

Figure 1. Vicinity map.¹

Location: West of Great Chebeague Island, Casco Bay, Chebeague Island, Cumberland County, Maine

Purpose: Experimental 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*)², dulse (*Palmaria palmata*), Irish moss (*Chondrus crispus*), and sea lettuce (*Ulva lactuca*).

Site Review: Geoff Shook and Katie von Hohenleiten

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 geo-referenced aerial photographs provided by The Maine Office of GIS.

² Application lists the scientific name for shotgun kelp as *Agarum cribosum*. The current accepted scientific name is *Agarum clathratum*.



Application Overview

The applicant, John Jordan, is requesting a 3.97³ acre experimental lease west of Great Chebeague Island in Casco Bay for the suspended culture of marine algae. Moorings, mooring lines and chains, required lease boundary markers, and one center mooring buoy on each end are intended to remain on site year-round. Mooring lines left onsite will be tied to corner or middle buoys to reduce the farm’s off-season profile. All longlines, mooring buoys (except one center mooring on each end), and depth control buoys will be removed from the site from June 1 – September 30. ⁴

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 1:11 PM. Chebeague Island, in the vicinity of the proposal, is a populated island with residential homes and a large, sandy beach and a rocky shoreline that leads to forested uplands.

Depth

MDMR scientists began collecting depths at the proposed site shortly after low tide at approximately 1:14 PM. Measured depths at corners of the proposed lease site ranged from 25.3 to 26.7 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 23.1 to 24.5 feet (Table 1).

Table 1. Predicted tidal heights in Falmouth foreshore, Maine.⁵

Date	Time	Height (ft)
2024/08/14	12:34 AM	1.5 L
2024/08/14	6:49 AM	7.5 H
2024/08/14	12:38 PM	2.0 L
2024/08/14	7:01 PM	8.9 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 with an overlay of sheet algal beds.

³ Applicant originally requested 3.98 acres. MDMR calculations indicate the area is 3.97 acres.

⁴ Application pages 9, 17

⁵ <https://www.usharbors.com/harbor/maine/falmouth-foreshore-me/tides/?tide=2024-08#monthly-tide-chart>



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
Benthic/Attached Biota	Aquatic Vegetation Bed	Benthic Macroalgae	Sheet Algal Bed

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, Figures 2,3).

Application Coordinates (WGS84) – 3.97 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.74182°	-70.13515°	then 162.7 feet at 123° True to
NE	43.74157°	-70.13464°	then 1,063.9 feet at 216° True to
SE	43.73919°	-70.13697°	then 162.7 feet at 303° True to
SW	43.73944°	-70.13748°	then 1,063.9 feet at 036° True to NW

Table 3. Approximate distances from proposal corners to surrounding features (Figures 2 & 3).

Feature	Distance
NE corner to Great Chebeague Island shoreline at MLW	~1,596.7' to the east
NE corner to Division Point at MLW	~1,952.4' to the northeast
SE corner to Great Chebeague Island shoreline at MLW	~1,825.7' to the east
SE corner to red navigation buoy "16"	~2,557.8' to the southwest
SW corner to red navigation buoy "16"	~2,565.3' to the southwest
SW corner to Lower Basket Ledge at MLW	~5,896.8' to the southwest
SW corner to Cousins Island shoreline at MLW	~4,265.9' to the northwest
NW corner to Cousins Island shoreline at MLW	~3,405.5' to the northwest
NW corner to red navigation buoy "18"	~5,149.4' to the northeast



John Jordan - West of Great Chebeague Island, Chebeague Island



Figure 2. Proposed lease area with site visit observations.⁶

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

The land nearest to the proposal is Great Chebeague Island approximately 1,596.7 feet to the east at MLW. During the site visit, MDMR observed one unoccupied mooring approximately 987.1 feet northeast of the proposal. This was the closest mooring to the proposal. MDMR also observed several other moorings further from the proposal that span the Great Chebeague Island shoreline to the northeast and southeast of the proposal (Figure 2).

A Harbormaster Questionnaire was received by MDMR from the local Harbormaster on October 17, 2023. The Harbormaster stated there are no permitted moorings within the boundary of the proposal and there are no riparian owners within 1,000 feet of the proposal.

⁶ The two sets of double white lines observed in the imagery (south of Cousins Island and just west of the proposal) are wake lines or water bubble residue from vessels that navigated through the area shortly before the imagery was taken.



(2) Navigation

The proposal is located approximately 1,596.7 feet west of Great Chebeague Island at MLW. There is approximately 4,265.9 feet of navigable water between the proposal and the eastern shore of Cousins Island at MLW. The eastern edge of the main navigational channel is located immediately to the west of proposal if you draw a straight line from red navigational buoy "16" to red navigational buoy "18" (Figure 3).

During MDMR's site visit, four recreational powerboats were observed transiting in the main navigational channel to the north of Great Chebeague Island. Two recreational sailboats were observed transiting to the west of the proposal.

The Harbormaster indicated in the Harbormaster Questionnaire that the proposal would not impact navigation during the proposed growing season from October through May.

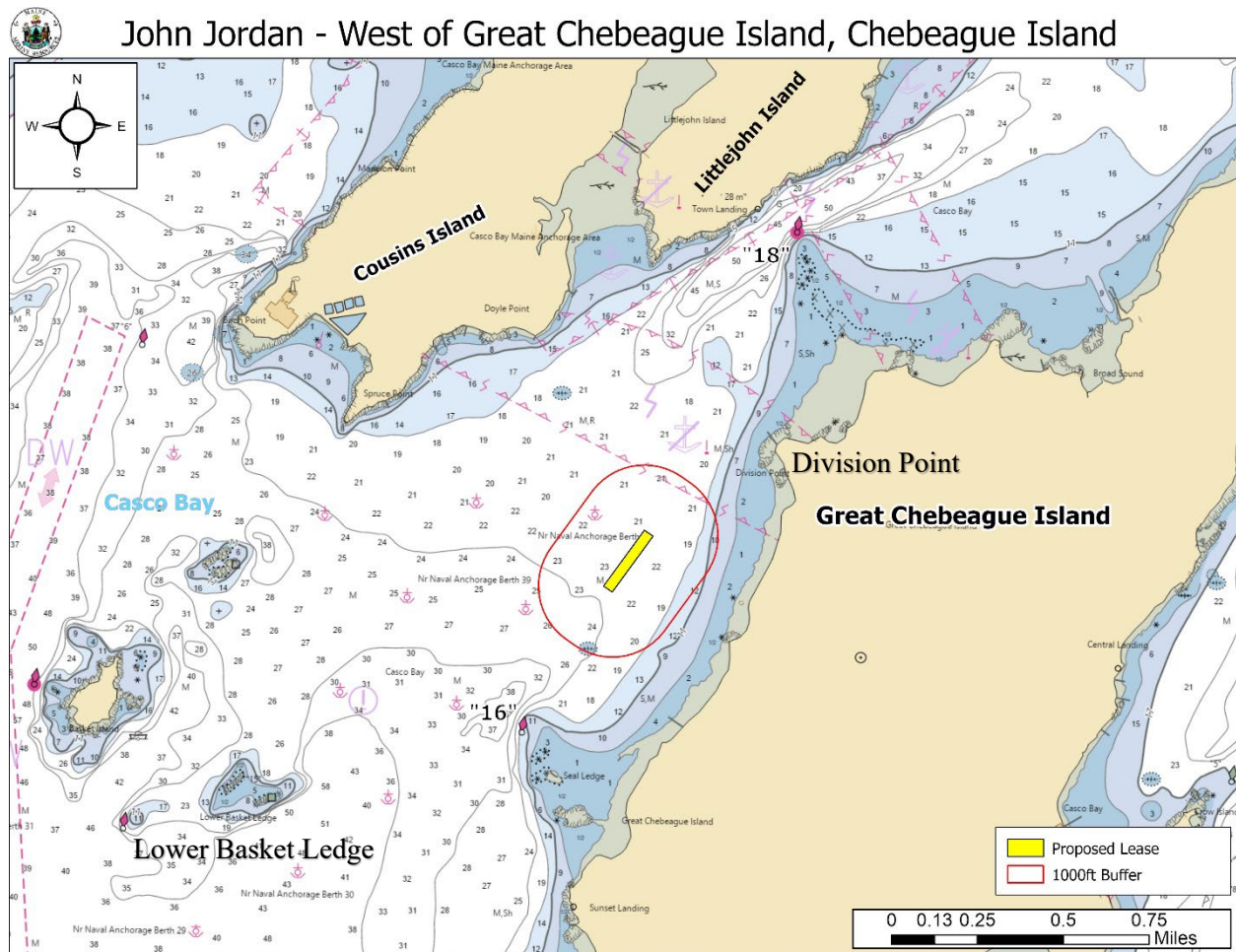


Figure 3. Navigational channels in the vicinity of the proposed lease area.



(3) Fishing and Other Uses

During the site visit, MDMR observed five lobster buoys in the general vicinity of the proposal. The closest buoy was located approximately 358.6 feet northeast of the proposal (Figure 2).

The Harbormaster indicated in the Harbormaster Questionnaire that there is limited commercial and recreational fishing in the vicinity of the proposal. However, both commercial and recreational fishing would not be affected during the proposed growing season from October through May.

(4) Other Aquaculture Uses

There is one standard aquaculture lease approximately 507.9 feet southwest of the proposal. CAS C12 is operated by Stewart Hunt and is permitted to grow marine algae and Atlantic sea scallops (*Placopecten magellanicus*). There are no other aquaculture leases or limited purpose aquaculture (LPA) sites within 1,000 feet of the proposal (Figure 4).

During the site visit, MDMR observed four aquaculture buoys southeast of the proposal. These buoys are associated with CAS C12 (Figure 2).

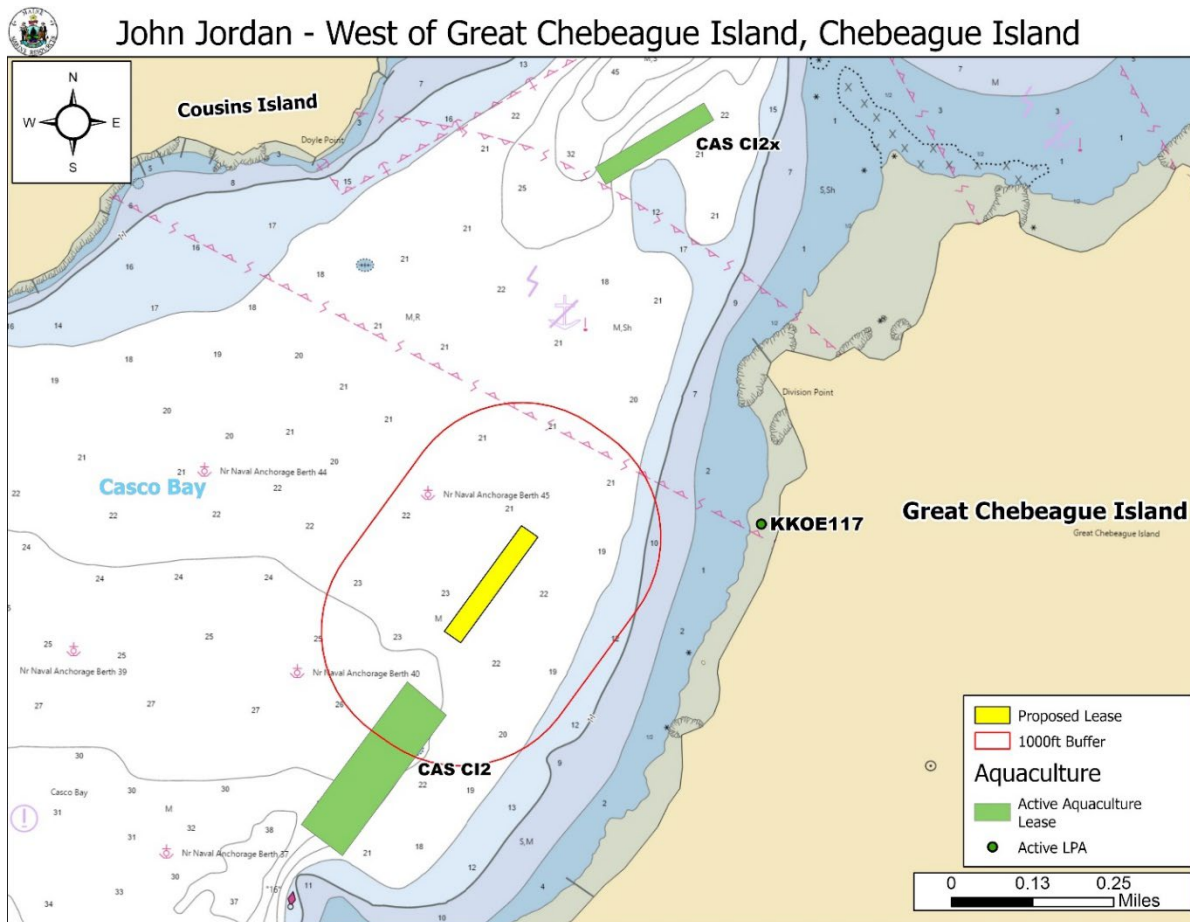


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

On August 14, 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 footage is described below in Table 4.

Table 4. Species observed on underwater camera footage.

Species Observed	Abundance
Mysid Shrimp (<i>mysis sp.</i>)	Abundant
Sand Shrimp (<i>Crangon septemspinosa</i>)	Common
American Lobster (<i>Homarus americanus</i>)	Occasional
Rock Crab (<i>Cancer irroratus</i>)	Occasional

Eelgrass (*Zostera marina*)

Records of seagrass collected by the Maine Department of Environmental Protection (MDEP) in 2022⁷ indicates no mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 1,215.1 feet east of the proposal (Figure 5). No eelgrass was observed on underwater camera footage within the proposal boundaries during MDMR’s site visit.

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.



John Jordan - West of Great Chebeague Island, Chebeague Island

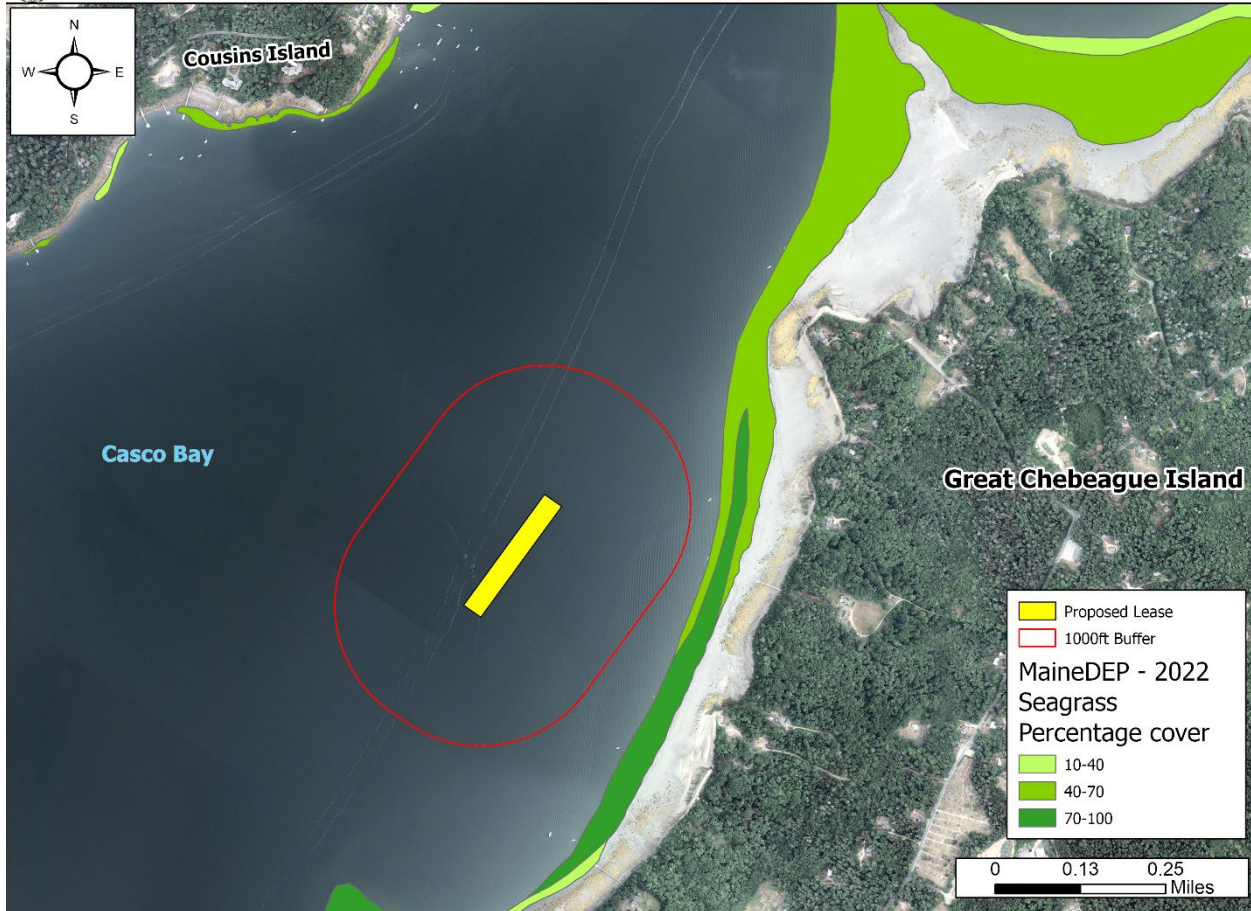


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

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 1,131.3 feet west 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 in the vicinity of the proposal (Figure 6). On October 23, 2023, a Resource Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” stating minimal impacts to wildlife are anticipated for this project.⁸

During the site visit, MDMR scientists observed harbor seals (*Phoca vitulina*) and herring gulls (*Larus argentatus*) in the general vicinity of the proposal.

⁸ Email correspondence between MDIFW and MDMR



John Jordan - West of Great Chebeague Island, Chebeague Island

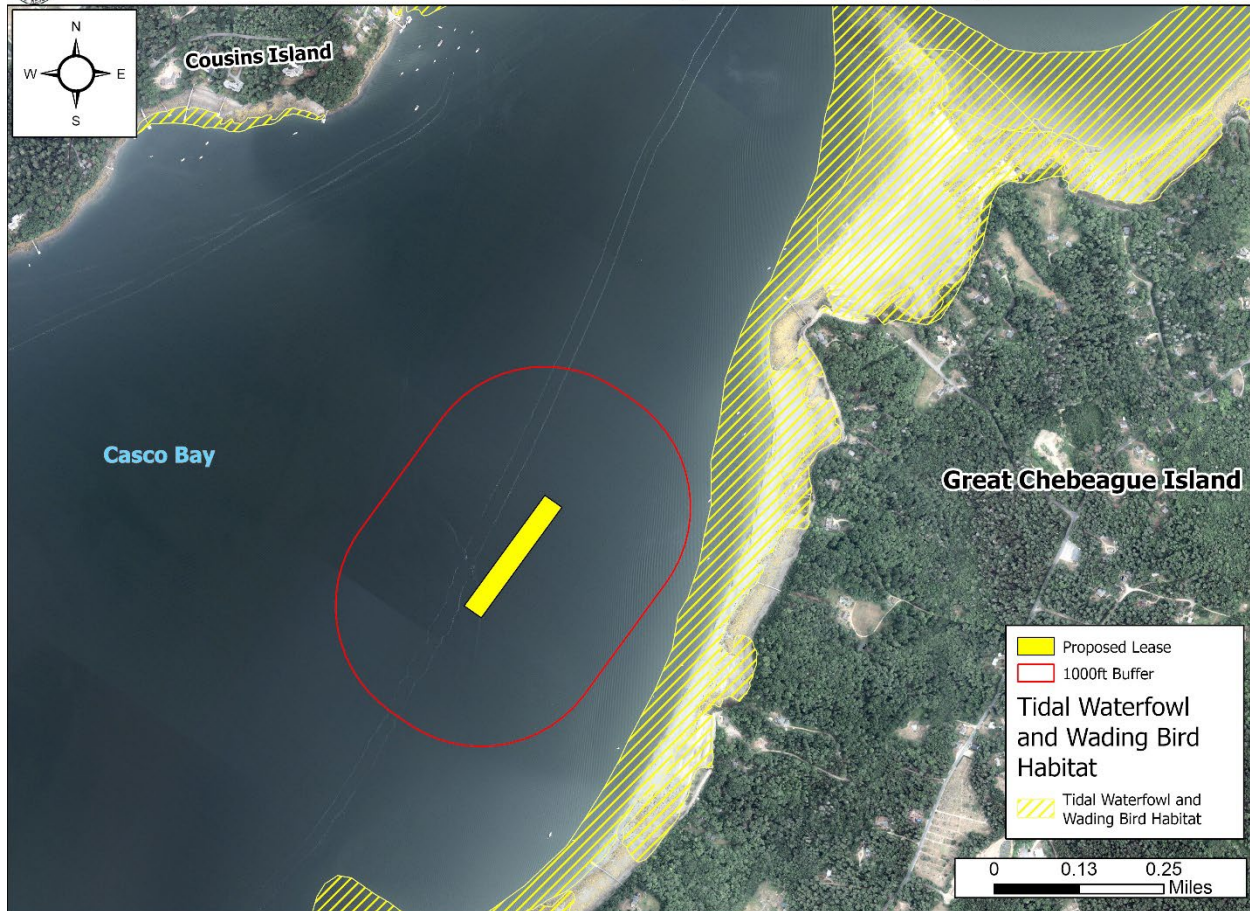


Figure 6. Mapped bald eagle nests and TWWH in the vicinity of the proposed lease area.⁹

(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 currently located within an area classified as Approved by the MDMR Bureau of Public Health and Aquaculture.

⁹ Data obtained from USFWS “Bald_Eagle_Nests_-_Maine_2023” and MDIFW maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”