

Figure 1. Vicinity map.¹

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

Purpose: Standard lease for suspended culture of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina angustissima*), winged kelp (*Alaria esculenta*), horsetail/fingered kelp (*Laminaria digitata*), shotgun kelp (*Agarum clathratum*), dulse (*Palmaria palmata*), nori/laver (*Porphyra* spp), red seaweed (*Gracilaria tikvahiae*), Irish moss (*Chondrus crispus*), and sea lettuce (*Ulva lactuca*).

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

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



Application Overview

The applicant, Great Ledge Cove Seafood LLC, is requesting an 8.99-acre² standard lease south of Little Chebeague Island in Casco Bay within the town of Long Island for the suspended culture of marine algae. The applicant currently operates experimental lease CAS LCI3x within the boundaries of the proposed lease. Culture gear would be on site from October 1-June 1. All corner markers, mooring balls, mooring lines, and mooring chain for grow lines would be left on site year-round.³

General Characteristics

On June 11, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 11:13 AM. The proposal is situated to the south of Little Chebeague Island and to the west of Long Island. The surrounding shoreline consisted of a mixture of sandy beaches and rocky ledges that led to mixed forested uplands.

Depth

On June 11, 2024, MDMR scientists began collecting depths at the proposed site at approximately 11:17 AM. The tide was rising with the next high tide predicted to occur at 3:52 PM (Table 1). Depths were determined to be between 28.1 and 47.2 feet. Correcting for tidal variations derives water depths to be approximately 26.4 to 45.5 feet at mean low water (MLW, 0.0 feet) (Table 1).

Table 1. Predicted tidal heights in Falmouth Foreside, Maine.⁴

Date	Time	Height (ft)
2024/06/11	3:04 AM	9.7 H
2024/06/11	9:33 AM	0.3 L
2024/06/11	3:52 PM	8.6 H
2024/06/11	9:42 PM	1.6 L

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 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

² Applicant originally requested 9.03 acres. MDMR calculations indicate the area is 8.99 acres.

³ Application page 5, 6

⁴ <https://www.ussharbons.com/harbor/maine/falmouth-foreside-me/tides/?tide=2024-06#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, a nautical chart provided by the National Oceanic and Atmospheric Administration (NOAA), and the application coordinates (Table 3, Figure 2).

Application Coordinates (WGS84) – 8.99 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.70620°	-70.15670°	then 1,175.4 feet at 079° True to
NE	43.70679°	-70.15233°	then 335.2 feet at 168° True to
SE	43.70589°	-70.15207°	then 1,174.8 feet at 260° True to
SW	43.70531°	-70.15644°	then 331.7 feet at 348° True to NW

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

Feature	Distance
Corner NE to southeastern shoreline of Little Chebeague at MLW	~982.9 feet to the northeast
Corner SE to western shoreline of Long Island at MLW	~1,995.4 feet to the southeast
Corner SE to red nun "8"	~1,033.6 feet to the southeast
Corner SW to red nun "12"	~1,707.5 feet to the southwest
Corner NW to western shoreline of Little Chebeague at MLW	~1,448.2 feet to the northeast

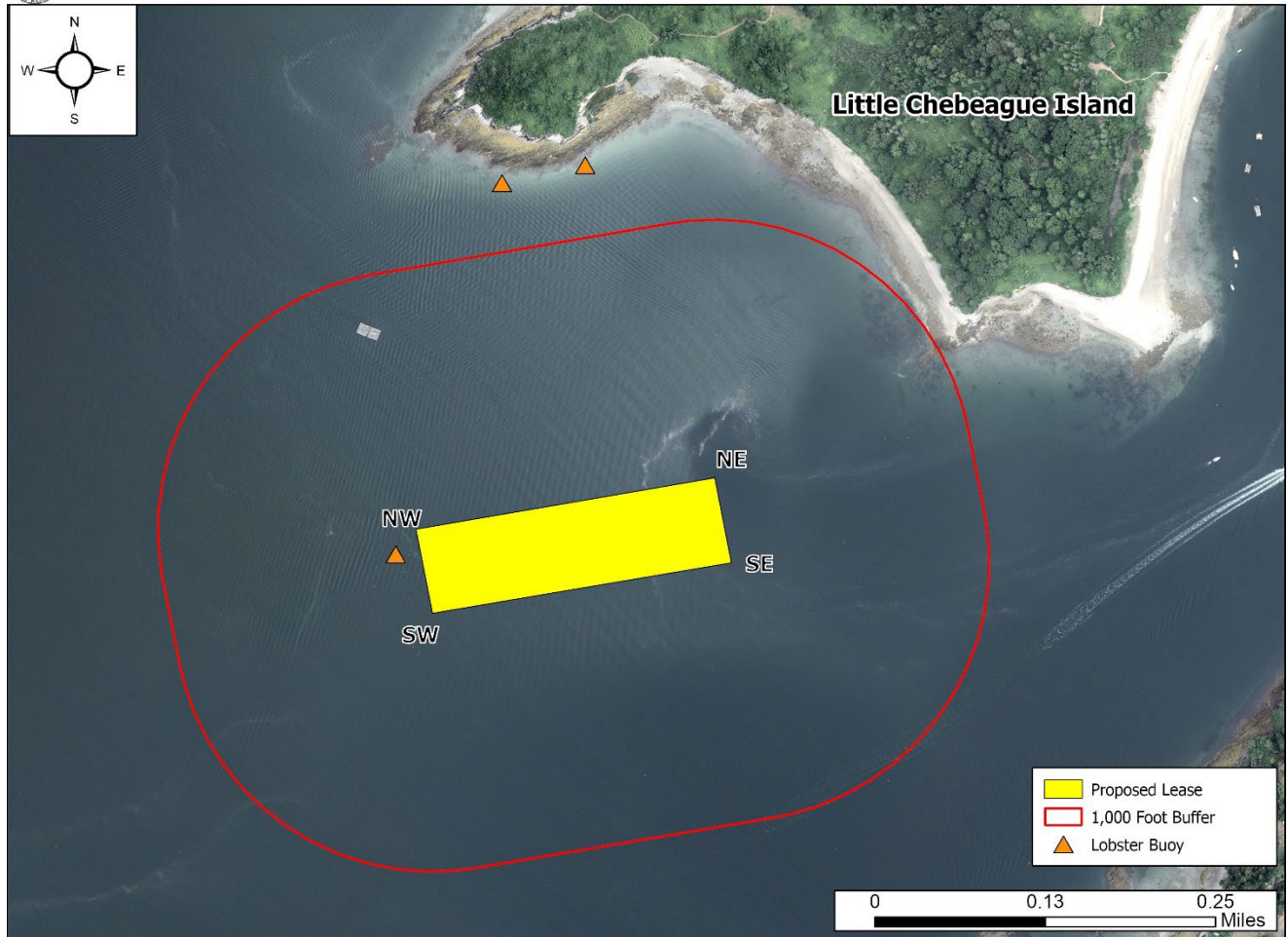


Figure 2. Proposed lease area with site visit observations.

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

During the site visit, MDMR scientists did not observe any docks or moorings within the vicinity of the proposal (Figure 2). The nearest land is Little Chebeague Island at 982.9 feet to the northeast. Little Chebeague Island is owned by the State of Maine.



(2) Navigation

The proposal is located approximately 1,707.5 feet to the northeast of the red nun buoy “12” marking the western navigational channel, and approximately 1,033.6 feet to the northwest of red nun buoy “8” marking the southern navigational channel (Figure 3).

During the site assessment, MDMR scientists observed five power vessels, two sailboats under power, and the Chebeague Island ferry all transiting in the southern navigation channel. One power vessel transited through the boundaries of the proposed lease.

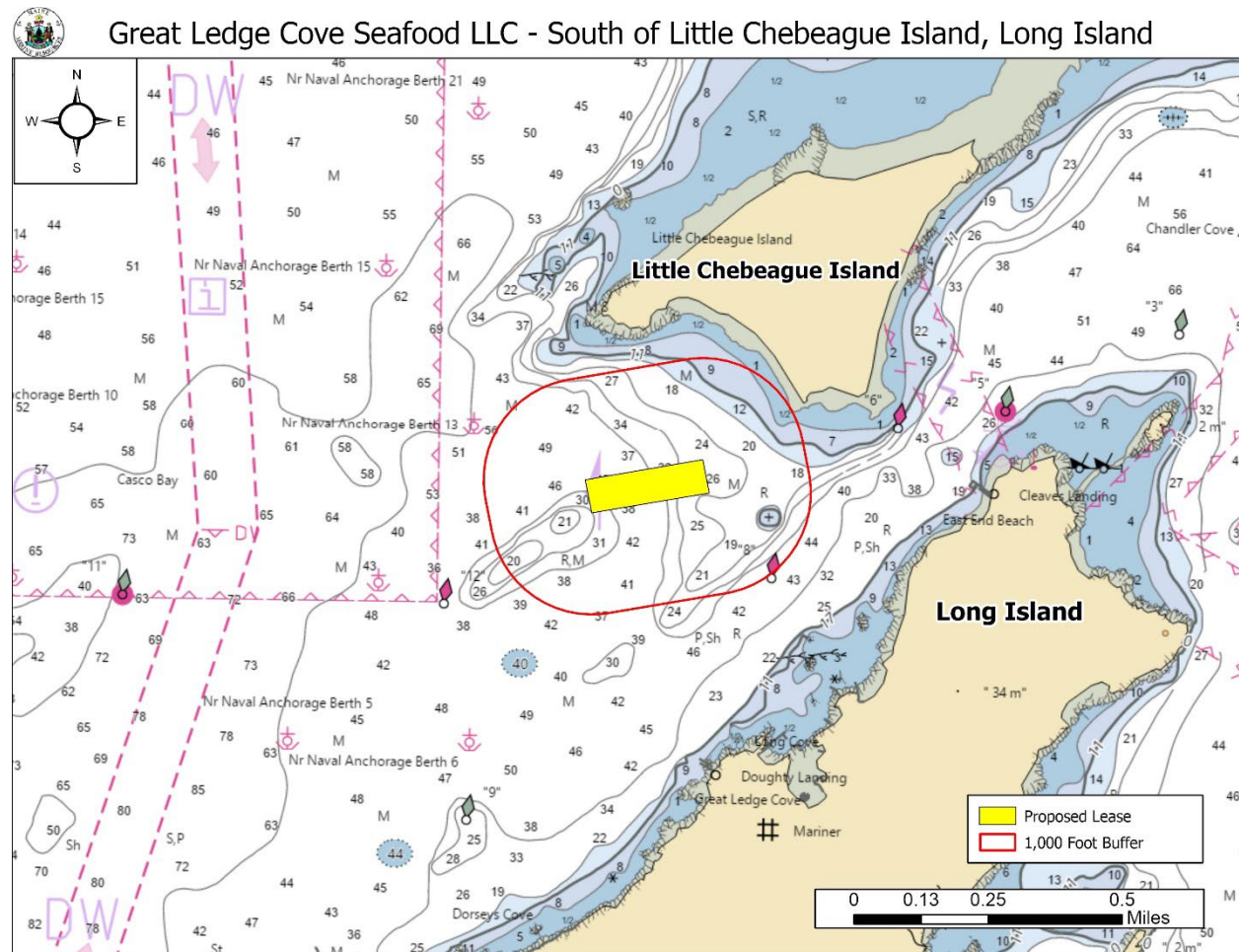


Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During MDMR’s site assessment, no commercial fishing activity was observed within the boundaries of the proposed lease. One lobster buoy was observed within 1,000 feet of the proposed lease approximately 95.1 feet to the west (Figure 2). There was recreational hook and line fishing observed to the north-northwest of the proposal near the Little Chebeague Island shoreline.



(4) Other Aquaculture Uses

The applicant currently operates experimental lease CAS LCI3x within the boundaries of this proposal. This standard lease proposal is intended to replace CAS LCI3x. There are three aquaculture leases within 1,000 feet of the proposal and no limited purpose aquaculture (LPA) sites. CAS LONG is approximately 591.4 feet to the north of the proposal, is held by Wild Ocean Aquaculture LLC., and is licensed to culture blue mussels (*Mytilus edulis*). CAS LCI2 is approximately 570.3 feet to the north of the proposal, is held by Wild Ocean Aquaculture LLC., and is licensed to culture marine algae. CAS LCI4x is located approximately 102.3 feet to the west of the proposal, is held by Stephen Train, and is licensed to culture marine algae (Figure 4).

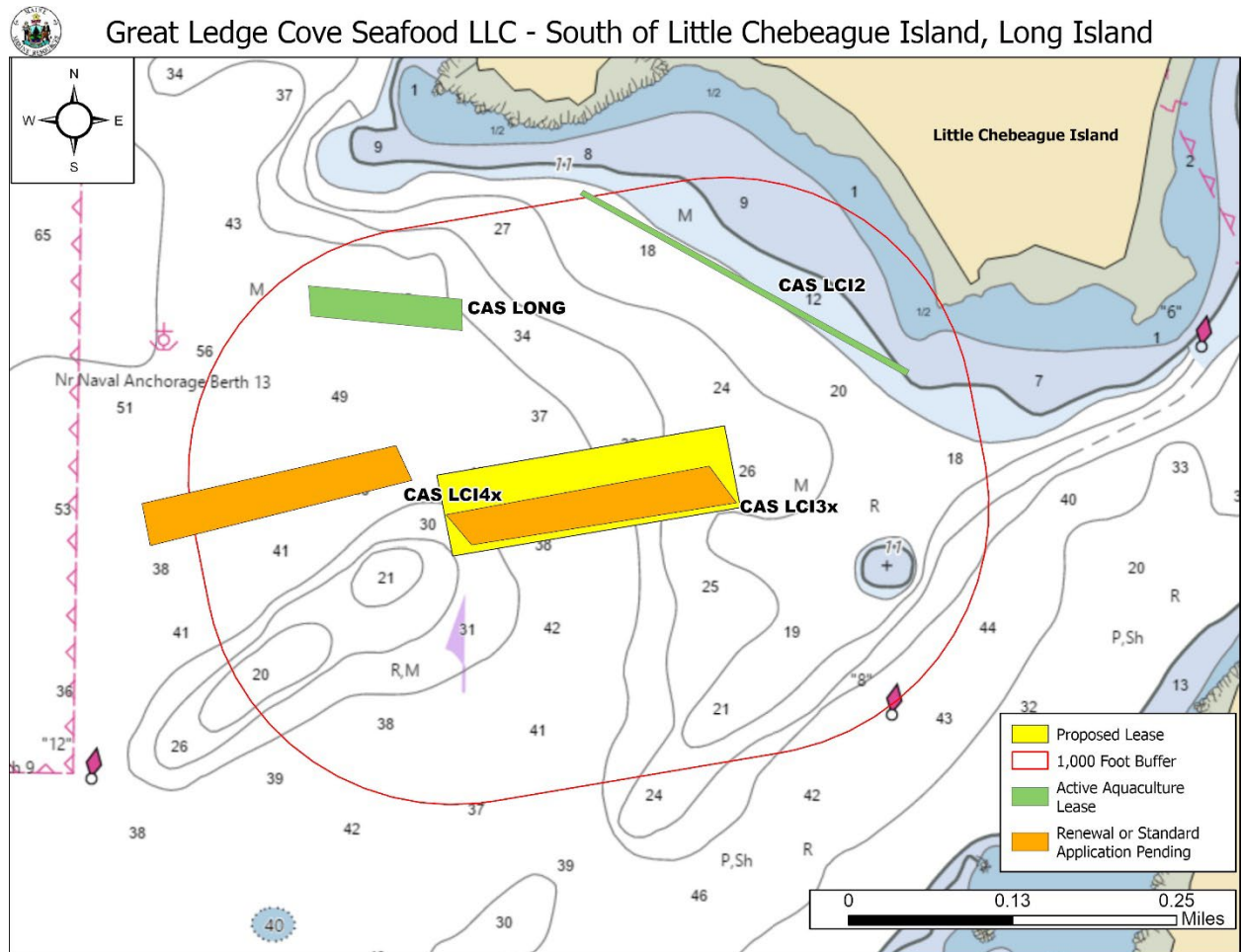


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

MDMR scientists used an ROV to assess the epibenthic ecology of the proposed lease. The relative abundance of epibenthic flora and fauna observed in the video transects is described below in Table 4.

Table 4. Species observed using underwater camera footage.

Species Observed	Abundance
Shrimp (<i>Crangon septemspinosa</i>)	Common
<i>Dasysiphonia japonica</i>	Common
Eelgrass (<i>Zostera marina</i>)	Occasional
Rock Crab (<i>Cancer irroratus</i>)	Occasional
Sugar Kelp (<i>Saccharina latissima</i>)	Occasional
Fig Sponge (<i>Suberites ficus</i>)	Occasional
Skinny kelp (<i>Saccharina angustissima</i>)	Occasional
Hermit crab (<i>Pagurus spp</i>)	Occasional
Northern cerianthid (<i>Synarachnactis lloydii</i>)	Occasional
Northern blood star (<i>Henricia sanguinolenta</i>)	Rare
Rockweed (<i>Ascophyllum nodosum</i>)	Rare
Toad crab (<i>Hyas coarctatus</i>)	Rare
Horsetail/fingered kelp (<i>Laminaria digitata</i>)	Rare

Eelgrass (*Zostera marina*)

Records of seagrass collected by Maine Department of Environmental Protection (MDEP) in 2022⁵ indicate mapped eelgrass approximately 773.5 feet to the northeast of the proposal (Figure 5).

During the site assessment, MDMR scientists observed sporadic blades of eelgrass attached to the seafloor within the proposal boundaries. Eelgrass blades were short and did not appear to be healthy or flourishing (Image 1). The water depth in this general area is approximately 26 to 45 feet at MLW.

Eelgrass is typically found in shallower water depths in subtidal to low intertidal area to allow for adequate light penetration. MDMR expects seasonal regrowth of eelgrass to occur in April/May and seasonal senescence of eelgrass to occur in October/November. The applicant is proposing to seasonally culture marine algae on longlines from October through the end of May.

⁵ 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.

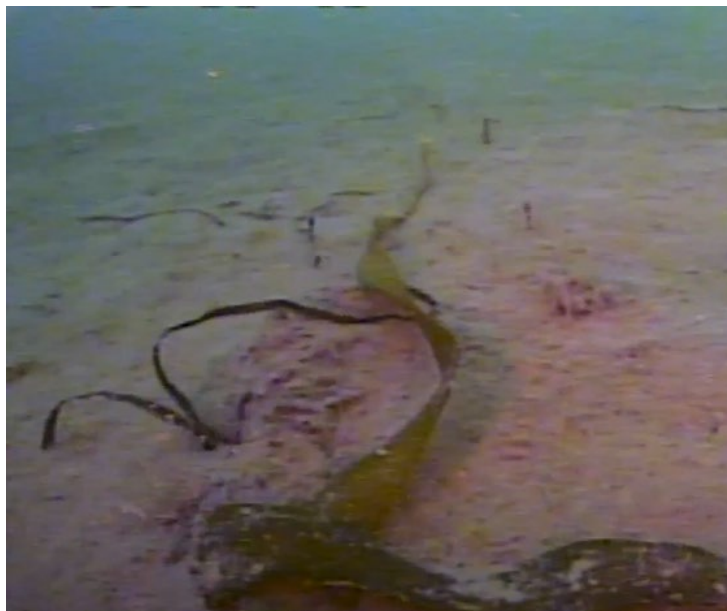


Image 1. Eelgrass observed during the site visit within proposal boundaries.



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 730.6 feet to the southwest of mapped Tidal Waterfowl and Wading Bird Habitat (TWWH). Data collected by the United States Fish and Wildlife Service in 2023 by aerial nest survey shows no mapped bald eagle nesting site to be in vicinity of the proposal (Figure 6).

During the site assessment, MDMR scientists observed double-crested cormorant (*Nannopterum auritum*), herring gull (*Larus argentatus*), gray seal (*Halichoerus grypus*), common eider (*Gavia immer*), and an osprey (*Pandion haliaetus*) in the vicinity of the proposal.



Great Ledge Cove Seafood LLC - South of Little Chebeague Island, Long Island

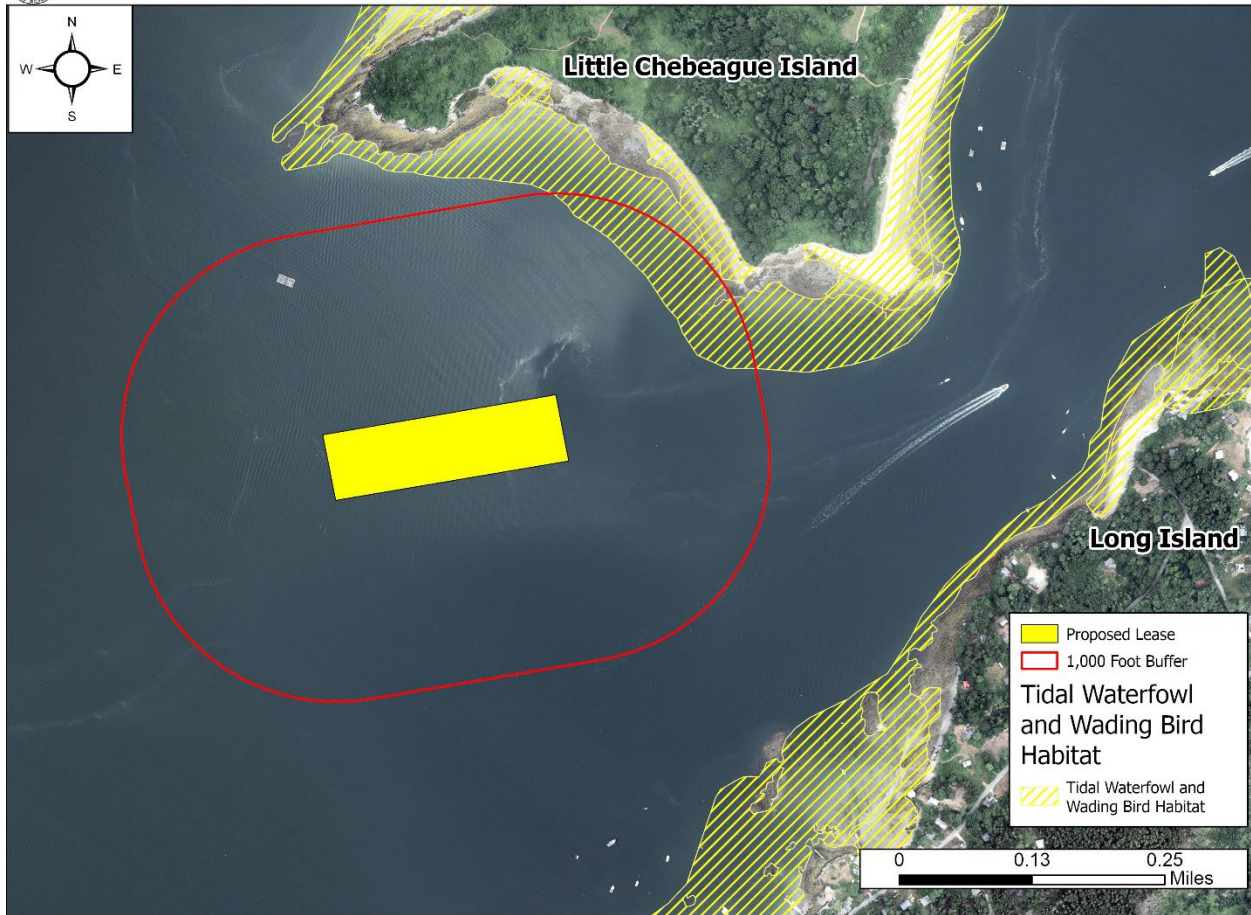


Figure 6. Mapped TWWH in the vicinity of the proposed lease area. ⁶

⁶ Data obtained from USFWS “Bald_Eagle_Nests_-_Maine_2023” and MDIFW maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”



(6) Interference with Public Facilities

The proposed lease is approximately 982.9 feet southwest of Little Chebeague Island. Little Chebeague Island is state owned and is accessible to the public at the discretion of the Maine Bureau of Parks and Lands. The proposed lease is not within 1,000 feet of any other beach, park, docking facility, or conserved lands owned by federal, state, or municipal governments (Figure 7).



Great Ledge Cove Seafood LLC - South of Little Chebeague Island, Long Island



Figure 7. Public facilities near the proposed lease site.⁷

(7) Water Quality

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

⁷ Data obtained from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"