

Figure 1. Vicinity map.¹

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

Purpose: Experimental lease for suspended culture of American/easter oyster (*Crassostrea virginica*)

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Report Preparation: Meryl Grady and Amanda Ellis

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, Chebeague Island Oyster Company LLC, is requesting a 2.22-acre² experimental lease in Chandler Cove, Chebeague Island for the suspended culture of American/eastern oysters (*Crassostrea virginica*). The applicant intends to utilize this site for overwintering only. Gear and product would be present from October 1 through May 15. From May 15 through October 1, four required lease corner markers³, six endline toggle buoys, and ten associated helical anchors would remain on site.⁴

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 9:42 AM. The Chebeague Island shoreline, in the vicinity of the proposal, consists of rocky, ledge with tall cliff faces to the north of the proposal and inner Chandler Cove, northeast of the proposal, contains a sand beach. There is a large mooring field east and south of the proposal.

Depth

MDMR scientists began collecting depths at the proposed site shortly after low tide at approximately 9:44 AM. Measured depths at corners of the proposed lease site ranged from 7.2 to 16.1 feet. Correcting for tidal variation derives water depths at corners of the proposal at mean low water (MLW, 0.0 feet) to be from 6.9 to 15.8 feet (Table 1).

Table 1. Predicted tidal heights for Great Chebeague Island, Maine.⁵

Date	Time	Height (ft)
2024/06/11	3:05 AM	9.71 H
2024/06/11	9:34 AM	0.32 L
2024/06/11	3:53 PM	8.58 H
2024/06/11	9:43 PM	1.70 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 composed of shell hash, gravel, and sand.

² Applicant originally requested 2.4 acres. MDMR calculations indicate the area is 2.22 acres.

³ The application states on page 4 and displays on page 23 the use of four lease corner markers. According to MDMR regulations 2.80, in cases where the boundary line exceeds 200 yards, additional devices shall be displayed so as to clearly show the boundary line of the lease. MDMR measurements indicate two sides of the lease boundaries exceed 200 yards so the applicant will need to add additional yellow floating devices to comply with 2.80.

⁴ Application pages 4, 5

⁵ <https://tidesandcurrents.noaa.gov/oaatidepredictions.html?id=8417881>



Table 2. Bottom characteristics of the proposed site.

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group
Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly Sand
Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Sand
Organic Substrate	Shell Substrate	Shell Rubble	Clam, Oyster, Mussel Rubble

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) – 2.22 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.717922°	-70.132506°	then 692.9 feet at 65° True to
NE	43.718710°	-70.130121°	then 153.5 feet at 123° True to
SE	43.718474°	-70.129640°	then 701.5 feet at 244° True to
SW	43.717641°	-70.132032°	then 161.8 feet at 310° True to NW

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

Feature	Distance
NW corner to Chebeague Island at MLW	~100' to the north
NE corner to Chebeague Island at MLW	~115' to the north
SE corner to Chandler Cove sand beach at MLW	~650' to the northeast
SW corner to tidally exposed sandbar between Chebeague Island and Little Chebeague Island at MLW	~1,100' to the west

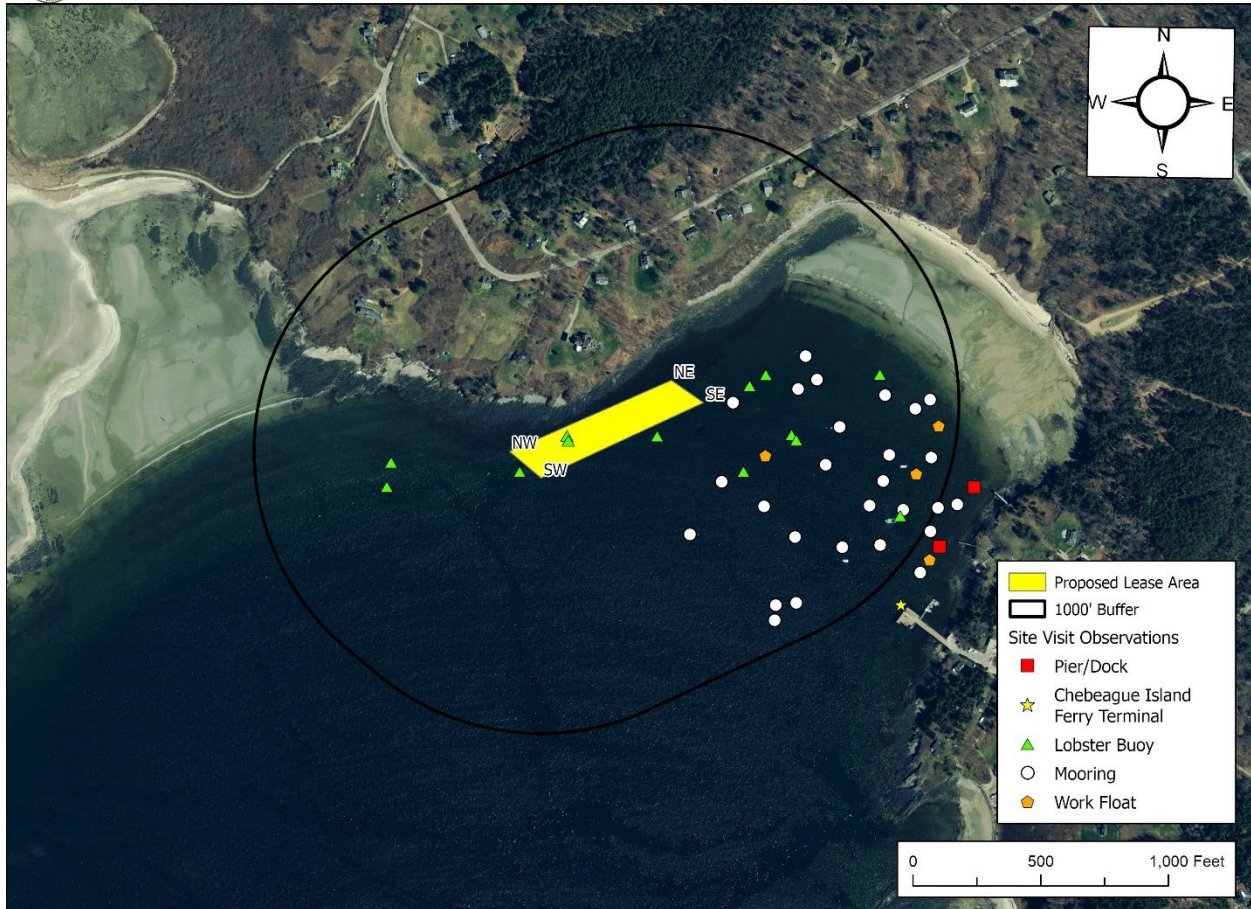


Figure 2. Proposed lease area with site visit observations.

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 piers within 1,000 feet of the proposal. Two private piers and the Chebeague Island Ferry Terminal Pier are just over 1,000 feet southeast of the proposal. Scattered residential houses are present north of the proposal and throughout Chandler Cove. The shoreline adjacent to the northern boundary of the proposal consists of ledges and a large cliff face which can limit riparian access to the shoreline. Additionally, MDMR observed a large mooring field to the east of the proposal. The mooring field consisted largely of commercial fishing vessels, recreational powerboats, and work floats. The mooring closest to the proposal is 115 feet to the east (Figure 2).

The local harbormaster indicated in the harbormaster questionnaire that the proposal will not have any effect on riparian ingress and egress.



(2) Navigation

The proposal is in shallow water outside of any navigational channel. There is 1,138 feet from the proposal to the Chebeague Island Ferry Terminal and 2,730 feet to green can “3”. During MDMR’s site visit, the ferry departed from the Chebeague Island Ferry Terminal and headed southerly in the navigational channel. A short time later, a ferry was observed navigating northerly near green can “3” and followed the navigational channel westerly (Figure 3).

The local harbormaster indicated in the harbormaster questionnaire that the area of the proposal is too shallow for navigation.

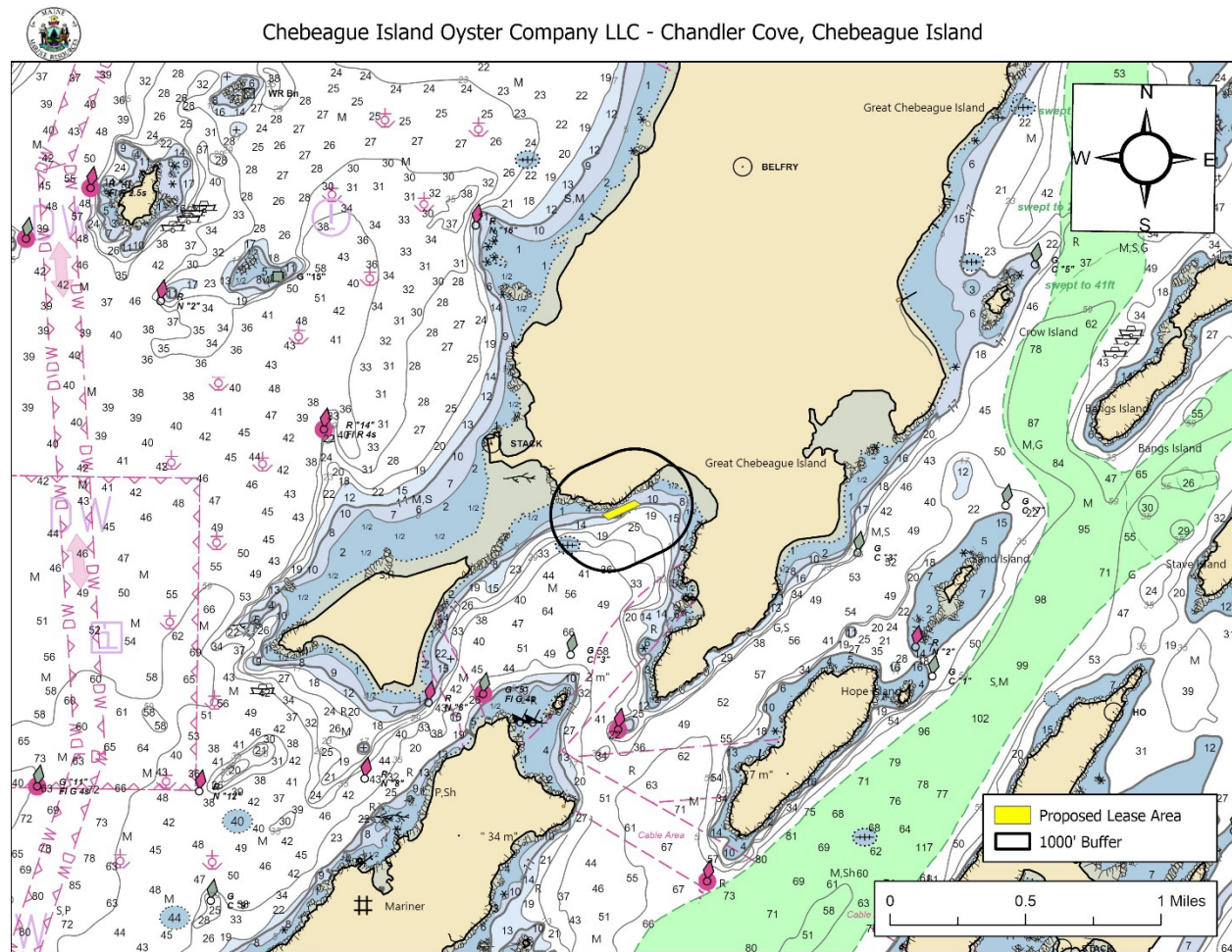


Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During the site visit, MDMR documented two lobster buoys within the proposal boundaries and 11 in the general vicinity of the proposal. MDMR recorded the location of buoys closest to the proposal, as seen in Figure 2. MDMR observed lobster (*Homarus americanus*) within the proposal



boundaries on underwater camera footage collected during the site visit. MDMR did not observe any commercial or recreational fishing during the site visit.

The local harbormaster indicated in the harbormaster questionnaire that there is no fishing activity during the season the proposal is intended to be in use (October 1 – May 15).

(4) Other Aquaculture Uses

There are three limited purpose aquaculture (LPA) sites and no aquaculture leases within 1,000 feet of the proposed lease site. JPUT216 is 134 feet south of the proposal, WHIS416 is 339 feet northeast of the proposal, and WHIS213 is 500 feet northeast of the proposal. WHIS416 and WHIS213 are held by David Whiston who is a member of Chebeague Island Oyster Company LLC⁶ (Figure 4).

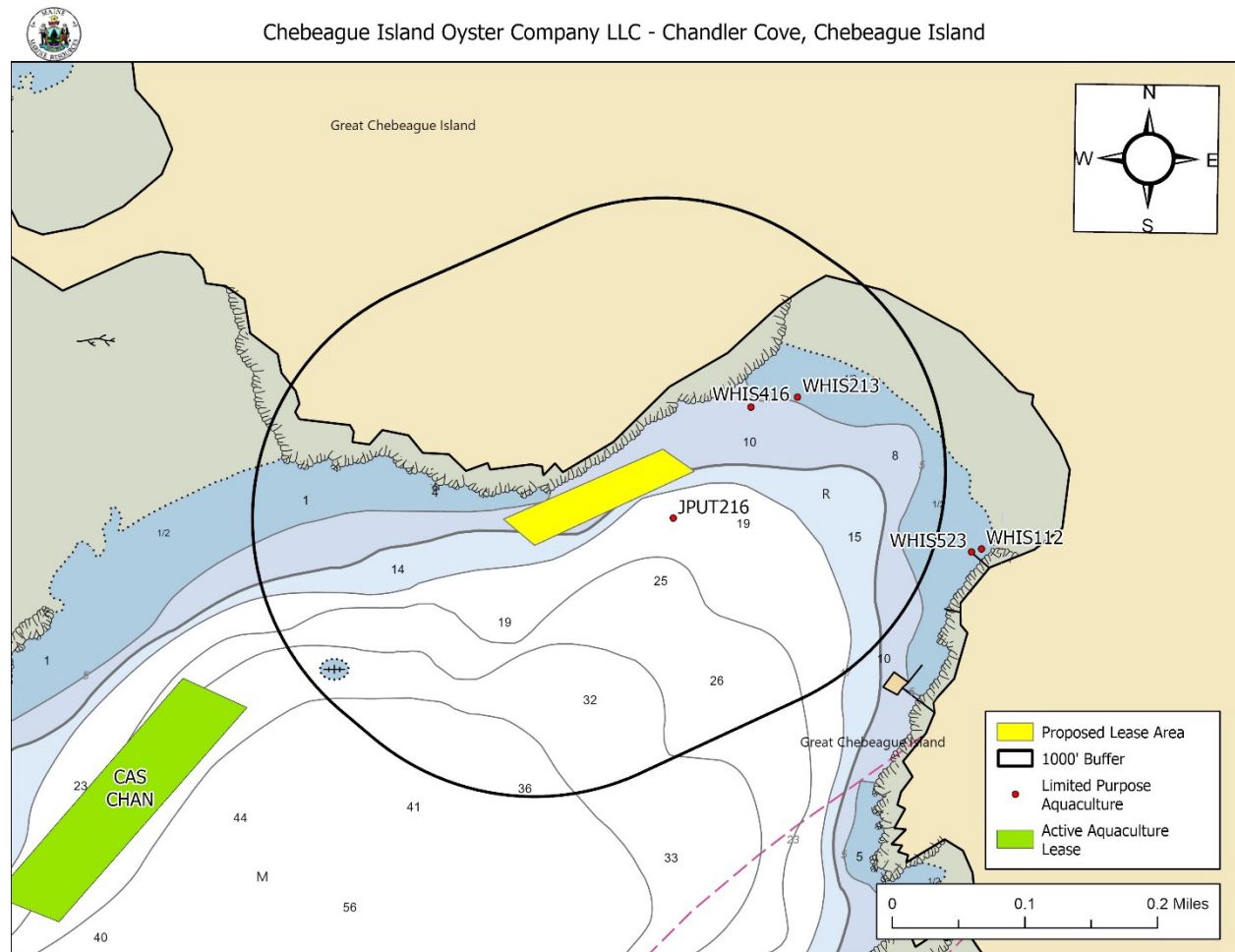


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

⁶ Application page 8,29



(5) Existing System Support

Epibenthic Flora and Fauna

On June 11, 2024, 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.

Table 4. Species observed on underwater camera footage.

Species Observed	Abundance
Hermit Crab (<i>Pagurus</i> spp)	Abundant
Rockweed (<i>Ascophyllum nodosum</i>)	Common
Rock Barnacle (<i>Semibalanus balanoides</i>)	Common
Common Periwinkle (<i>Littorina littorea</i>)	Common
Northern Whelk (<i>Buccinum undatum</i>)	Common
Sugar Kelp (<i>Saccharina latissima</i>)	Common
Crab (<i>Cancer</i> spp)	Occasional
Filamentous Red Algae (<i>Dasysiphonia japonica</i>)	Occasional
European Oyster (<i>Ostrea edulis</i>)	Occasional
Sand Shrimp (<i>Crangon septemspinosa</i>)	Occasional
Flounder (likely <i>Pleuronectes americanus</i>)	Rare
Pancake Batter Tunicate (<i>Didemnum vexillum</i>)	Rare
Northern Moon Snail (<i>Euspira heros</i>)	Rare
European Green Crab (<i>Carcinus maenas</i>)	Rare
American Lobster (<i>Homarus americanus</i>)	Rare
Unidentifiable finfish species	Rare

Eelgrass (*Zostera marina*)

Recent records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) indicate mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 123 feet northeast of the proposal and 188 feet west of the proposal (Figure 5). No eelgrass was observed on underwater camera footage within the proposal boundaries during MDMR’s site assessment.⁷

⁷ 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.

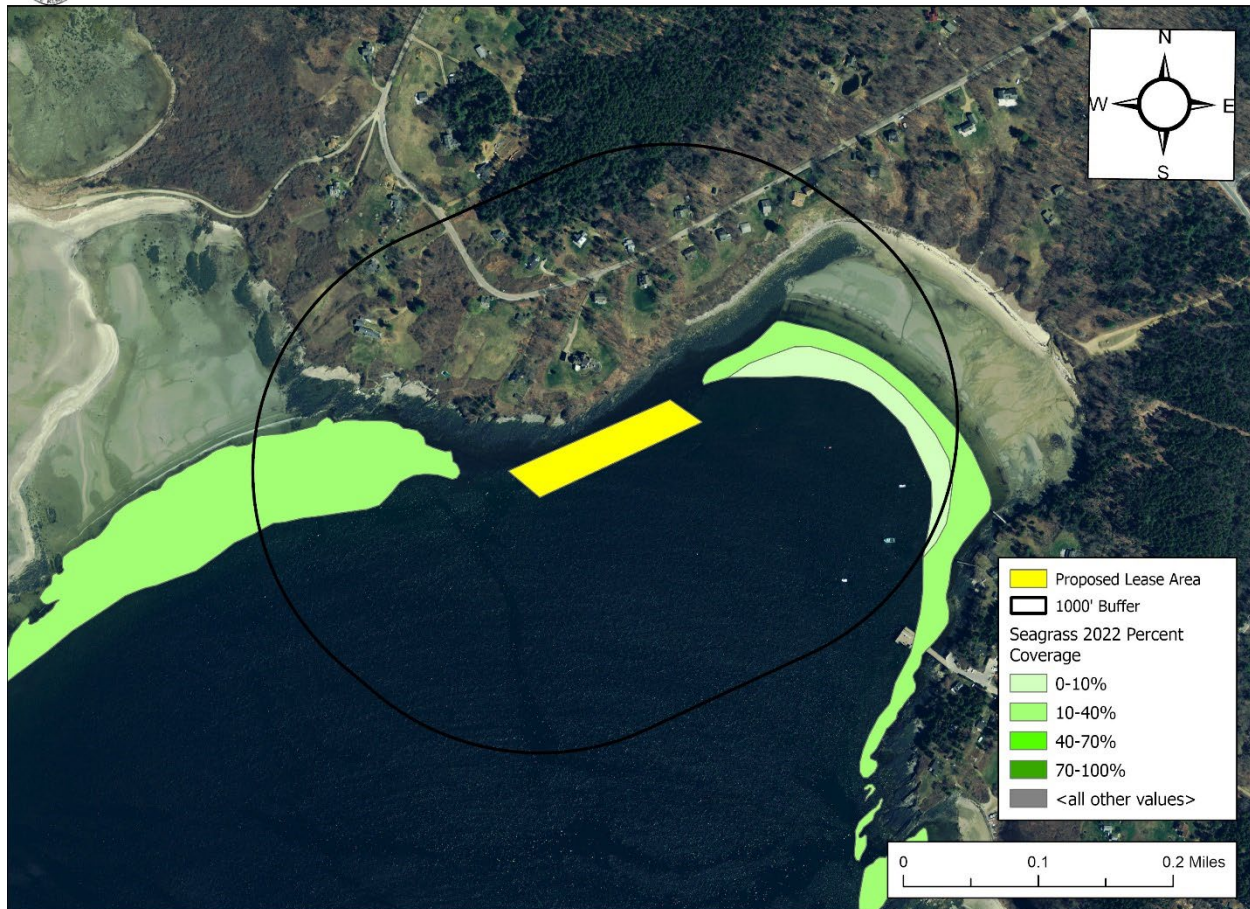


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

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 partially within mapped Tidal Waterfowl and Wading Bird Habitat (TWWH) (Figure 6). Data collected by the United States Fish and Wildlife Service in 2022 by aerial nest survey shows the closest mapped bald eagle nesting site to be approximately 1 mile southeast of the proposal on Hope Island.

On August 3, 2023, a Resource Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” stating a portion of this lease falls within TWWH so it is recommended that the proposal be located outside of mapped resource in an effort to preserve TWWH.⁸

⁸ Email correspondence between MDIFW and MDMR



During the site assessment, MDMR scientists observed double-crested cormorant (*Nannopterum auritum*), mallard (*Anas platyrhynchos*), herring gull (*Larus argentatus*), a red-tailed hawk (*Buteo jamaicensis*), common eider (*Somateria mollissima*), and a peregrine falcon (*Falco peregrinus*) in the general vicinity of the proposal.



Chebeague Island Oyster Company LLC - Chandler Cove, Chebeague Island



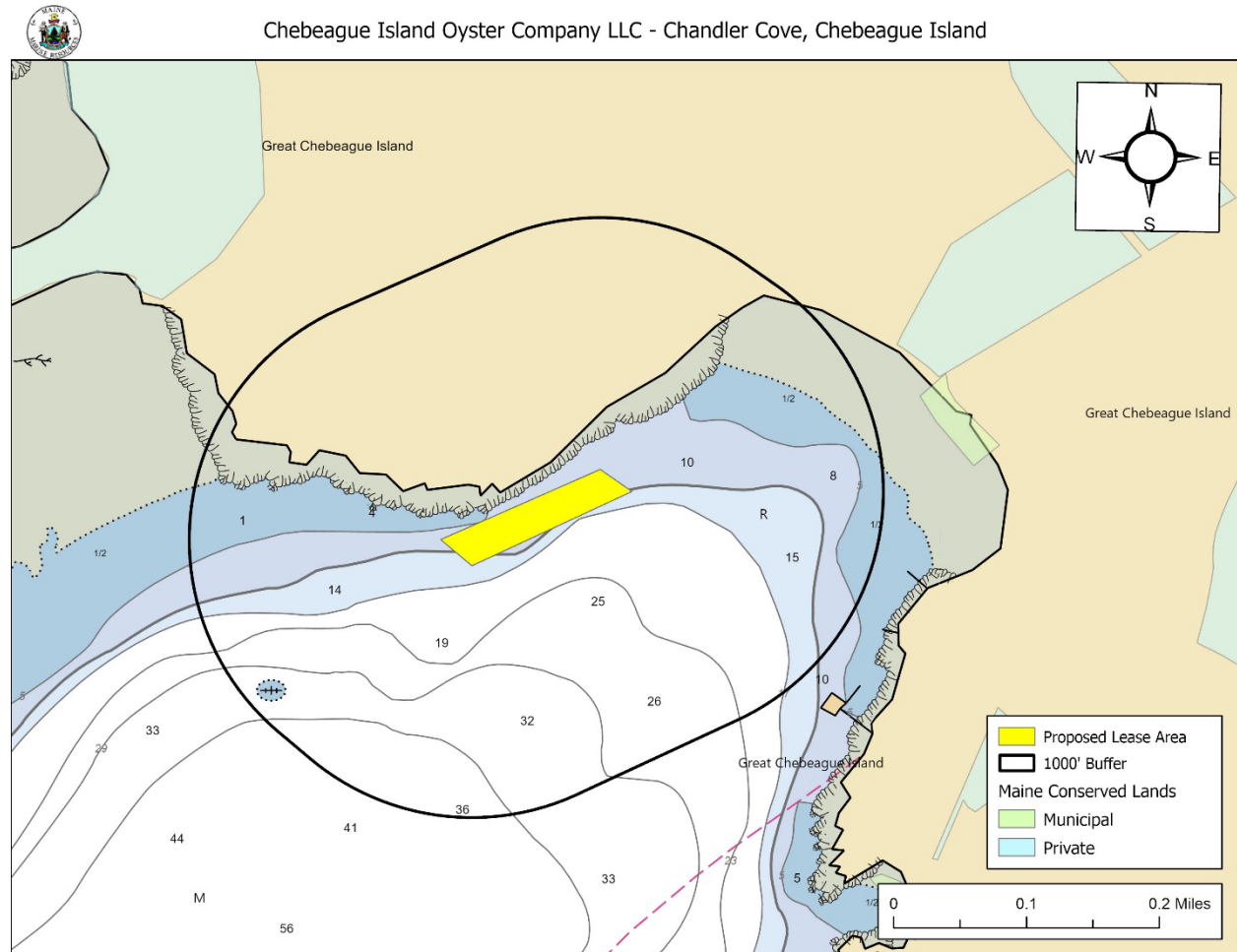
Figure 6. Mapped TWWH.⁹

⁹ 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 within 1,000 feet at MLW of beach property owned by a municipal government (Figure 7). Part of Chandler Cove Beach is owned by the Town of Chebeague Island. The proposed lease is not within 1,000 feet of any 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.