

Figure 1. Vicinity map¹

Location: Northeast of Little Chebeague Island, Chandler Cove, Casco Bay, Chebeague Island, Cumberland County, Maine

Purpose: Standard lease for suspended culture of marine algae: Sugar Kelp (*Saccharina latissima*), Skinny Kelp (*Saccharina angustissima*), Horsetail Kelp (*Laminaria Digitata*) and Winged Kelp (*Alaria esculenta*)

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¹ 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 6.85-acre standard lease for the suspended culture of marine algae in Chandler Cove, Casco Bay in the town of Chebeague Island. Marine algae species are intended to be cultured on 30 longlines that are 1,100 feet long. Longlines will be in the water from September to June each year and 60 endline buoys will be on site year-round. A combination of screw anchors, 800-pound pyramid anchors and 2,000-pound blocks are intended to be used as moorings.² The applicant currently operates an experimental lease, CAS CHANx, within the boundaries of the proposal (Figure 4). This proposal is larger than existing experimental lease CAS CHANx. The applicant is proposing an expansion from 3.96 acres³ to 6.85 acres.⁴

General Characteristics

On March 23, 2022, MDMR scientists assessed the proposed lease site. MDMR arrived at approximately 1:50 pm. Underwater video footage was collected by conducting two transect lines with a drop camera within the proposed lease area. The proposal is located on the western side of Chandler Cove, northeast of Little Chebeague Island. The southwestern corner is approximately 700 feet from shore at mean high water (MHW). Little Chebeague Island is an uninhabited island that is open to the public for hiking and camping. The shoreline of Little Chebeague Island is sandy with shrubs and mixed forests inland. An intertidal sandbar connects Little Chebeague Island to Chebeague Island around low tide. The beach on the east side of the island can be used as a landing and anchoring location for boaters accessing the island.⁵ Chebeague Island is north and east of the proposal. Chebeague Island is an inhabited island with approximately 300 year-round residents. The population increases to approximately 1,850 people during the summer season.⁶ The shoreline and intertidal zone is a mixture of sandy beaches and low-lying ledges covered in seaweed. The uplands are a mixture of residential houses with grass lawns and patches of forest. Chandler Cove contains a mooring field in the northern corner for access to Chebeague Island. Chandler cove also contains the Chebeague Island Wharf where a passenger ferry lands to transport people between Portland and surrounding islands in Casco Bay⁷ (Figure 3).

Depth

On March 23, 2022, MDMR scientists assessed the site beginning at approximately 1:50 PM. Depths at the corners of the proposed site were recorded between 1:50 PM and 2:00 PM. The tide was rising with the next high tide predicted at 3:54 PM. Depths were determined to be between

² Application pages 6, 7

³ Experimental lease CAS CHANx application pages 1, 15

⁴ Application pages 1, 5

⁵ <https://www.mainetrailfinder.com/trails/trail/little-chebeague-island>

⁶ <https://www.chebeague.org/>

⁷ <https://www.ctcferry.org/>



approximately 33 feet and 44 feet (Table 1). Correcting for tidal variations derives depths at high tide from 35.4 - 46.3 feet and from 26.3-37.2 feet at mean low water (MLW, 0.0 feet).

Table 1. Depths recorded at proposed lease corners.

Corner	Depth (feet)
NE	44.2
NW	36.5
SE	43.4
SW	33.3

Table 2. Tide observations at Portland Station 8418150, Casco Bay, Maine (43° 39.5 N, 70° 14.7 W).⁸

Date	Time	Height (ft)
3/23/2022	3:18 AM	9.79 H
3/23/2022	9:30 AM	-0.8 L
3/23/2022	3:54 PM	8.78 H
3/23/2022	9:48 PM	0.28 L

Bottom Characteristics

MDMR scientists observed the bottom characteristics within the proposed site on March 23, 2022 via two underwater video transects using a drop camera. Observed bottom characteristics were categorized using the Coastal and Marine Ecological Classification Standard (CMECS), a national standard for describing features of the marine environment (Table 3) The observed sea floor was composed of primarily of soft mud with sporadic shell hash.

Table 3. Bottom characteristics of the proposed site.

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group
Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Mineral Substrate	Mud
Biogenic Substrate	Shell Substrate	Shell Rubble	Clam Rubble
Biogenic Substrate	Shell Substrate	Shell Hash	Clam Hash

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 4, Figure 2).

⁸ <https://tidesandcurrents.noaa.gov/stationhome.html?id=8418150>



Application Coordinates (WGS84) – 6.85 Acres (Figure 2)

Corner	Latitude	Longitude					
NE	43.715827° N	-70.136331° W	then	280.32	feet at	295°	True to
NW	43.716138° N	-70.137301° W	then	1,144.77	feet at	220°	True to
SW	43.713732° N	-70.140099° W	then	277.49	feet at	112°	True to
SE	43.713459° N	-70.139119° W	then	1,134.78	feet at	41°	True to NE

Table 4. Approximate distances from proposed lease to surrounding features (Figure 2).

Feature	Distance
SW corner to Little Chebeague Island, nearest point (~MLW)	~545 feet to the northwest
NW corner to tidal sandbar, nearest point (~MLW)	~580 feet to the northwest
NE corner to Chebeague Island, nearest point (~MLW)	~1200 feet to the northeast
NE corner to Chebeague Island Wharf, nearest point	~2500 feet to the east
SE corner to green navigational aid “3”	~1620 feet to the southeast
SE corner to green navigational aid “5”	~1970 feet to the south

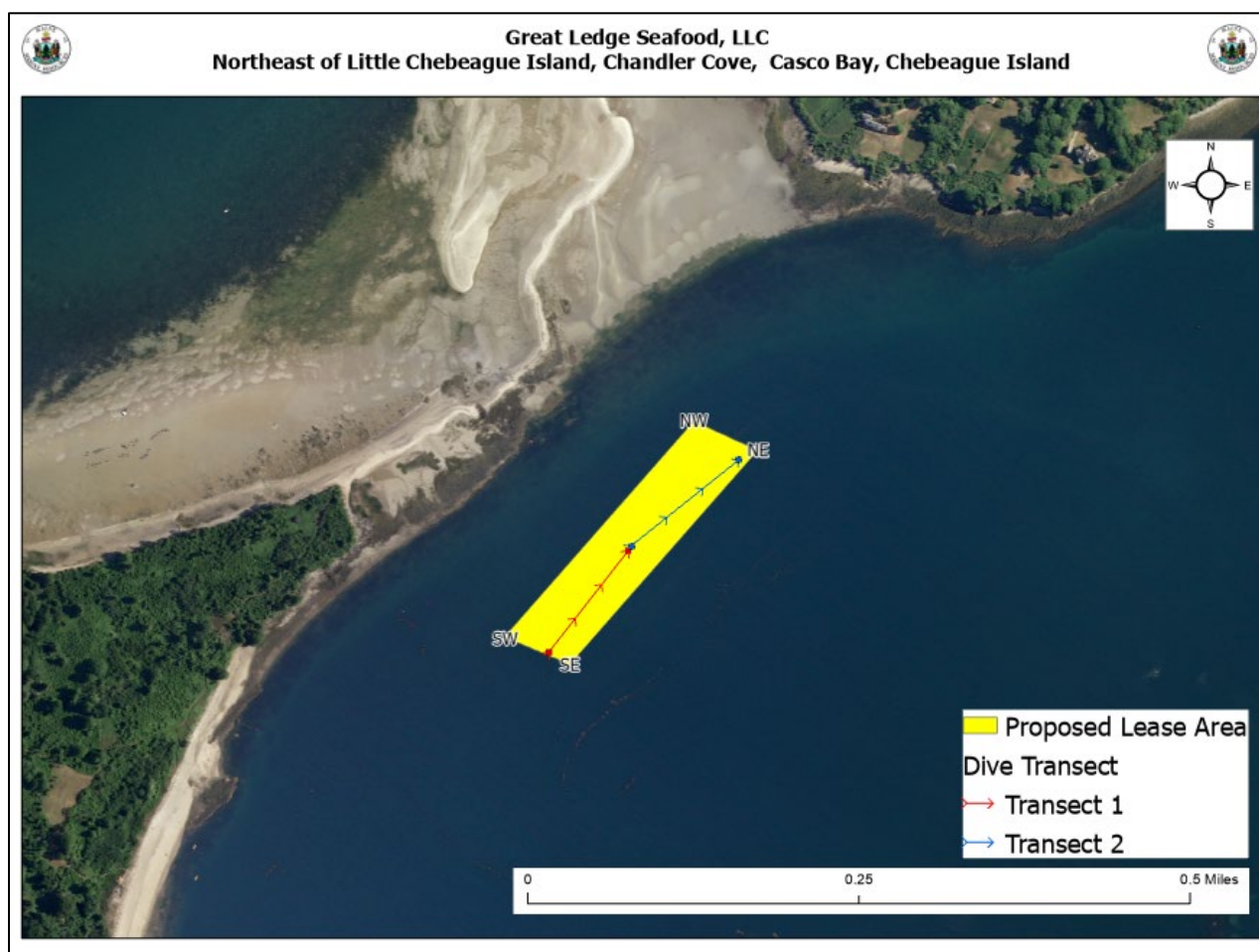


Figure 2. Approximate dive transects



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

(1) Riparian Ingress and Egress

The location of the proposal is on the western side of Chandler Cove. The proposed site is located over 500 feet from the Little Chebeague Island shoreline and tidal sandbar at MLW (Table 4). There are no docks or moorings within 1,000 feet of the proposal. The proposal is approximately 2,000 feet from the Chebeague Island mooring field located in Chandler Cove and approximately 2,600 feet from the Chebeague Island Wharf. The proposal is approximately 1,100 feet from the nearest riparian owner parcel at MHW and approximately 580 feet at MLW.

(2) Navigation

The proposal is within Chandler Cove, a waterbody that sits between Chebeague, Little Chebeague and Long Islands. Chandler Cove is used by both commercial and recreational boaters. A ferry lands on the Chebeague Island Wharf and transits the navigational channel between Little Chebeague and Long Islands (Figure 3). The proposed area is parallel to the eastern edge of the tidally exposed sandbar that connects Chebeague and Little Chebeague Islands. The proposal is along the western edge of the widest section of the marked channel that leads through Chandler Cove. Approximately 1,750 feet is available for navigation between the proposed lease site and the nearest navigational marker (GC "3") on the opposite side of the channel. At MLW, approximately 580 feet remain between the western boundary of the proposal and the tidally exposed sandbar to the west (Table 4). At MHW, more than 1,000 feet of navigable water remains to the north of the proposal.

At the time of MDMR's site visit on March 23, 2022 one motorboat was observed operating to the west of Little Chebeague Island and two lobster boats were observed navigating to the east.

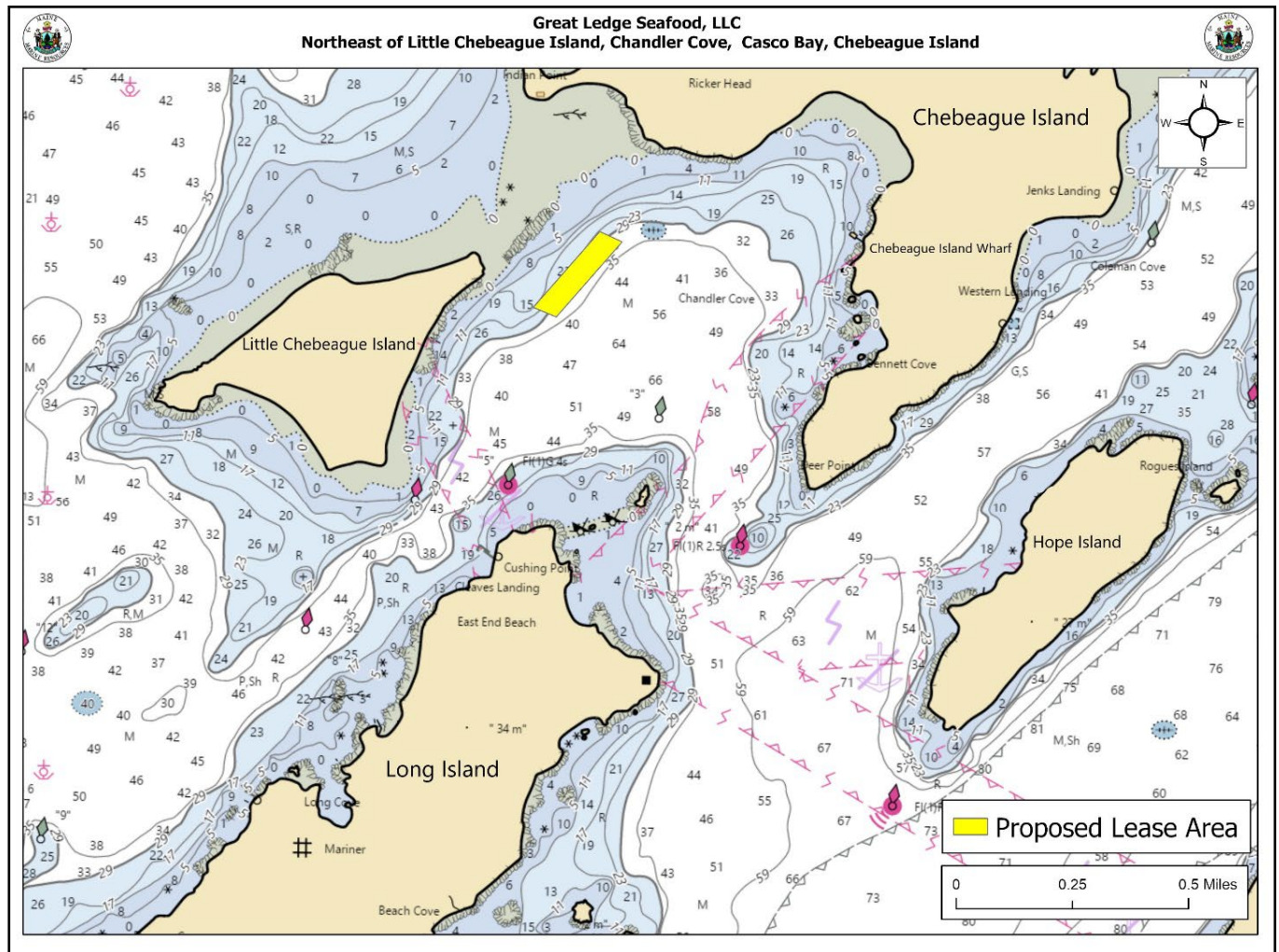


Figure 3. Proposed lease area, navigation channels, and channel markers.

(3) Fishing and Other Uses

During MDMR's site assessment on March 23, 2022, no commercial fishing activity was observed within the boundaries of the proposed lease site. Two lobster boats were observed navigating to the east of the proposed site but were not observed hauling or otherwise handling gear. Live sea scallops (*Placopecten magellanicus*) were rare but observed within the boundaries of the proposal on underwater camera footage during MDMR's site visit, as well as occasional scallop shells. Razor clams (*Ensis directus*) were also occasionally observed within the proposed lease boundaries on underwater footage (Table 5). MDMR did not observe any shellfish harvesting during the site assessment.

A Harbormaster Questionnaire was sent to the Town of Chebeague Island and the town Harbormaster on November 23, 2021. MDMR did not receive any comments from the harbormaster related to the proposed lease.



(4) Other Aquaculture Uses

The applicant currently operates experimental lease CAS CHANx within the boundaries of this proposal and would relinquish CAS CHANx if this proposal were to be granted. Standard lease CAS ELC, operated by Shearwater Ventures, LLC, is approximately 300 feet to the southwest of the proposal. There are no other Limited Purpose Aquaculture sites (LPAs) or leases within 1,000 feet of the proposal (Figure 4).

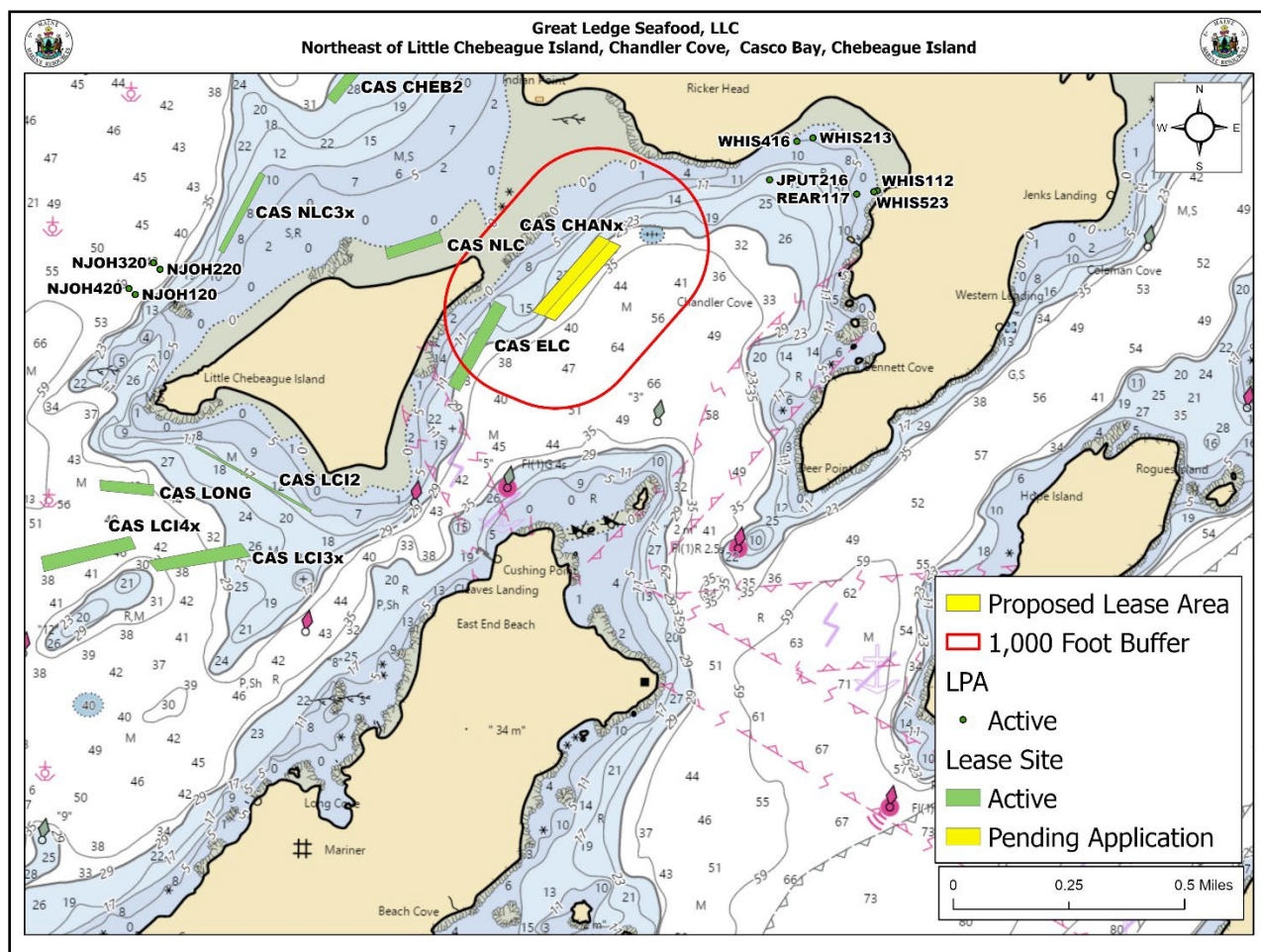


Figure 4. Aquaculture leases and Limited Purpose Aquaculture (LPA) licenses in the general area of the proposal.

(5) Existing System Support

Epibenthic Flora and Fauna

On March 23, 2022, MDMR scientists conducted underwater camera transects to assess the epibenthic ecology of the area (Figure 2). The observed bottom was primarily soft mud sediment with sporadic shell hash. Northern cerianthid anemone (*Cerianthus borealis*) and tunicate species were common along both transects. Atlantic sea scallops (*Placopecten*



magellanicus) were occasionally observed along both transects. Razor clams (*Ensis directus*) were observed, but rare. Drift rockweed (*Ascophyllum nodosum*) was occasionally observed, and unattached blades of Sugar Kelp (*Saccharina latissima*) were observed but rare. Hermit crabs (*Paguroidea* spp) were observed but rare.

Table 5. Species observed on underwater footage collected by MDMR

Species Observed	Abundance
Rockweed (<i>Ascophyllum nodosum</i>)	Rare
Tunicate species (not classified)	Common
Razor Clam (<i>Ensis directus</i>)	Rare
Hermit Crab (<i>Paguroidea</i> spp)	Rare
Hydroid species (not classified)	Occasional
Sea Scallop (<i>Placopecten magellanicus</i>)	Occasional
Sugar Kelp (<i>Saccharina latissima</i>)	Rare
Northern cerianthid anemone (<i>Cerianthus borealis</i>)	Common

Eelgrass (*Zostera marina*)

According to data collected in 2022, there is eelgrass (*Z. marina*) located within 1,000 feet of the proposal along the shoreline of Little Chebeague Island and the tidal sandbar. Data also indicates the presence of eelgrass along much of the shoreline of Chandler Cove (Figure 5). According to data collected in 2022, the northwestern boundary of the proposal is closest to observed eelgrass and is approximately 200 feet to the east of observed eelgrass.

Underwater footage collected by MDMR scientists on March 23, 2022, found eelgrass within the boundaries of the proposal. It was observed on underwater footage in higher density clumps as well as areas of sparse coverage throughout the first transect conducted by MDMR on March 23, 2022 (Image 1). Sparse coverage was observed in some areas of the second transect conducted by MDMR on March 23, 2022 (Image 2).

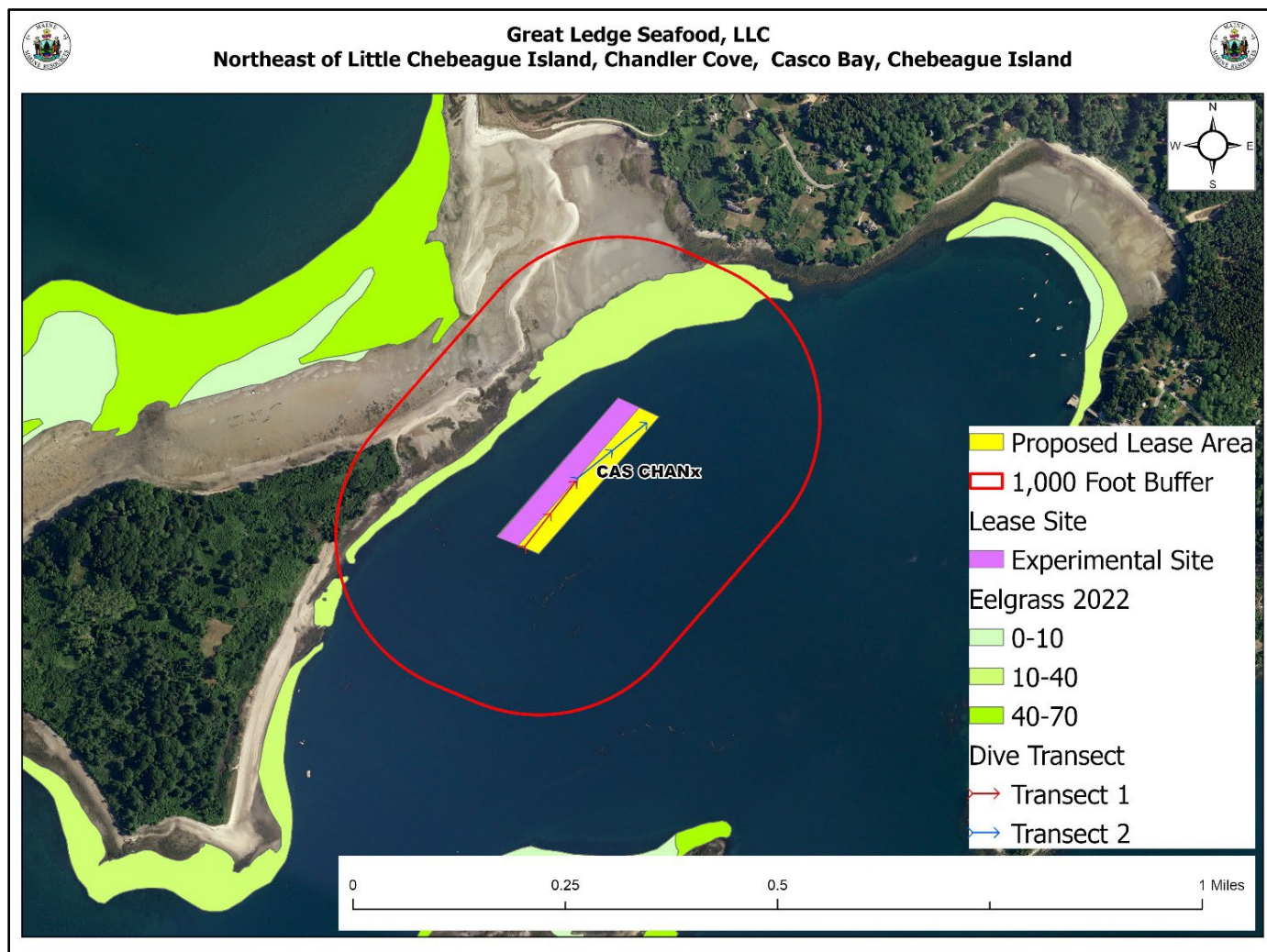


Figure 5. Historical eelgrass (*Z. marina*) near the proposed lease site utilizing data from 2022⁹, current active experimental lease boundaries and camera transects.

⁹ Data obtained from The Maine Office of GIS (Eelgrass 2022).



Image 1. *Z. marina* observed during transect 1.

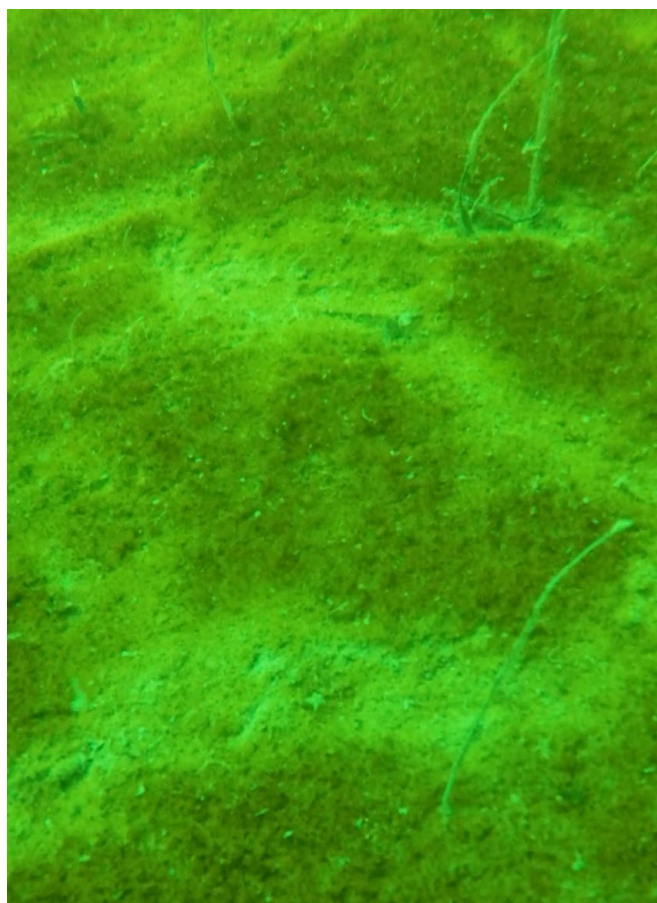


Image 2. *Z. marina* observed during transect 2.



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, the proposed lease area is not located within tidal waterfowl and wading bird habitat. There is tidal waterfowl and wading bird habitat within the 1,000-foot buffer area along the shore of Little Chebeague and Chebeague Island, as well as the tidal sandbar that connects the two islands. Data maintained by the US Fish and Wildlife Service (USFW) and available through the Maine Office of GIS indicate that the nearest bald eagle (*Haliaeetus leucocephalus*) nest documented near the site is over one mile away (Figure 6). During MDMR's site assessment conducted on March 23, 2022, Longtail ducks (*Clangula hyemalis*), gulls (*Larus* spp), Loons (*Gavia immer*), Eider ducks (*Somateria mollissima*) and Scoters (*Melanitta* spp) were observed in the vicinity of the proposal.

On November 24, 2021, a Wildlife Biologist with MDIFW responded by email to a "Request for Agency Review and Comment", stating that minimal impacts to wildlife are anticipated.¹⁰

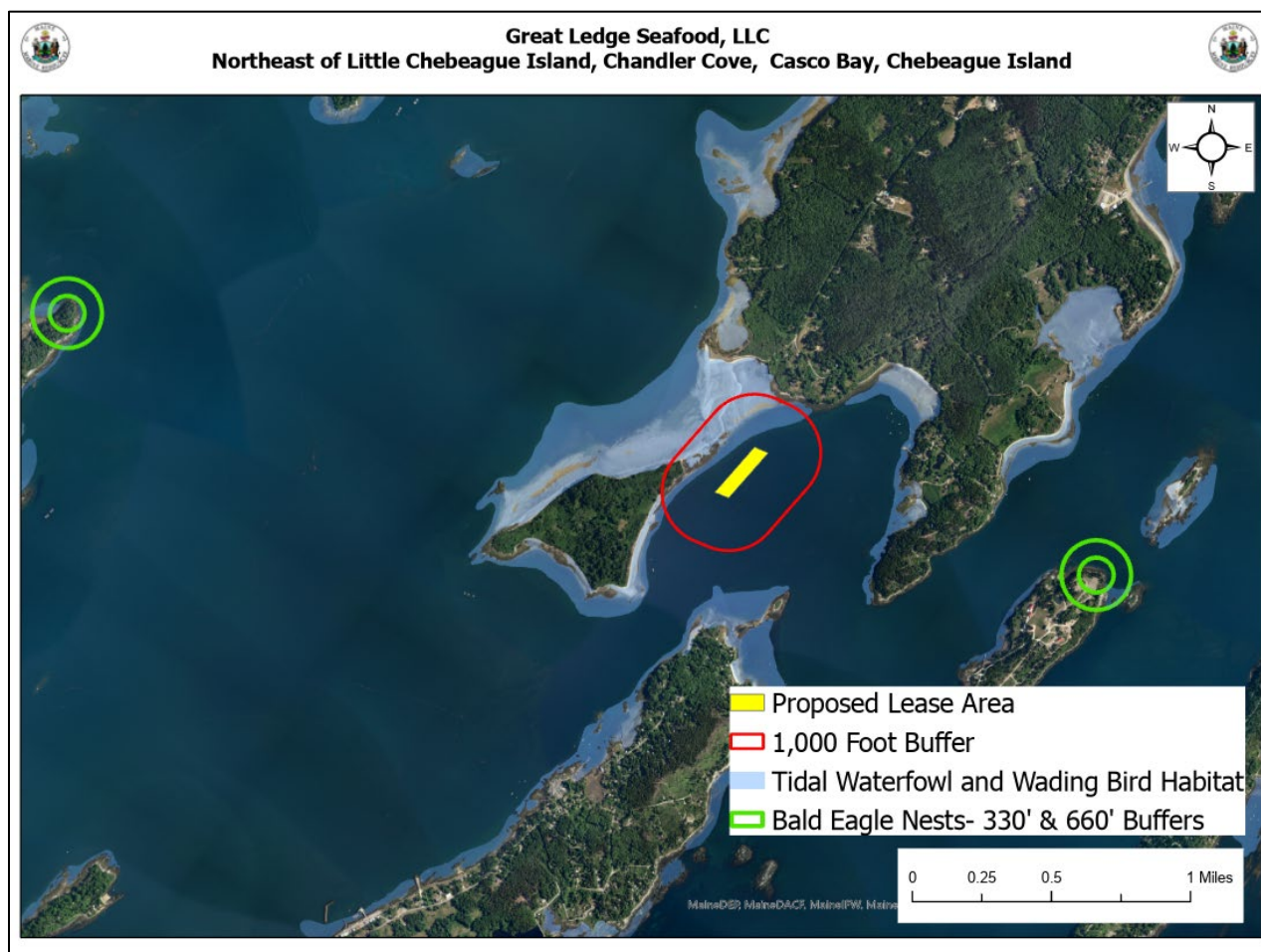


Figure 6. Tidal waterfowl and wading bird habitat, Bald eagle nests.¹¹

¹⁰ Email correspondence between MDIFW and MDMR

¹¹ Data obtained from MDIWF maintained SDE Feature Class "GISVIEW.MEIFW.Twwh", USFWS maintained SDE Feature Class "Bald Eagle Nests-330' & 660' Buffers"



(6) Interference with Public Facilities

The proposal is within 1,000 feet of Little Chebeague Island. The island is owned by the Maine Bureau of Parks and Land and is open for day use as well as overnight camping. Little Chebeague Island contains over one mile of hiking trails and primitive campsites for overnight visits. The beach on the east side of the island provides a landing ground and anchoring area for boaters to access the island. Little Chebeague can also be accessed from Chebeague Island by walking across the tidally exposed sandbar that connects the two islands (Figure 7).¹²

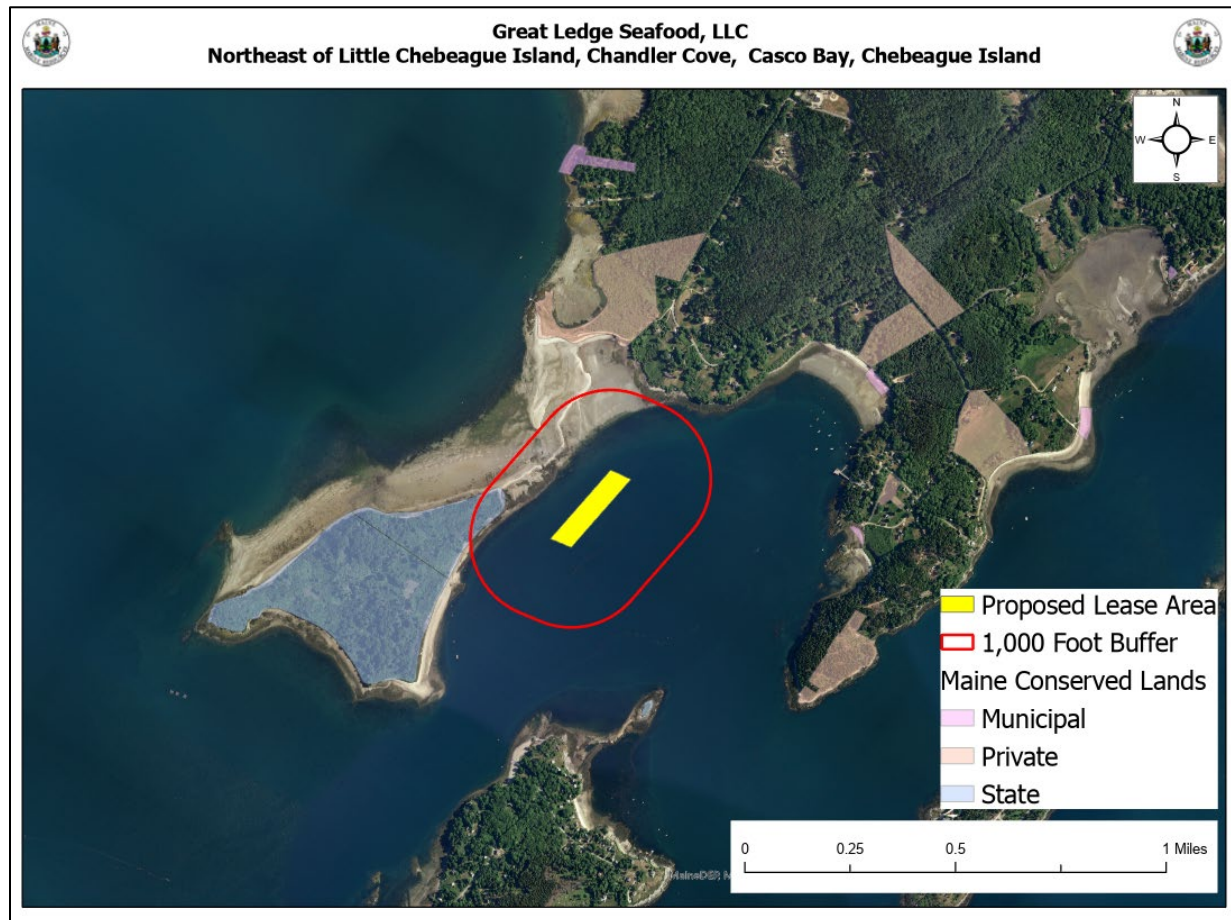


Figure 7. Public facilities near the proposed lease site.¹³

(7) Water Quality

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

¹² <https://www.mainetrailfinder.com/trails/trail/little-chebeague-island>

¹³ Data obtained from SDE Feature Class sourced from The Maine Office of GIS “GISVIEW.MECONSLANDS.Conserved_Lands”



(8) Lighting

The applicant does not plan on using any lights.¹⁴

(9) Noise

The applicant intends to use a 40-foot Wayne Beal boat for seeding and harvesting. The boat utilizes “wet exhaust” to dampen engine noise. An 18-foot skiff is intended to be used for checking lines during the growing season. No other powered equipment is intended to be used.¹⁵

(10) Visual Impact

The applicant intends to install 30 longlines with a white or orange “poly ball” buoy on each end for a total of 60 end line buoys. These buoys are intended to be onsite year-round. Up to 300 depth control buoys are intended to be used on the site attached to the longlines. Buoys are intended to be various colors to mark each longline.¹⁶ Lease corner markers are not indicated in the final application but may need to be added to conform with changes to DMR aquaculture lease marking requirements effective January 1, 2023 (DMR Rule 2.80).

¹⁴ Application page 15

¹⁵ Application page 14

¹⁶ Application page 6,7,10