Gary Genthner Jr. - East of Cow Island, Bremen

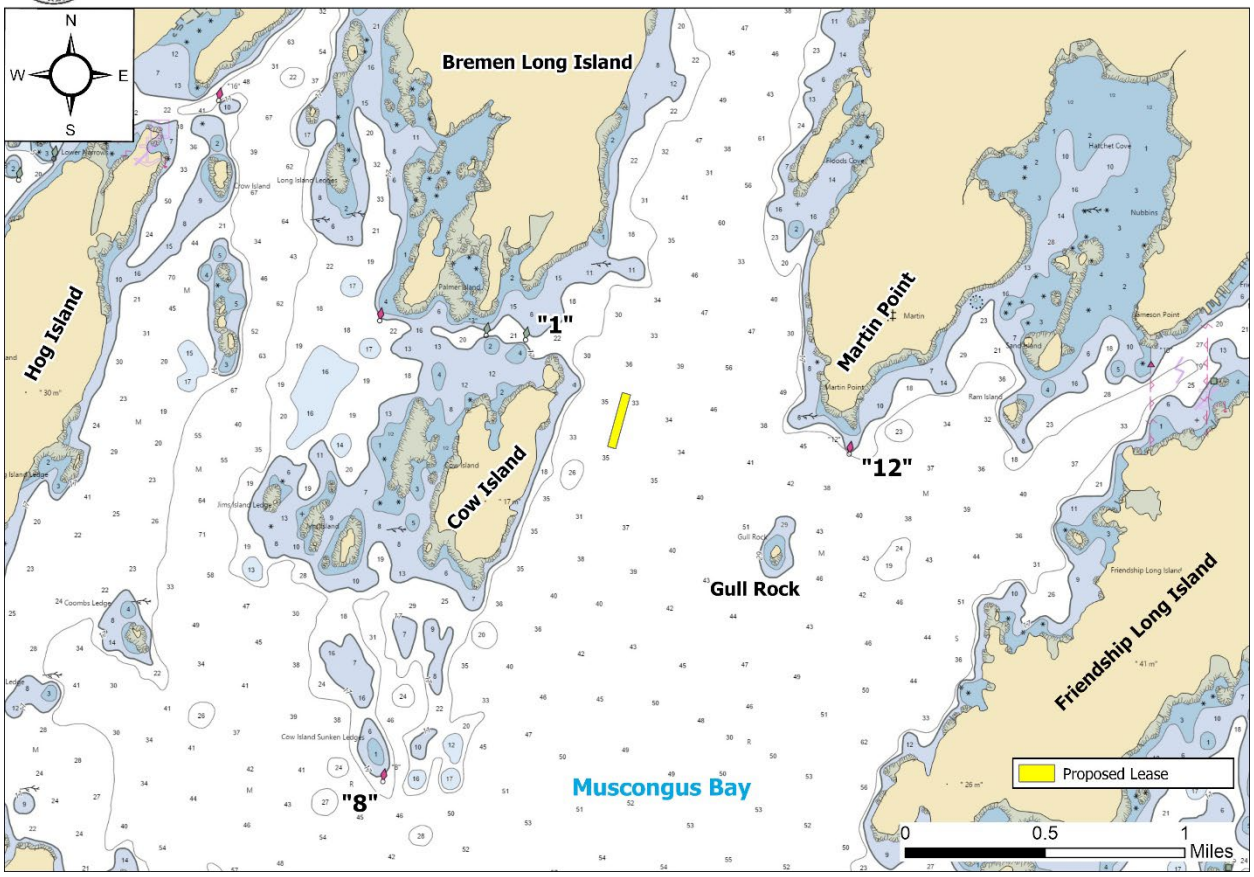

Figure 1. Vicinity map.[1]

Location: East of Cow Island, Muscongus Bay, Bremen, Lincoln County, Maine

Purpose: Experimental lease for of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina angustissima*), winged kelp (*Alaria esculenta*), horsetail/fingered kelp (*Laminaria digitata*), dulse (*Palmaria palmata*), 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.

Application Overview

The applicant, Gary Genthner Jr., is requesting a 3.98[2] acre experimental lease east of Cow Island in Muscongus Bay for the suspended culture of marine algae. The applicant intends to remove all gear from the site from June 16 - September 30 except for moorings, mooring chains, mooring lines, and the state required lease marker buoys. Mooring chains and lines will be sunk to the seafloor during the off season.[3]

General Characteristics

On August 15, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 1:01 PM. The eastern shore of Cow Island, in the vicinity of the proposal, consists of rocky coastline leading to forested uplands.

Depth

MDMR scientists began collecting depths at the proposed site shortly before low tide at approximately 1:02 PM. Measured depths at corners of the proposed lease site ranged from 36.7 to 37.5 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 34.7 to 35.5 feet (Table 1).

Table 1. Predicted tidal heights in Friendship, Maine.[4]

Date	Time	Height (ft)
2024/08/15	1:23 AM	1.4 L
2024/08/15	7:31 AM	7.5 H
2024/08/15	1:25 PM	1.9 L
2024/08/15	7:41 PM	9.1 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 3.99 acres. MDMR calculations indicate the area is 3.98 acres.
[3] Application pages 10, 20, 21
[4] https://www.usharbors.com/harbor/maine/friendship-harbor-me/tides/?tide=2024-08#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, a nautical chart provided by the National Oceanic and Atmospheric Administration (NOAA), and the application coordinates (Table 3, Figure 3).

Application Coordinates (WGS84) – 3.98 Acres

Corner	Latitude	Longitude	
NW	43.96582°	-69.38264°	then 163.8 feet at 106° True to
NE	43.96570°	-69.38204°	then 1,057.4 feet at 195° True to
SE	43.96290°	-69.38309°	then 163.9 feet at 286° True to
SW	43.96302°	-69.38369°	then 1,057.5 feet at 015° True to NW

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

Feature	Distance
NW corner to Cow Island at MLW	~1,132.5’ to the west
NW corner to green navigation buoy “1”	~2,079.6’ to the northwest
NW corner to Bremen Long Island at MLW	~2,593.4’ to the northwest
NE corner to Martin Point at MLW	~3,532.3’ to the east
NE corner to red navigation buoy “12”	~4,264.5’ to the southeast
NE corner to Gull Rock at MLW	~3,944.8’ to the southeast
SE corner to Martin Point at MLW	~4,005.2’ to the northeast
SE corner to Gull Rock at MLW	~3,514.4’ to the southeast
SE corner to Friendship Long Island at MLW	~7,558.2’ to the southeast
SW corner to Cow Island at MLW	~1,180.6' to the northwest
SW corner to nearest Cow Island Sunken Ledge	~4,522.4’ to the southwest

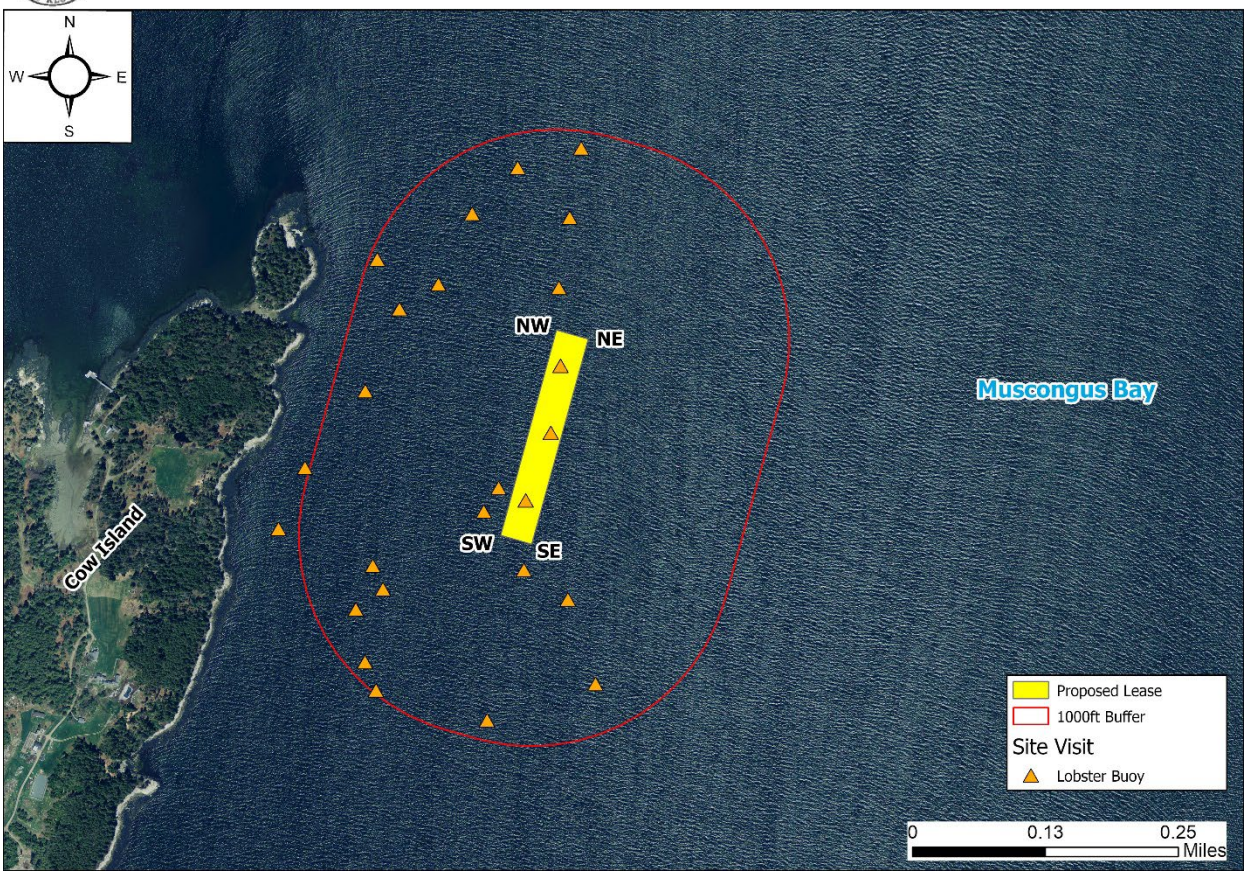

Figure 2. Proposed lease area with site visit observations.

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

MDMR scientists did not observe any docks, houses, or moorings in the vicinity of the proposal. The land nearest to the proposal is Cow Island located 1,132.5 feet west at MLW. Cow Island is held in a conservation easement by Maine Coast Heritage Trust. Aerial imagery[5] indicates a dock on the northwest side of Cow Island approximately 2,328.5 feet from the proposal (Figure 2). During the site visit, MDMR observed a staircase leading to the shoreline on the eastern side of Cow Island.

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

[5] Maine Orthoimagery Coastal Midcoast 2023

(2) Navigation

The proposal is located approximately 1,132.5 feet to the east of Cow Island at MLW. There is approximately 3,532.3 feet of navigable water between the proposal and the western shore of Martin Point at MLW. There are two entrances to the Medomak River, which is located north of the proposal. There is one unmarked, navigable waterway to the east of Cow Island and Bremen Long Island and one marked channel to the west of Cow Island and Bremen Long Island. Red navigational buoy "12" marks the channel to and from Friendship Harbor (Figure 3). Friendship Harbor is 1.9 miles east of the proposal. During MDMR's site visit, no navigational traffic was observed.

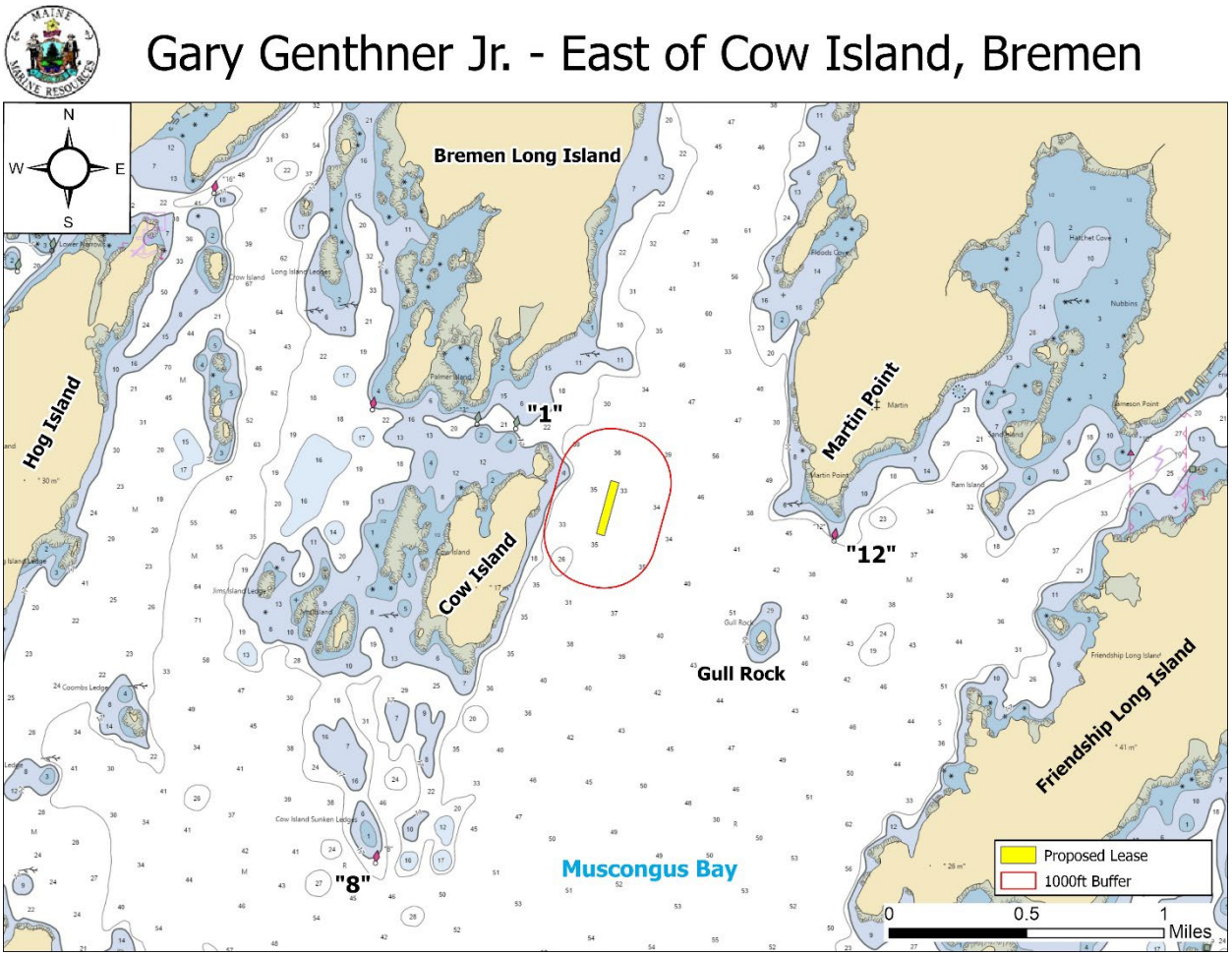

Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During the site visit, MDMR documented lobster buoys within the proposal boundaries and in the general vicinity of the proposal. Three lobster buoys were located within the proposal boundaries and an additional 20 buoys were located within 1,000 feet of the proposal, predominantly between the proposal and Cow Island (Figure 2).

During the site visit, MDMR observed three commercial fishing vessels actively hauling lobster fishing gear southwest of the proposal. Additionally, one commercial fishing vessel was observed setting lobster traps within the boundaries of the proposal.

(4) Other Aquaculture Uses

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

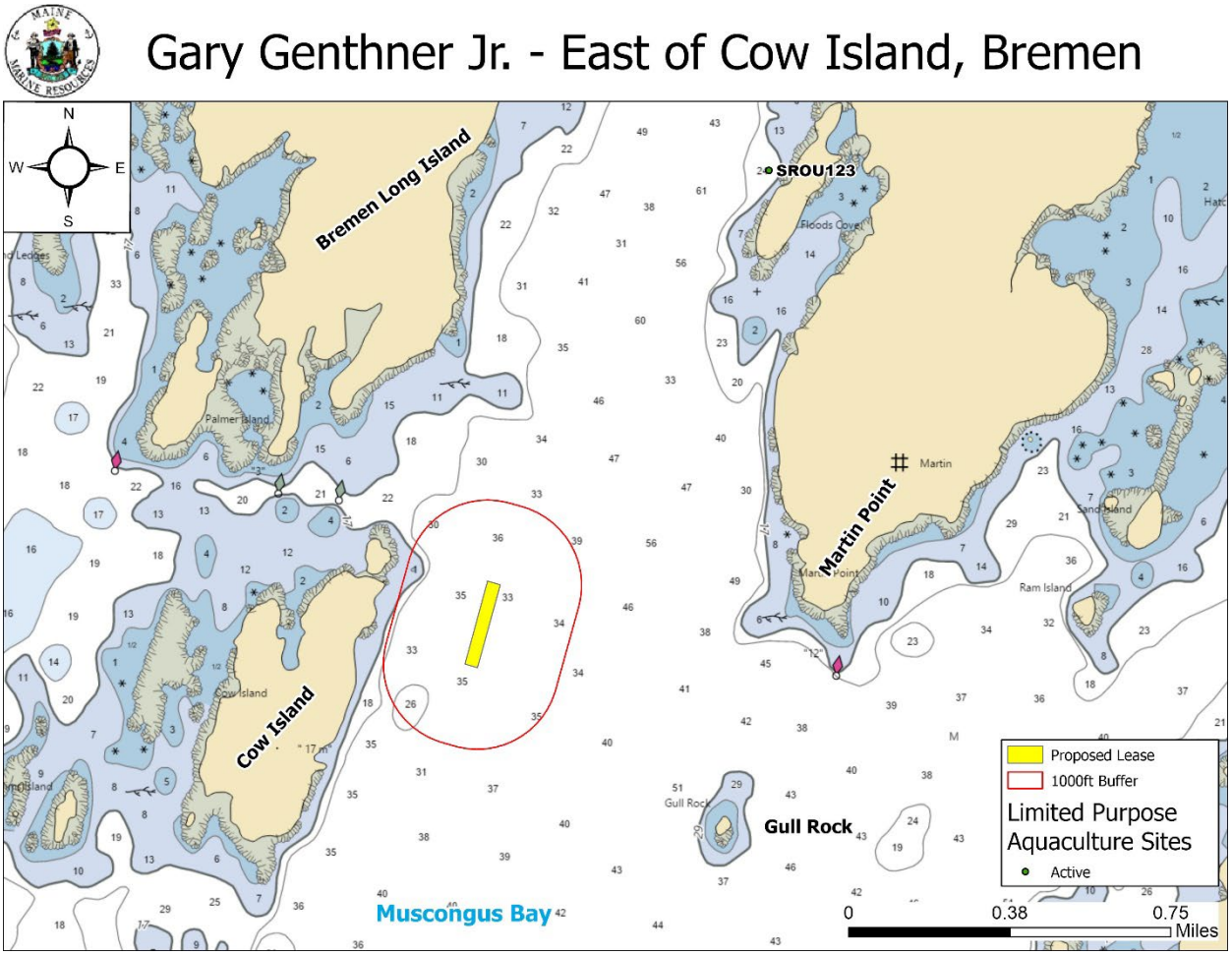

Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

(5) Existing System Support

Epibenthic Flora and Fauna

On August 15, 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 transect is described below in Table 4.

Table 4. Species observed on underwater camera footage.

Species Observed	Abundance
Mysid Shrimp (*mysis sp.*)	Abundant
American Lobster (*Homarus americanus*)	Occasional
Rockweed (*Ascophyllum nodosum*)	Rare
Kelp (*Saccharina sp.*)	Rare

Eelgrass (*Zostera marina*)

Records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) in 2023 indicate no mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 1,196.5 feet west of the proposal (Figure 5).[6] No eelgrass was observed on underwater camera footage within the proposal boundaries during MDMR's site assessment.

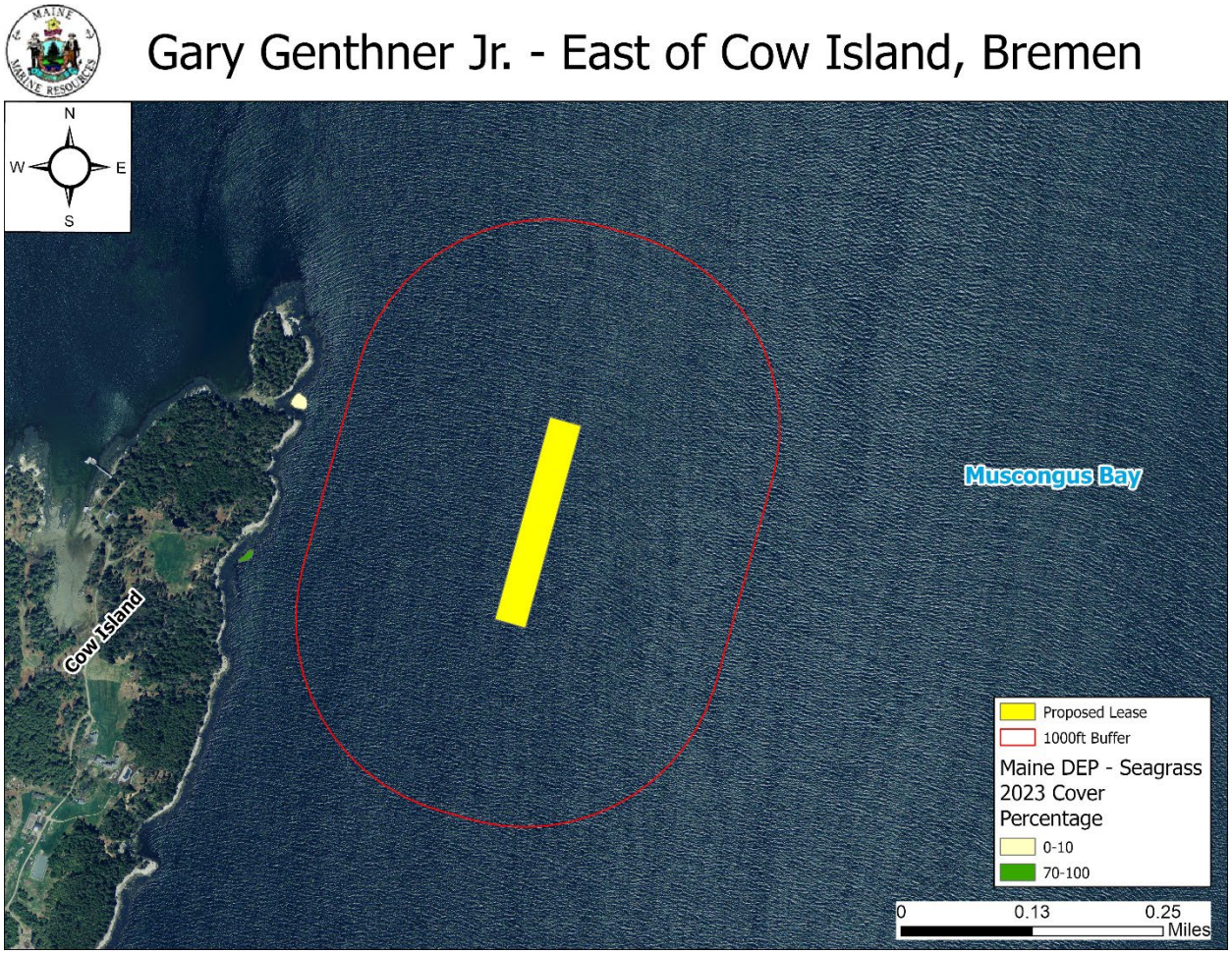

Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

[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.

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 2,682.0 feet to the southeast 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 the closest mapped bald eagle nesting site to be approximately 0.99 miles southwest of the proposal (Figure 6). On September 26, 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.[7]

During the site assessment, MDMR scientists observed osprey (*Pandion haliaetus*) and harbor seals (*Phoca vitulina*) in the general vicinity of the proposal.

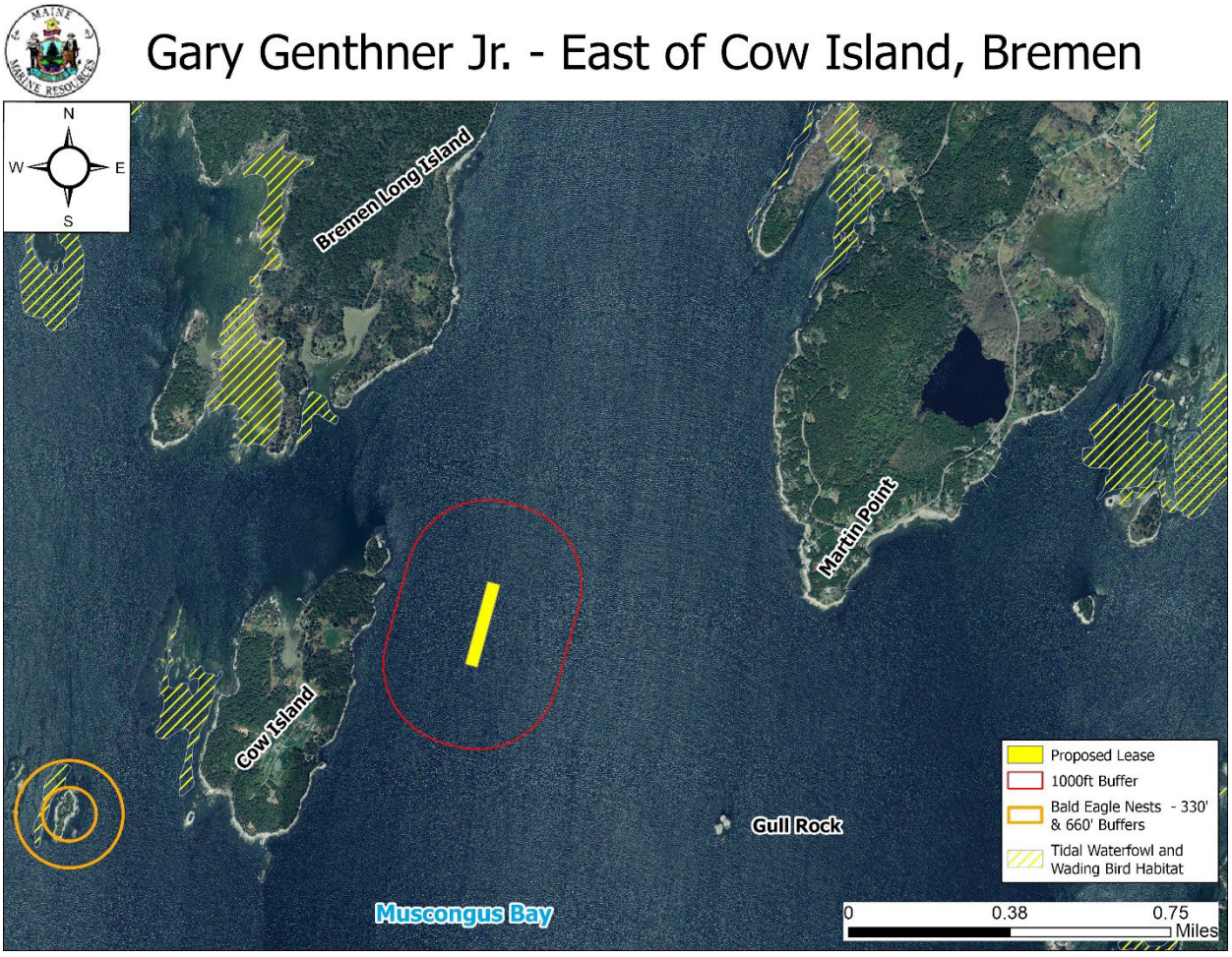

Figure 6. Mapped bald eagle nests and TWWH in the vicinity of the proposal. [8]

[7] Email correspondence between MDIFW and MDMR

[8] Data obtained from USFWS "Bald_Eagle_Nests_-_Maine_2023" and MDIFW maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"

(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.