

Figure 1. Vicinity map.<sup>1</sup>

**Location:** West of Little Chebeague Island, Casco Bay, Long Island, Cumberland County, Maine

**Purpose:** Experimental lease for suspended culture of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina angustissima*), winged kelp (*Alaria esculenta*), shotgun kelp (*Agarum clathratum*)<sup>2</sup>, horsetail/fingered kelp (*Laminaria digitata*), Irish moss (*Chondrus crispus*), dulse (*Palmaria palmata*), and sea lettuce (*Ulva lactuca*).

Site Review: Geoff Shook, Molly Waters

Report Preparation: Katie von Hohenleiten, Geoff Shook, Meryl Grady

<sup>1</sup> Unless otherwise noted, all figures in this report were created in ArcGIS Pro version 2.9 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by The Maine Office of GIS.

<sup>2</sup> Application lists the scientific name for "Shotgun Kelp" as *Agarum cribosum*. Accepted species name is *Agarum clathratum*.



**Application Overview**

The applicant, Shearwater Ventures LLC , is requesting 3.90<sup>3</sup> acres west of Little Chebeague Island in Casco Bay for the suspended culture of marine algae. The applicant intends to remove all gear except corner markers, mooring blocks, mooring chain, mooring lines, and four mooring balls from June 16<sup>th</sup> through October 14<sup>th</sup>.<sup>4</sup>

**General Characteristics**

On August 29, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 11:55 AM. The western shore of Little Chebeague Island, in the vicinity of the proposal, consists of rocky coastline leading to forested uplands, beaches, and is undeveloped.

**Depth**

MDMR scientists began collecting depths at the proposed site during a falling tide at approximately 11:55 AM. Measured depths at corners of the proposed lease site ranged from 43.7 to 59.6 feet. Correcting for tidal variation derives water depths at the corners of the proposal at mean low water (MLW, 0.0 feet) to be from 36.4 to 52.3 feet (Table 1).

**Table 1.** Predicted tidal heights in Falmouth Foreside, Maine.<sup>5</sup>

| Date       | Time     | Height (ft) |
|------------|----------|-------------|
| 2023/08/29 | 3:51 AM  | -0.4 L      |
| 2023/08/29 | 10:05 AM | 9.2 H       |
| 2023/08/29 | 4:00 PM  | 0.2 L       |
| 2023/08/29 | 10:19 PM | 11.0 H      |

**Bottom Characteristics**

MDMR scientists observed the bottom characteristics of the proposed lease site via a remotely operated vehicle (ROV). Bottom characteristics were categorized using the Coastal and Marine Ecological Classification Standard (CMECS), a national standard for describing features of the marine environment (Table 2). Sediment information was determined based on visual analysis of the video. The bottom of the proposed lease site is composed of mud.

**Table 2.** Bottom characteristics of the proposed site.

| Substrate Origin   | Substrate Class                  | Substrate Subclass            | Substrate Group |
|--------------------|----------------------------------|-------------------------------|-----------------|
| Geologic Substrate | Unconsolidated Mineral Substrate | Fine Unconsolidated Substrate | Mud             |

<sup>3</sup> Applicant originally requested 3.86 acres. MDMR calculations indicate the area is 3.90 acres.

<sup>4</sup> Application page 9

<sup>5</sup> <https://www.usharbors.com/harbor/maine/falmouth-foreside-me/tides/?tide=2023-08#monthly-tide-chart>



**Position and Distances to Shore**

The measuring tool in ArcGIS Pro 2.9 was used to verify the distances and bearings between proposed lease corners. Distances to shore were determined using the measuring tool in ArcGIS Pro 2.9, digital orthophotography provided by the Maine Office of GIS, and the application coordinates (Table 3, Figure 2).

**Application Coordinates (WGS84) – 3.90 Acres**

| <u>Corner</u> | <u>Latitude</u> | <u>Longitude</u> |                                      |
|---------------|-----------------|------------------|--------------------------------------|
| NW            | 43.71577 °      | -70.15571 °      | then 161.6 feet at 132° True to      |
| NE            | 43.71547 °      | -70.15526 °      | then 1,050.4 feet at 223° True to    |
| SE            | 43.71337 °      | -70.15798 °      | then 161.7 feet at 313° True to      |
| SW            | 43.71367 °      | -70.15843 °      | then 1,050.4 feet at 043° True to NW |

**Table 3.** Approximate distances from proposed lease corners to surrounding features (Figure 2).

| Feature                                     | Distance                   |
|---|----------------------------|
| NE corner to Little Chebeague Island at MLW | ~958.1' to the southeast   |
| SE corner to Little Chebeague Island at MLW | ~905.5' to the southeast   |
| SW corner to charted navigation channel     | ~2,977.8' to the west      |
| NW corner to red navigational buoy "14"     | ~2,460.0' to the northeast |



Figure 2. Proposed lease area with site visit observations.

***Pursuant to statute and regulation, aquaculture leases are evaluated in consideration of applicable decision criteria. The site report documents MDMR's observations of the area and other information, in consideration of those criteria, as noted below:***

**(1) Riparian Ingress and Egress**

MDMR did not observe any docks, houses, or moorings in the vicinity of the proposal. Nearby Little Chebeague Island, located to the east of the proposal, is uninhabited and no docks or other structures were observed at the time of the site visit.

**(2) Navigation**

The proposal is located approximately 905.5 feet to the west of Little Chebeague Island at MLW. There is approximately 2,977.8 feet of navigable water between the proposal and the charted navigational channel to the west. During the site visit, two sailboats were observed in the vicinity



of the proposal. One sailboat was under sail to the west of the proposal and one to the east under power. Additionally, two recreational powerboats and a Coast Guard vessel conducting patrol were observed to the west of the proposal.

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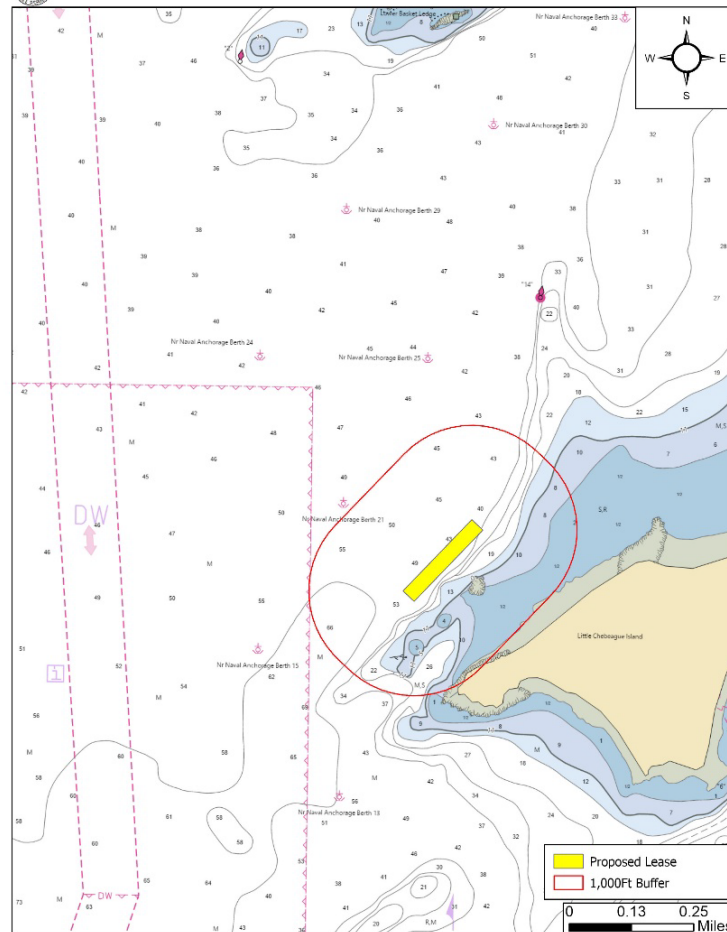


Figure 3. Navigational channels in the vicinity of the proposed lease area.

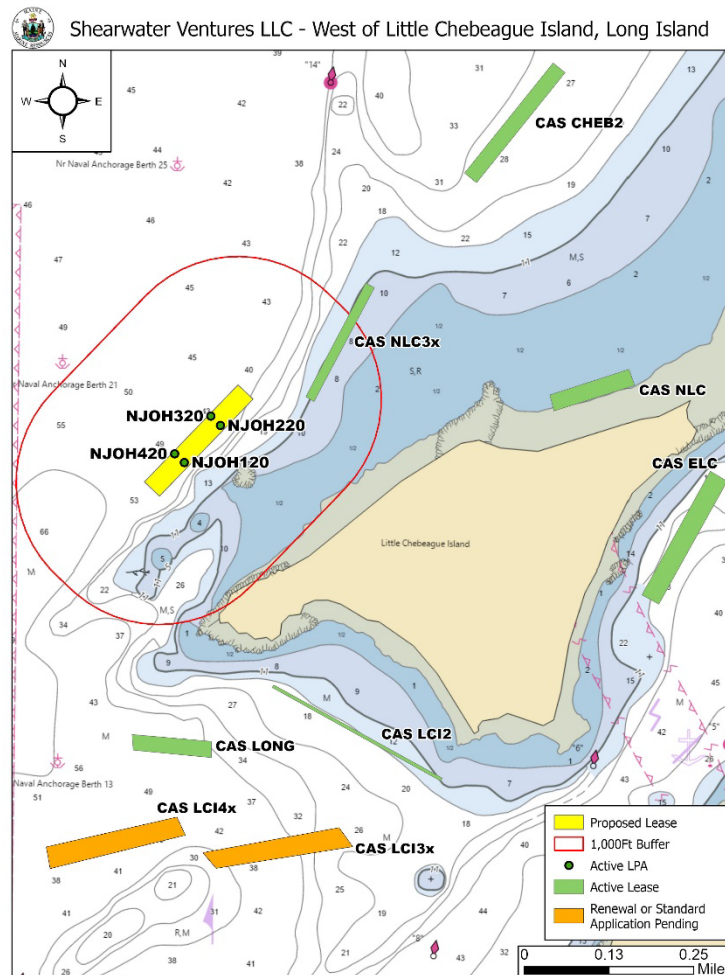
### (3) Fishing and Other Uses

During the site visit, MDMR documented lobster buoys within the general vicinity of the proposal. MDMR recorded the location of buoys closest to the proposal, as seen in Figure 2. A cluster of lobster buoys were observed 348.5 feet to the southwest of the proposal boundaries. Two additional lobster buoys were approximately 446.5 feet and 462.2 feet to the southeast of the proposal. During the MDMR site visit on August 29, 2023, there was light lobstering activity observed in the vicinity of the proposal.



**(4) Other Aquaculture Uses**

There is one experimental aquaculture lease that is 411.1 feet to the northeast of the proposal (CAS NLC3x) held by Chebeague Island Oyster Company LLC. There are four Limited Purpose Aquaculture (LPA) licenses within the boundaries of the proposed lease (NJOH120, NJOH220, NJOH320 AND NJOH420). All four LPAs are held by the applicant and will be relinquished if the proposal is granted (Figure 4).<sup>6</sup>



**Figure 4.** Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

**(5) Existing System Support**

**Epibenthic Flora and Fauna**

On August 29, 2023, MDMR scientists utilized an ROV to assess the epibenthic ecology of the proposed lease. The relative abundance of epibenthic flora and fauna observed in the video transect is described below in Table 4.

<sup>6</sup> Application page 13



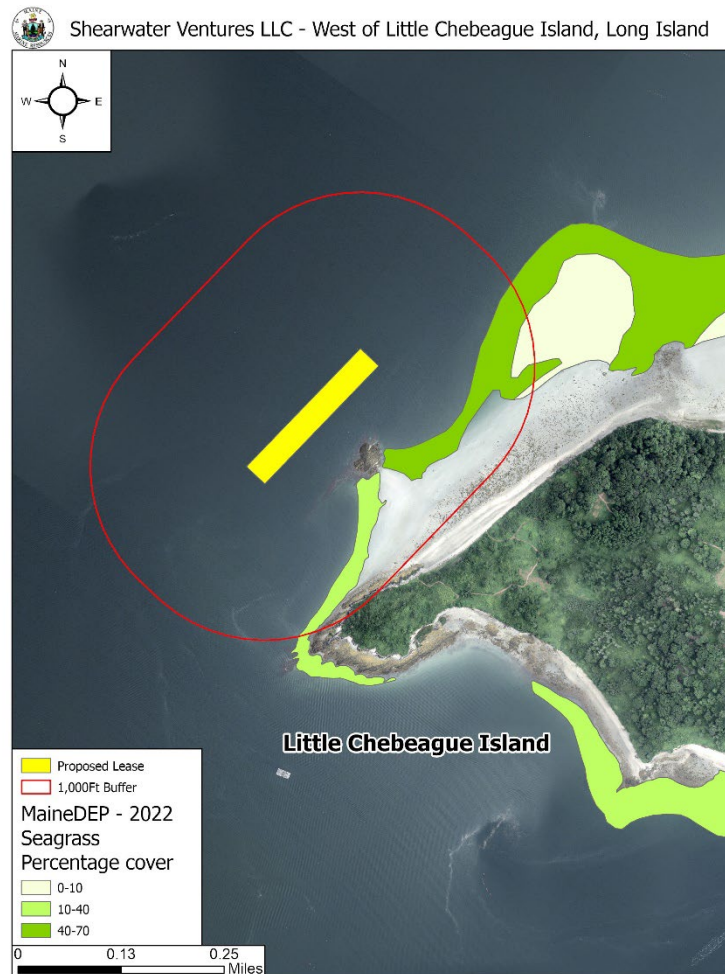
**Table 4.** Species observed on underwater camera footage.

| Species Observed                        | Abundance  |
|---|------------|
| Shrimp ( <i>Crangon septemspinosa</i> ) | Common     |
| Crab ( <i>Cancer</i> spp)               | Common     |
| Green crab ( <i>Carcinus maenas</i> )   | Occasional |
| Rock Weed ( <i>Fucus vesiculosus</i> )  | Rare       |
| <i>Dasysiphonia japonica</i>            | Rare       |
| Sponge ( <i>Halichondria</i> spp.)      | Rare       |
| Fig Sponge ( <i>Suberites ficus</i> )   | Rare       |
| Sand worm ( <i>Alitta virens</i> )      | Common     |

**Eelgrass (*Zostera marina*)**

Recent records of seagrass collected by Maine Department of Environmental Protection (MDEP) in 2022 indicate mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 401.9 feet east of the proposal (Figure 5).<sup>7</sup> During the MDMR site assessment, eelgrass was observed floating (unattached from bottom) on the surface of the water. No eelgrass was observed on underwater camera footage within proposal boundaries.

<sup>7</sup> Data obtained from The Maine Office of GIS “GISVIEW.MEDEP.Seagrass2022”. Widgeon grass was observed only in the New Meadows River area off Old Brunswick Road near shore. Eelgrass was the dominant vascular species in all other locations. This is the most current record of mapped eelgrass within the vicinity of the proposal.



**Figure 5.** Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

### Wildlife

According to Geographic Information System (GIS) data maintained by the Maine Department of Inland Fisheries and Wildlife (MDIFW) and available through the Maine Office of GIS (MEGIS), the proposed lease is located approximately 203.3 feet to the west of mapped Tidal Waterfowl and Wading Bird Habitat (Figure 6). Data collected by the United States Fish and Wildlife Service in 2023 by aerial nest survey shows the closest mapped bald eagle nesting site to be approximately 1.42 miles northwest of the proposal; and another nest located 2.05 miles to the east.

During the site assessment, MDMR scientists observed common eiders (*Somateria mollissima*), harbor porpoise (*Phocoena phocoena*), and double-crested cormorants (*Nannopterum auritum*) in the general vicinity of the proposal.





On June 22, 2023, a Wildlife Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” stating minimal impacts to wildlife are anticipated for this project.<sup>8</sup>



Figure 6. Mapped bald eagle nests and Tidal Waterfowl and Wading Bird Habitat.<sup>9</sup>

**(6) Interference with Public Facilities**

The proposal is not within 1,000 feet of any beach, park, or docking facility owned by federal, state, or municipal governments.

**(7) Water Quality**

The proposed lease is currently located within an area classified as Approved by the MDMR Bureau of Public Health and Aquaculture.

<sup>8</sup> Email correspondence between MDIFW and MDMR

<sup>9</sup> Data obtained from USFWS “Bald\_Eagle\_Nests\_-\_Maine\_2023” and MDIFW maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”