

Figure 1. Vicinity map.¹

Location: East of Snow Island, Quahog Bay, Harpswell, Cumberland County, Maine

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

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¹ Unless otherwise noted, all figures in this report were created in ArcGIS Pro version 2.9 using digitized NOAA Nautical Charts or georeferenced aerial photographs provided by The Maine Office of GIS.



Application Overview

The applicant, Quahog Bay Conservancy, is requesting a 1.37²-acre standard lease east of Snow Island in Quahog Bay, within the town of Harpswell, for the suspended culture of American/eastern oysters (*Crassostrea virginica*). All gear is intended to remain on site year-round.³ The applicant also intends to continue using a work float containing a sorting shed that is part of experimental lease QHB Six. The work float is intended to remain at its current location.⁴ The applicant currently operates experimental lease QHB Six partially within the same footprint as the proposed lease area. The standard lease proposal intends to occupy an area approximately half the size of QHB Six (Figure 4).

General Characteristics

On June 26, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 12:35 PM. The proposal is located among a group of small islands in Quahog Bay with Snow Island approximately 25.2 feet to the west, Ben Island approximately 984.3 feet to the northeast, Mouse Island approximately 459.1 feet to the east, and Little Snow Island approximately 594.7 feet to the southeast at mean low water (MLW). The shoreline of the surrounding islands consists of rocky coastlines with forested uplands. Both Snow and Ben Islands contain residential properties with piers and docks. Mouse Island and Little Snow Island are uninhabited (Figure 2). The shoreline of surrounding Quahog Bay includes many piers and docks, as well as several mooring fields (Figure 5).

Depth

On June 26, 2024, MDMR scientists began collecting depths at the proposed site at approximately 12:36 PM. The tide was flooding with the next high tide predicted at 3:25 PM (Table 1). Depths were determined to be between 11.2-19.2 feet. Correcting for tidal variations derives depths at mean low water (MLW, 0.0 feet) to be between 7.3-15.3 feet.

Table 1. Predicted tidal heights in Harpswell, Maine.⁵

Date	Time	Height (ft)
2024/06/26	2:39 AM	10.3 H
2024/06/26	9:05 AM	-0.6 L
2024/06/26	3:25 PM	9.2 H
2024/06/26	9:20 PM	0.6 L

² Applicant originally requested 1.36 acres. MDMR calculations indicate the area is 1.37 acres.

³ Application page 4

⁴ Application page 5

⁵ <https://www.usharbors.com/harbor/maine/south-harpswell-me/tides/?tide=2024-06#monthly-tide-chart>



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 lease site is primarily composed of mud with areas of shell rubble.

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
Biogenic Substrate	Shell Substrate	Shell Rubble	Oyster, Mussel, Clam Rubble
Biogenic Substrate	Algal Substrate	Not Identified	Not Identified

Position and Distances to Shore

The geodesic 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) – 1.37 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
A	43.817242°	-69.908072°	then 119.3 feet at 96° True to
B	43.817211°	-69.907622°	then 483.5 feet at 182° True to
C	43.815886°	-69.907703°	then 125.4 feet at 269° True to
D	43.815881°	-69.908178°	then 496.9 feet at 003° True to A

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

Feature	Distance
Corner A to Snow Island closest point MLW	~25.2 feet to the west
Corner B to Ben Island closest point MLW	~984.3 feet to the northeast
Corner B to Mouse Island closest point MLW	~459.1 feet to the east
Corner C to Little Snow Island closest point MLW	~594.7 feet to the southeast

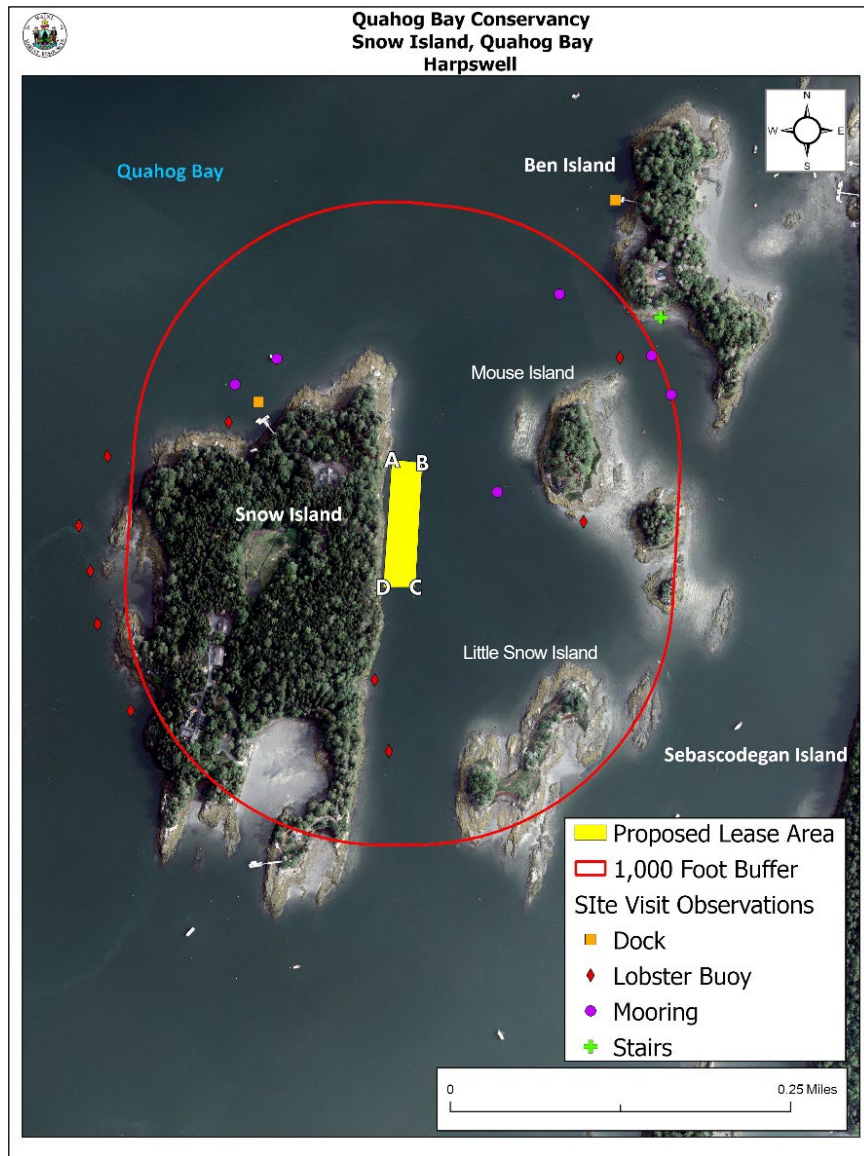


Figure 2. Proposed lease area with site visit observations.

Pursuant to statute and regulation, aquaculture leases are evaluated in consideration of applicable decision criteria. The site report documents 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 scientists observed a pier with a dock on Snow Island approximately 525.8 feet to the northwest of the proposal. A pier with a dock was also observed beyond 1,000 feet on the southern end of Snow Island, as well as on the western shore of Ben Island. MDMR scientists observed six moorings within 1,000 feet of the proposal, with the nearest located approximately 296.9 feet to the east (Figure 2).



(2) Navigation

The proposal is located in subtidal, navigable waters approximately 25.2 feet to the east of Snow Island. There is approximately 260.7 feet of navigable waters between the proposal area and Mouse Island to the east. There is also approximately 1,700.3 feet of navigable water between the western shore of Snow Island and Sebascodegan Island to the west that provides access into Quahog Bay (Figure 3).

During MDMR’s site assessment, scientists observed a recreational powerboat navigating in Quahog Bay to the north of the site. Scientists also observed kayakers on Mouse Island to the east of the proposal and recreational powerboats anchored near Snow Island.

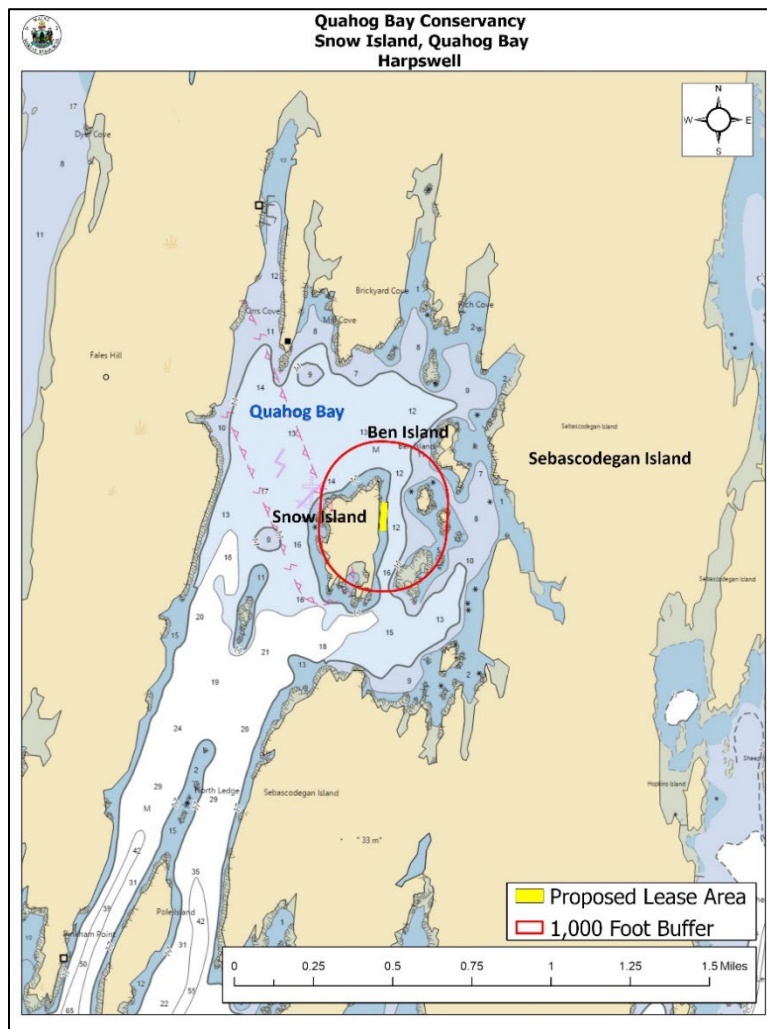


Figure 3. Charted navigational channels in the vicinity of the proposed lease area.



(3) Fishing and Other Uses

During MDMR’s site assessment, scientists observed very light lobstering activity within 1,000 feet of the proposal. MDMR scientists observed five lobster buoys within 1,000 feet of the proposal with the nearest one observed approximately 360.6 feet to the south (Figure 2). MDMR scientists also observed a powerboat recreationally fishing to the north of the proposal.

(4) Other Aquaculture Uses

There is one active aquaculture lease within 1,000 feet of the proposal. Experimental lease QHB Six is located within the same area of the proposal and is operated by the applicant, Quahog Bay Conservancy. The standard lease proposal intends to occupy an area just under half the size of QHB Six. There is no other aquaculture within 1,000 feet (Figure 4).

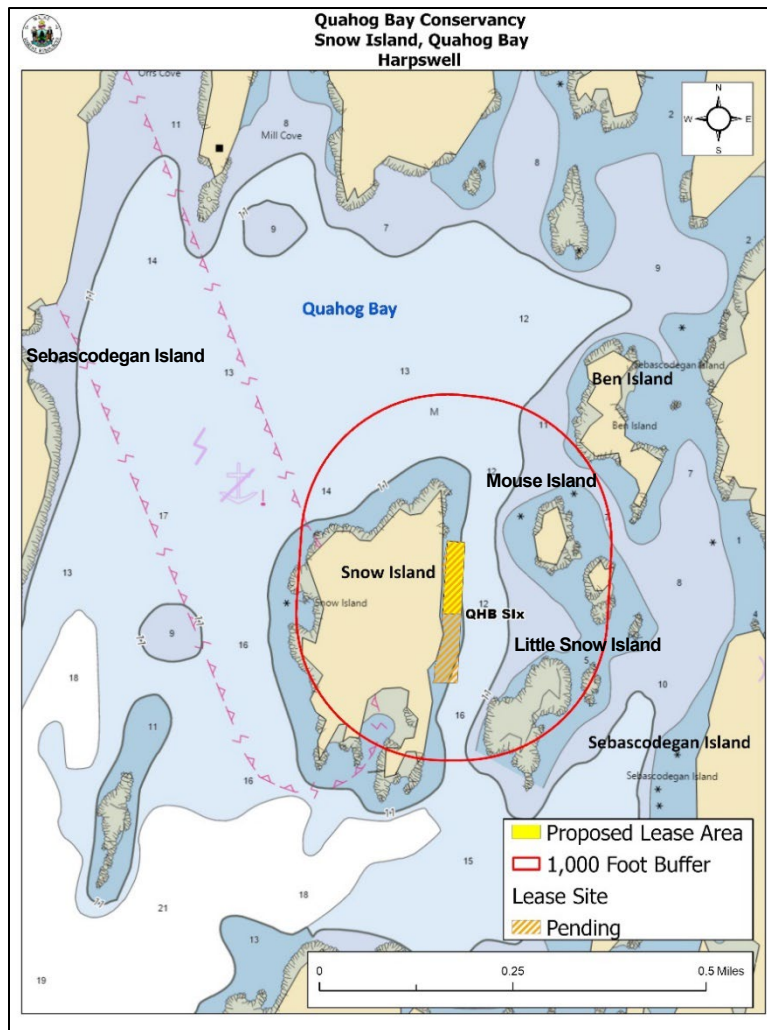


Figure 4. Aquaculture leases in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

MDMR scientists observed the bottom characteristics in the vicinity of the proposed lease site via ROV. The relative abundance of epibenthic flora and fauna observed in the video is described below in Table 4.

Table 4. Species observed on underwater video footage.

Species Observed	Abundance
American oysters (<i>Crassostrea virginica</i>)	Common
Green crabs (<i>Carcinus maenas</i>)	Common
Rock crabs (<i>Cancer irroratus</i>)	Common
Hermit crabs (<i>Paguroidea</i> spp.)	Common
European oysters (<i>Ostrea edulis</i>)	Occasional
Blue mussels (<i>Mytilus edulis</i>)	Occasional
Wine glass hydroid (<i>Obelia</i> spp.)	Occasional
Rockweed (<i>Ascophyllum nodosum</i>)	Rare
Sugar kelp (<i>Saccharina latissima</i>)	Rare

Eelgrass (*Zostera marina*)

Seagrass data collected in 2022⁶ indicates that there is not mapped eelgrass within 1,000 feet of the proposal. The nearest mapped eelgrass is approximately 2,857.1 feet to the southwest of the proposal (Figure 5). During MDMR’s site assessment, scientists did not observe any eelgrass. No eelgrass was observed on underwater footage.

⁶ Data obtained from The Maine Office of GIS “GISVIEW.MEDEP.Seagrass2022”. Widgeon grass was observed only in the New Meadows River area off Old Brunswick Road near shore. 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.

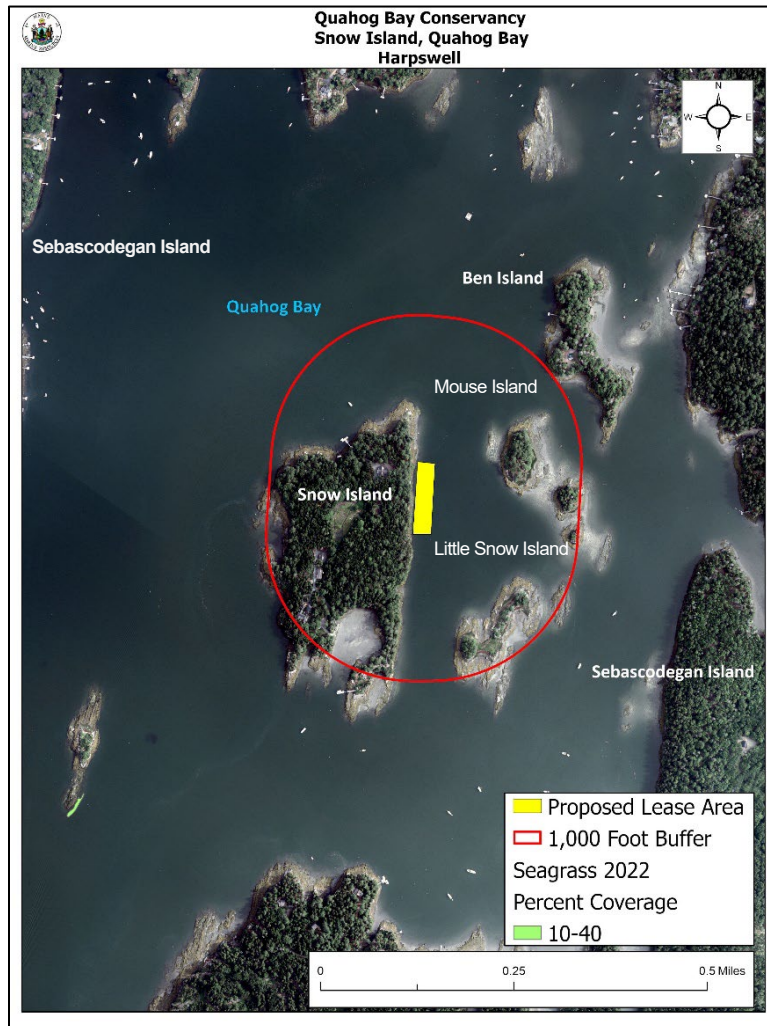


Figure 5. Mapped eelgrass in the vicinity of the proposed lease area.

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), there is not mapped Tidal Waterfowl and Wading Bird Habitat (TWWH) within 1,000 feet of the proposal. The nearest mapped TWWH is located approximately 0.8 miles to the southeast of the proposal. The nearest mapped bald eagle (*Haliaeetus leucocephalus*) nest is located approximately 1,042.4 feet to the southwest of the proposal (Figure 6).

On June 17, 2023, a Wildlife 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

⁷ Email correspondence between MDIFW and MDMR



During MDMR's site assessment, scientists observed double-crested cormorants (*Nannopterum auritum*), osprey (*Pandion haliaetus*), common terns (*Sterna hirundo*), black terns (*Chlidonias niger*), American crows (*Corvus brachyrhynchos*), mallard ducks (*Anas platyrhynchos*), bald eagles (*Haliaeetus leucocephalus*), as well as several great blue herons (*Ardea herodias*) in the vicinity of the proposal.



Figure 6. Mapped TWWH in the vicinity of the proposal. ⁸

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 within 1,000 feet of conserved land owned by state government. Mouse Island is approximately 459.1 feet to the east and Little Snow Island is approximately 594.7 feet to the southeast. The islands are owned by the Maine Bureau of Parks and Lands. The islands are open to the public, but there are no docking facilities. The proposed lease is not within 1,000 feet of any beach, park, or docking facility owned by federal, state, or municipal governments (Figure 7).

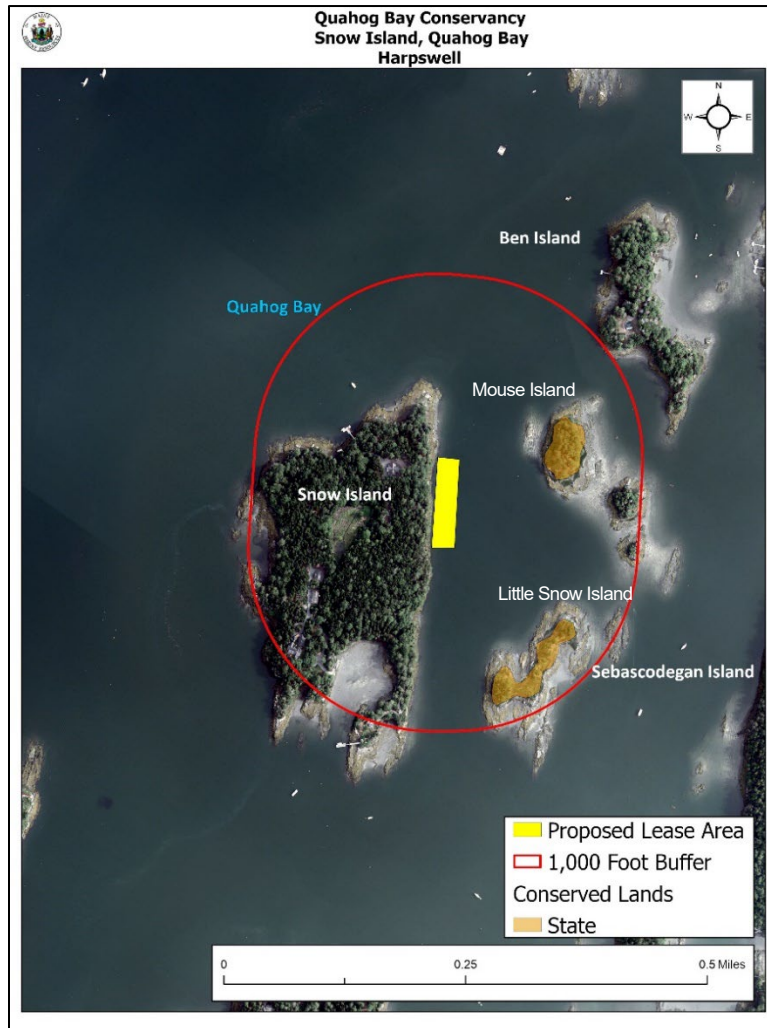


Figure 7. Conserved lands in the vicinity of the proposal.

(7) Water Quality

The proposed lease is located within an area that is currently classified as Open/Approved to the harvest and culture of shellfish by the MDMR Bureau of Public Health and Aquaculture.