

Figure 1. Vicinity map.<sup>1</sup>

**Location:** West of Louds Island, Muscongus Bay, Bristol, Lincoln County, Maine

**Purpose:** Experimental lease for suspended culture of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina angustissima*), winged kelp (*Alaria esculenta*), horsetail kelp (*Laminaria digitata*), shotgun kelp (*Agarum clathratum*), Irish moss (*Chondrus crispus*), dulse (*Palmaria palmata*), nori/laver (*Porphyra spp*) and sea lettuce (*Ulva lactuca*).

Site Review: Geoffrey Shook and Katie Von Hohenleiten

Report Preparation: Geoffrey Shook and Meryl Grady

<sup>1</sup> Unless otherwise noted, all figures in this report were created in ArcGIS Pro version 3.3 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by ESRI World Imagery (Firefly).



# Maine Department of Marine Resources Site Report

Muscongus Bay Kelp (App 2)  
West of Louds Island, Muscongus Bay  
Bristol

## Application Overview

The applicant, Muscongus Bay Kelp, is requesting a 3.95<sup>2</sup>-acre experimental lease west of Louds Island, in Muscongus Bay, within the town of Bristol for the suspended culture of marine algae. The applicant intends for the site to be active seasonally from November 1-June 15. Between June 16 – October 31, longlines, crosslines, depth control devices and associated buoys weights, and mooring buoys would be removed. Mooring blocks and state-required lease markers would remain on site year-round with mooring lines and chains sunk to the seafloor.<sup>3</sup>

## General Characteristics

On September 25, 2024, Maine Department of Marine Resources (MDMR) scientists visited the proposed lease site. MDMR scientists arrived on site at approximately 11:03 AM. The proposal is located in subtidal waters in Muscongus Bay approximately 363 feet west of Louds Island at mean low water (MLW) (Figure 1). The area in the vicinity of the proposal was observed to consist of a rocky shoreline with mixed forests uplands.

## Depth

On September 25, 2024, MDMR scientists began collecting depths at the proposed site at approximately 11:07 AM. The tide was ebbing with the next low tide predicted at 11:38 AM (Table 1). Depths were determined to be between 40.7-67.5 feet. Correcting for tidal variations derives depths at mean low water (MLW, 0.0 feet) to be between 39.2-66.0 feet.

**Table 1.** Predicted tidal heights in Muscongus Harbor, Maine.<sup>4</sup>

Date	Time	Height (ft)
2024/09/25	5:39 AM	8.5 H
2024/09/25	11:38 AM	1.4 L
2024/09/25	5:54 PM	9.4 H
2024/09/25	NA	NA

## 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.

**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

<sup>2</sup> Applicant originally requested 4.0 acres. MDMR calculations indicate the area is 3.95 acres.

<sup>3</sup> Application pages 7, 17-18

<sup>4</sup> <https://www.usharbors.com/harbor/maine/muscongus-harbor-me/tides/?tide=2024-09#monthly-tide-chart>



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## Position and Distances to Shore

The geodesic measuring tool in ArcGIS Pro 3.3 was used to verify the distances and bearings between proposed lease corners. Distances to shore were determined using the measuring tool in ArcGIS Pro 3.3, a nautical chart provided by the National Oceanic and Atmospheric Administration (NOAA), and the application coordinates (Table 3, Figure 2,3).

## Application Coordinates (WGS84) – 3.95 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.926210°	-69.441650°	then 160 feet at 110° True to
NE	43.926056°	-69.441081°	then 1,064 feet at 197° True to
SE	43.923270°	-69.442290°	then 164 feet at 290° True to
SW	43.923430°	-69.442870°	then 1,063 feet at 017° True to NW

**Table 3.** Approximate distances from proposal corners to surrounding features (Figure 2,3).

Feature	Distance
NE corner to Louds Island at MLW	~363' to the east
SE corner to Louds Island at MLW	~400' to the east
NW corner to green navigation buoy "9"	~2,487' to the northwest
SW corner to green navigation buoy "9"	~2,921' to the northwest
NW corner to green navigation buoy "7"	~1,690' to the southwest
SW corner to green navigation buoy "7"	~1,218' to the west
NW corner to Bristol shoreline at MLW	~3,189' to the west
SW corner to Bristol shoreline at MLW	~3,174' to the west

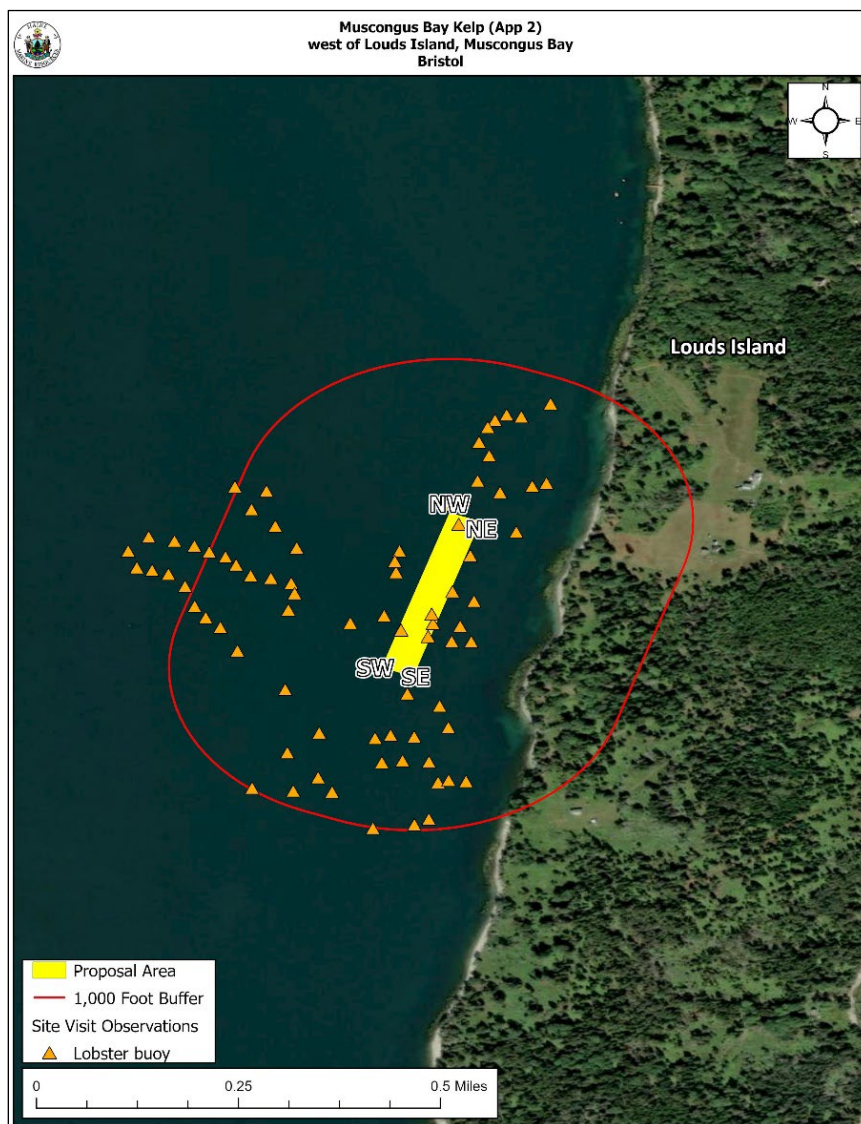


Figure 2. Proposed lease area with site visit observations.

*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

During the site visit, MDMR did not observe any docks, houses, or moorings within the vicinity of the proposal. Aerial imagery<sup>5</sup> indicates the nearest residential pier and dock is located on the western shore of Louds Island approximately 2,314 feet to the north-northeast of the proposal. Imagery indicates there are at least four moorings in the vicinity of the pier. Imagery also indicates there is a residential property on Louds Island approximately 1,145 feet to the

<sup>5</sup> ESRI World Imagery (Firefly)



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southeast of the proposal, and a residential property approximately 1,051 feet east of the proposal.

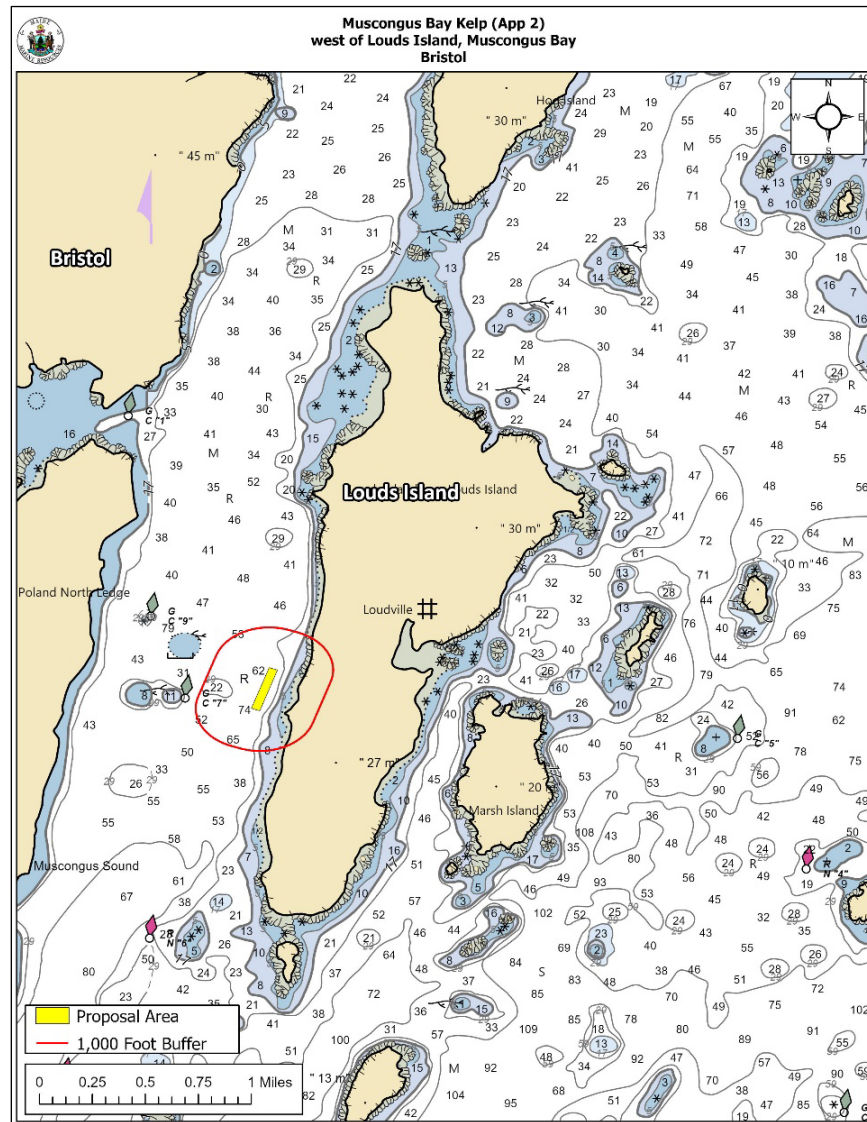
A Harbormaster Questionnaire was sent to the Town of Bristol. MDMR did not receive a response.

### **(2) Navigation**

The proposal is located in subtidal, navigable waters approximately 363 feet west of Louds Island at MLW. There are two primary marked channels in western Muscongus Bay that provide access to upper Muscongus Bay and the Medomak River. One is west of Louds Island and the other is east of Louds and Marsh Islands. The proposal is located entirely within the channel to the west of Louds Island. There is approximately 1,218 feet of navigable water between the proposal area and Poland Ledge to the west which is marked by green navigation buoy "7" (Figure 3).

During MDMR's site visit, scientists observed one powerboat transiting to the south in the channel and one powerboat transiting to the north in the channel within the vicinity of the proposal.





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

### (3) Fishing and Other Uses

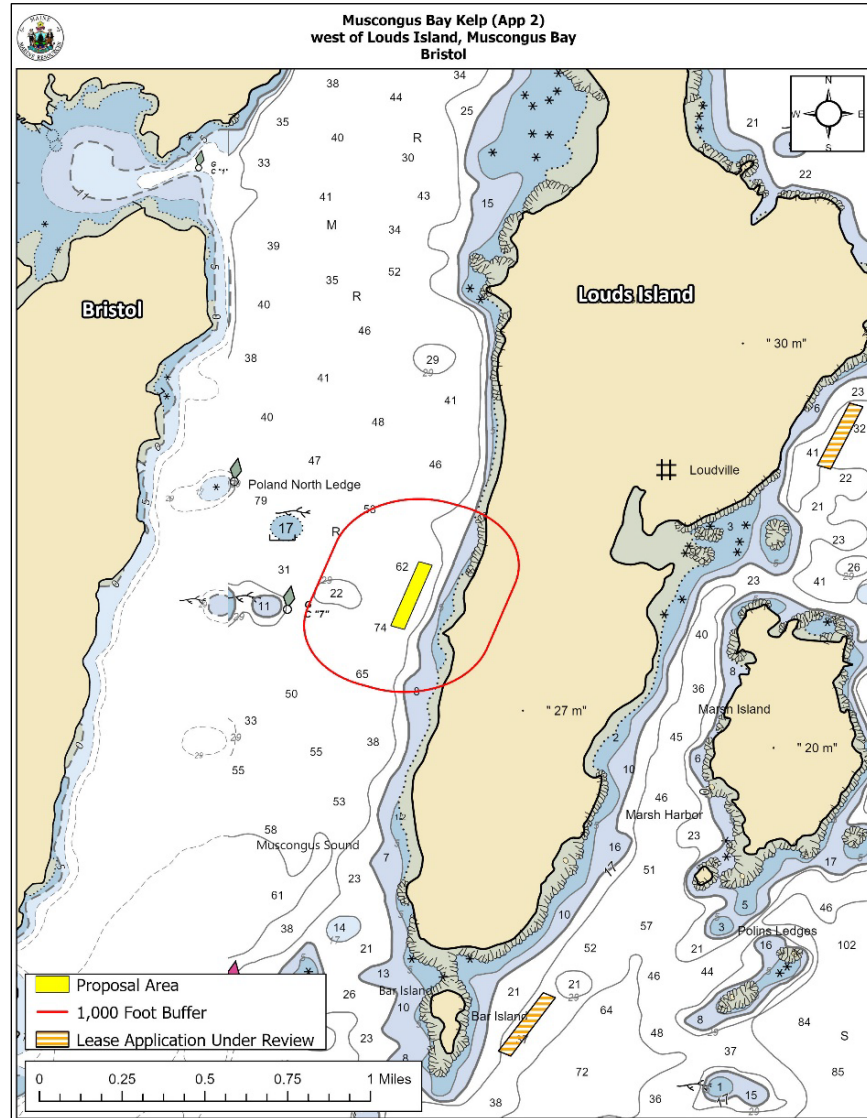
During MDMR's site visit, scientists observed 78 lobster buoys within the vicinity of the proposal, five of which were located within the proposal boundaries (Figure 2).

During the site visit, MDMR observed two lobster boats actively working in the vicinity of the proposal.



**(4) Other Aquaculture Uses**

There are no licensed aquaculture leases or limited purpose aquaculture (LPA) sites within 1,000 feet of the proposed lease site (Figure 4).



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



## (5) Existing System Support

### Epibenthic Flora and Fauna

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 video footage.

Species Observed	Abundance
Mysid shrimp ( <i>Mysis</i> spp.)	Common
American lobster ( <i>Homarus americanus</i> )	Occasional
Spotted hake ( <i>Urophycis regia</i> )	Occasional
Winter flounder ( <i>Pseudopleuronectes americanus</i> )	Occasional
Sugar kelp ( <i>Saccharina latissima</i> )	Rare
Eelgrass ( <i>Zostera marina</i> )	Rare

### Eelgrass (*Zostera marina*)

Records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) in 2023<sup>6</sup> indicate there is eelgrass mapped within 1,000 feet of the proposal. The nearest mapped eelgrass is approximately 249 feet east of the proposal (Figure 5).

During MDMR's site visit, seven blades of very sparse, unhealthy looking eelgrass were observed on underwater video footage in the vicinity of the proposal. The eelgrass was on the bottom, but it is difficult to tell if it is rooted to the seafloor (Image 1,2). Water depth in the general area is approximately 39.2-66.0 feet at MLW.

Eelgrass is typically found in shallower water depths in subtidal to low intertidal areas to allow for adequate light penetration. MDMR expects seasonal regrowth of eelgrass to occur in April/May and seasonal senescence of eelgrass to occur in October/November. The applicant is proposing to seasonally culture marine algae on longlines from November to June.

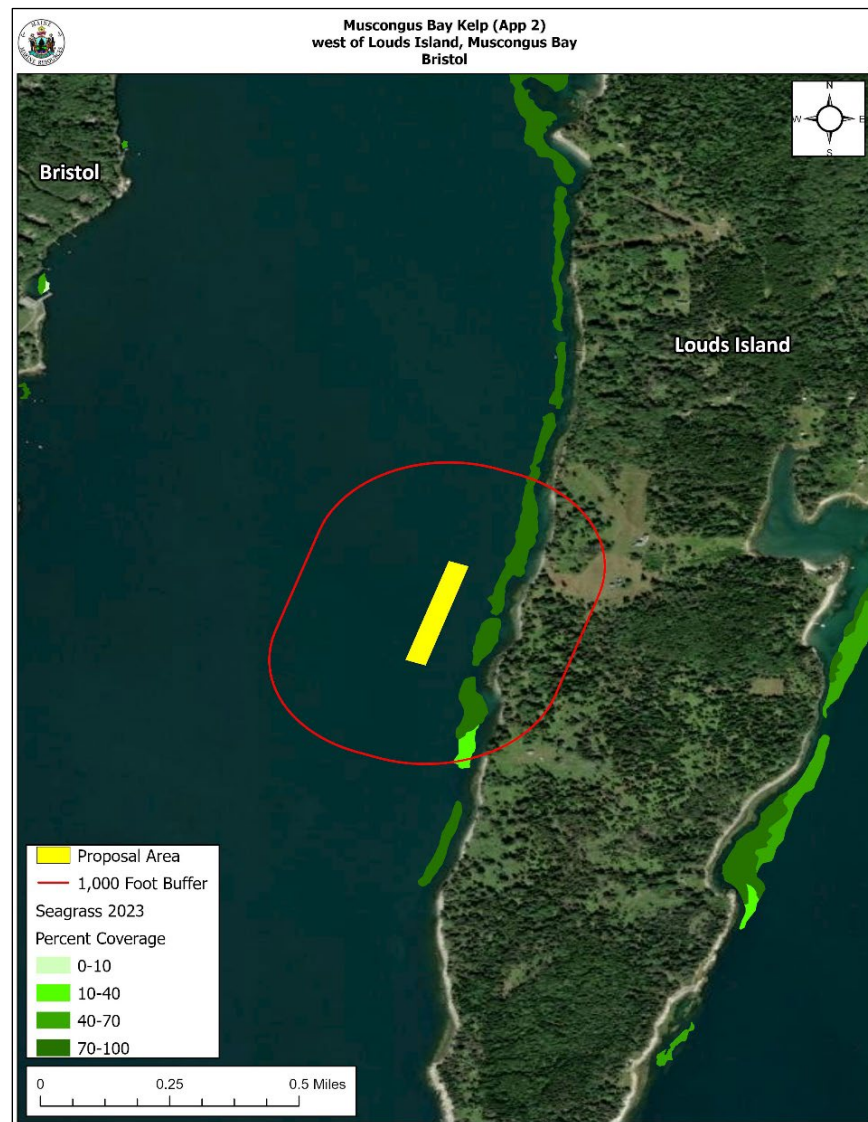
<sup>6</sup> Data obtained from The Maine Office of GIS "GISVIEW.MESEP.Seagrass2023". Widgeon grass was observed only in a tributary to the Great Salt Bay, upstream of a culvert that likely restricts tidal flow. Eelgrass was the dominant vascular species in all other locations. This is the most current record of mapped eelgrass within the vicinity of the proposal.





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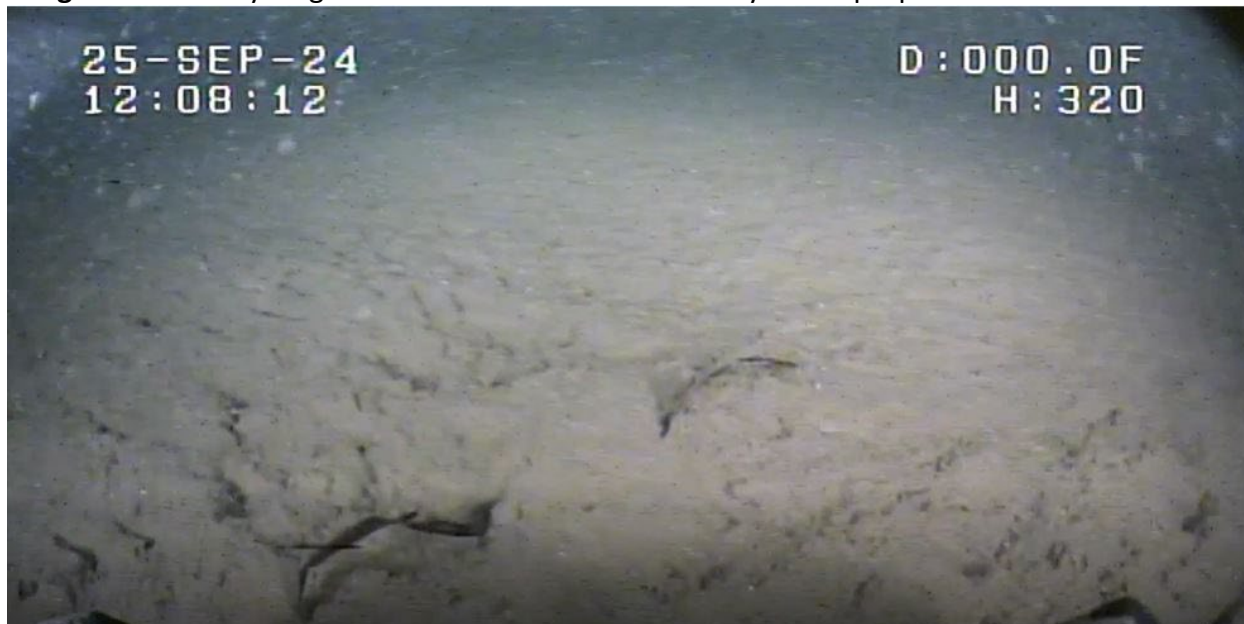
**Figure 5.** Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.



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**Image 1.** Unhealthy eelgrass on the seafloor in the vicinity of the proposal.



**Image 2.** Unhealthy eelgrass on the seafloor in the vicinity of the proposal.





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### Wildlife

During the site visit, MDMR scientists observed common eider (*Somateria mollissima*), a loon (*Gavia immer*), a bald eagle (*Haliaeetus leucocephalus*), double crested cormorants (*Nannopterum auritum*), a sturgeon (*Acipenser* sp.), and a harbor seal (*Phoca vitulina*) in the general vicinity of the proposal.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) has jurisdiction over inland fisheries and wildlife resources of the state. MDIFW also has the authority to conserve wildlife populations and their ecosystems through applicable state laws and rules. MDMR provides MDIFW with notice and the opportunity to comment on all complete lease applications. In addition, the site report also includes MDIFW designated and mapped habitat types that are within 1,000 feet of the lease proposal, if applicable.

According to Geographic Information System (GIS) data maintained by MDIFW and available through the Maine Office of GIS (MEGIS), there is one mapped habitat type within 1,000 feet of the lease proposal. The proposal is near Tidal Waterfowl and Wading Bird Habitat (TWWH), which is a type of Significant Wildlife Habitat designated and regulated by MDIFW.<sup>7</sup> Based on data maintained by MDIFW, the nearest TWWH is approximately 300 feet east of the proposal (Figure 6).

Though bald eagles are no longer listed on Maine's Endangered and Threatened Species List, the United States Fish and Wildlife Service (USFWS) may also have jurisdiction over the management and conservation of the species based on applicable law and rule. Data collected by USFWS in 2023 by aerial nest survey shows there is no mapped bald eagle nesting site in the vicinity of the proposal (Figure 6).

MDIFW was provided with the opportunity to comment on this proposal. On May 29, 2024, a Resource Biologist with MDIFW responded by email to a "Request for Agency Review and Comment" stating that minimal impacts to wildlife are anticipated for this project.<sup>8</sup>

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<sup>7</sup> <https://www.maine.gov/ifw/programs-resources/environmental-review/significant.html>

<sup>8</sup> Email correspondence between MDIFW and MDMR

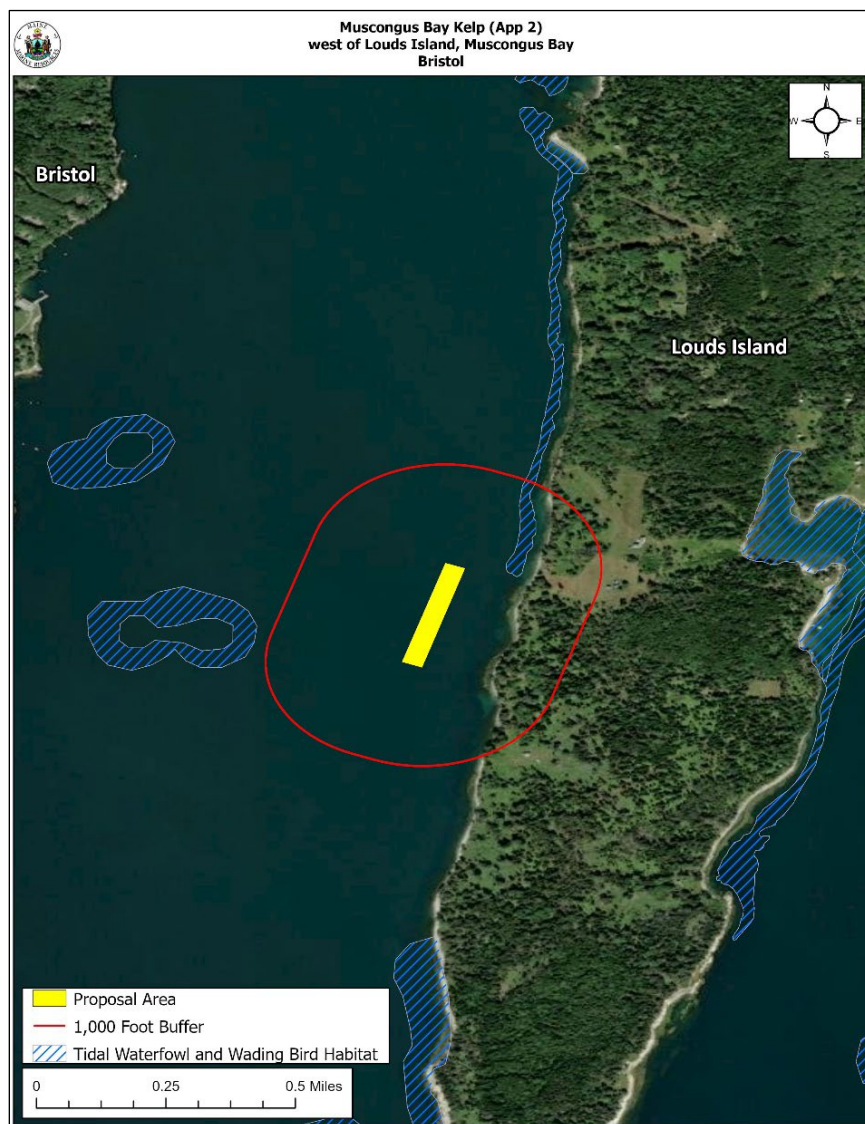


Figure 6. Mapped habitats in the vicinity of the proposed lease area.<sup>9</sup>

**(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.

<sup>9</sup> Data obtained from USFWS "Bald\_Eagle\_Nests\_-\_Maine\_2023" and MDIFW "EHRTERN", "EHPLVTRN", "GISVIEW.MEIFW.Twwh", "ShorebirdAreas", and "SNI".