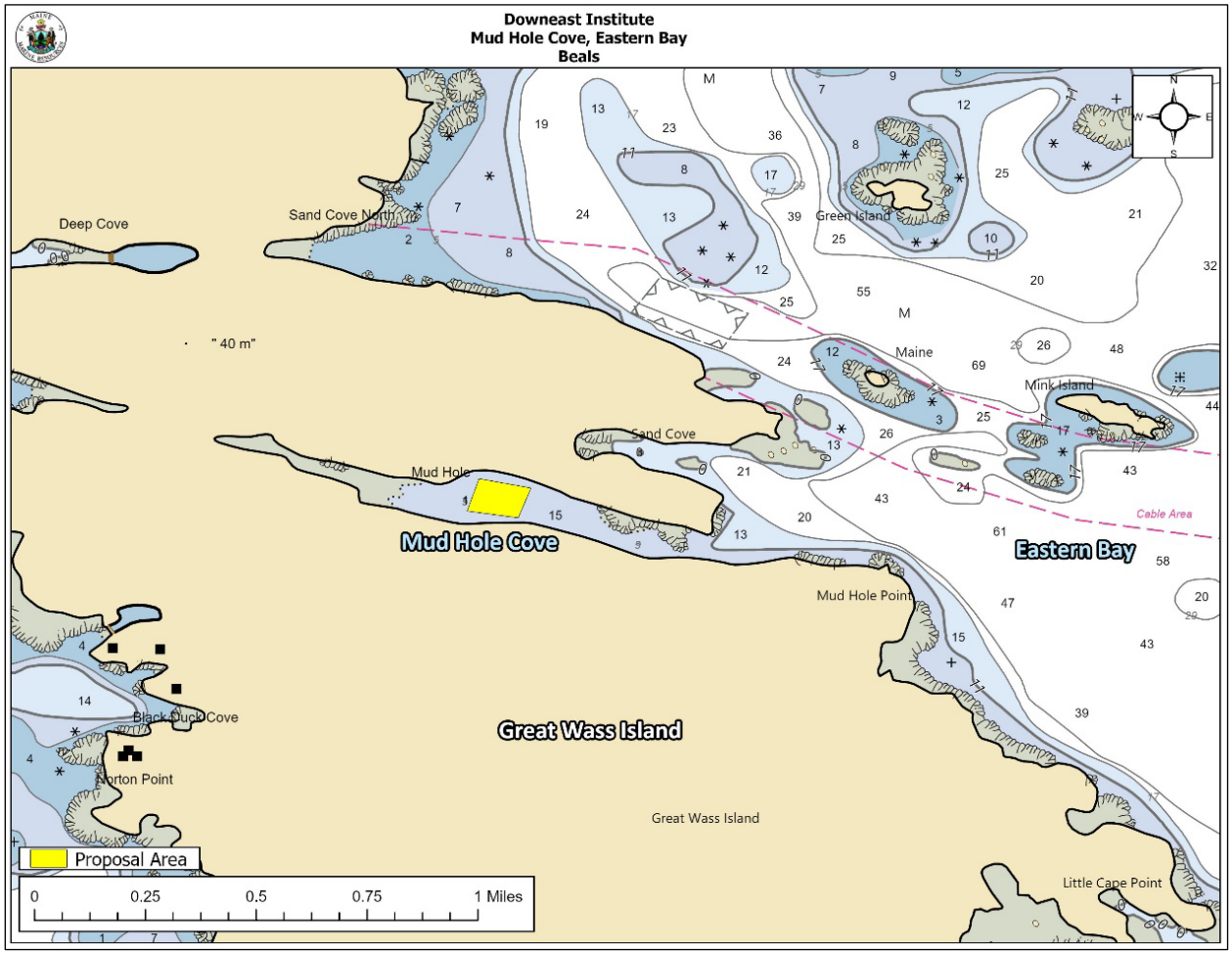

Figure 1. Vicinity map.[1]

Location: Mud Hole Cove, Eastern Bay, Beals, Washington County, Maine

Purpose: Standard lease for suspended culture of soft-shell clams (*Mya arenaria*), arctic surf clams (*Mactromeris polynyma*), American/eastern oysters (*Crassostrea virginica*), European oysters (*Ostrea edulis*), razor clams (*Ensis leei*), blue mussels (*Mytilus edulis*), sea scallops (*Placopecten magellanicus*), and hard clams/northern quahogs (*Mercenaria mercenaria*).

Site Review: Geoffrey Shook and Katie Von Hohenleiten
Report Preparation: Geoffrey Shook and Meryl Grady

[1] 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 The Maine Office of GIS.

Application Overview

The applicant, Downeast Institute, is requesting a 3.95-acre, 20-year, standard lease in Mud Hole Cove in Eastern Bay for the suspended culture of shellfish. The applicant intends for the site to be active year-round with the majority of gear being removed from the site during the winter. Bottom cages may be used to overwinter some animals.[2] The applicant currently operates experimental lease site EAST MHCx within the same footprint as the proposal.[3]

General Characteristics

On July 21, 2025, Department of Marine Resources (DMR) scientists visited the proposed lease site. DMR scientists arrived on site at approximately 1:50 PM. The proposal is located in subtidal waters in Mud Hole Cove approximately 54 feet from the shoreline at mean low water (MLW) (Figure 1). Mud Hole Cove is a secluded cove with a rock ledge shoreline and mudflats to the east that lead to primarily coniferous uplands. Sandy beaches were observed near the entrance to the cove.

Depth

On July 21, 2025, DMR scientists began collecting depths at the proposed site at approximately 1:50 PM. The tide was ebbing with the next low tide predicted at 2:02 PM (Table 1). Depths were determined to be between 3.0-6.2 feet at the proposal corners. Correcting for tidal variations derives depths at mean low water (0.0 feet) to be between 2.0-5.2 feet at the proposal corners. Approximate depths at mean high water (MHW, 11.3 feet[4]) are between 13.3-16.5 feet at the proposal corners (Table 2). Water current was slack at the time of the site visit.

Table 1. Predicted tidal heights in Steele Harbor Island, Maine.[5]

Date	Time	Height (ft)
2025/07/21	01:56 AM	0.0 L
2025/07/21	08:01 AM	11.0 H
2025/07/21	02:02 PM	1.0 L
2025/07/21	08:17 PM	13.4 H

Table 2. Collected and derived depths at corners of the proposed lease area.

Corner	Measured Depth (ft)	MLW Depth (ft)	MHW Depth (ft)
NW	3.0	2.0	13.3
NE	6.2	5.2	16.5
SE	3.1	2.1	13.4
SW	3.3	2.3	13.6

[2] Application page 10, 18
[3] Application page 21
[4] MHW in Milbridge, ME is 11.31 feet, NOAA Tide Station 8412581
[5] https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=8411801

Bottom Characteristics

DMR 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 3). Sediment information was determined based on visual analysis of the video. The bottom of the proposed lease site is primarily composed of mud.

Table 3. 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 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 4, Figure 2,3).

Application Coordinates (WGS84) – 3.95 Acres

Corner	Latitude	Longitude					
NW	44.486250°	-67.586750°	then	456	feet at	104°	True to
NE	44.485944°	-67.585056°	then	371	feet at	198°	True to
SE	44.484972°	-67.585472°	then	443	feet at	281°	True to
SW	44.485194°	-67.587139°	then	398	feet at	013°	True to NW

Table 4. Approximate distances from proposal corners to surrounding features (Figure 2,3).

Feature	Distance
NW corner to Mud Hole Cove northern shore at MLW	~96’ to the north
NW corner to Mud Hole Cove charted intertidal at MLW	~475’ to the west-southwest
NE corner to Mud Hole Cove northern shore at MLW	~81’ to the north
NE corner to Mud Hole Cove charted intertidal at MLW	~622’ to the east-southeast
SE corner to Mud Hole Cove southern shore at MLW	~54’ to the south
SE corner to Mud Hole Cove charted intertidal at MLW	~692’ to the east-northeast
SW corner to Mud Hole Cove southern shore at MLW	~153’ to the south
SW corner to Mud Hole Cove charted intertidal at MLW	~583’ to the west

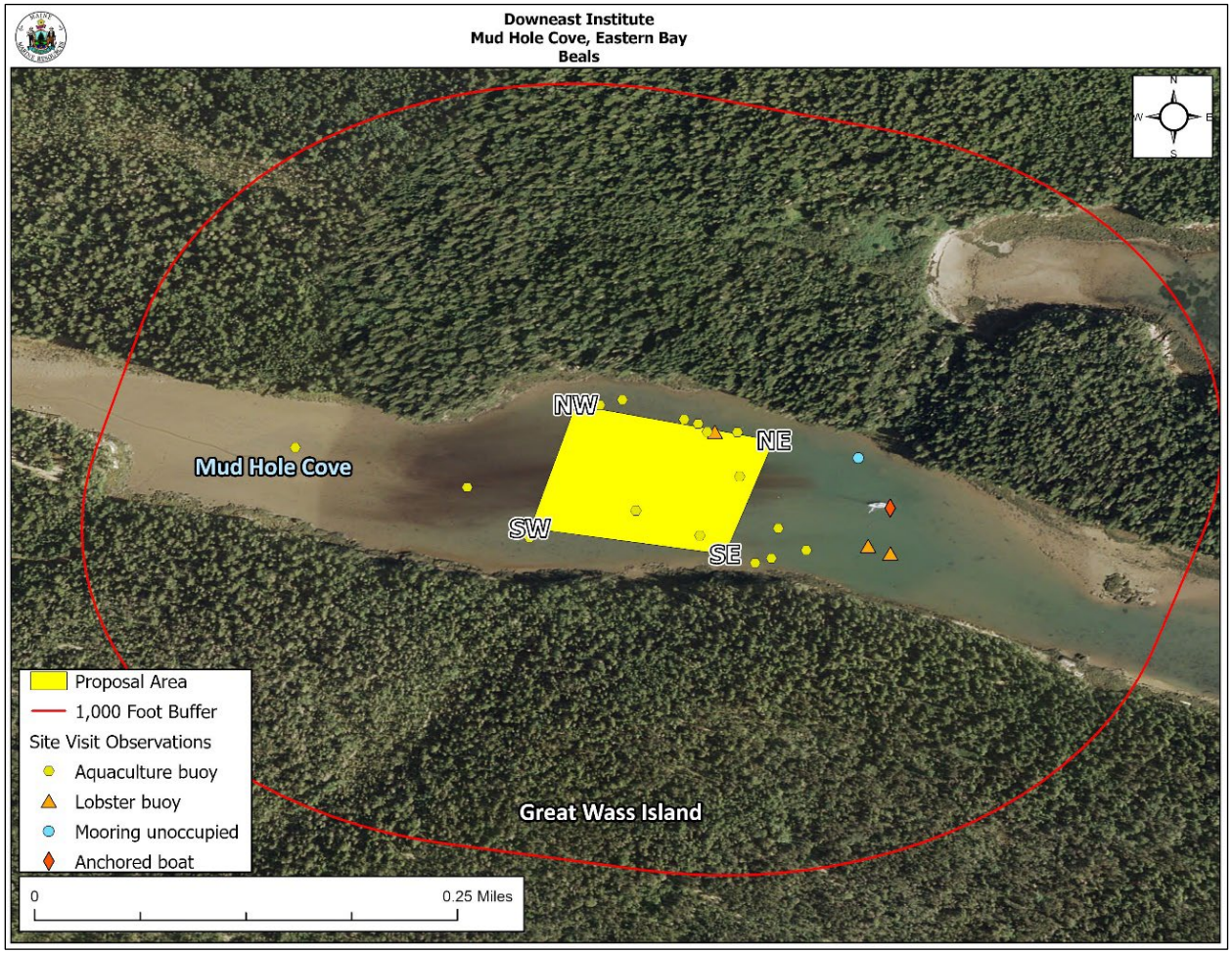

Figure 2. Proposed lease area with site visit observations.

Pursuant to statute and regulation, aquaculture leases are evaluated in consideration of applicable decision criteria. The Site Report documents DMR'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, DMR scientists observed one unoccupied mooring approximately 197 feet east of the proposal. DMR scientists did not observe any residential properties, piers, or docks within the vicinity of the proposal (Figure 2).

A Harbormaster Questionnaire was sent to the Town of Beals. DMR did not receive a response.

(2) Navigation

Mud Hole Cove is a shallow cove on Great Wass Island on the western side of Eastern Bay. The proposal is not near any navigational channels. Access to the cove is restricted by shallow water and an intertidal ledge near the entrance of the cove. Water depth at the entrance of the cove is approximately 1 to 5 feet at MLW. There is a small area of deeper water directly to the east of the proposal, approximately 16 feet deep at MLW (Figure 3)

During the site visit, DMR scientists observed an approximately 30-foot recreational sailboat anchored in an area of deeper water approximately 310 feet east of the proposal (Figure 2).

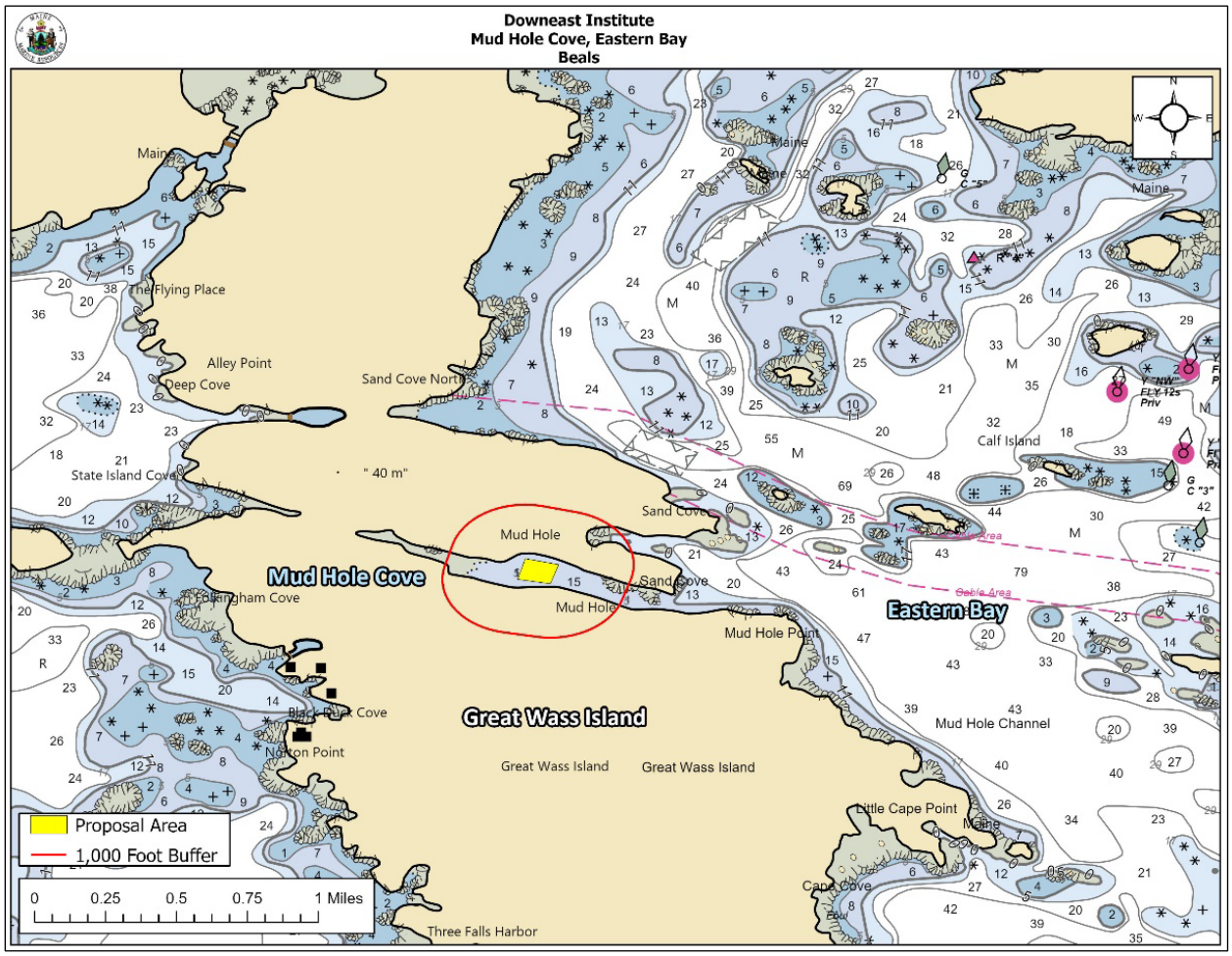

Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During DMR's site visit, scientists observed three lobster buoys within the vicinity of the proposal with the closest located within the proposal boundaries (Figure 2). No other commercial or recreational fishing was observed during the site visit.

(4) Other Aquaculture Uses

There is one licensed aquaculture lease and four limited purpose aquaculture (LPA) sites within the vicinity of the proposed lease site (Figure 4). The applicant currently operates experimental lease EAST MHCx within the same footprint as the proposal area. This standard proposal is intended to replace EAST MHCx. The applicant also operates LPA sites JROB520, JROB620, JROB720, and JROB820. LPA licenses would be retained if the proposed lease is granted. [6]

At the time of the site visit, DMR scientists observed 17 buoys related to aquaculture within the vicinity of the proposal (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

[6] Application page 21

DMR 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 5.

Table 5. Species observed on underwater video footage.

Species Observed	Abundance
Sand Shrimp (*Crangon septemspinosa)*	Rare
Green crab (*Carcinus maenas*)	Rare

Eelgrass (*Zostera marina*)

Records of eelgrass collected by DMR in 2010[7] indicate there is eelgrass mapped within 1,000 feet of the proposal. The nearest mapped eelgrass is approximately 952 feet northeast of the proposal (Figure 5).

During DMR's site visit, scientists did not observe any eelgrass in the vicinity of the proposal.

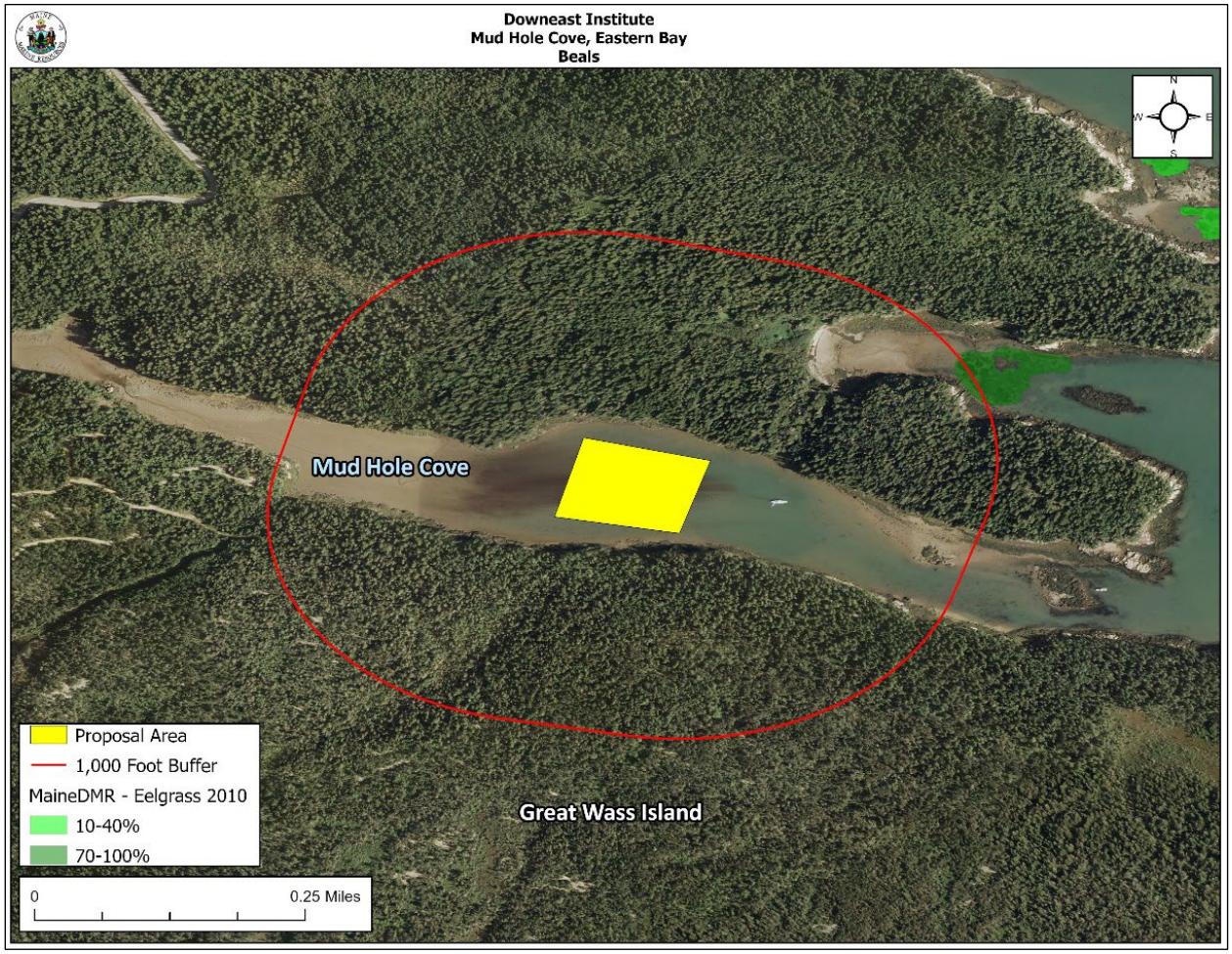

Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

[7]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.

Wildlife

During the site visit, DMR scientists observed herring gulls (*Larus argentatus*) and a bald eagle (*Haliaeetus leucocephalus*) in the general vicinity of the proposal.

The Department of Inland Fisheries and Wildlife (IFW) has jurisdiction over inland fisheries and wildlife resources of the state. IFW also has the authority to conserve wildlife populations and their ecosystems through applicable state laws and rules. DMR provides IFW with notice and the opportunity to comment on all complete lease applications. In addition, the Site Report also includes IFW 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 IFW and available through the Maine Office of GIS (MEGIS), there are not any mapped habitat types within 1,000 feet of the lease 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 within the vicinity of the proposal (Figure 6).

IFW was provided with the opportunity to comment on this proposal. DMR did not receive any comments.

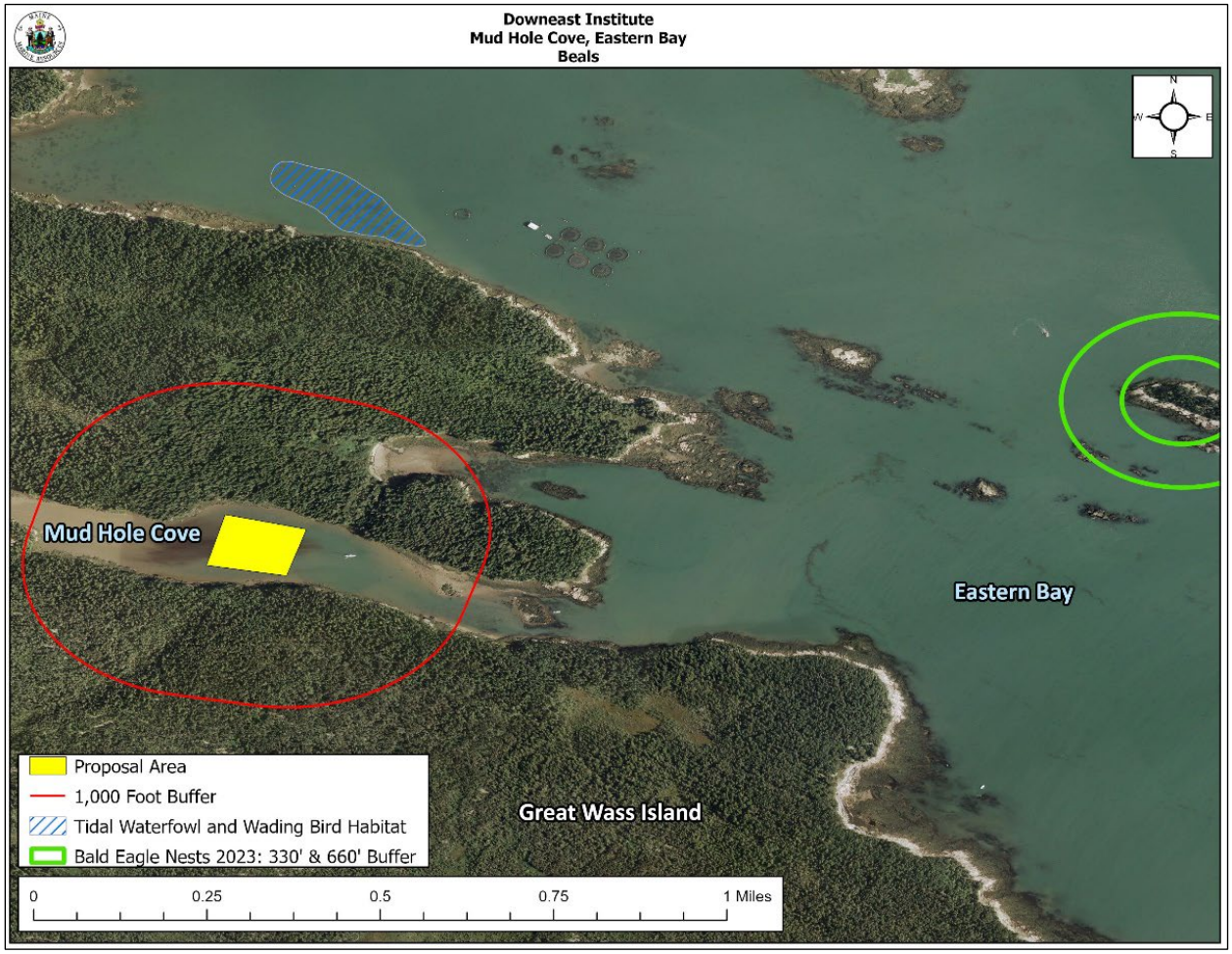

Figure 6. Mapped habitats in the vicinity of the proposed lease area. [8]

[8] Data obtained from USFWS "Bald_Eagle_Nests_-_Maine_2023" and IFW "EHRTERN", "EHPLVTRN", "GISVIEW.MEIFW.Twwh", "ShorebirdAreas", and "SNI".

(6) Interference with Public Facilities

The proposed lease is not within 1,000 feet of any conserved lands, beach, park, or docking facility, owned by federal, state, or municipal governments.

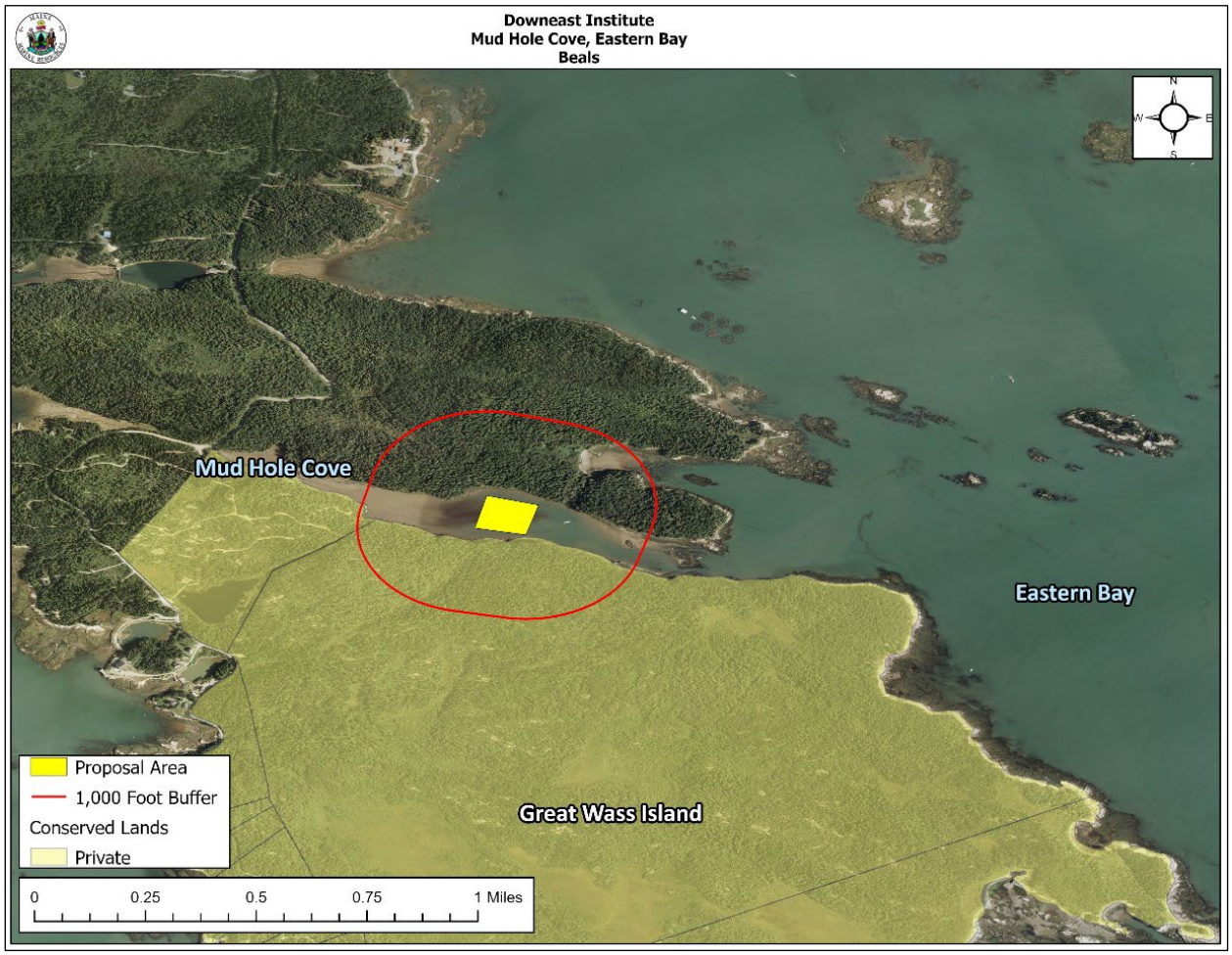

Figure 7. Public facilities near the proposed lease site.[9]

(7) Water Quality

The proposed lease is currently located within an area classified as Approved by the DMR Bureau of Public Health and Aquaculture.

[9] Data obtained from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"