



Unicorn Oyster - East of Perkins Point, Bristol

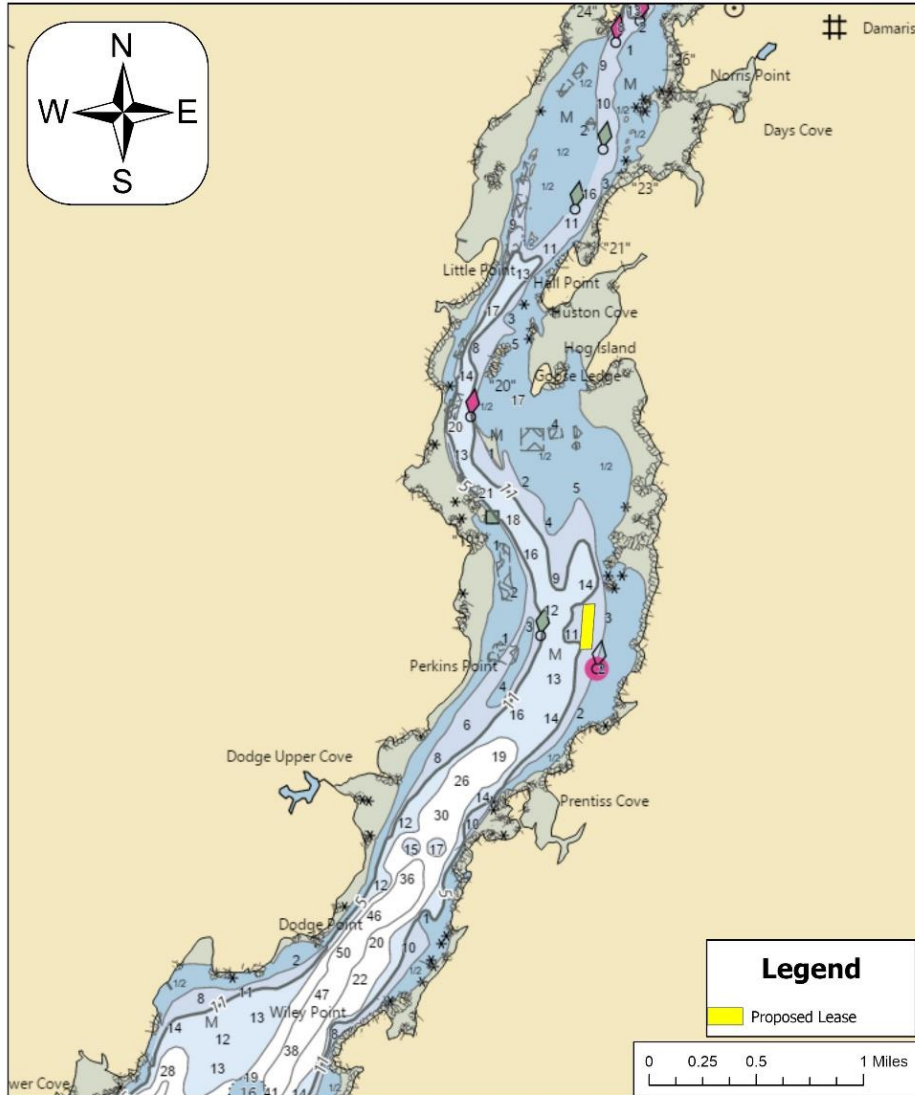


Figure 1. Vicinity map.¹

Location: East of Perkins Point, Damariscotta River, Bristol, Lincoln County, Maine

Purpose: Experimental lease for Eastern American Oyster (*Crassostrea virginica*)

Site Review: Meryl Grady and Geoffrey Shook

Report Preparation: Katie von Hohenleiten, Geoffrey Shook, Meryl Grady, 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, Unicorn Oyster, is requesting 3.88² acres east of Perkins point in the Damariscotta River for the suspended culture of American/Eastern Oysters (*Crassostrea virginica*). During the tending and harvesting season of March through December, the applicant will be onsite 2-4 times per week. The applicant intends to overwinter gear on the bottom of the proposed site beginning in December and ending in March, depending on ice.³

General Characteristics

On August 9, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 11:28 AM. The shores of the Damariscotta River, in the vicinity of the proposal, consist of rocky coastline leading to forested uplands with scattered houses observed.

Depth

MDMR scientists began collecting depths at the proposed site 39 minutes before low tide at 11:29 AM. Measured depths at corners of the proposed lease site ranged from 10.2 to 12.7 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 9.1 to 11.6 feet (Table 1).

Table 1. Predicted tidal heights in Bristol, Maine.⁴

Date	Time	Height (ft)
2023/08/09	6:07AM	8.7 H
2023/08/09	12:08PM	0.9 L
2023/08/09	6:28 PM	9.6 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.

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 3.9 acres. MDMR calculations indicate the area is 3.88 acres.

³ Application page 7

⁴ <https://www.usharbors.com/harbor/maine/south-bristol-me/tides/?tide=2023-08#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, digital orthophotography provided by the Maine Office of GIS, and the application coordinates (Table 3, Figure 2).

Application Coordinates (WGS84) – 3.88 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	44.002744°	-69.539381°	then 213.1 feet at 88° True to
NE	44.002769°	-69.538572°	then 800.8 feet at 185° True to
SE	44.000578°	-69.538794°	then 212.9 feet at 269° True to
SW	44.000564°	-69.539603°	then 796.8 feet at 4° True to NW

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

Feature	Distance
NE corner to eastern Damariscotta River shoreline at MLW	~870 feet to the east
SW corner to Perkins Point at MLW	~1,770 feet to the west
SW corner to green navigational buoy “17”	~730 feet to the northwest
SE corner to red navigational buoy	~350 feet to the southeast



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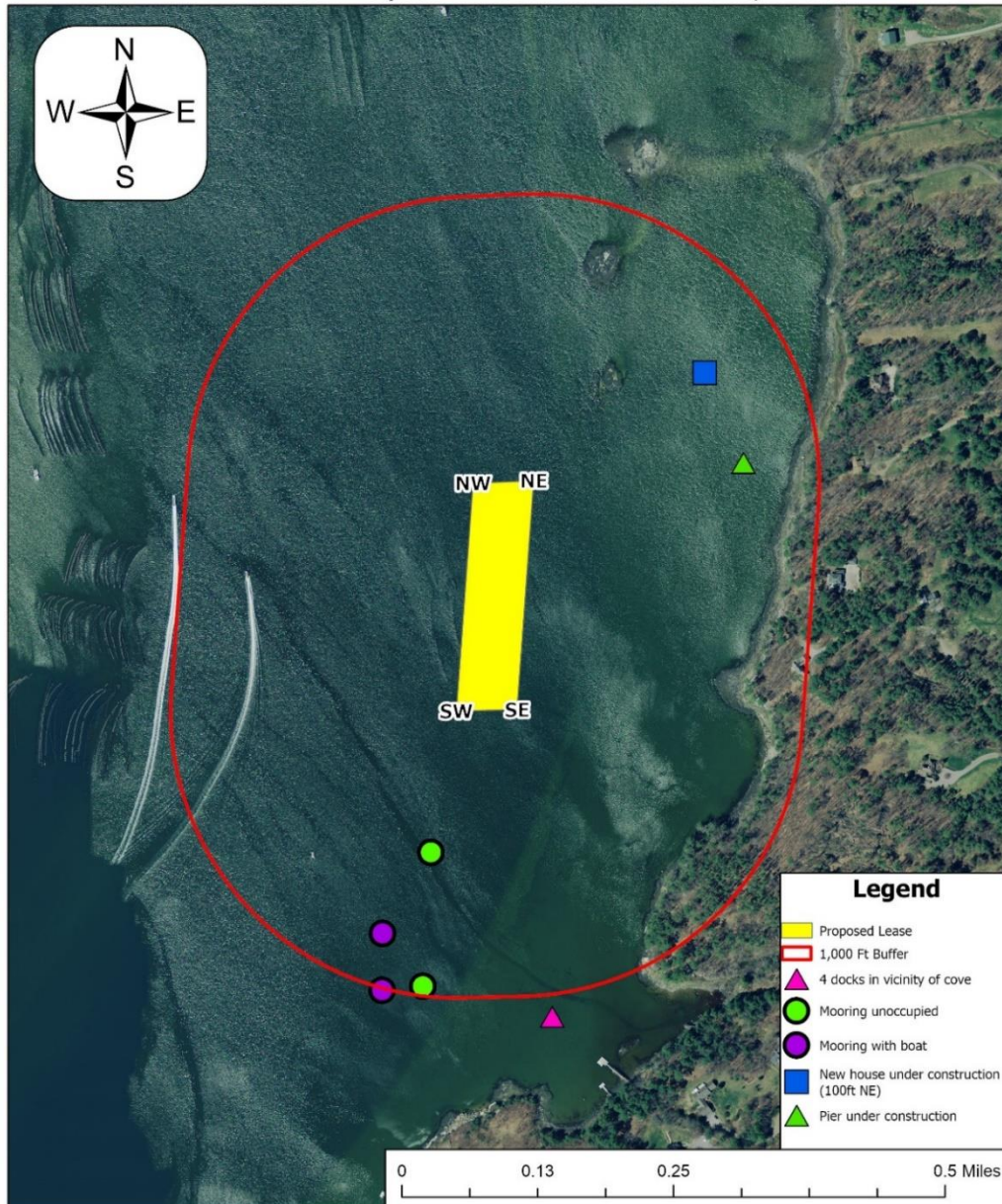


Figure 2. Proposed lease area with site visit observations.

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 scientists observed four moorings in the vicinity of the proposal approximately 500 feet, 816 feet, 966 feet, and 1,007 feet south of the proposal. A sailboat was moored to the mooring buoy 816 feet to the south and a powerboat was moored to the buoy 1,007 feet to the south of the proposed site. The other two observed mooring buoys were unoccupied at the time of the site visit. Additionally, there were four private docks in the cove approximately 1,073 feet to the south of the proposal. MDMR scientists observed a house under construction northeast of the proposal. It is approximately 1,320 feet at MHW and 940 feet at MLW from the northeastern corner of the proposal to the shoreline of the property under construction. MDMR scientists also observed a pier being installed approximately 930 feet east of the proposal.

(2) Navigation

The proposal is located approximately 670 feet west of the eastern shore of the Damariscotta River at the closest point at MLW. The proposal is roughly 350 feet northwest of the red navigational buoy. There is approximately 730 feet of navigable water between the proposal and the green navigational buoy "17". According to the NOAA nautical chart and MDMR observations, the proposed lease is located within the eastern portion of the channel. Due to the hydrography of the river, most boats transiting the river north-south remain in the deeper section of the channel located west of the proposal. Water depths in this area range from 13 to 18 feet at MLW. Since the water depths in the general vicinity of the proposal are shallower (11.6 feet at the deepest point at MLW), that will limit the type of vessel traffic able to navigate in the vicinity of the proposal. Deeper draft vessels remain in the western portion of the channel (Figure 3).



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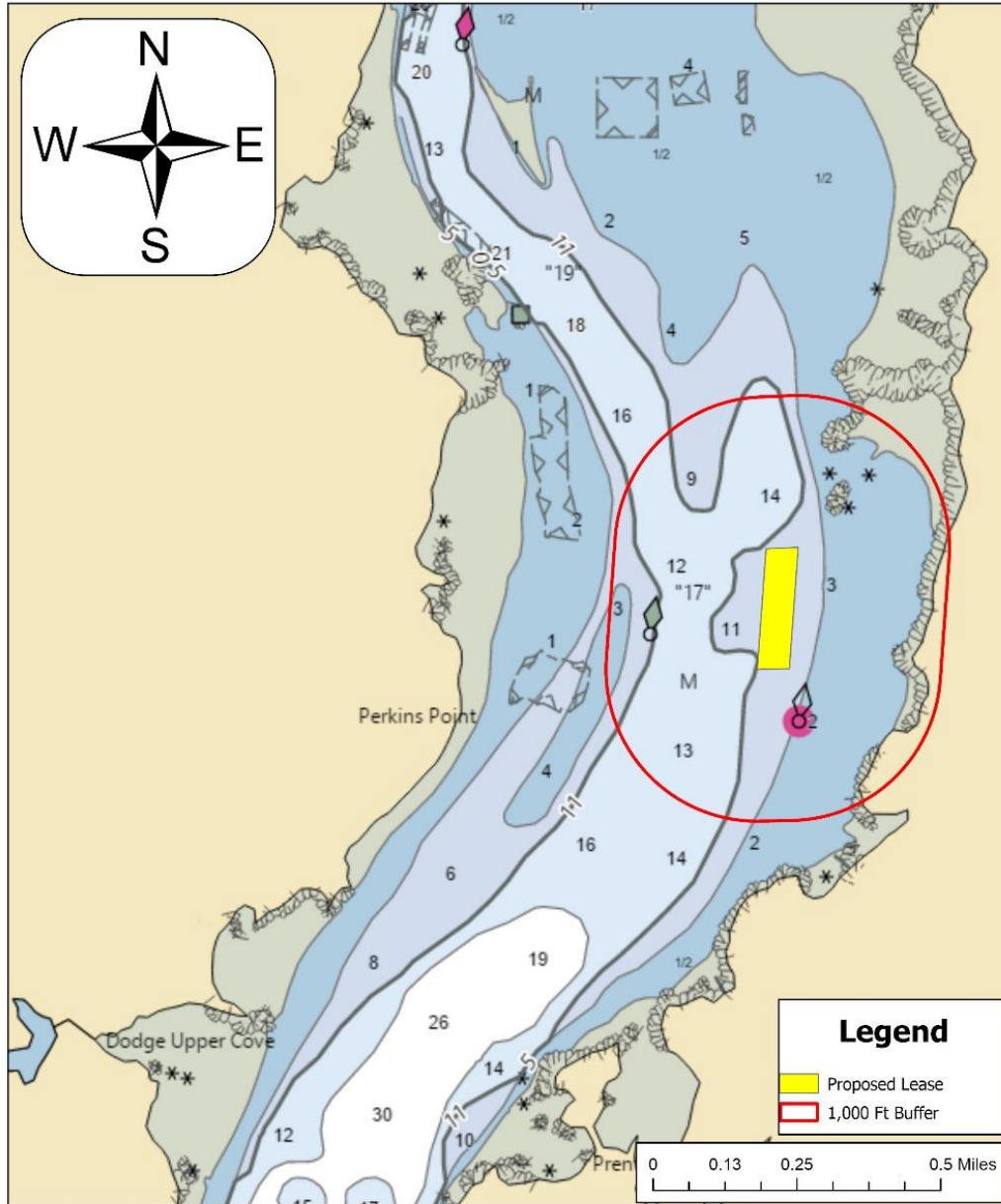


Figure 3. Navigational channels in the vicinity of the proposed lease area.



(3) Fishing and Other Uses

No commercial or recreational fishing was observed during the site visit and no lobster buoys were observed within 1,000 feet of the proposal. During the site visit, MDMR scientists observed four powerboats operating in the channel to the west of the proposed site. No recreational activities were observed at the time of the site visit.

(4) Other Aquaculture Uses

There are four Limited Purpose Aquaculture (LPA) licenses located within the proposed lease area along the southern border. The LPAs are AWAT120, AWAT220, AWAT320, AWAT420, which are held by an individual who has an interest in the company applying for the experimental lease. DAM SL, a standard lease held by Christopher Dickinson, is approximately 543 feet north of the proposal, and DAM PP2, a standard lease held by Mook Sea Farms Inc., is approximately 885 feet east of the proposal (Figure 4).



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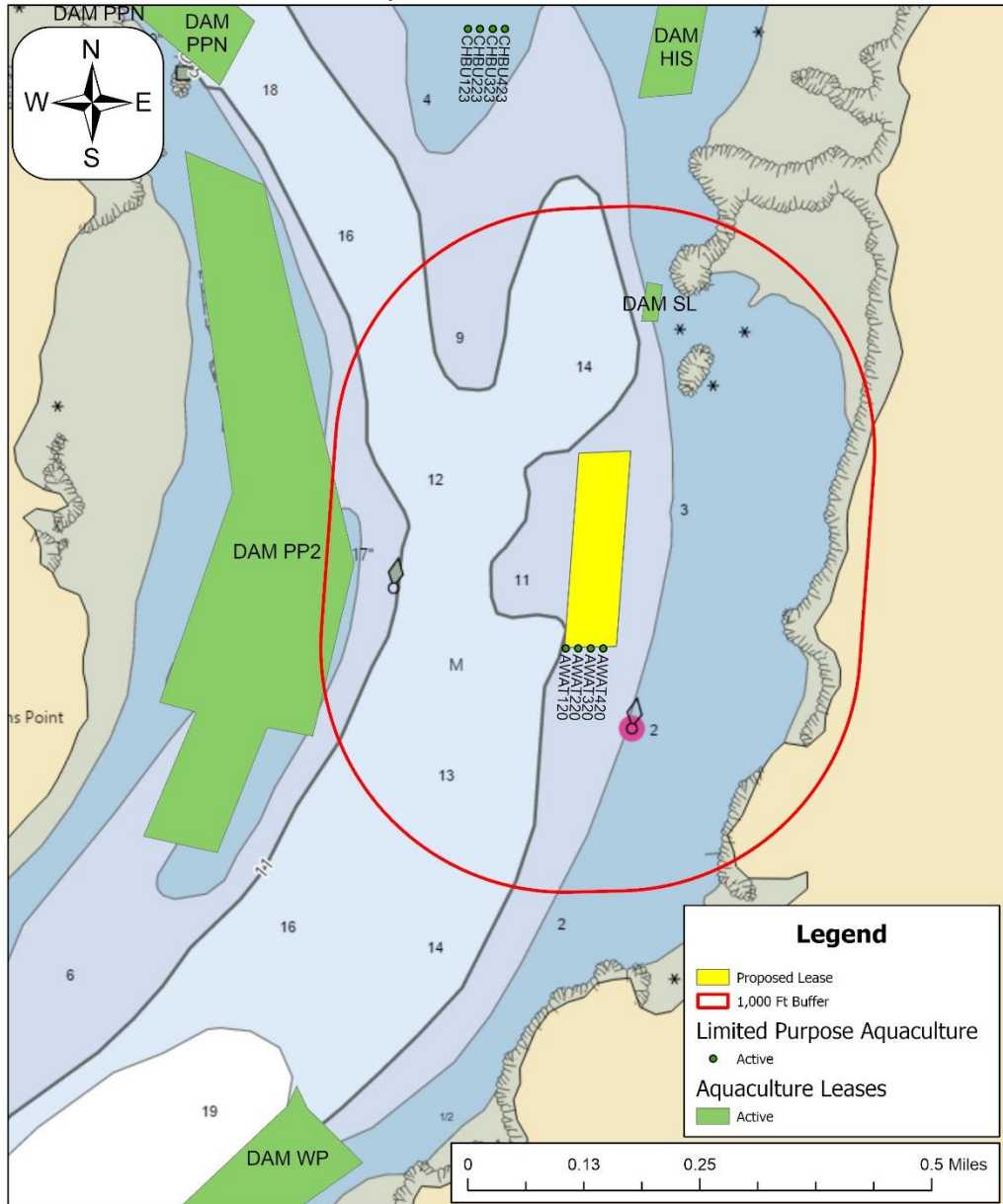


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

On August 09, 2023, MDMR scientists conducted an ROV dive to assess the epibenthic ecology of the proposed lease. The relative abundance of epibenthic flora and fauna observed in the video is described below in Table 4. Underwater footage from the ROV showed what appears to be a benthic macroalgae bed covering much of the bottom.

Table 4. Species observed using underwater camera footage.

Species Observed	Abundance
Crab (<i>Cancer spp</i>)	Occasional
Unidentified flounder species (<i>Pleuronectiformes sp</i>)	Rare
Benthic macroalgae turf bed	Abundant

Eelgrass (*Zostera marina*)

Historical records of eelgrass collected by MDMR in 2010 indicate no mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 1,669 feet west of the proposal (Figure 5).⁵ No eelgrass was observed within the proposal boundaries on underwater camera footage or during MDMR’s site assessment.

⁵ Data obtained from The Maine Office of GIS “GISVIEW.MEDMR.Eelgrass”. This is the most current record of mapped eelgrass within the vicinity of the proposal.



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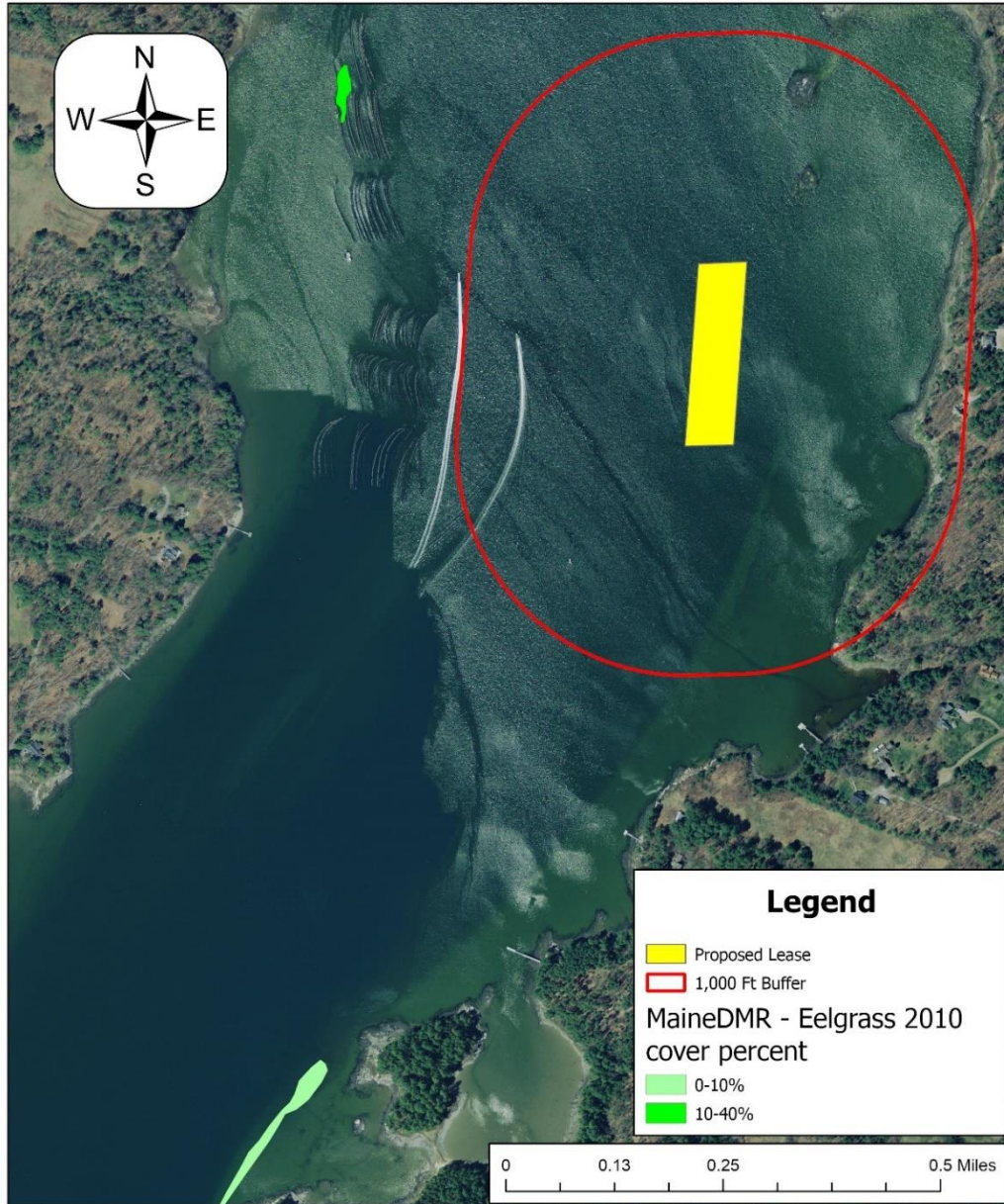


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.



Maine Department of Marine Resources Site Report

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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 495 feet to the southwest of the nearest mapped tidal waterfowl and wading bird habitat. Data collected by the United States Fish and Wildlife Service in 2022 by aerial nest survey shows the closest mapped Bald Eagle (*Haliaeetus leucocephalus*) nesting site to be approximately 0.9 miles north of the proposal (Figure 6).

During MDMR's site assessment, scientists observed double-crested cormorants (*Nannopterum auritum*), red-tailed hawks (*Buteo jamaicensis*), bald eagles (*Haliaeetus leucocephalus*), a common tern (*Sterna hirundo*) and seals (*Phocidae spp.*) in the general vicinity of the proposal.

On November 11, 2022, a Wildlife Biologist with MDIFW responded by email to a "Request for Agency Review and Comment" stating minimal impacts to wildlife are anticipated for this project.⁶

⁹Email correspondence between MDIFW and MDMR.



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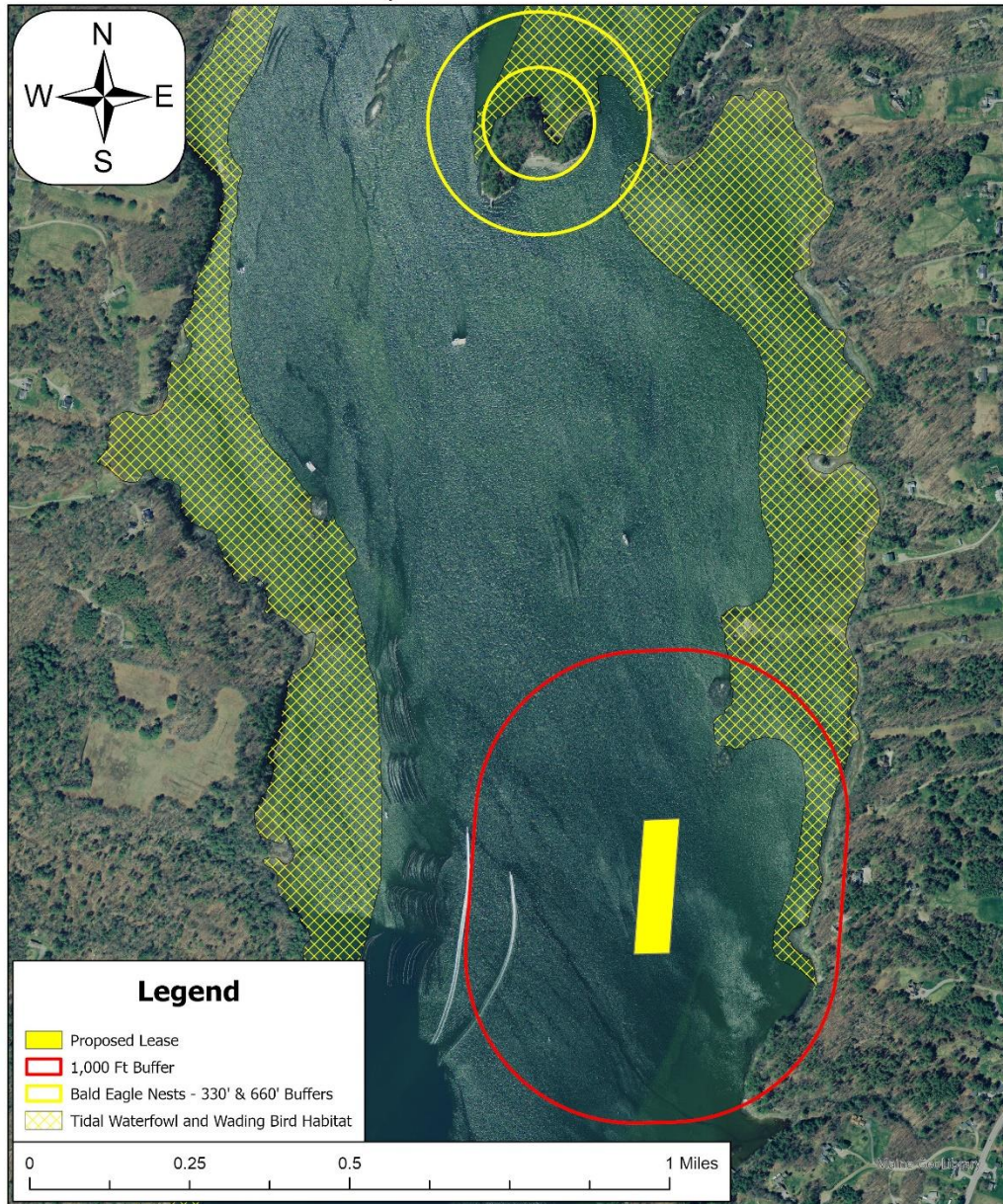


Figure 6. Mapped Bald Eagle nests⁷ and tidal waterfowl and wading bird habitat.⁸

⁷ Data obtained from USFWS "Bald_Eagle_Nests_-_Maine_2023"

¹¹ Data obtained from MDIFW maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"



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(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.