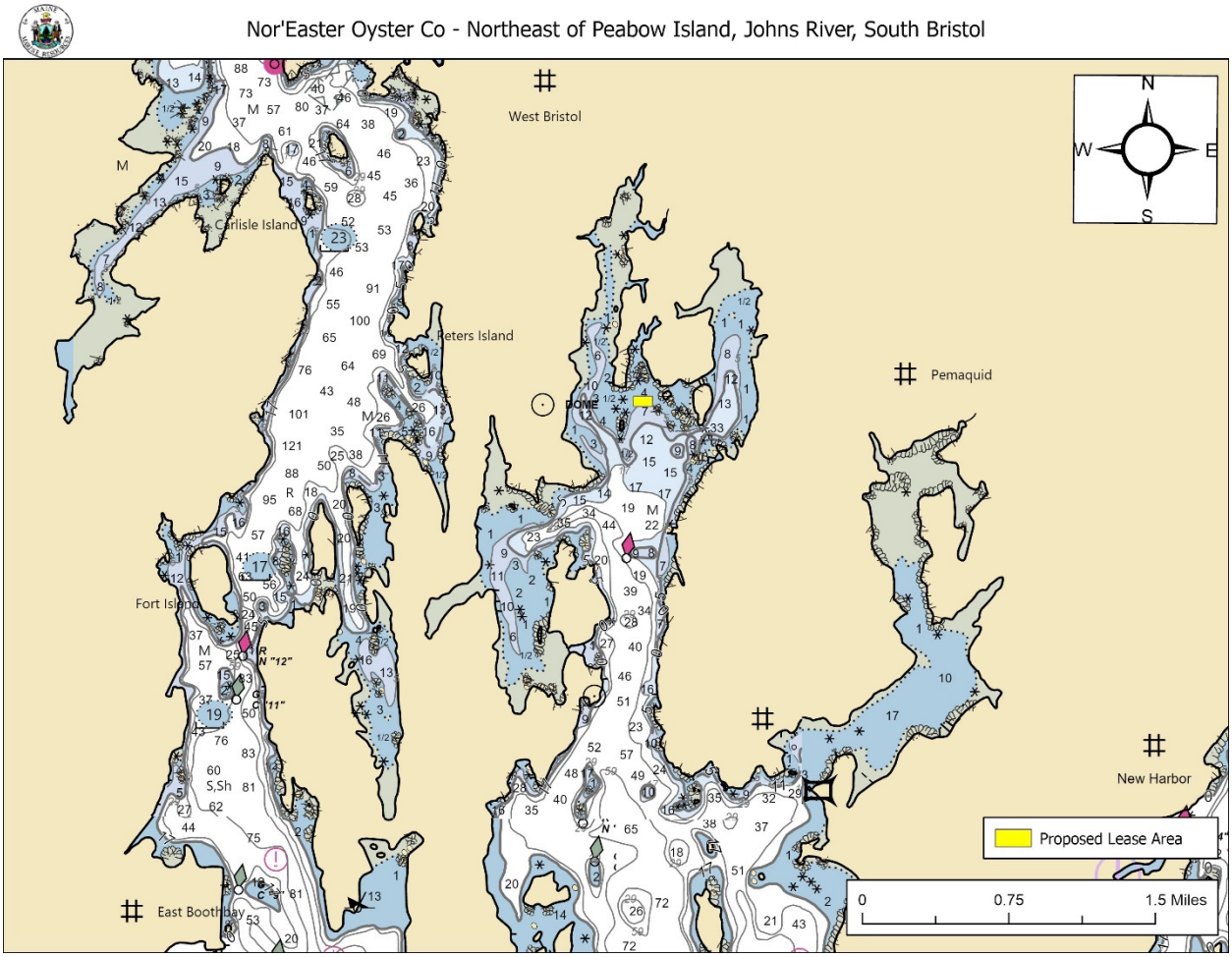

Figure 1. Vicinity map.[1]

Location: Northeast of Peabow Island, Johns River, South Bristol, Lincoln County, Maine

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

Site Review: Meryl Grady, Geoffrey Shook, and Katie VonHohenleiten
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, Nor'Easter Oyster Co, is requesting a 3.30[2] acre experimental lease northeast of Peabow Island in the Johns River for the suspended and bottom culture of American oysters (*Crassostrea virginica*). The applicant intends to utilize a combination of suspended/floating cages, bottom cages, as well as bottom planting.[3] Harvest will be conducted by hand picking oysters from floating gear, pulling up gear from the bottom utilizing a 12-volt hauler, and diving. In the off season, floating gear without oysters will either be sunk to the bottom or removed from the lease site, and floating gear containing oysters will be sunk to the bottom.[4]

General Characteristics

On May 29, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 9:46 AM. Peabow Island, southwest of the proposal, has one residential structure located on the western side of the island. Tidally exposed ledges located east and southeast of the proposal, had numerous harbor seals (*Phoca vitulina*) with young pups hauled out on them (Image 3). Three residential homes were visible from the proposal during the site visit: one 700 feet to the northwest, one 500 feet to the northeast, and one 1,210 feet to the east on Foster Island.

Depth

MDMR scientists began collecting depths at the proposed site shortly before low tide at approximately 9:50 AM. Measured depths at corners of the proposed lease site ranged from 3.7 to 6.8 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 3.6 to 6.7 feet (Table 1).

Table 1. Predicted tidal heights in South Bristol, Maine.[5]

Date	Time	Height (ft)
2024/05/29	3:41 AM	9.8 H
2024/05/29	10:15 AM	0.0 L
2024/05/29	4:33 PM	8.7 H
2024/05/29	10:31 PM	1.1 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.

[2] Applicant originally requested 3.32 acres. MDMR calculations indicate the area is 3.30 acres.
[3] Application page 13, 23
[4] Application page 5
[5] https://www.usharbors.com/harbor/maine/south-bristol-me/tides/?tide=2024-05#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

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 and 3).

Application Coordinates (WGS84) – 3.30 Acres

Corner	Latitude	Longitude	
NW	43.906350°	-69.542535°	then 520.8 feet at 90° True to
NE	43.906350°	-69.540559°	then 276.3 feet at 180° True to
SE	43.905592°	-69.540559°	then 520.8 feet at 270° True to
SW	43.905592°	-69.542535°	then 276.3 feet at 0° True to NW

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

Feature	Distance
NW corner to nearest shoreline MLW	~185' to the north
NE corner to nearest tidally exposed ledge MLW	~50' to the east
NE corner to nearest shoreline MLW	~280' to the northeast
SE corner to tidally exposed ledges MLW	~90' to the southeast
SW corner to Peabow Island shoreline MLW	~345' to the southwest

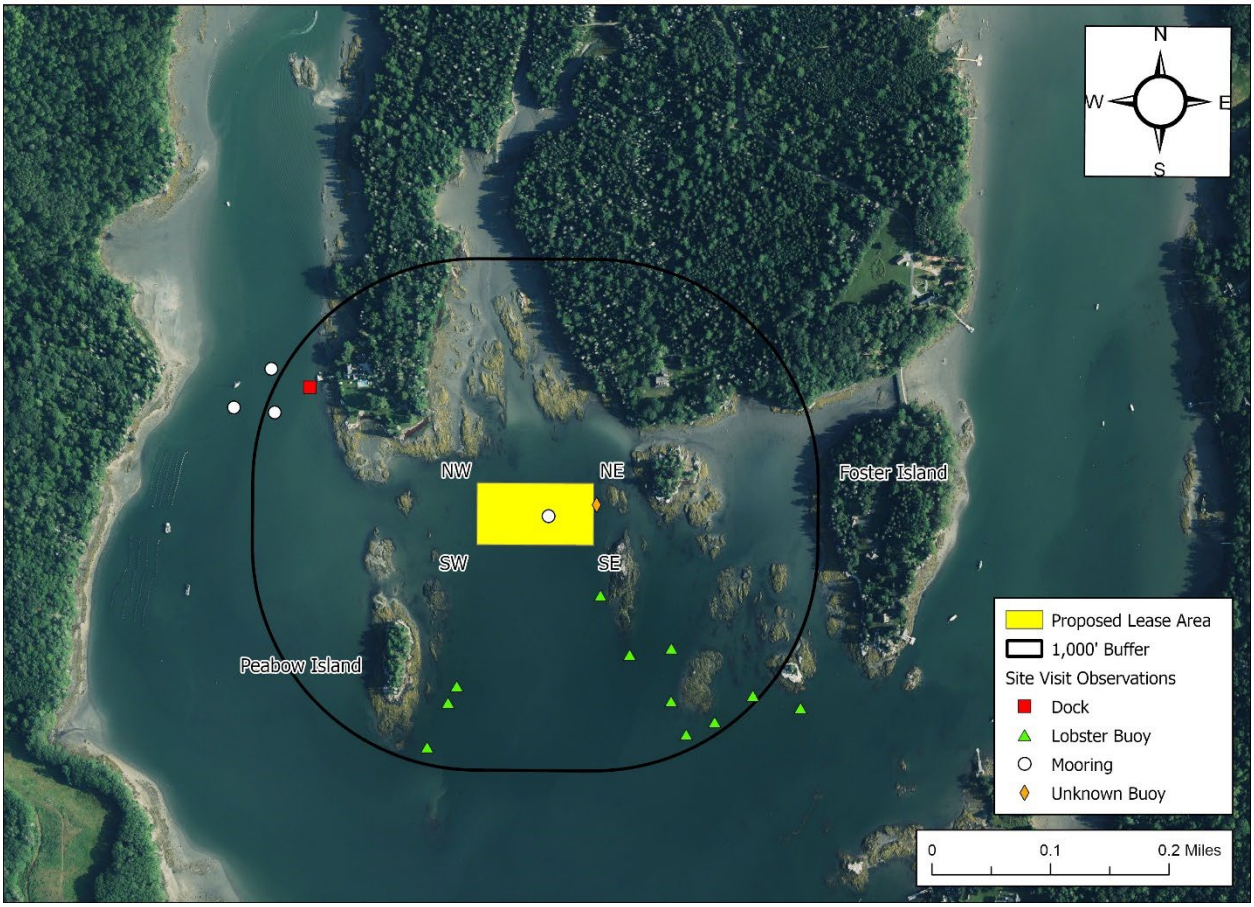

Figure 2. Proposed lease area with site visit observations.

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 observed four moorings and one dock in the vicinity of the proposal. One mooring was located inside of the proposed lease boundaries near the center of the proposal. This mooring was labeled "J. Walker" and was unoccupied at the time of the site visit. Water depth in this area is between 3.6 to 6.7 feet at MLW. Three other moorings were located 954 feet, 1,047 feet, and 1,133 feet northwest of the proposal. Two of the moorings were labeled "Walker" and were unoccupied at the time of the site visit. The third mooring was marked with a winter stick, which was unnamed. One observed pier with a ramp was approximately 840 feet northwest of the proposal. The float was unattached and stored on the shore at the time of the site visit (Figure 2). Peabow Island had

one residential structure located on the western side of the island approximately 650 feet southwest of the proposal. There was no dock observed during the site visit.

A Harbormaster Questionnaire was sent to the town of South Bristol on July 20, 2023. MDMR did not receive a response.

(2) Navigation

The proposal is located approximately 345 feet northeast of Peabow Island, 185 feet south of the nearest mainland shoreline, and 50 feet west of tidally exposed ledges at MLW. There are additional tidally exposed ledges 175 feet west of the proposal and 95 feet north of the proposal (Figure 2) which reduce the amount of navigable water in the area at lower tidal stages. The nearest navigational marker is red navigational buoy "4" and is 4,110 feet south (Figure 3).

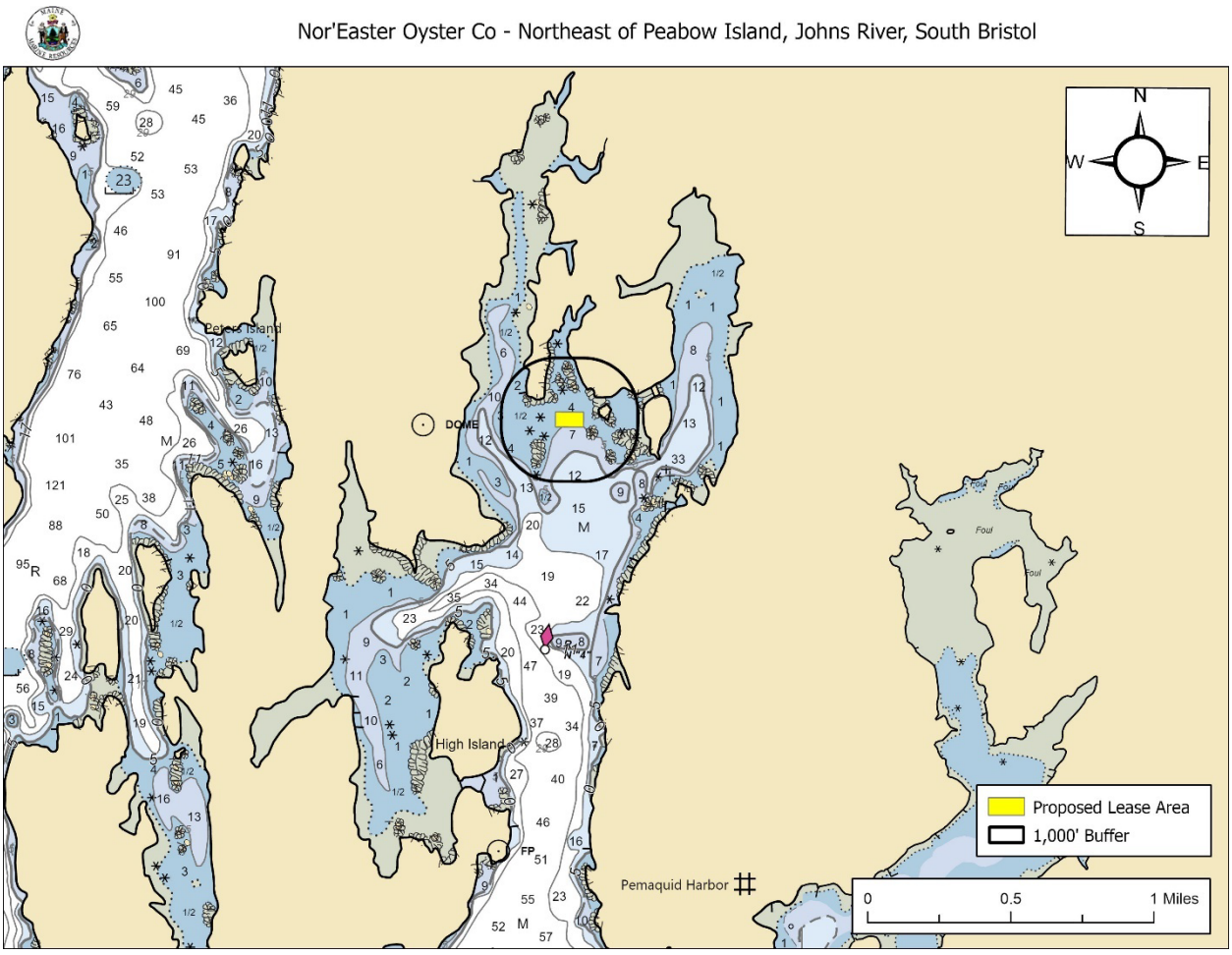

Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During the site visit, MDMR documented 11 lobster buoys in the vicinity of the proposal (Figure 2). The nearest buoy was 220 feet southeast. MDMR also observed a buoy with an unknown purpose approximately 12 feet east of the proposal (Image 1). The water depth at the buoy location was 5.8 feet one hour after local low tide. Correcting for tidal variation derives water depth to be approximately 5.2 feet at MLW. During the site visit, which occurred at low tide, MDMR observed a small cove located north of the proposal. The cove was shallow and largely subtidal with portions of intertidal area (Image 2). MDMR did not observe any active commercial or recreational fishing during the site visit.

Image 1. Unknown buoy located east of the proposal.

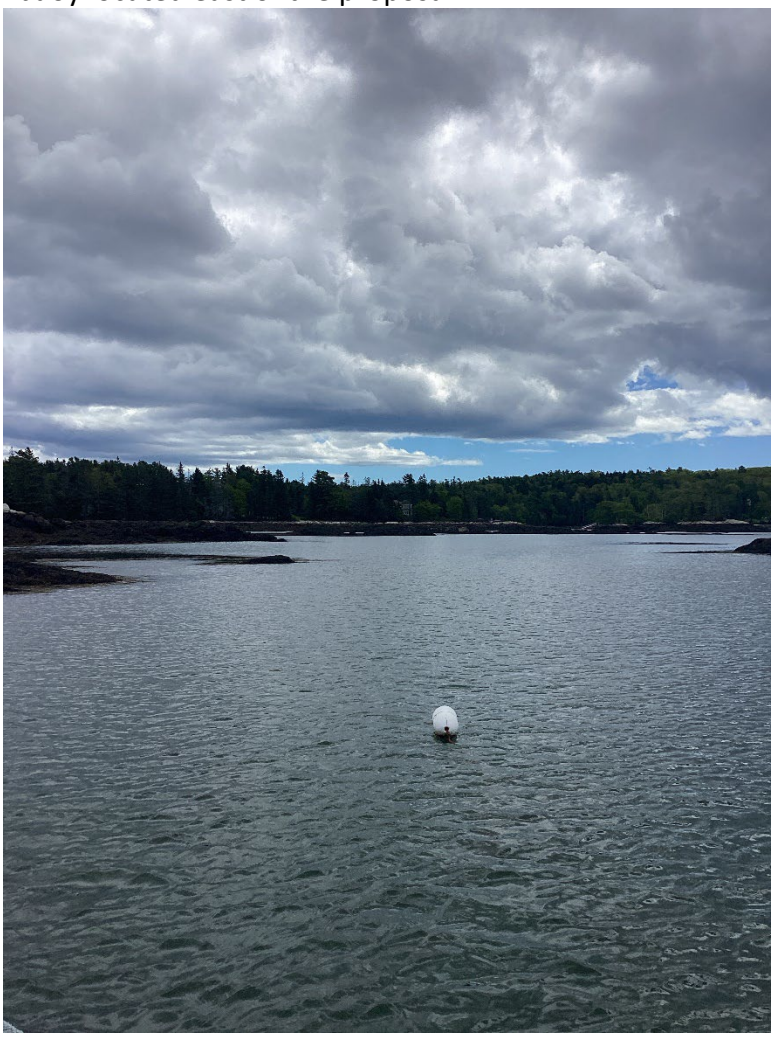

Image 2. Picture taken looking north towards the small cove from the center of the northern boundary of the proposed lease area.

(4) Other Aquaculture Uses

There are no aquaculture leases or limited purpose aquaculture (LPA) sites within 1,000 feet of the proposed lease site (Figure 4). During the duration of the site visit, MDMR observed two aquaculture vessels tending to nearby lease, JOHN NB3, which is comprised of two tracts (see Figure 4). The vessels were observed traveling from the southern tract of the lease site around the south end of Peabow Island to the eastern branch of the Johns River and returning to the southern tract of the lease site. Upon conclusion of the site visit, one vessel was tending to the northern tract of JOHN NB3 and flying a diver down flag, while the other vessel was observed traveling north with a diver in the boat to accompany the other vessel.

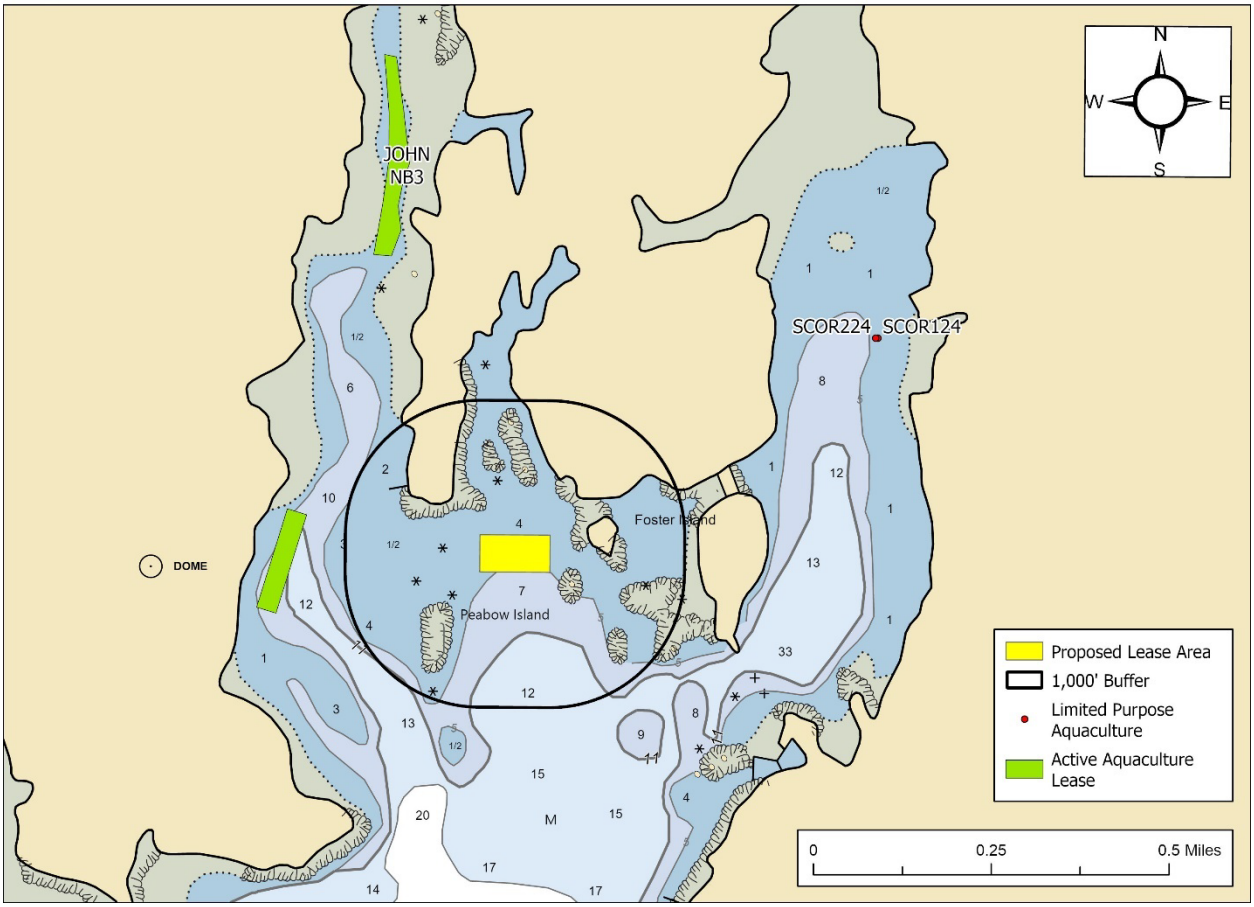

Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

(5) Existing System Support

Epibenthic Flora and Fauna

On May 29, 2024, MDMR scientists utilized a ROV to assess the epibenthic ecology of the proposed lease and the surrounding area. 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.
*indicates species observed only in the surrounding area and not within the proposal boundaries

Species Observed	Abundance
Rockweed (*Ascophyllum nodosum*)	Common
Hermit crab (*Pagurus* spp)	Common
Sand shrimp (*Crangon septemspinosa*)	Common
Periwinkle (*Littorina* spp)*	Common
Colonial tunicate (likely Chain tunicate, *Botrylloides violaceus*)	Occasional
Sugar kelp (*Saccharina latissima*)	Occasional

Species Observed	Abundance
Crab (*Cancer* sp)	Occasional
European green crab (*Carcinus maenas*)*	Occasional
European oyster (*Ostrea edulis*)*	Occasional

Eelgrass (*Zostera marina*)

Recent records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) in 2023 indicate no mapped eelgrass presence within 1,000 feet of the proposal. The nearest mapped eelgrass is approximately 2,615 feet southeast of the proposal (Figure 5). [6] One individual eelgrass blade was observed floating on the surface of the water within the proposal boundaries entangled in the mooring line for mooring labeled "J. Walker". No eelgrass was observed on underwater camera footage attached to the seafloor within the proposal boundaries.

Historical records of eelgrass collected by MDMR in 2010 indicated mapped eelgrass presence 47 feet northwest of the proposal. MDMR did additional investigation of this area and determined there was no eelgrass present in the vicinity of the proposal (Figure 5).

[6] Data obtained from The Maine Office of GIS "GISVIEW.MEDEP.Seagrass2023". Widgeon grass was observed only in a tributary to the Great Salt Bay, upstream of a culvert that likely restricts tidal flow. 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.

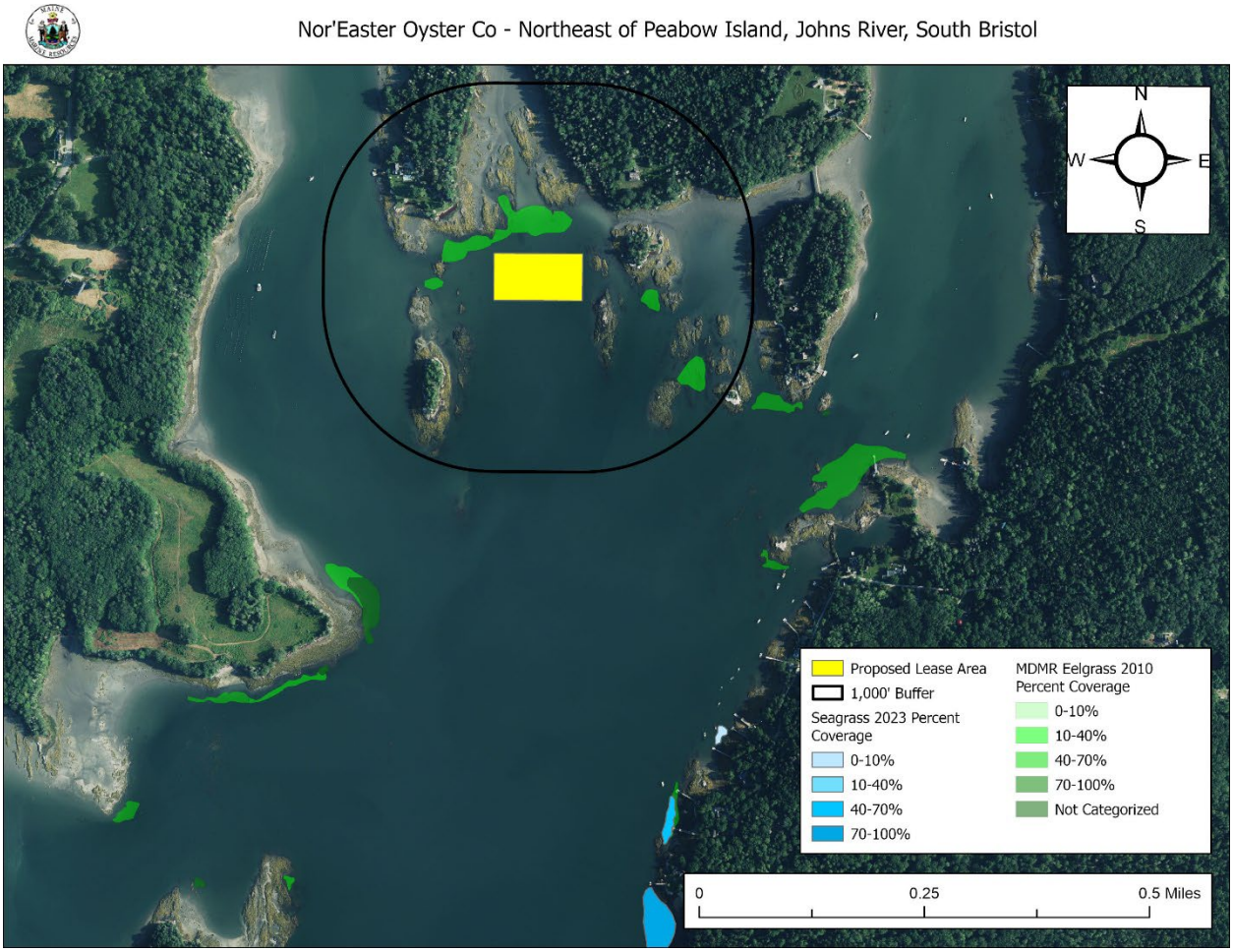

Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

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 approximately 77 feet to the east of 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 1.65 miles southwest of the proposal. No bald eagles were observed during the site visit. [7]

On August 10, 2023, a Resource Biologist with MDIFW responded by email to a "Request for Agency Review and Comment" stating the proposed lease appears to be immediately adjacent to TWWH. If eelgrass or suitable substrate for eelgrass is not present, minimal impacts to wildlife are anticipated for this project.[8]

[7] Data obtained from USFWS "Bald_Eagle_Nests_-_Maine_2023"
[8] Email correspondence between MDIFW and MDMR

During the site assessment, MDMR scientists observed multiple species listed below in Table 5. Tidally exposed ledges, located 580 and 670 feet southeast of the proposal, had numerous harbor seals (*Phoca vitulina*) with young pups hauled out on them (Image 3). There were two additional tidally exposed ledges observed 50 feet and 90 feet east of the proposal. There were no harbor seals hauled out on these ledges at the time of the site visit, but they had similar characteristics to the ledges where seals were observed.

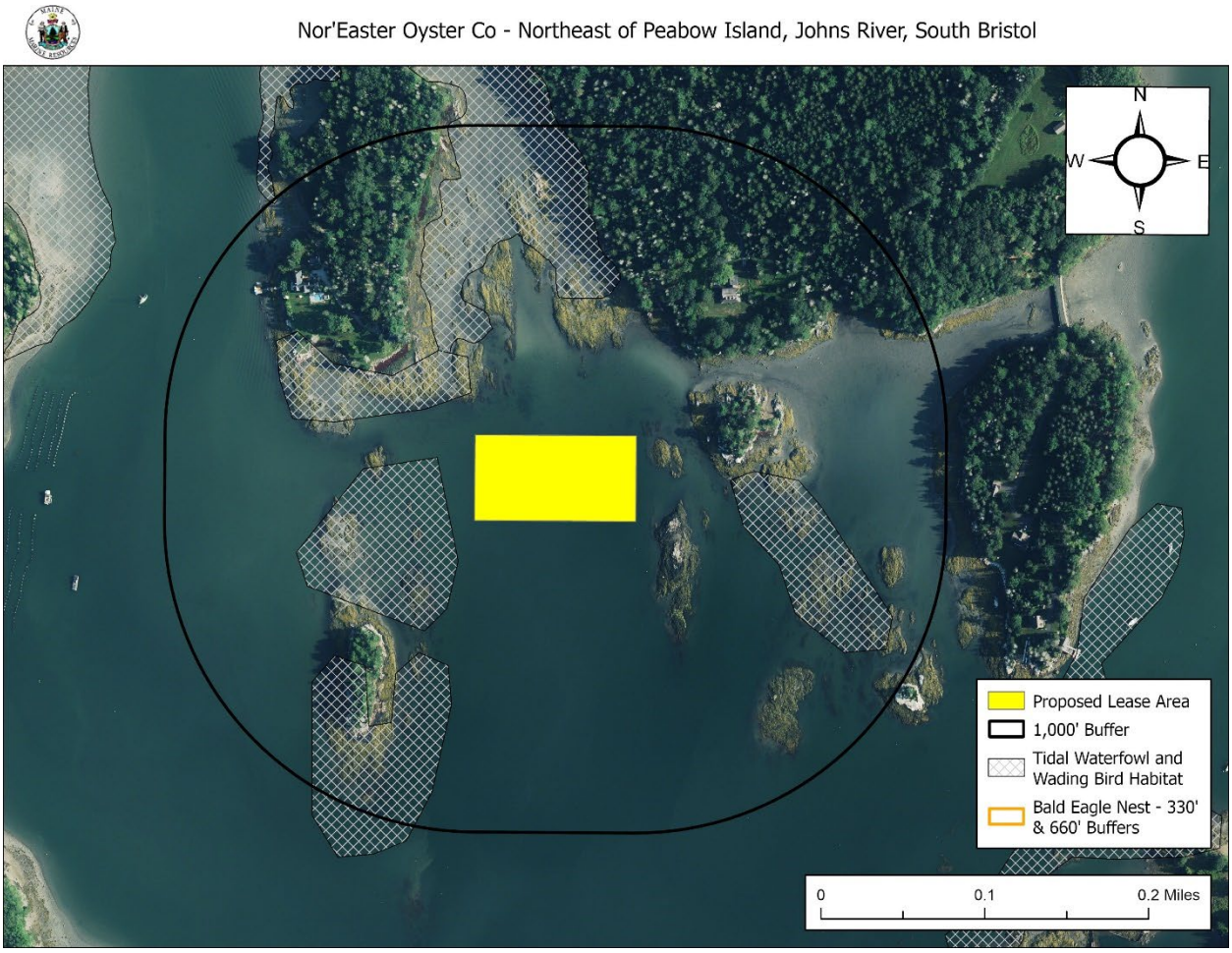

Figure 6. Mapped TWWH. [9]

Table 5. Species observed during site assessment.

Species Observed	Abundance
Harbor seal (*Phoca vitulina*)	Abundant
Common tern (*Sterna hirundo*)	Abundant
Herring gull (*Larus argentatus*)	Abundant
Laughing gull (*Leucophaeus atricilla*)	Abundant
Bonaparte's gull (*Chroicocephalus philadelphia*)	Common

[9] Data obtained from MDIFW maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"

Species Observed	Abundance
Double-crested cormorant (*Nannopterum auritum*)	Common
Gray seal (*Halichoerus grypus*)	Occasional
American crow (*Corvus brachyrhynchos*)	Occasional
Great blue heron (*Ardea herodias*)	Occasional
Mallard (*Anas platyrhynchos*)	Rare
Red-tailed hawk (*Buteo jamaicensis*)	Rare

Image 3. Harbor seals (*Phoca vitulina*) hauled out on a tidally exposed ledge approximately 580 feet southeast of the proposal.

(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.