



Keith and Ryan Miller (App 2) - Southwest of Elwell Island, St. George

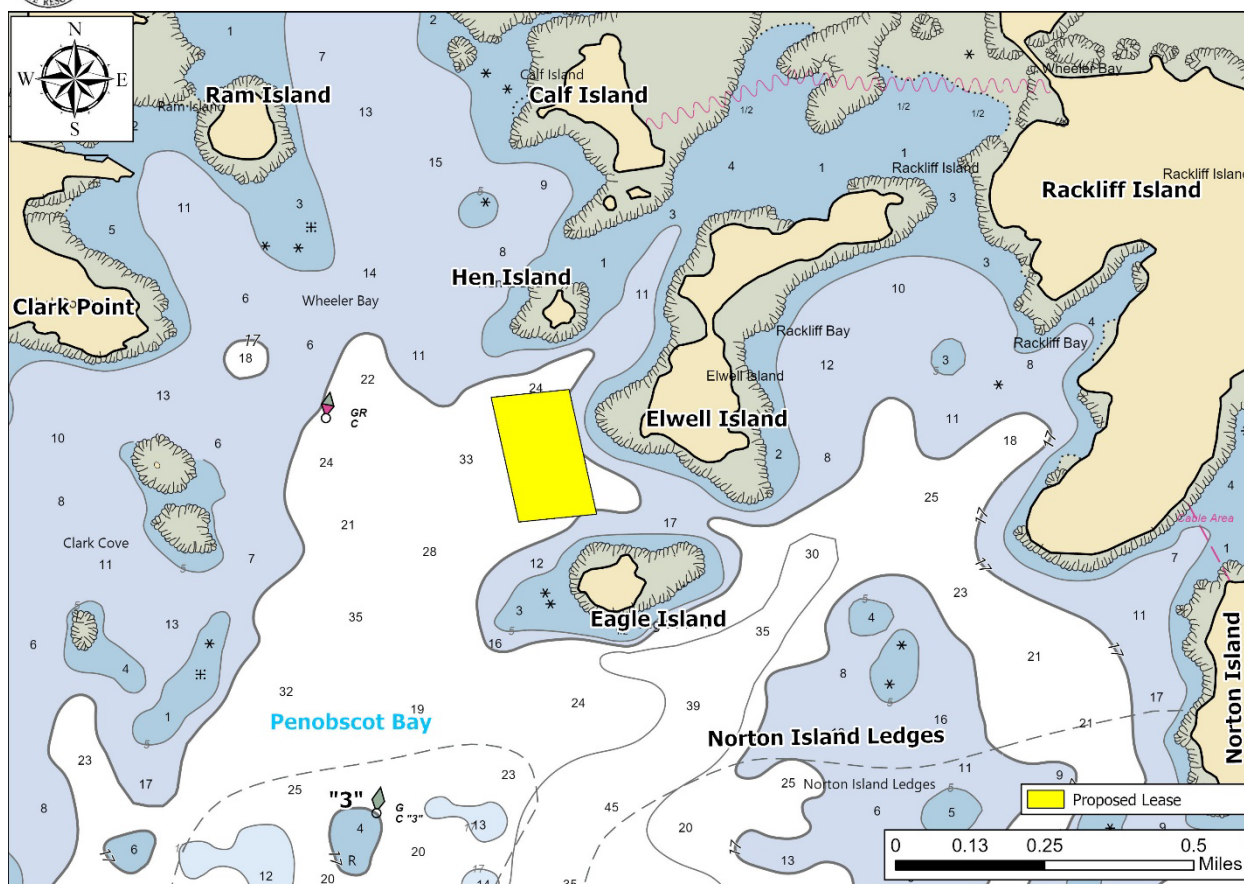


Figure 1. Vicinity map.¹

Location: Southwest of Elwell Island, Penobscot Bay, St. George, Knox County, Maine

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

Site Review: Meryl Grady, 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 3.3 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by The Maine Office of GIS.



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Application Overview

The applicants, Keith Miller and Ryan Miller, are requesting a 12.85² acre standard lease southwest of Elwell Island in Penobscot Bay, St. George for the suspended culture of marine algae. One co-applicant, Keith Miller, currently operates experimental lease PEN Elx within a portion of the footprint of this standard lease proposal (Figure 4). The applicants are proposing an expansion from 3.92³ acres to 12.85 acres. The proposal will be used seasonally to culture marine algae, but the applicants are proposing to leave mooring blocks, mooring chains and lines, and mooring buoys, as well as state required lease boundary markers, on the site year-round.⁴

General Characteristics

On May 15, 2025, Department of Marine Resources (DMR) scientists assessed the proposed lease site. DMR scientists arrived on site at approximately 11:43 AM. The proposal is located approximately 145 feet west of Elwell Island at mean low water (MLW). Elwell Island has a rocky ledge coastline leading to forested, primarily coniferous uplands. Riparian structures were observed on Elwell Island, Hen Island, and Eagle Island in the vicinity of the proposal.

Depth

On May 15, 2025, DMR scientists began collecting depths at the proposed site at approximately 11:45 AM. The tide was rising with next high tide predicted to occur at 1:45 PM (Table 1). Depths were collected at corners of the proposal and determined to be between 28.8 and 37.6 feet. Correcting for tidal variations derives water depths to be approximately 26.9 to 35.7 feet at MLW (0.0 feet). Approximate depths at mean high water (MHW, 9.8 feet⁵) at corners of the proposal are 36.7 to 45.5 feet (Table 2). Water current was determined to be flowing in a northerly direction at the time of the site visit.

Table 1. Predicted tidal heights in Tenants Harbor, Maine.⁶

| Date | Time | Height (ft) |
|------------|---------|-------------|
| 2025/05/15 | 1:02 AM | 9.8 H |
| 2025/05/15 | 7:28 AM | 0.3 L |
| 2025/05/15 | 1:45 PM | 8.5 H |
| 2025/05/15 | 7:28 PM | 1.7 L |

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

| Corner | Measured Depth (ft) | MLW Depth (ft) | MHW Depth (ft) |
|--------|---------------------|----------------|----------------|
| NW | 35.8 | 33.9 | 43.7 |
| NE | 28.8 | 26.9 | 36.7 |
| SE | 30.9 | 29.0 | 38.8 |
| SW | 37.6 | 35.7 | 45.5 |

² Applicant originally requested 12.80 acres. DMR calculations indicate the area is 12.85 acres.

³ Experimental lease PEN Elx decision history page 1

⁴ Application pages 7-8

⁵ MHW in Rockland is 9.78 feet, NOAA Tide Station 8415490

⁶ <https://tidesandcurrents.noaa.gov/stationhome.html?id=8415809>



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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 muddy sand.

Table 3. Bottom characteristics of the proposed site.

| Substrate Origin | Substrate Class | Substrate Subclass | Substrate Group |
|--------------------|----------------------------------|-------------------------------|-----------------|
| Geologic Substrate | Unconsolidated Mineral Substrate | Fine Unconsolidated Substrate | Muddy Sand |
| Biogenic Substrate | Shell Substrate | Shell Hash | Not Classified |

Position and Distances to Shore

The 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, Figures 2,3).

Application Coordinates (WGS84) – 12.85 Acres

| Corner | Latitude | Longitude |
|--------|-----------|---|
| NW | 43.98949° | -69.16241° then 502 feet at 082° True to |
| NE | 43.98968° | -69.16052° then 1,115 feet at 171° True to |
| SE | 43.98666° | -69.15985° then 502 feet at 262° True to |
| SW | 43.98647° | -69.16174° then 1,115 feet at 351° True to NW |

Table 4. Approximate distances from proposal corners to surrounding features (Figures 2&3).

| Feature | Distance |
|--|------------------------------|
| NW Corner to Ram Island shoreline at MLW | ~2,450 feet to the northwest |
| NW Corner to Clark Point shoreline at MLW | ~2,092 feet to the northwest |
| NW Corner to green and red channel marker buoy | ~1,069 feet to the west |
| NE Corner to Elwell Island shoreline at MLW | ~236 feet to the southeast |
| NE Corner to Hen Island shoreline at MLW | ~424 feet to the north |
| SE Corner to Elwell Island shoreline at MLW | ~618 feet to the northeast |
| SE Corner to Eagle Island shoreline at MLW | ~246 feet to the south |
| SW Corner to Clark Island shoreline at MLW | ~3,918 feet to the southwest |
| SW Corner to green navigational can “3” | ~2,733 feet to the southeast |

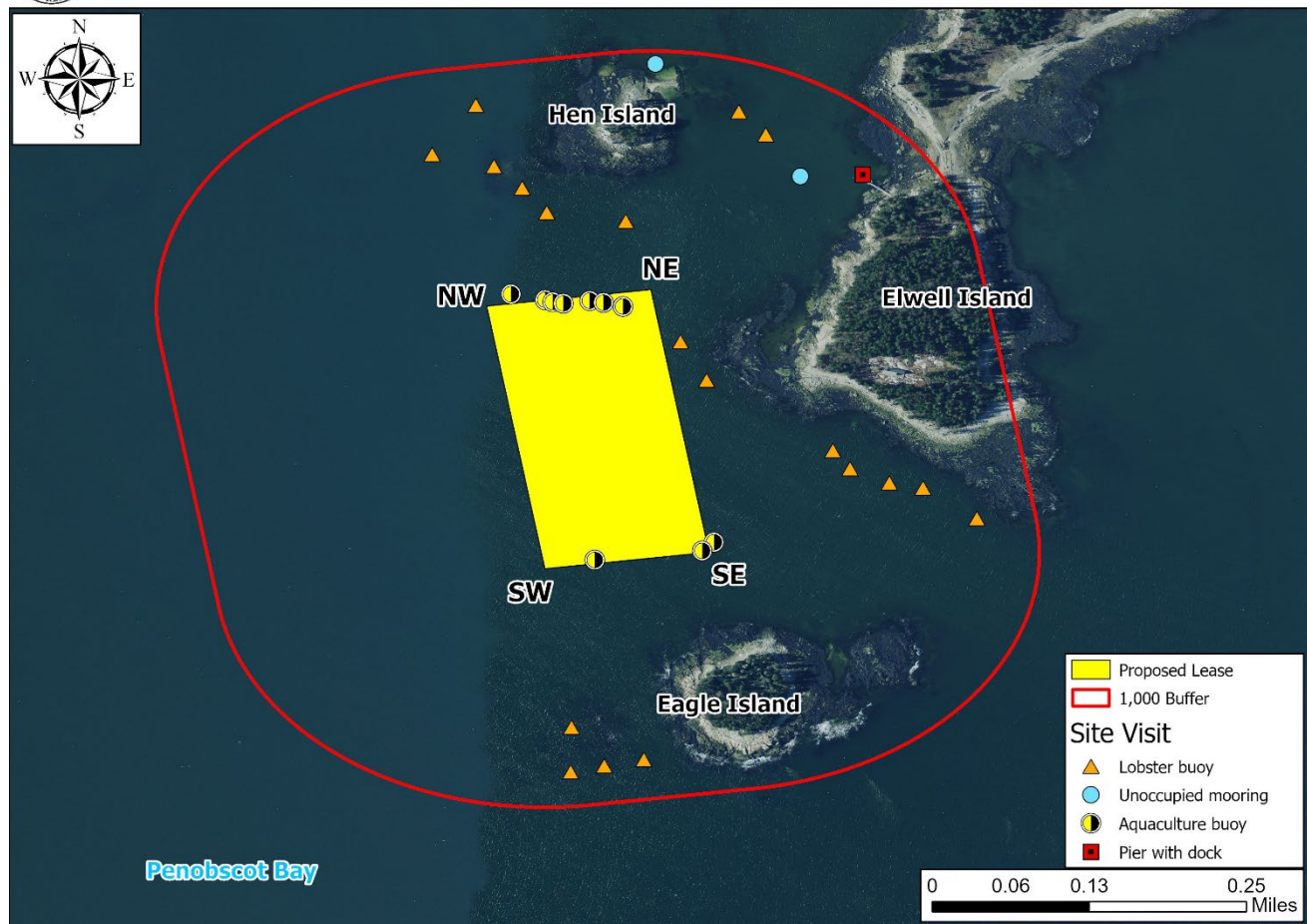


Figure 2. Proposed lease area with site visit observations.

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 observed one house on Elwell Island with a pier and dock on the western shore located approximately 802 feet northeast of the proposal, as well as an unoccupied mooring approximately 655 feet northeast of the proposal. A yurt was observed on Hen Island approximately 690 feet north of the proposal, with an unoccupied mooring on the north side of Hen Island approximately 945 feet north of the proposal. DMR scientists observed a structure on Eagle Island approximately 520 feet south of the proposal. DMR did not observe any associated mooring, pier, or dock (Figure 2).



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

(2) Navigation

The proposal is located alongside the southwestern end of Elwell Island, which is approximately 145 feet east of the proposal at MLW. The proposal is located outside of the marked navigational channel, as marked by the green and red channel marker buoy approximately 1,069 feet west of the proposal. From the northern boundary of the proposal, it is approximately 424 feet to the north to the shoreline of Hen Island at MLW. From the southern boundary of the proposal, it is approximately 246 feet to the south to Eagle Island (Figure 3).

During the site visit, DMR scientists observed one lobster boat transiting to the west of the site heading in a northerly direction.



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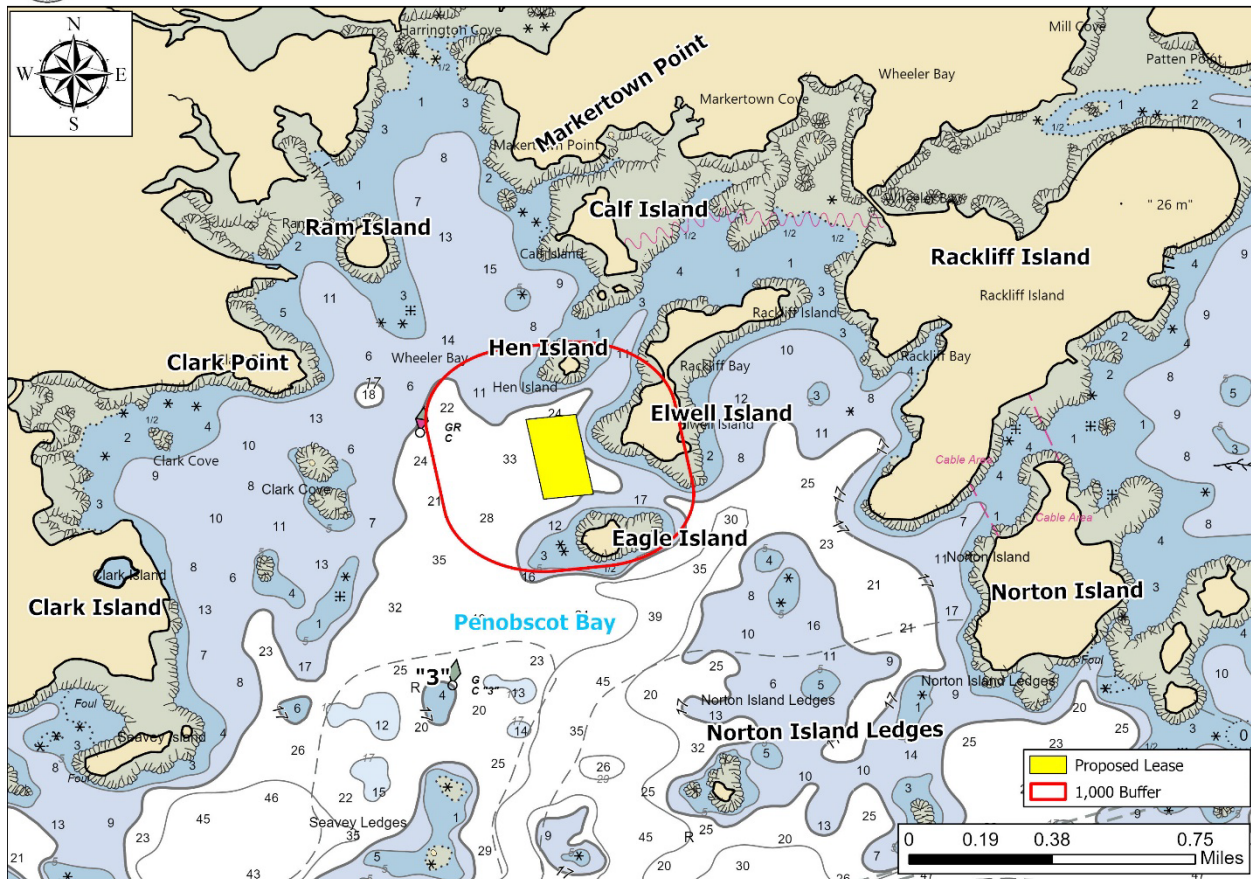


Figure 3. Navigational channels in the vicinity of the proposed lease area.



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(3) Fishing and Other Uses

During the site visit, no commercial or recreational fishing activity was observed with the boundaries of the proposed lease. DMR scientists observed 19 lobster buoys in the vicinity of the proposal, with the closest being approximately 54 feet east of the proposal (Figure 2).

(4) Other Aquaculture Uses

One of the co-applicants, Keith Miller, currently operates experimental lease PEN Elx within the boundaries of this proposal. This standard lease proposal is intended to replace PEN Elx. There are no other aquaculture leases or limited purpose aquaculture (LPA) sites within 1,000 feet of the proposal. Experimental lease PEN RBx is held by Keith Miller and is approximately 1,175 feet southeast of this proposal. There is an application under review by DMR to convert PEN RBx into a standard lease approximately 1,290 feet southeast of this proposal. Experimental lease PEN SLx is held by Mark Miller and is approximately 1,985 feet south of this proposal. There is an application under review by DMR to convert PEN SLx into a standard lease approximately 1,980 feet south of this proposal. LPAs RPHI122, RPHI222, RPHI322, and RPHI422 are licensed to Richard Philbrook and are approximately 1,626 feet northwest of the proposal (Figure 4).

All aquaculture buoys observed during the site visit were associated with PEN Elx (Figure 2). During the site visit, DMR scientists observed an active marine algae harvest underway on lease site PEN Elx.



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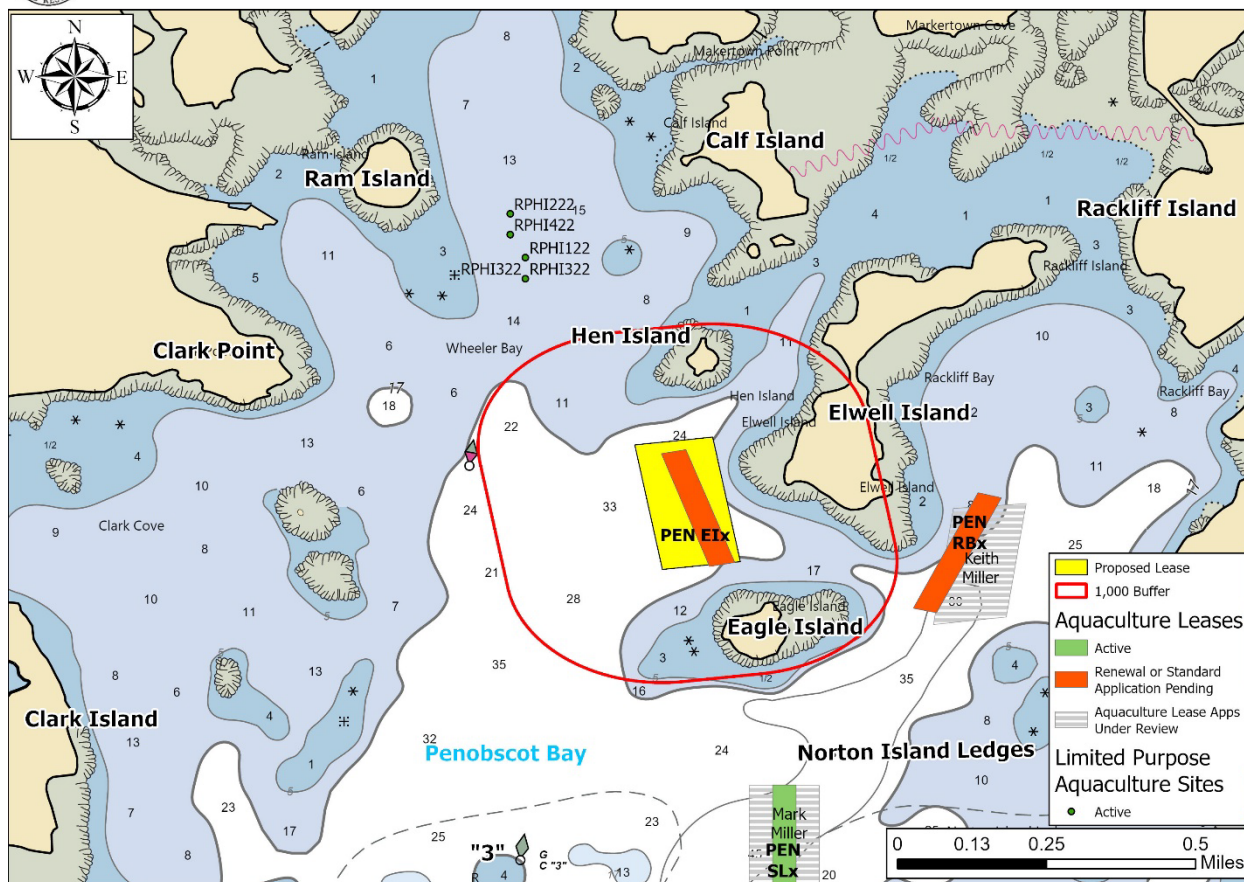


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

(5) Existing System Support

Epibenthic Flora and Fauna

On May 15, 2025, 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 using underwater video footage.

| Species Observed | Abundance |
|--|-----------|
| Sugar kelp (<i>Saccharina latissima</i>) | Abundant |
| Mysid shrimp (<i>Mysid spp.</i>) | Abundant |
| Rock weed (<i>Ascophyllum nodosum</i>) | Common |
| Rock weed (<i>Fucus spp.</i>) | Common |
| <i>Dasysiphonia japonica</i> | Common |
| Irish moss (<i>Chondrus crispus</i>) | Common |



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| Species Observed | Abundance |
|--|------------|
| Shotgun kelp (<i>Agarum clathratum</i>) | Occasional |
| Fig sponge (<i>Suberites ficus</i>) | Rare |
| American lobster (<i>Homarus americanus</i>) | Rare |

Eelgrass (*Zostera marina*)

Records of seagrass collected by the Department of Environmental Protection (DEP) in 2024 indicates two patches of mapped eelgrass presence in the vicinity of the proposal (Figure 5).⁷ The nearest mapped eelgrass is approximately 236 feet east of the proposal. No eelgrass was observed within the proposal boundaries during DMR's site visit.



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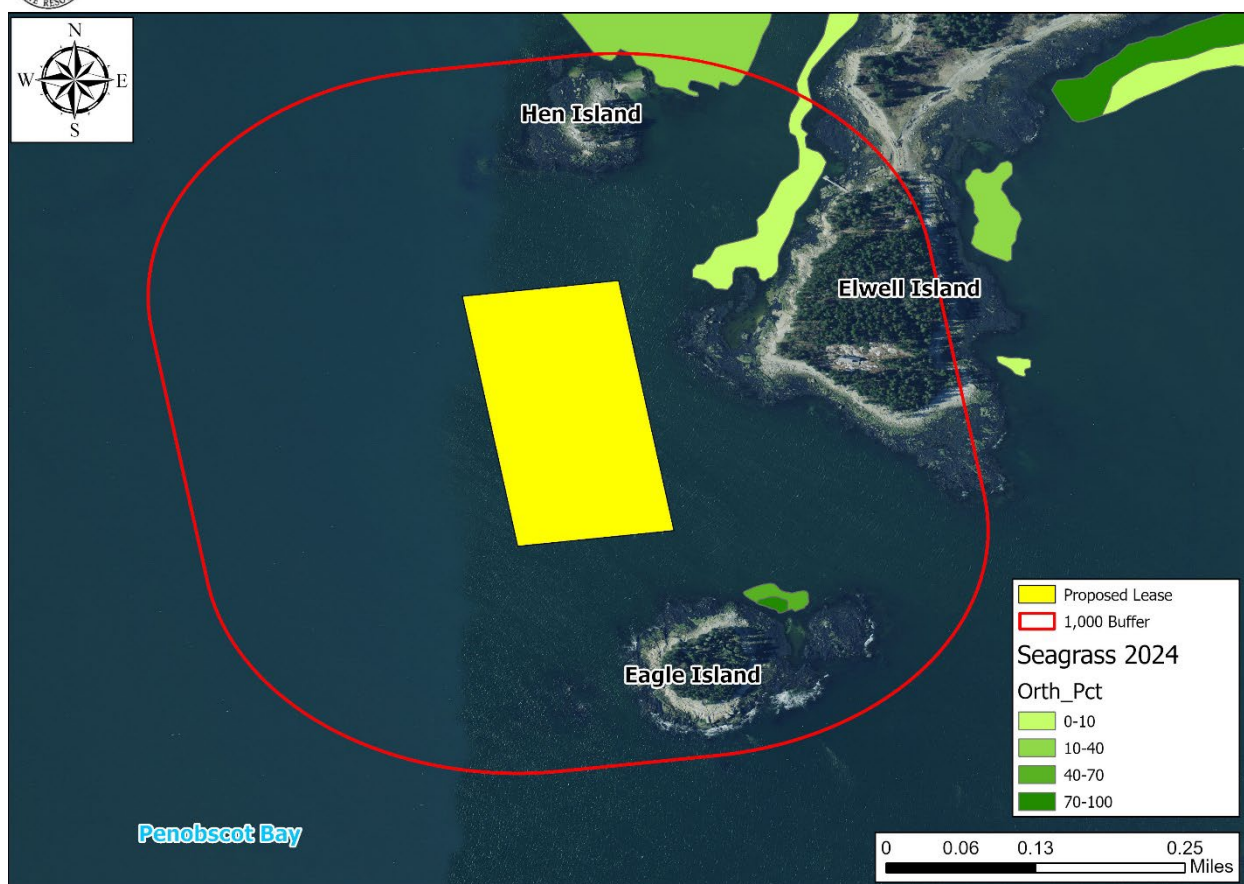


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

⁷ Data obtained from The Maine Office of GIS "GISVIEW.MEDEP.Seagrass2024". Widgeon grass was observed only in tidally restricted water bodies on North Haven and in the upper reaches of the Bagaduce River. 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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Wildlife

During DMR's site visit, scientists observed common eider (*Somateria mollissima*), ring billed gull (*Larus delawarensis*), common loon (*Gavia immer*), lesser black backed gull (*Larus fuscus*), common tern (*Sterna hirundo*), harbor seal (*Phoca vitulina*), gray seal (*Halichoerus grypus*), and long-tailed duck (*Clangula hyemalis*) in the 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 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 IFW.⁸ Based on data maintained by IFW, as measured from the NE corner of the proposal, it is approximately 222 feet to mapped TWWH (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. On May 9, 2024, a Resource Biologist with IFW responded by email to a "Request for Agency Review and Comment" stating that minimal impacts to wildlife are anticipated for this project.⁹

⁸ <https://www.maine.gov/ifw/programs-resources/environmental-review/significant.html>

⁹ Email correspondence between IFW and DMR



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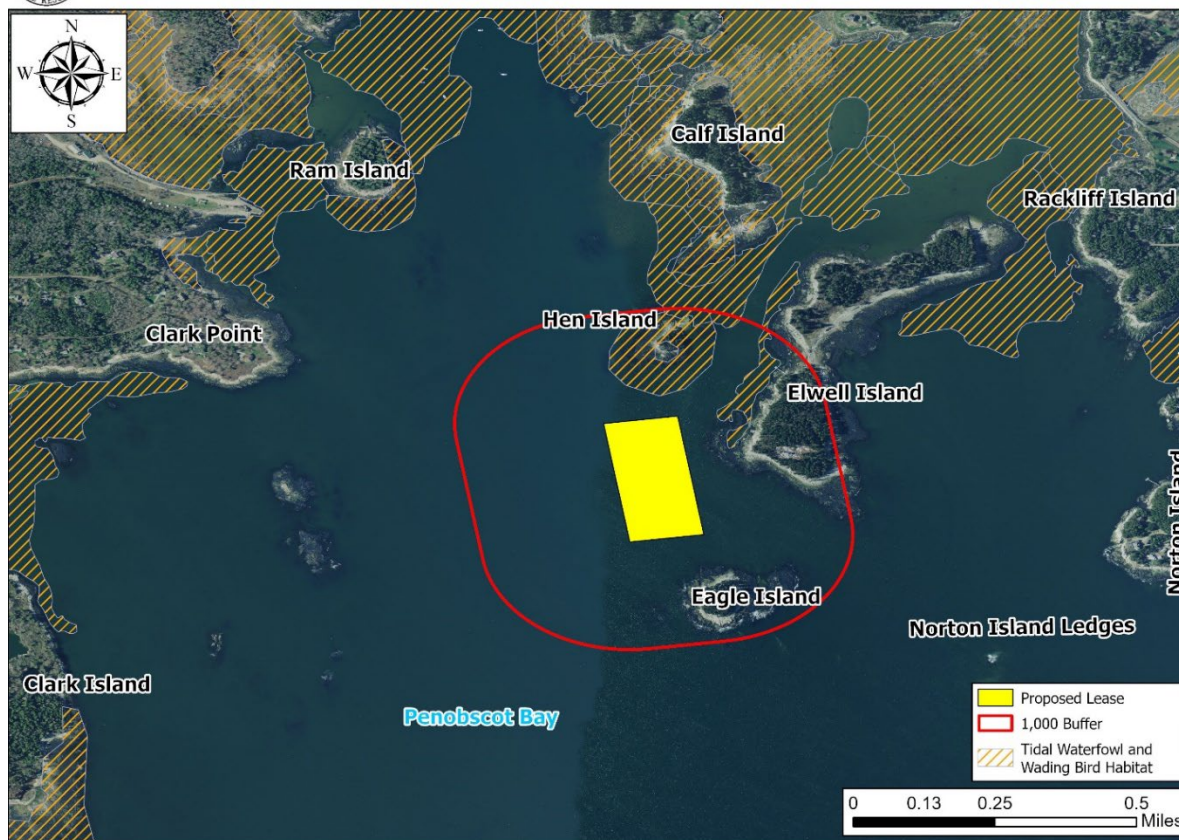


Figure 6. Mapped habitats in the vicinity of the proposed lease area.¹⁰

¹⁰ 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 beach, park, docking facility, or conserved lands owned by federal, state, or municipal governments (Figure 7).



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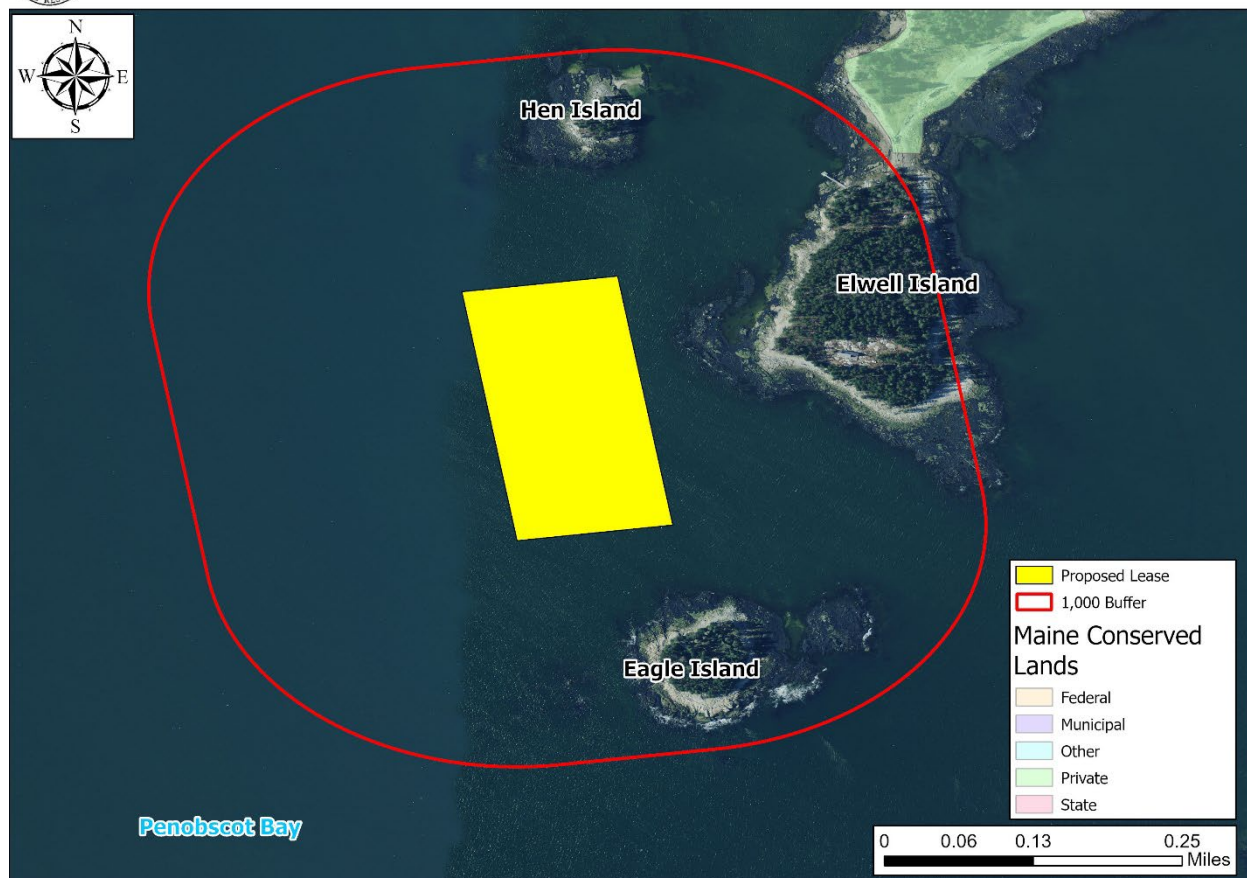


Figure 7. Public facilities near the proposed lease site.¹¹

(7) Growing Area Classification

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

¹¹ Data obtained from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"