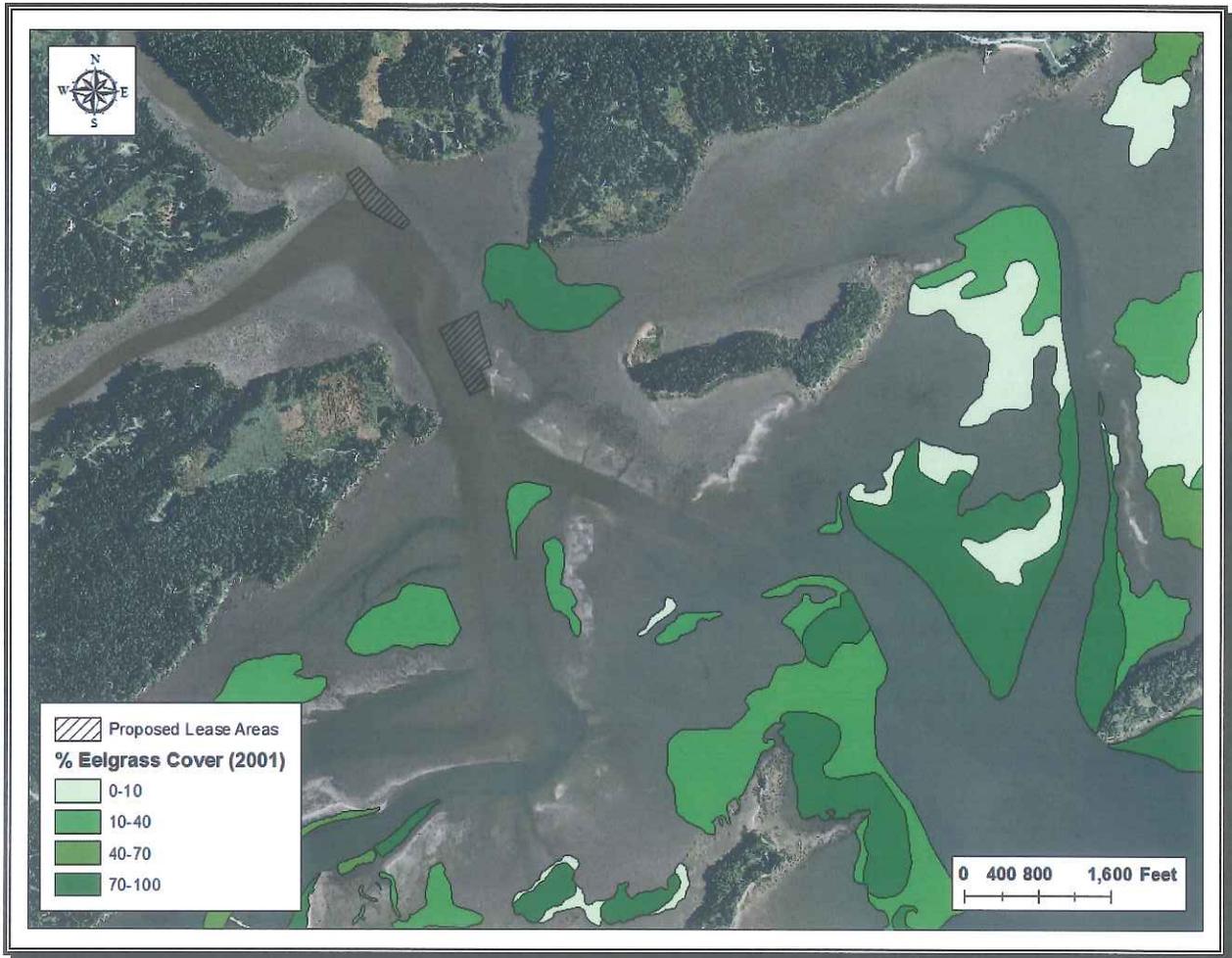


Figure 5: Location of proposed lease in relation to eelgrass (*Zostera marina*), 2001.

C) 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) there are no Essential Wildlife Habitats in the general area (i.e. Roseate Tern Nesting Area, Piping Plover/Least Tern Nesting, feeding, etc.). The extensive tidal mudflats throughout the region are, however, considered “Tidal Waterfowl and Wading Bird Habitat”. At the time of our site visit a number of wading birds including great blue heron (*Ardea Herodias*), yellow legs (*Totanus sp.*), and a snowy egret (*Leucophoyx thula thula*) were commonly observed along the shores and flats. Gulls (*Larus sp.*) and cormorants (*Phalacrocorax auritus*) were also commonly observed. MDIF&W was sent a copy of the application and request for comments on October 7, 2014. At the time of this report, a response had not been received. In an email to the applicant dated August 12, 2013, and included with the application, MDIF&W Wildlife Biologist Brad Zitske stated the “...proposed expansion is unlikely to adversely affect wildlife in this area...”

(6) Interference with Public Facilities

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

(7) Light

According to the application no lighting is intended for use at the site, if granted, and the applicant does not intend to work beyond daylight hours.

(8) Noise

The applicant proposes to use a skiff, outfitted with a 115 hp outboard motor and an electric pot hauler, that is consistent with other commercial and recreational vessels along the coast of Maine.

(9) Visual Impact

With the exception of buoys used to mark the boundaries of the proposed lease site, there would be no gear deployed at either Tract. A 24' skiff is planned for all seeding, monitoring, and harvesting activities.

(10) Water Quality Classification

The proposed lease is in an area currently classified by the Department of Marine Resources Water Quality Classification program as “conditionally approved for the harvest of shellfish”. The harvest of product, if the applicants are awarded the proposed lease, will be subject to a closure from November 1 through April 30 of each year, when rainfall meets or exceeds 1” within a 4 hour period, during any malfunction of the Yarmouth Waste Water Treatment Plant, or when flow rates at the Yarmouth Waste Water Treatment Plant exceed 1.31 MGD over four hours (http://www.maine.gov/dmr/rm/public_health/closures/14.pdf).