

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*), horsetail kelp (*Laminaria digitata*), shotgun kelp (*Agarum clathratum*), Irish moss (*Chondrus crispus*), dulse (*Palmaria palmata*), and sea lettuce (*Ulva lactuca*).

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Report Preparation: Geoffrey Shook and 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.



**Application Overview**

The applicant, Great Ledge Cove Seafood LLC, is requesting a 4.0-acre experimental lease for the suspended culture of marine algae west of Little Chebeague Island in Casco Bay, within the town of Long Island. Aquaculture gear is intended to be on site seasonally from October 1 - June 1. All gear, except for required lease boundary markers, is intended to be removed from the site between June 2 - September 30.<sup>2</sup>

**General Characteristics**

On August 14, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 10:55 AM. The proposal is located in subtidal waters in Casco Bay approximately 1,047.7 feet west of Little Chebeague Island at mean low water (MLW). The shoreline of Little Chebeague Island contains sandy beaches with shrubs and mixed forests uplands (Figure 1).

**Depth**

On August 14, 2024, MDMR scientists began collecting depths at the proposed site at approximately 10:58 AM. The tide was ebbing with the next low tide predicted at 12:37 PM (Table 1). Depths were determined to be between 65.8-73.6 feet. Correcting for tidal variations derives depths at MLW (0.0 feet) to be between 62.9-70.7 feet.

**Table 1.** Predicted tidal heights in Portland, Maine.<sup>3</sup>

Date	Time	Height (ft)
2024/8/14	12:33 AM	1.5 L
2024/8/14	6:48 AM	7.5 H
2024/8/14	12:37 PM	2.0 L
2024/8/14	7:00 PM	8.9 H

**Bottom Characteristics**

MDMR scientists observed the bottom characteristics in the vicinity 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 lease site is primarily 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>2</sup> Application pages 9, 16, 17

<sup>3</sup> <https://www.usharbors.com/harbor/maine/portland-harbor-me/tides/?tide=2024-08#monthly-tide-chart>



**Position and Distances to Shore**

The geodesic 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 nautical charts provided by the National Oceanic and Atmospheric Association (NOAA), and the application coordinates (Table 3, Figure 3).

**Application Coordinates (WGS84) – 4.0 Acres**

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.71305°	-70.16047°	then 250.4 feet at 126° True to
NE	43.71265°	-70.1597°	then 695.1 feet at 216° True to
SE	43.71111°	-70.16125°	then 250.4 feet at 306° True to
SW	43.71151°	-70.16202°	then 695.1 feet at 36° True to NW

**Table 3.** Approximate distances from proposal corners to surrounding features (Figure 3).

<u>Feature</u>	<u>Distance</u>
NW corner to red navigational buoy “2”	~1.1 miles to the northwest
NW corner to red navigational buoy “14”	~3,874.4 feet to the northeast
NE corner to Little Chebeague Island closest point MLW	~1,047.7 feet to the southeast
NE corner to dock on Indian Point	~1.1 miles to the northeast
SE corner to red navigational buoy “12”	~3,035.0 feet to the south
SE corner to dock at Doughty Landing	~1.0 miles to the southeast
SW corner to green navigational buoy “11”	~4,428.0 feet to the southwest

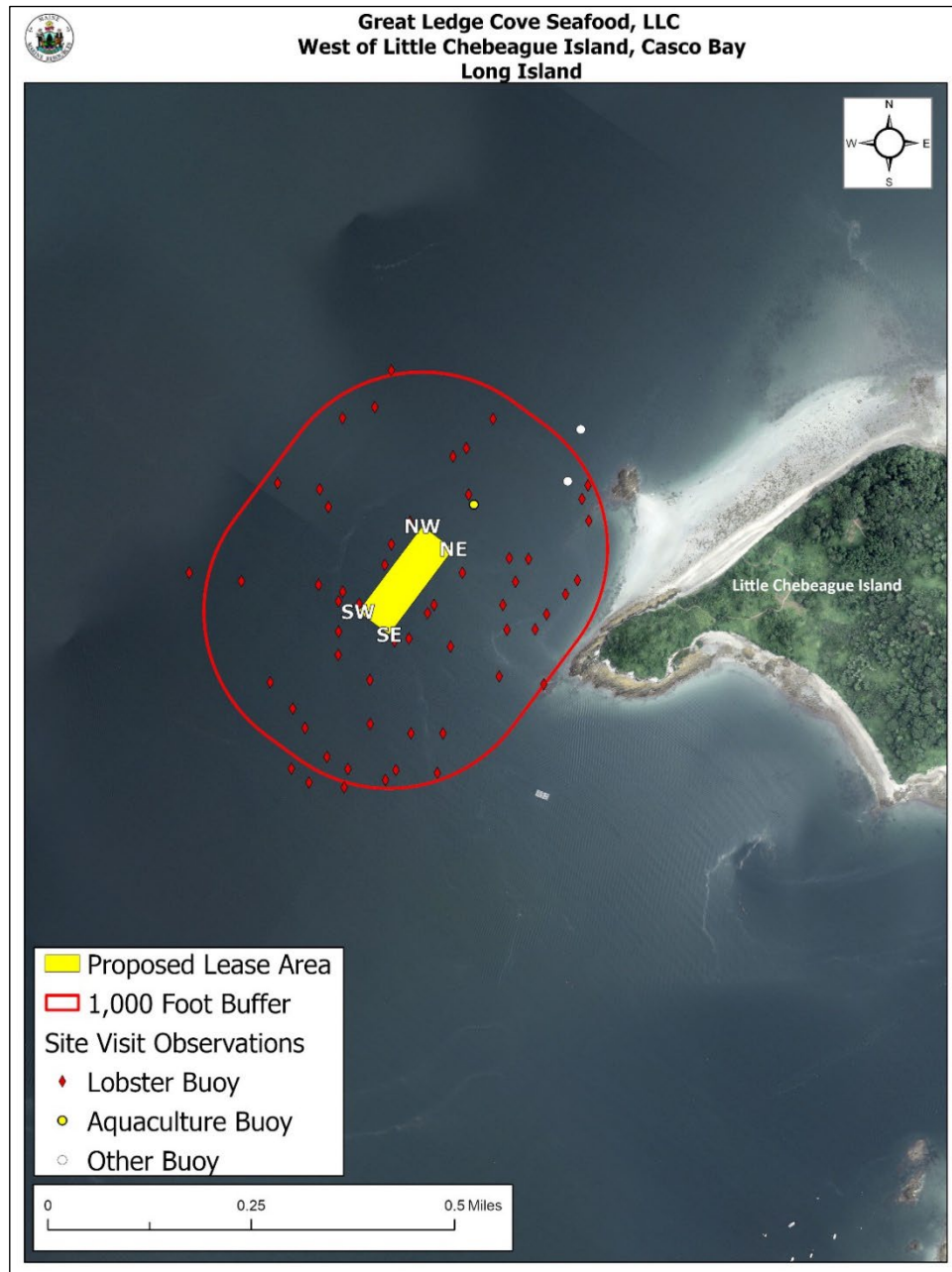


Figure 2. Proposed lease area with site visit observations.

*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**

During MDMR's site assessment, scientists did not observe any piers, docks, or residential properties within 1,000 feet of the proposal. Little Chebeague Island is the nearest land to the proposal at approximately 1,047.7 feet to the southeast. The island is uninhabited. There is a dock and small mooring field on Indian Point, Great Chebeague Island approximately 1.1 miles to the northeast of the proposal, as well as a dock and mooring field at Doughty Landing on Long Island approximately 1.0 miles to the southeast (Figure 3).

**(2) Navigation**

The proposal is located in subtidal waters approximately 1,047.7 feet to the west of Little Chebeague Island. The proposal is approximately 1,980.0 feet east of a charted deepwater route that runs north/south towards Cousins Island (Figure 3). There is approximately 1.4 miles of navigable water between the proposal and Clapboard Island to the west.

During MDMR's site assessment, scientists observed two lobster boats and eight recreational boats transiting through the proposal area, two recreational boats transiting to the south of the proposal, and six recreational boats and one commercial fishing boat transiting east of the proposal.

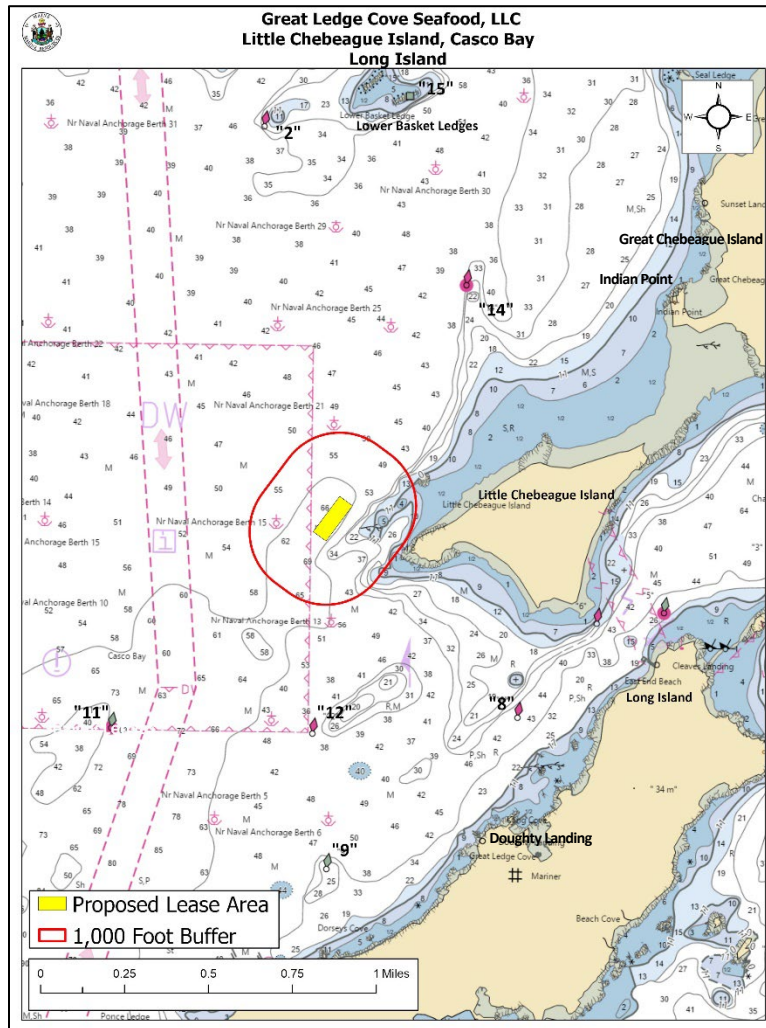


Figure 3. Charted navigational channels in the vicinity of the proposed lease area.

### (3) Fishing and Other Uses

The proposal is located approximately 1,047.7 feet to the west of Little Chebeague Island. Little Chebeague Island is an uninhabited island that is open to the public for hiking and camping. The beach on the east side of the island can be used as a landing and anchoring location for boaters accessing the island. An intertidal sandbar connects Little Chebeague Island to Great Chebeague Island around low tide.<sup>4</sup> The proposal is also located approximately 30.5 feet to the east of an area designated as a “Naval Anchorage Berth” on navigation charts (Figure 3).

During MDMR’s site assessment, scientists observed moderate to heavy lobstering activity in the vicinity of the proposal. MDMR scientists mapped 52 lobster buoys within 1,000 feet of the proposal. The lobster buoy mapped nearest to the proposal was located approximately 24.3 feet

<sup>4</sup> <https://www.mainetrailfinder.com/trails/trail/little-chebeague-island>



to the west. MDMR scientists also observed one kayak pulled up on the western shore of Little Chebeague Island, as well as a sailboat pulled up on the beach on the southeastern shore of the island. There were also two large, white buoys observed approximately 863.9 feet and 1,134.7 feet to the northeast of the proposal. The purpose and use of the buoys was unknown, but is likely associated with nearby aquaculture activities.

#### **(4) Other Aquaculture Uses**

There are two Limited Purpose Aquaculture sites (LPAs) within 1,000 feet of the proposal. LPAs NJOH420 and NJOH120 are located approximately 823.1 feet and 832.6 feet to the northeast of the proposal, respectively. The LPAs are held by Nathan Johnson and the applicant indicated that they spoke with Mr. Johnson about aquaculture operations in the area and negative interactions are not anticipated.<sup>5</sup>

During MDMR's site assessment, scientists observed a yellow aquaculture site marker buoy with the acronym CAS ELCx located approximately 317.7 feet north of the proposal (Figure 2).<sup>6</sup> There are no active aquaculture leases within 1,000 feet of the proposal.

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<sup>5</sup> Application page 12

<sup>6</sup> CAS ELCx is an expired experimental lease that was converted to a standard lease (CAS ELC) and is located 0.8 miles east of the proposal. CAS ELC is operated by Nathan Johnson of Shearwater Ventures. These findings were passed on to the MDMR inspections program for appropriate follow up.

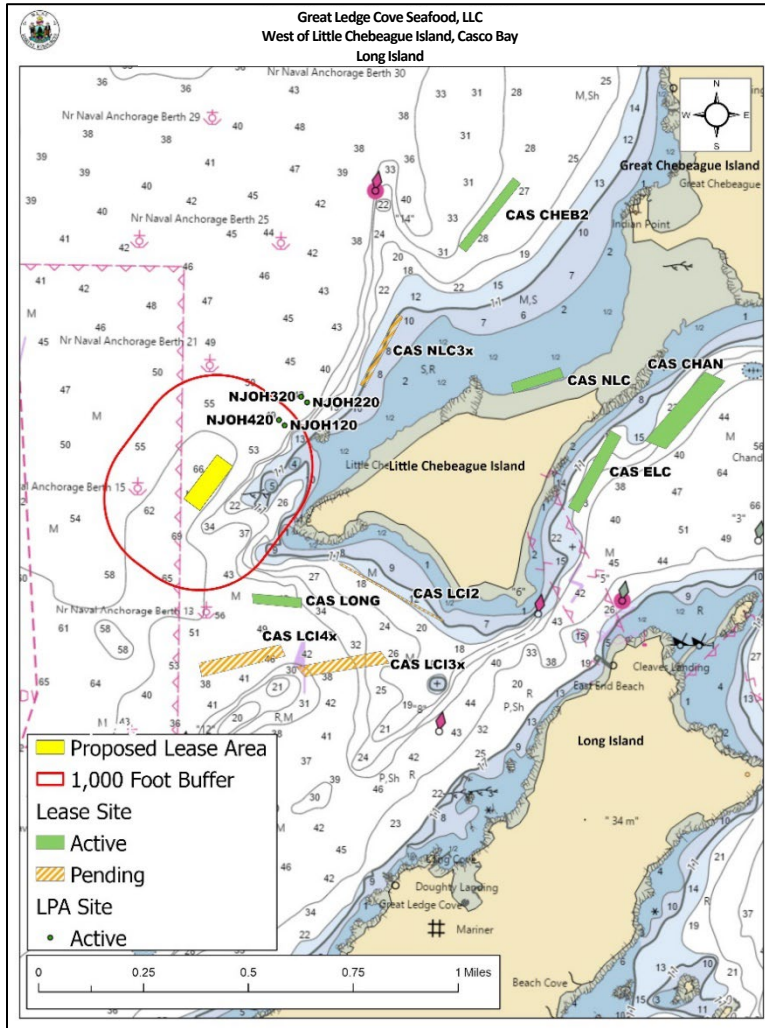


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

(5) Existing System Support

Epibenthic Flora and Fauna

MDMR scientists utilized an ROV to assess the epibenthic ecology of the proposed lease. The relative abundance of epibenthic flora and fauna observed is described below in Table 4. The majority of the area inspected was mud with little to no benthic flora and fauna. A derelict lobster trap provided habitat where many of the species within the proposal area were observed (Image 1).

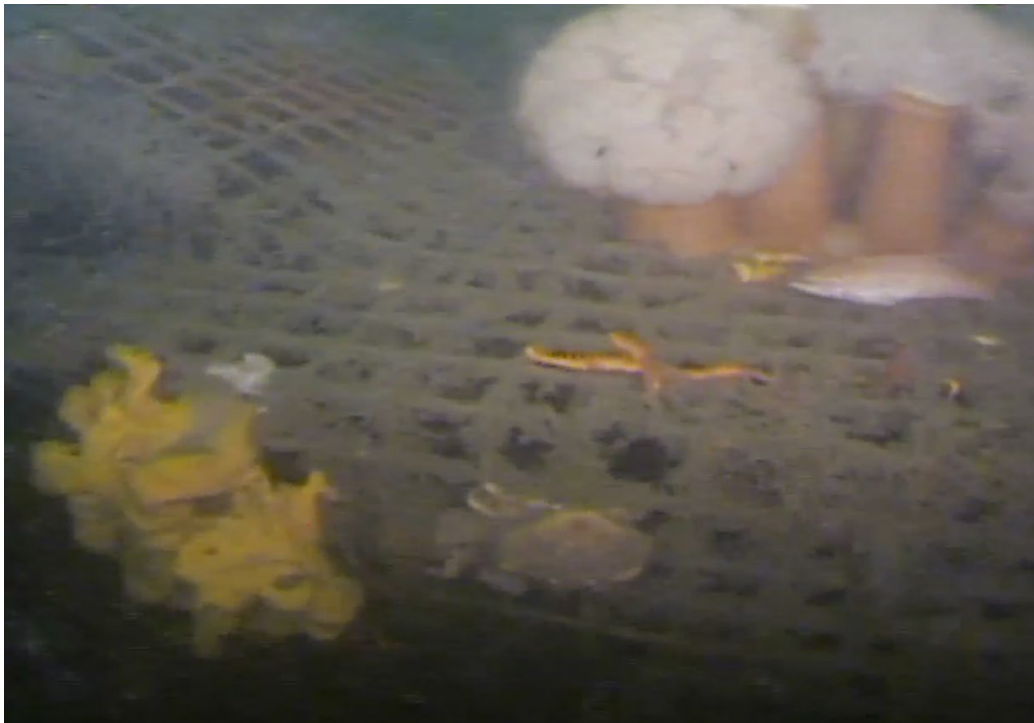
Table 4. Species observed on underwater video footage.

Species Observed	Abundance
Shrimp ( <i>Crangon septemspinosa</i> )	Common
Rock crab ( <i>Cancer irroratus</i> )	Occasional
Cunner ( <i>Tautoglabrus adspersus</i> )	Rare





Species Observed	Abundance
Winter flounder ( <i>Pseudopleuronectes americanus</i> )	Rare
Common starfish ( <i>Asterias rubens</i> )	Rare
Frilled anemone ( <i>Metridium senile</i> )	Rare
Rockweed ( <i>Ascophyllum nodosum</i> )	Rare
Tunicate ( <i>Didemnum vexillum</i> )	Rare

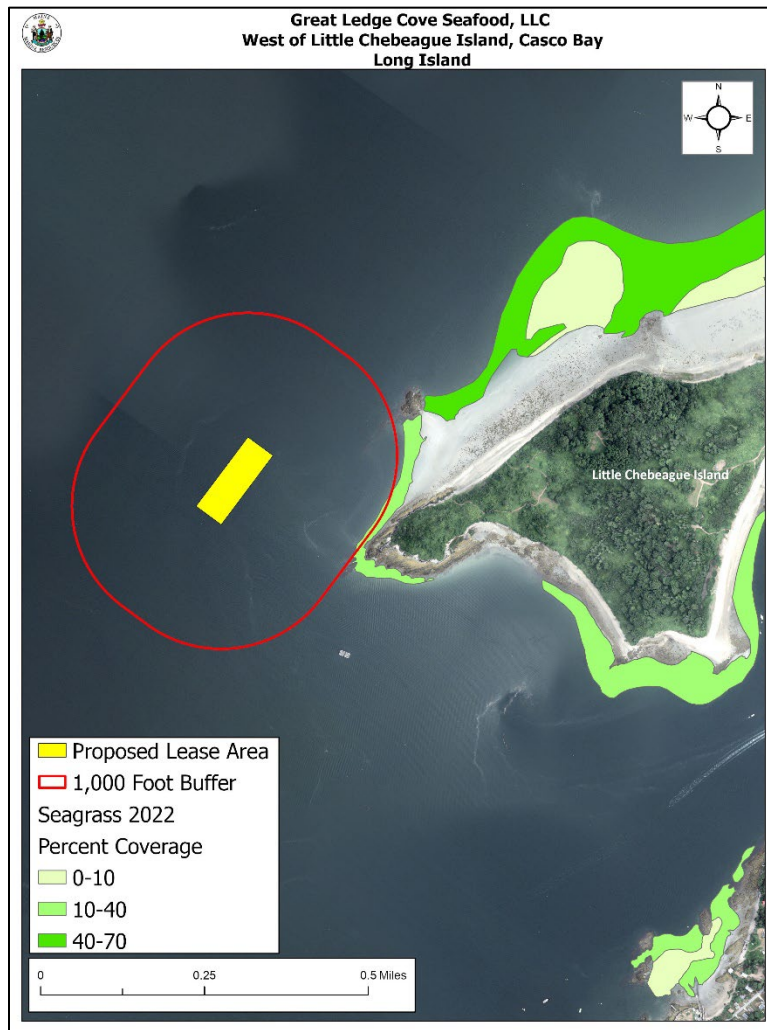


**Image 1.** Derelict trap observed on underwater footage



**Eelgrass (*Zostera marina*)**

Records of eelgrass collected in 2022<sup>7</sup> indicate that there is mapped eelgrass within 1,000 feet of the proposal. The nearest mapped eelgrass is located approximately 968.5 feet to the east of the proposal (Figure 5). During MDMR’s site assessment, scientists observed unattached eelgrass floating in the vicinity of the proposal. No eelgrass was observed on underwater footage.



**Figure 5.** Mapped eelgrass in the vicinity of the proposed lease area.

<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.



### 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 within 1,000 feet of Tidal Waterfowl and Wading Bird Habitat (TWWH). The closest area of mapped TWWH is located approximately 650.6 feet to the east of the proposal (Figure 6). The nearest bald eagle (*Haliaeetus leucocephalus*) nest is mapped approximately 1.6 miles to the northwest of the proposal.

During MDMR's site assessment, scientists observed harbor porpoise (*Phocoena phocoena*), harbor seals (*Phoca vitulina*), common eiders (*Somateria mollissima*), laughing gulls (*Leucophaeus atricilla*), herring gulls (*Larus argentatus*), black guillemot (*Cephus grylle*), common terns (*Sterna hirundo*), great cormorants (*Phalacrocorax carbo*), and double-crested cormorants (*Nannopterum auritum*) in the vicinity of the proposal.

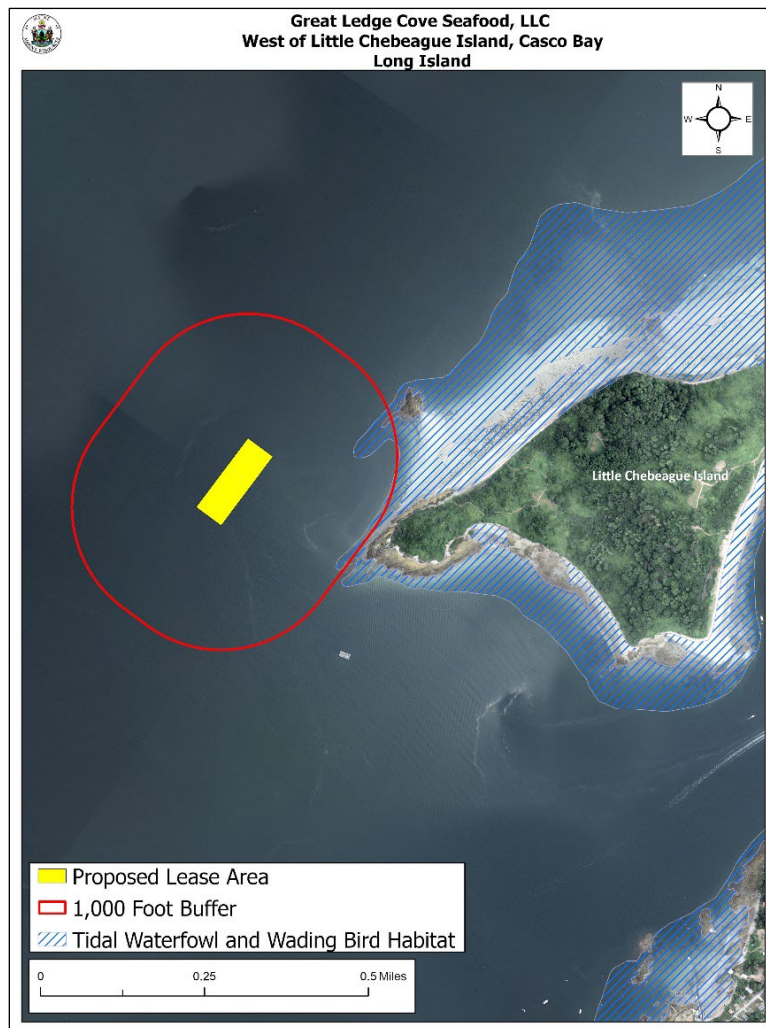


Figure 6. Mapped TWWH in the vicinity of the proposed lease area. <sup>8</sup>

<sup>8</sup> Data obtained from USFWS "Bald\_Eagle\_Nests\_-\_Maine\_2023" and MDIFW maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"



**Department of Marine Resources  
Site Report**

Great Ledge Cove Seafood, LLC  
West of Little Chebeague Island, Casco Bay  
Long Island

**(6) Interference with Public Facilities**

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