**Location:** Recompense Cove, Freeport, Cumberland County, Maine

**Purpose:** Standard lease for the suspended culture of American/eastern oysters (*Crassostrea virginica*)

Site Review by: Marcy Nelson, Flora Drury, and Cheyenne Adams
Report Preparation by: Flora Drury, Marcy Nelson, and Cheyenne Adams

Report Submitted: September 9, 2020

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1Unless otherwise noted, all figures in this report were created in ArcMap version 10.6 using digitized NOAA Nautical Charts or georeferenced aerial photographs provided by the Maine Office of GIS (*orthoCoastalCascoBay2018*).
**Application Summary**

The applicant is requesting 9.86² acres in Recompense Cove for the suspended culture of American/eastern oysters (Crassostrea virginica). The applicant proposes to deploy floating bags (2’W x 3’L x 4”H), OysterGro cages (67.5”L x 40.5”W x 22.75”H), and overwintering cages (3’W x 4’L x 2’H) on the lease site.³ March through January, floating bags and OysterGro cages would be floating at the surface of the water. During the winter months (November through May), product would be sunk to the bottom of the proposed lease in overwintering cages and OysterGro cages.⁴

Throughout the year, gear would be arranged in up to 24 longlines, that would run NE-SW. Twenty-two of these longlines are proposed to be 200 feet in length, and the two remaining longlines are proposed to be 165 feet in length.⁵ Each 200-foot longline would hold either 90 floating bags, 30 OysterGro cages, or 10 overwintering cages;⁶ although not outlined in the application, it is assumed that the 165-foot longlines would contain fewer bags and/or cages. It should be noted that OysterGro cages are only proposed to be deployed in the southeastern quadrant of the proposed lease.⁷ An 85-foot corridor is proposed to run east to west through the center of the proposed lease; a moored work platform, with maximum dimensions of 36’L x 16’W, is proposed for the center of this corridor.⁸

**General Site Characteristics**

Maine Department of Marine Resources (MDMR) Scientists Marcy Nelson and Flora Drury conducted an initial assessment of the proposed lease site and surrounding area on August 13, 2020 and returned on August 21, 2020 with MDMR Scientist Cheyenne Adams to conduct an underwater assessment of the proposal.

The proposed lease occupies subtidal waters between Wolf Neck and Flying Point, in an area known as Recompense Cove, in the Town of Freeport (Figure 1). Nearby shorelines are rocky, and lead to mature forests and residential properties. Extensive tidal flats are located at the head of Recompense Cove, to the north and northeast of the proposed lease (Images 1-4). Casco Bay islands, including Crab, Bustins, Moshier, and Little Moshier are located to the south and east of the proposal (Image 6).

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² DMR calculations, based on the application coordinates, indicate the area is 9.86 acres.
³ Application, page 4
⁴ Application, page 4
⁵ Application, page 28
⁶ Application, pages 31-36
⁷ Application, page 7
⁸ Application, pages 39 & 40
Image 1: Looking southwest from the SW Corner of the proposed lease (August 13, 2020).

Image 2: Looking west towards Wolf Neck from the SW Corner of the proposed lease (August 13, 2020).
**Image 3:** Looking northwest from the SW Corner of the proposed lease (August 13, 2020).

**Image 4:** Looking north towards the head of Recompense Cove from the SW Corner of the proposed lease (August 13, 2020).
Image 5: Looking east towards Flying Point from the SW Corner of the proposed lease (August 13, 2020).

Image 6: Looking south towards Moshier and Little Moshier Islands from the SW Corner of the proposed lease (August 13, 2020).
Depth

The bottom of the proposed lease is flat, with uniform depth and sediment type. At the time of MDMR’s site assessment on August 13, 2020, depths at the corners of the proposed lease area ranged from 9.5 to 10.1 feet. Measurements were taken between 11:55am and 12:30pm; low tide was predicted at 12:55 pm with a height of 1.87 feet (Table 1). Correcting for tidal variation derives depths roughly 2 feet lower (7.5 to 8.1 feet) at mean low water (MLW, 0.0 feet).

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Height (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/13/2020</td>
<td>12:49 AM</td>
<td>1.55 L</td>
</tr>
<tr>
<td>8/13/2020</td>
<td>7:01 AM</td>
<td>7.62 H</td>
</tr>
<tr>
<td>8/13/2020</td>
<td>12:55 PM</td>
<td>1.87 L</td>
</tr>
<tr>
<td>8/13/2020</td>
<td>7:17 PM</td>
<td>8.71 H</td>
</tr>
</tbody>
</table>

Table 1. Tide predictions for South Freeport, Casco Bay, Maine (43.8200° N, 70.1033° W).9

Bottom Characteristics

MDMR staff observed the bottom characteristics of the proposed lease site via a SCUBA transect on August 21, 2020 (Figure 2). Sediment type was classified using the Coastal and Marine Ecological Classification Standard,10 a national standard for describing features of the marine environment (Table 2). Sediments were categorized based on visual analysis; no sediment samples were collected, or grain size analyses performed. The proposed lease is composed primarily of soft mud (Image 7).

Table 2. Substrate classification on proposed lease site.

<table>
<thead>
<tr>
<th>Substrate Origin</th>
<th>Substrate Class</th>
<th>Substrate Subclass</th>
<th>Substrate Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geologic Substrate</td>
<td>Unconsolidated Mineral Substrate</td>
<td>Fine Unconsolidated Substrate</td>
<td>Mud</td>
</tr>
</tbody>
</table>

Image 7: Soft mud on the bottom of the proposed lease (August 21, 2020).

9 http://tbone.biol.sc.edu/tide/tideshow.cgi
Position and Distances to Shore

POSAID Positioning Software was used to verify the distances and bearings between proposed lease corners. Distances to shore were determined using the measuring tool in ArcMap 10.6, digital orthophotography provided by the Maine Office of GIS, and the application coordinates (Figures 1 & 2).

**Application Coordinates (WGS84) – 9.86 Acres (Figure 2)**

<table>
<thead>
<tr>
<th>Corner</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW</td>
<td>43.811015° N</td>
<td>70.083837° W then 918.64 feet at 90.00° True to</td>
</tr>
<tr>
<td>NE</td>
<td>43.811015° N</td>
<td>70.080357° W then 656.71 feet at 224.54° True to</td>
</tr>
<tr>
<td>SE</td>
<td>43.809731° N</td>
<td>70.082102° W then 918.66 feet at 270.00° True to</td>
</tr>
<tr>
<td>SW</td>
<td>43.809731° N</td>
<td>70.085582° W then 656.71 feet at 44.54° True to</td>
</tr>
</tbody>
</table>

Table 3. Approximate distances from the proposed lease to surrounding features (Figures 1 & 2). Measurements were made using digital orthophotography provided by the Maine Office of GIS (orthoCoastalCascoBay2018) and NOAA Nautical Charts.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW Corner to Wolf Neck, nearest point (~MLW, orthoimagery)</td>
<td>~2,550 feet to the northwest</td>
</tr>
<tr>
<td>North boundary to mudflats at head of Recompense Cove (NOAA Chart and orthoimagery)</td>
<td>&gt;2,800 feet to the north</td>
</tr>
<tr>
<td>NE Corner to Flying Point, nearest point (~MLW, orthoimagery)</td>
<td>~2,050 feet to the southeast</td>
</tr>
<tr>
<td>SE Corner to Googins Ledge(^{11}) (~NOAA Chart)</td>
<td>~775 feet to the south</td>
</tr>
<tr>
<td>SW Corner to Red Nun “2” (NOAA Chart)</td>
<td>~3,430 feet to the south</td>
</tr>
<tr>
<td>SW Corner to 18-Foot Contour Line (NOAA Chart)</td>
<td>~3,110 feet to the southwest</td>
</tr>
</tbody>
</table>

\(^{11}\) The single rock depicted on the NOAA chart south of the proposed lease was assumed to be part of Googins Ledge for the purpose of this measurement.
Figure 2: Proposed lease area and video transect conducted within the proposed lease area on August 21, 2020.

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

(1) Riparian Ingress and Egress

The proposed lease is located in the center of Recompense Cove, in Casco Bay. The cove’s shoreline hosts residential buildings, some with associated docks and moorings. At mean low water the closest land to the proposal is Flying Point, which is located approximately 2,050 feet to the south-east. At the nearest point, the Wolf Neck Peninsula, to the west, is located approximately 2,550 feet from the proposal at mean low water. Lastly, the intertidal flats at the head of Recompense Cove are more than 2,800 feet from the proposal according to both low tide orthoimagery and the NOAA chart.

As result of the proposal’s distance from the surrounding shorelines, ample room is available for riparian owners in the vicinity to navigate to and from their properties. Furthermore, no docks or moorings associated with riparian properties were observed in the immediate vicinity of the proposed lease during MDMR’s site assessments on August 13 and August 21, 2020.

(2) Navigation

The proposed lease is located in Recompense Cove, north of the marked channel that leads into the Harraseeket River. This channel experiences heavy recreational and commercial vessel traffic, especially during the summer months. However, the proposed lease is separated from the 18-foot contour line associated with this channel by approximately 3,100 feet. Additionally,
several ledges are located between the proposal and the marked channel. Therefore, boats operating in this channel will not be impeded by the proposed lease.

The majority of Recompence Cove is less than 10 feet deep at mean low water, and therefore navigation within the area is naturally constrained. However, an unmarked channel of deeper water leading from the cove’s mouth to its’ head is located on the east side of the cove, parallel to Flying Point. The proposed lease is located over 700 feet to the west of this unmarked channel.

During the August 13 and August 21, 2020 site visits, MDMR staff observed both motorized vessels and kayaks navigating within Recompence Cove. The application describes other navigational uses that were not observed by MDMR staff, including sailing, anchoring, waterskiing, and tubing.12 Although the applicant requests that watersports be excluded from the lease if granted, no request to exclude recreational transit was made.13 Due to the distance available for navigation between the proposed lease and the nearby shorelines, and because the proposed lease will not prevent use of the deeper channel that leads into Recompense Cove from the south, commercial and recreational navigation in the area are unlikely to be unreasonably impacted.

(3) Fishing and Other Uses

During visits to the general area conducted by MDMR staff on June 9 and July 15, 2020, lobster fishing was observed elsewhere in Recompence Cove and to the south of the proposed lease, in the vicinity of the marked channel leading into the Harraseeket River. No lobster fishing, or any other commercial fishing activities, were observed in the immediate vicinity of the proposed lease during the site visits conducted on August 13 or August 21, 2020. Furthermore, no lobsters (Homarus americanus) were observed within the proposed lease boundaries during the SCUBA transect conducted on August 21, 2020. Although no schooling fish were observed within the bounds of the proposed lease on August 13 or 21, 2020, schooling menhaden (Brevoortia tyrannus) were observed in abundance between the Merepoint Boat Launch in Brunswick and the proposed lease area on August 13th and August 21st, and it is possible that the commercial harvest of schooling baitfish occurs within the proposed lease boundaries.

During a visit to the general area on June 9, 2020, MDMR observed recreational hook and line fishermen, presumed to be targeting striped bass (Morone saxatilis), operating at the Harraseeket River entrance. No recreational fishing was observed in the immediate vicinity of the proposal on August 13 or 21, 2020. However, according to the application, there is moderate recreational fishing activity throughout Recompence Cove.14 The applicant proposes that recreational fishing be excluded from the proposed site,15 but because ample space would remain within Recompense Cove, and because no distinct topographic features were observed during the SCUBA transect or on the NOAA chart that might indicate this specific area to be especially important for recreational fishing, it appears that recreational fishing in the general area will be able to continue without hinderance.

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12 Application, page 14
13 Application, page 18
14 Application, page 14
15 Application page 22 (labeled page 25)
No other water-related uses that are not described elsewhere in this report were observed by MDMR during the site visits conducted on August 13 or August 21, 2020.

(4) Other Aquaculture Uses

At the time of this report there were 18 Limited Purpose Aquaculture (LPA) licenses within 1 mile of the proposed lease (Figure 3). The closest aquaculture activity to the proposed lease are eight LPA licenses for the suspended culture of shellfish held by Eric Oransky, Thomas Klodenski, and William Leathers, the three stockholders of Maine Ocean Farms, LLC. The application states that these LPAs, other than EORA317, would be relinquished if the proposal is granted.

The closest aquaculture operations held by an individual not associated with Maine Ocean Farms, LLC are LPA licenses held by Gregory Foote for the suspended culture of shellfish, which are located over 1,000 feet to the northwest of the proposal. At the time of MDMR’s site visit, a vessel was observed moored nearby these LPA licenses that was assumed to be associated with this aquaculture operation.

![Aquaculture leases, Limited Purpose Aquaculture (LPA) licenses, and pending lease applications in the vicinity of the proposed lease.](image)

Figure 3: Aquaculture leases, Limited Purpose Aquaculture (LPA) licenses, and pending lease applications in the vicinity of the proposed lease.

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16 LPA licenses EORA117, EORA217, EORA317, EORA417, TKLO118, TKLO218, WLEA319, and WLEA418
17 Application, page 11
18 GFOO318, GFOO418, GFOO518, GFOO618
19 Map only shows pending lease applications deemed complete prior to, or on the same day as, the proposed lease.
(5) Existing System Support

On August 21, 2020, MDMR staff conducted a dive transect through the proposed lease to assess the epibenthic ecology of the area (Figure 2). The bottom is flat and comprised of soft mud, with occasional borrows observed throughout (Images 8 & 9). Epibenthic macro flora and fauna observed during the dive transect are described in Table 5.

Table 5. Species observed from SCUBA transect conducted within the proposed lease site on August 21, 2020.

<table>
<thead>
<tr>
<th>Species Observed</th>
<th>Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benthic diatoms</td>
<td>Abundant</td>
</tr>
<tr>
<td>Soft shell clam \textit{(Mya arenaria)} shell</td>
<td>Common</td>
</tr>
<tr>
<td>Dead, detached eelgrass \textit{(Zostera marina)}</td>
<td>Rare</td>
</tr>
<tr>
<td>Horseshoe crab \textit{(Limulus 11olyphemus)} molt</td>
<td>Rare</td>
</tr>
<tr>
<td>Knotted wrack \textit{(Ascophyllum nodosum)}</td>
<td>Rare</td>
</tr>
<tr>
<td>European Oysters \textit{(Ostrea edulis)}</td>
<td>Rare</td>
</tr>
<tr>
<td>Filamentous red algae</td>
<td>Rare</td>
</tr>
<tr>
<td>Blue mussel \textit{(Mytilus edulis)}</td>
<td>Rare</td>
</tr>
<tr>
<td>Hermit crab \textit{(Pagurus sp.)}</td>
<td>Rare</td>
</tr>
</tbody>
</table>

Image 8: Benthic diatoms on bottom of proposed lease site (August 21, 2020).
The most recent eelgrass (Zostera marina) data, collected in 2018 by the Maine Department of Environmental Protection in cooperation with the Casco Bay Estuary Partnership, indicate that eelgrass beds with coverage ranging from 10% to 40%, were located to the east, west, and northwest of the proposal, over 700 feet away at the closest point (Figure 4). Eelgrass beds with coverage ranging from 0% to 10% were located to the north, over 1,000 feet from the proposal. Although a small amount of dead, detached eelgrass was observed, no rooted eelgrass was noted in the underwater video transect conducted through the proposed lease by MDMR staff on August 21, 2020.

**Image 9:** Burrow observed on bottom of proposed lease site (August 21, 2020).
Wildlife

A gray seal (*Halichoerus grypus*) was observed in the vicinity of the proposed lease site by MDMR staff on August 21, 2020.

According to GIS (Geographic Information System) data of Significant Wildlife Habitat maintained by the Maine Department of Inland Fisheries and Wildlife (MDIF&W) and available through the Maine Office of GIS, the proposed lease site is located over 2,000 feet from mudflats listed as tidal waterfowl and wading bird habitat (Figure 5). Additionally, two bald eagle (*Haliaeetus leucocephalus*) nests are located roughly 1 mile from the proposed lease site (Figure 5). Bald eagles are recognized in Maine as a Species of Special Concern. They are further protected by the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

On December 16, 2019, Rebecca Settele (Wildlife Biologist, MDIF&W) responded, by email, to a “Request for Agency Review and Comment” stating “Minimal impacts to wildlife are anticipated for this project”.

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20Data obtained from MEDEP maintained SDE Feature Class “GISVIEW.MEDEP.Eelgrass2018”
(6) Source of Organisms to be Cultured

The applicant proposes to source American/eastern oyster (*Crassostrea virginica*) seed from Mook Sea Farm, located in Walpole, Maine, and Basket Island Oysters, located in Portland, Maine; these are approved seed sources by MDMR.

(7) Interference with Public Facilities

According to the NOAA chart and data provided by the Maine Office of GIS, the proposed lease is located approximately 2,480 feet to the south of intertidal land associated with Wolfes Neck Woods State Park, and over 3,000 feet to the south of the Wolfes Neck Woods Conservation Easement, both of which sit at the head of Recompense Cove (Figure 6). Winslow Park and Campground, a municipally-owned public facility, is located over a mile to the southwest of the proposal. Due to these distances, it is unlikely that the proposal will interfere with use of these public facilities.
Figure 6: Conserved land and public facilities near the proposed lease site.  

(8) **Water Quality**

The proposed lease area is currently classified as “Open/Approved” for the harvest of shellfish by the MDMR Bureau of Public Health.

(9) **Lighting**

The applicant proposes to work beyond daylight hours in the spring and fall, when daylight hours are shorter. Lights proposed include deck/flood lights on a pontoon boat and a lobster boat, and similar lighting on the proposed floating work platform.

(10) **Noise**

According to the application, boats proposed for use at the lease site include two Carolina skiffs powered by outboard engines, a 24’ pontoon boat powered by a 75-horsepower outboard engine, and a 31-foot lobster boat powered by an inboard diesel engine. These are proposed to be used on the site 3 to 5 days per week. The boats proposed are consistent with the size and type of vessels routinely used for aquaculture operations, as well as other commercial and recreational uses, along the Maine coast.

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24 Data obtained from SDE Feature Class sourced from The Maine Office of GIS “GISVIEW.MECONSLANDS.Conserved_Lands”

25 Application, page 10
Other powered equipment proposed for use on the site include a grader, tumbler, hopper/conveyer, washdown pump, electric pressure washer, and hydraulic pump, which would be powered by a generator.\textsuperscript{26}

(11) **Visual Impact**

The proposal complies with the MDMR’s height and visual impact limitations.

\textsuperscript{26} Application, page 10