

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

**Location:** South of Sears Island, Penobscot Bay, Searsport, Waldo County, Maine

**Purpose:** Experimental lease for suspended culture of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina angustissima*), winged kelp (*Alaria esculenta*), fingered kelp (*Laminaria digitata*), dulse (*Palmaria palmata*), and sea lettuce (*Ulva lactuca*)

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Report Preparation: Chloe Kilborn, Meryl Grady, Amanda Ellis

<sup>1</sup> 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, Nichols Fisheries, is requesting an experimental lease for 3.94 acres south of Sears Island in Penobscot Bay for the suspended culture of marine algae. The applicant intends to remove longlines and buoys from June 15 to October 1.<sup>2</sup>

**General Characteristics**

On October 26, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site beginning at 11:30 AM. The shoreline of Sears Island, in the vicinity of the proposal, consists of seaweed covered rocks with mixed forested uplands.

**Depth**

MDMR scientists began collecting depths at 11:40 AM at the proposed site, which was approximately 2.5 hours after high tide. Measured depths at corners of the proposed lease site ranged from 44.2 to 47.7 feet. Correcting for tidal variation derives water depths at mean low water (MLW, 0.0 feet) to be from 37.0 to 40.5 feet and from 48.2 to 51.7 feet at the previous high tide (Table 1).

**Table 1.** Predicted tidal heights in Searsport, Maine.<sup>3</sup>

Date	Time	Height (ft)
2023/10/26	2:55 AM	-0.3 L
2023/10/26	9:14 AM	11.2 H
2023/10/26	3:24 PM	-0.3 L
2023/10/26	9:38 PM	11.5 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 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> Application page 8

<sup>3</sup> <https://www.usharbors.com/harbor/maine/searsport-me/tides/?tide=2023-10#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, digital orthophotography provided by the Maine Office of GIS, and the application coordinates (Table 3, Figure 2).

**Application Coordinates (WGS84) – 3.94 Acres**

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
N	44.42461°	-68.87899°	then 162.0 feet at 154° True to
E	44.42421°	-68.87872°	then 1,061.4 feet at 246° True to
S	44.42304°	-68.88244°	then 162.0 feet at 334° True to
W	44.42344°	-68.88271°	then 1,061.4 feet at 66° True to N

**Table 3.** Approximate distances from proposed lease corners to surrounding features (Figure 2).

Feature	Distance
North corner to Sears Island at MLW	~1,120' to the north
East corner to green navigational buoy "1"	~2,620' to the southeast
South corner to red navigational buoy "2"	~2,560' to the west
West corner to Sears Island at MLW	~1,580' to the north

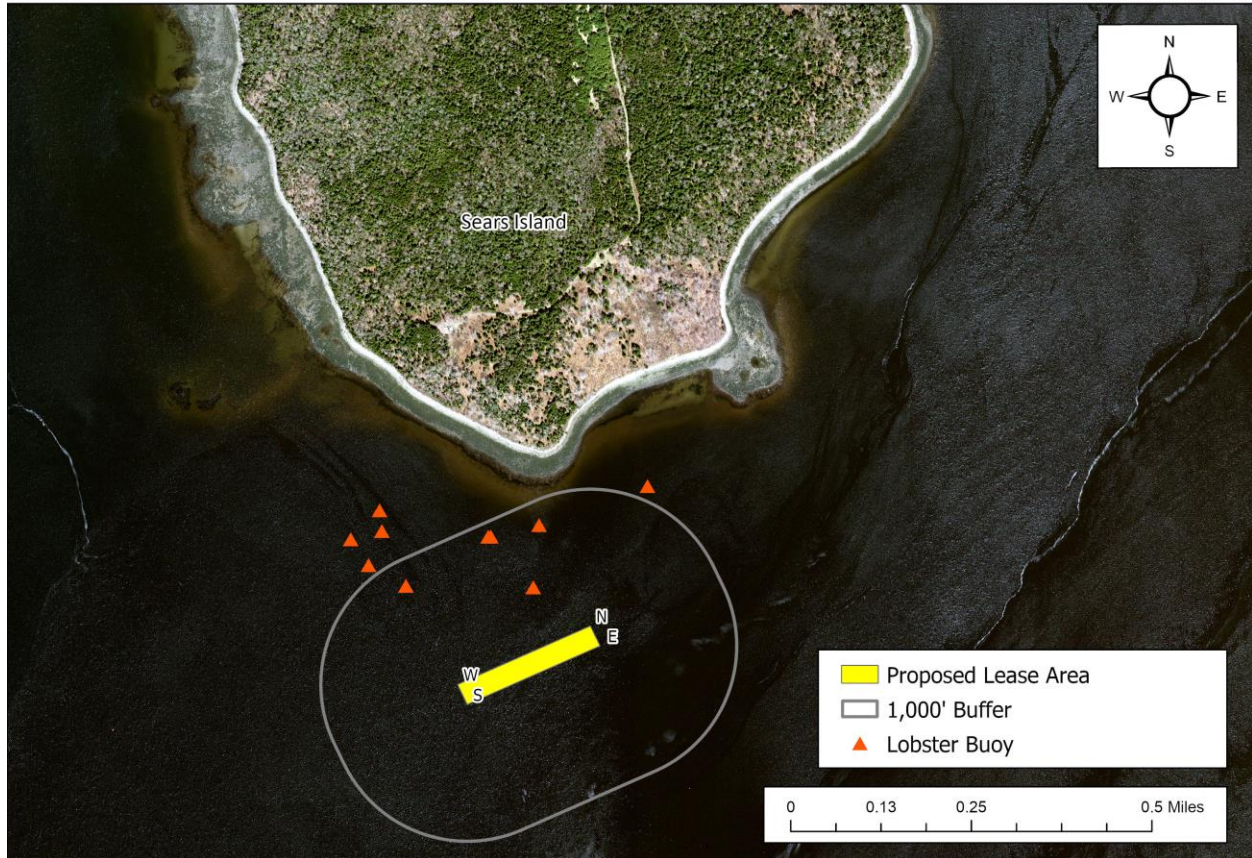


Figure 2. Proposed lease area with site visit observations.

*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, piers, or moorings within the vicinity of the proposal at the time of the site visit.



## (2) Navigation

The main navigational channel to Searsport Harbor is marked by red navigational buoy “2” approximately 2,560 feet to the west of the proposal. Searsport terminal, in southeast Searsport, provides tanker offloading and oil transportation, this navigation channel is a major route for larger vessels. The navigational channel to the Penobscot River is to the east of green navigational buoy “1” approximately 2,620 feet southeast of the proposal (Figure 3).

During MDMR’s site visit, one commercial fishing vessel was observed navigating south of the proposal, one recreational powerboat was navigating west of the proposal, and there was one stationary emergency powerboat northwest of the proposal.

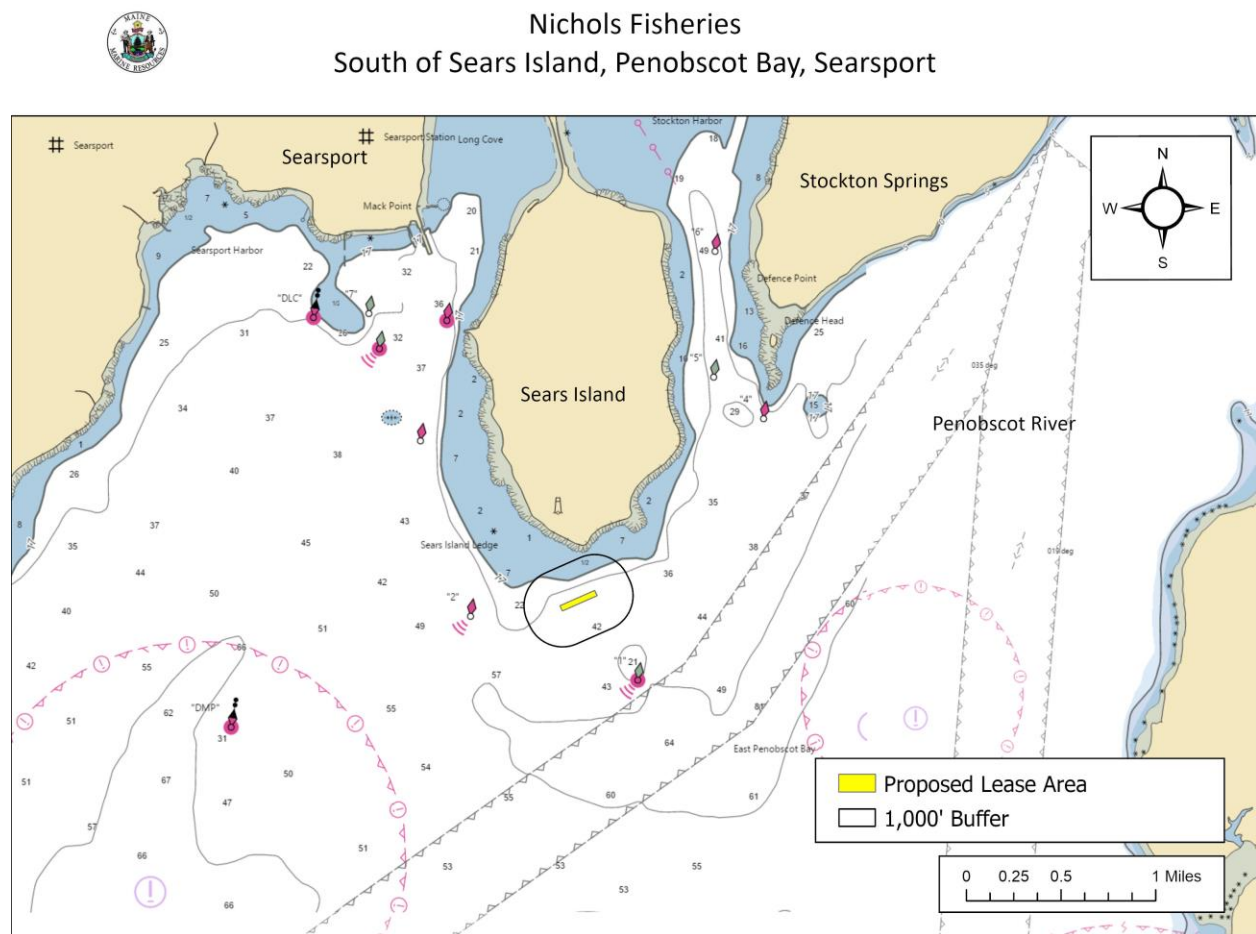


Figure 3. Proposed lease area with nearby navigational channels.

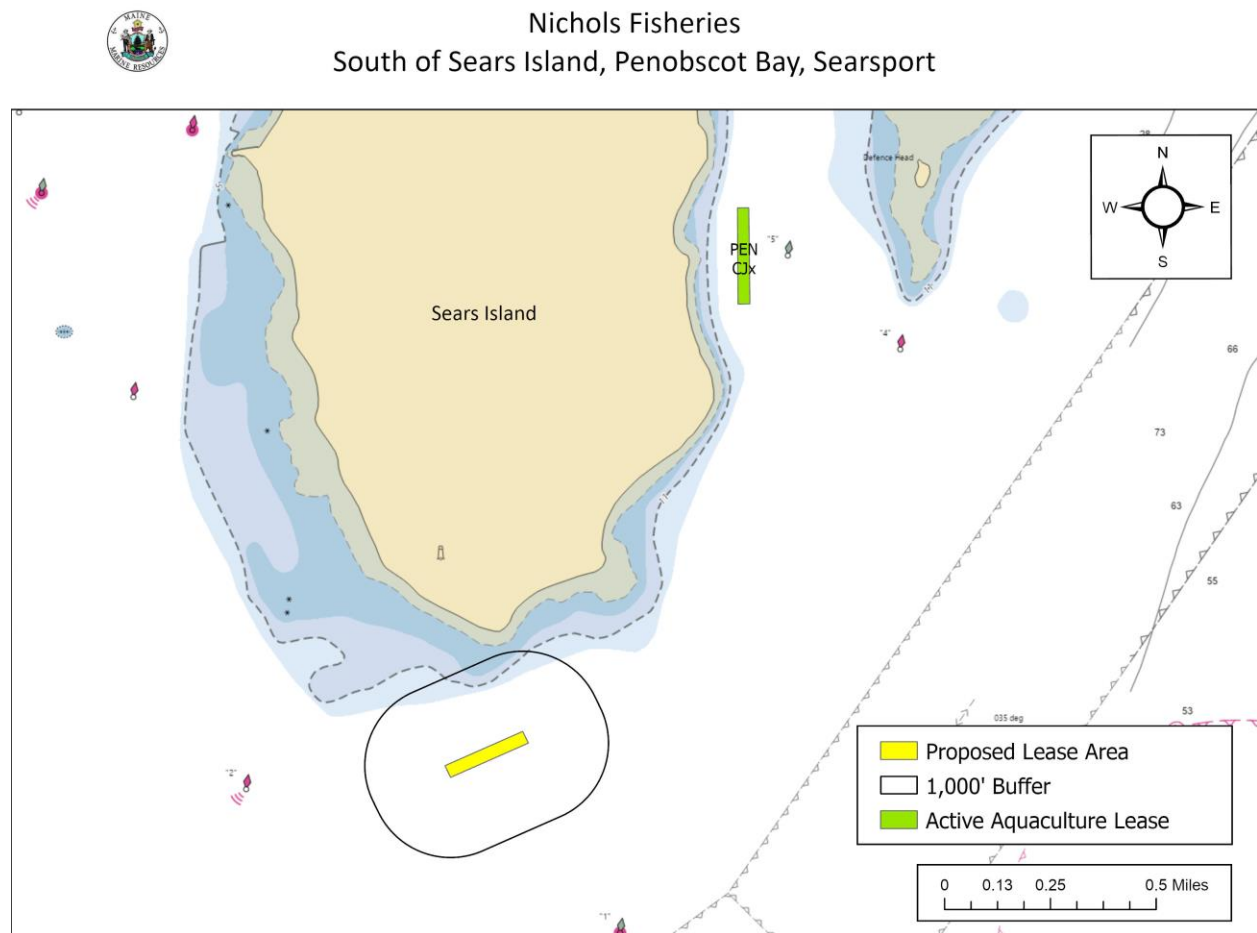


**(3) Fishing and Other Uses**

During the site visit, MDMR documented four lobster buoys within 1,000 feet of the proposal (Figure 2). MDMR observed light lobstering activity to the north and east 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 proposal.



**(5) Existing System Support**

**Epibenthic Flora and Fauna**

On October 26, 2023, MDMR scientists utilized an ROV to assess the epibenthic ecology of the proposed lease. The relative abundance of epibenthic flora and fauna observed is described below in Table 4.

**Table 4.** Species observed during site assessment.

Species Observed	Abundance
Sand Shrimp ( <i>Crangon septemspinosa</i> )	Common
Fluke ( <i>Paralichthys dentatus</i> )	Occasional

**Eelgrass (*Zostera marina*)**

Historical records of eelgrass collected by MDMR in 2010 indicate no mapped eelgrass presence in the vicinity of the proposal.<sup>4</sup> No eelgrass was observed during MDMR’s site assessment.

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<sup>4</sup> Data obtained from The Maine Office of GIS “GISVIEW.MDMR.Eelgrass”. This is the most current record of mapped eelgrass within the vicinity of the proposal.

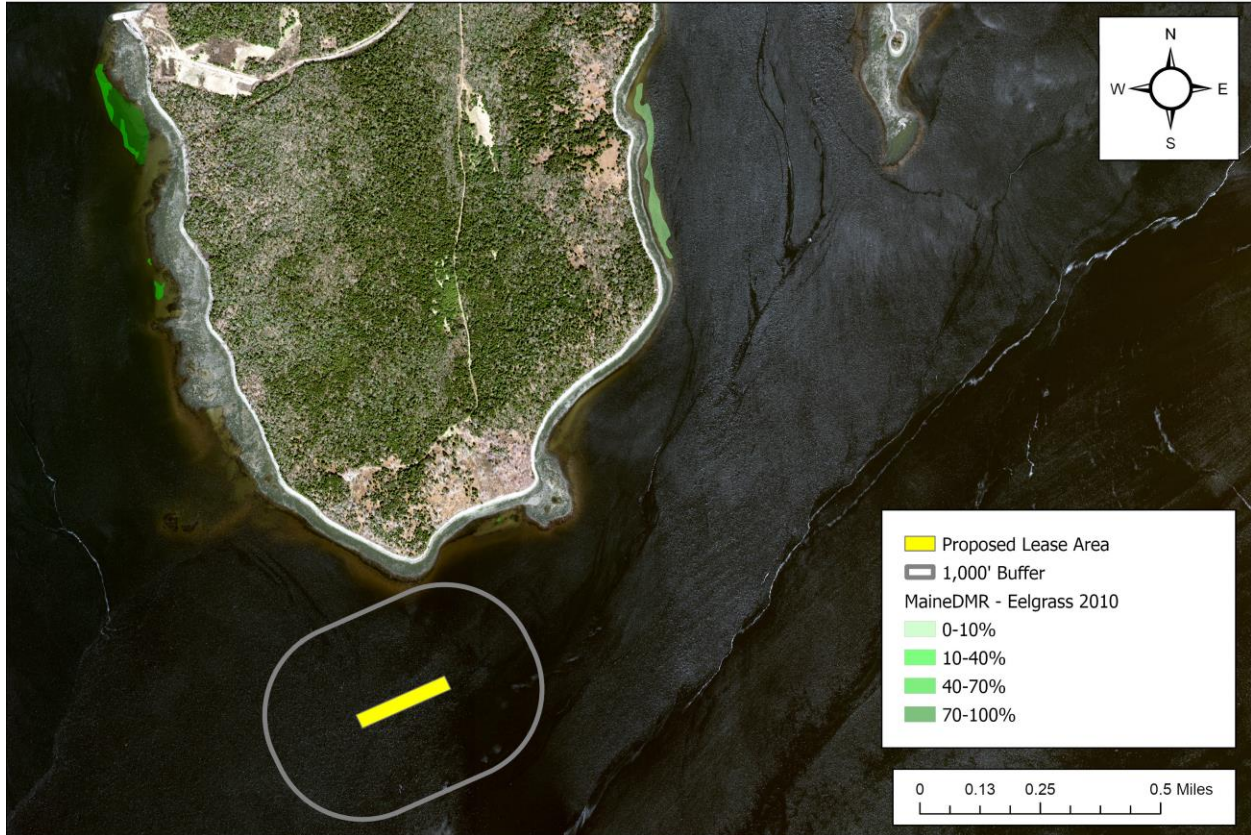


Figure 5. Mapped eelgrass (*Z. marina*) near the proposed lease utilizing 2010 data.

### 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 836 feet to the south of mapped tidal waterfowl and wading bird habitat (Figure 6). Data collected by the United States Fish and Wildlife Service in 2023 by aerial nest survey<sup>5</sup> shows the closest mapped bald eagle nesting site to be approximately 1.6 miles northeast of the proposal.

On January 25, 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.<sup>6</sup>

<sup>5</sup> Data obtained from USFWS “Bald\_Eagle\_Nests\_-\_Maine\_2023”.

<sup>6</sup> Email correspondence between MDIFW and MDMR.

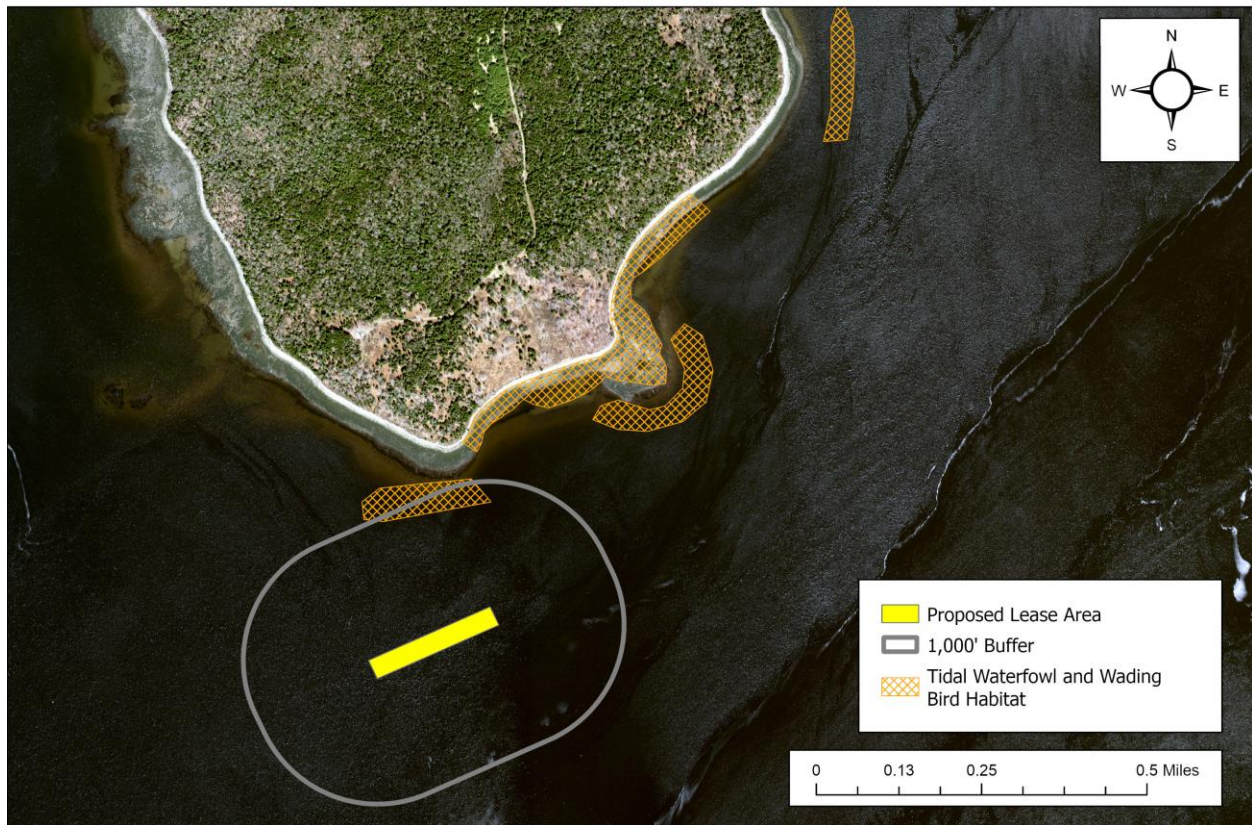




During the site assessment, MDMR observed black guillemot (*Cepphus grille*), ring billed gull (*Larus delawarensis*), double-crested cormorant (*Nannopterum auritum*), and common loon (*Gavia immer*) in the general vicinity of the proposal.



Nichols Fisheries  
 South of Sears Island, Penobscot Bay, Searsport



**Figure 6.** Mapped Tidal Wading Bird and Waterfowl Habitat.<sup>7</sup>

**(6) Interference with Public Facilities**

The proposed lease is not located 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 “Open/Approved” by the MDMR Bureau of Public Health.

<sup>7</sup> Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”.