

Figure 1. Vicinity map.¹

Location: Tidal Impoundment East of Birch Point, Dyer Bay, Steuben, Washington County, Maine

Purpose: Standard lease for suspended culture of American/Eastern Oysters (*Crassostrea virginica*)

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Report Preparation: Meryl Grady and Amanda Ellis

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, Arnold Francis, is requesting a 2.92² acre standard lease in Dyer Bay, Steuben for the suspended culture of American/Eastern oysters (*Crassostrea virginica*). The proposed lease is located within a tidal impoundment, which is owned and maintained by the applicant and surrounded mostly by the applicant’s property.³ The applicant currently operates experimental lease DYER BP2x within the footprint of this standard lease proposal (Figure 4).

General Characteristics

On August 23, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 10:45 AM. The surrounding uplands consist of a mixture of forest, residential buildings, the impoundment structure, and the applicant’s commercial pier located outside of the tidal impoundment near the southwest corner of the proposal.

Depth

On August 23, 2023, MDMR scientists began collecting depths at the proposed site at 10:47 AM, approximately 20 minutes after low tide (Table 1). At the time of the site visit, recorded depths were between 4.1 and 5.8 feet (Figure 2). The proposal is located entirely within a tidal impoundment that is operated and maintained by the applicant. Therefore, water depths inside the impoundment are partially a function of tide gate management and the local tide stage. According to the applicant, the average depth within the impoundment at mean low water (MLW) is five feet. At mean high water (MHW), the depths are approximately 12 feet. If the tidal gate was opened, a portion of the proposed lease site would be above MLW, and therefore intertidal.⁴

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

Date	Time	Height (ft)
2023/08/23	3:59 AM	10.5 H
2023/08/23	10:25 AM	1.9 L
2023/08/23	4:18 PM	11.2 H
2023/08/23	11:03 PM	1.4 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, gravel, and shell rubble.

² Applicant originally requested 2.91 acres. MDMR calculations indicate the area is 2.92 acres.

³ Application page 23

⁴ Application page 12

⁵ <https://www.ussharbons.com/harbor/maine/milbridge-me/tides/?tide=2023-08#monthly-tide-chart>



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
Geologic Substrate	Unconsolidated Mineral Substrate	Course Unconsolidated Substrate	Gravel
Biogenic Substrate	Shell Substrate	Shell Rubble	Clam and Oyster Rubble

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) – 2.92 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	44.464306°	-67.905514°	then 325.3 feet at 083° True to
NE	44.464417°	-67.904278°	then 405.2 feet at 178° True to
SE	44.463306°	-67.904233°	then 353.6 feet at 273° True to
SW	44.463353°	-67.905586°	then 347.9 feet at 003° True to NW

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

Feature	Distance
NW corner to nearest point at MHW	~5 feet to the northwest
NE corner to nearest point at MHW	~40 feet to the north
SE corner to nearest point at MHW	~35 feet to the southeast
SW corner to nearest point at MHW	~10 feet to the south



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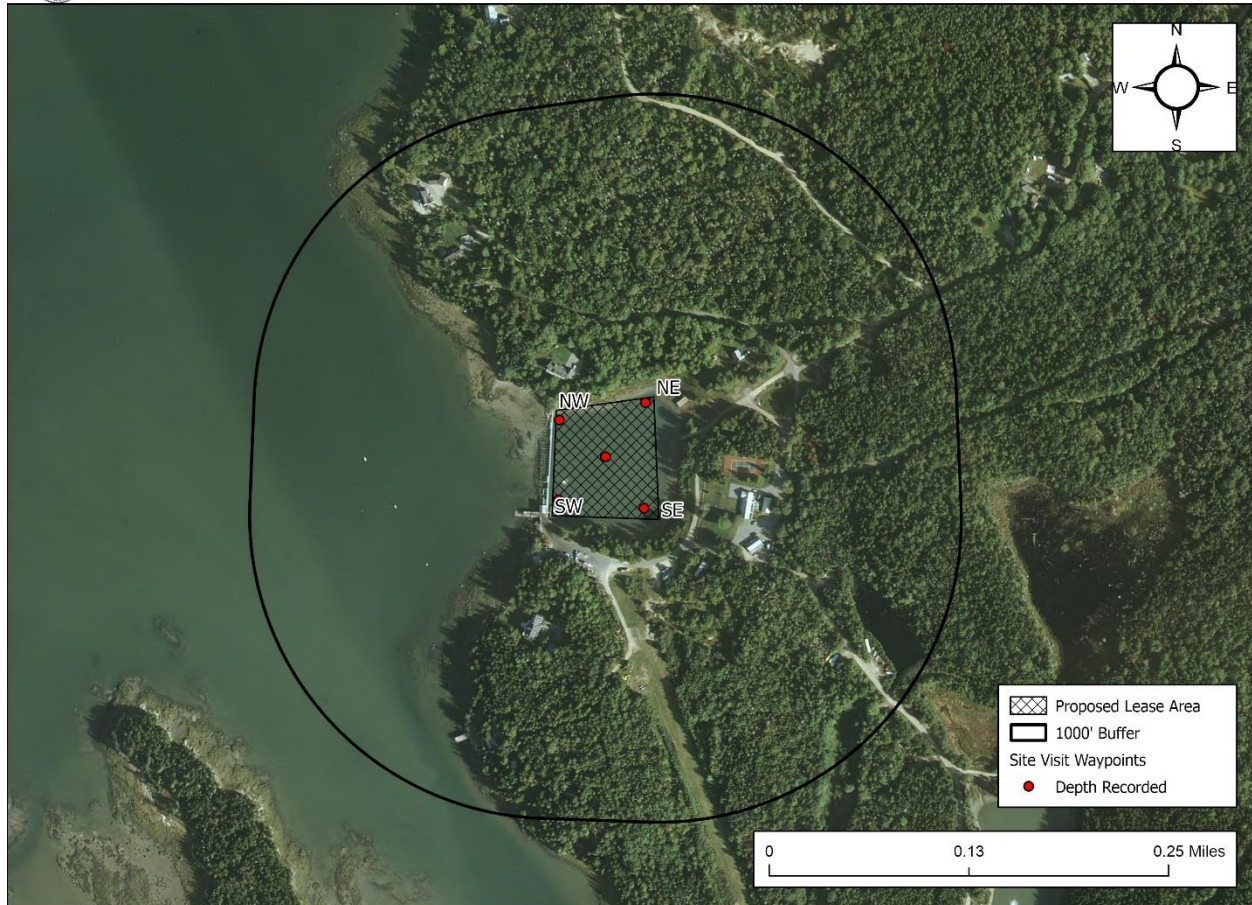


Figure 2. Proposed lease area with site visit observations.

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 on August 23, 2023, MDMR observed a wooden float inside the impoundment near the proposed SW corner. The float was attached to the impoundment structure and appeared to be associated with the current experimental lease in operation, DYER BP2x. Additionally, located near the NE corner, there was a boat ramp with access to the pound. The applicant owns and operates the tidal impoundment and owns the majority of the surrounding property. Due to the intertidal location of the proposal, the applicant is required to obtain written consent from upland owners for use of their intertidal lands. The applicant



provided some, but not all these permissions. Permission needs to be provided from the following additional parcel: 007-9B.

(2) Navigation

The proposal is located in a tidal impoundment owned and operated by the applicant. There is no public boat access to the impoundment.

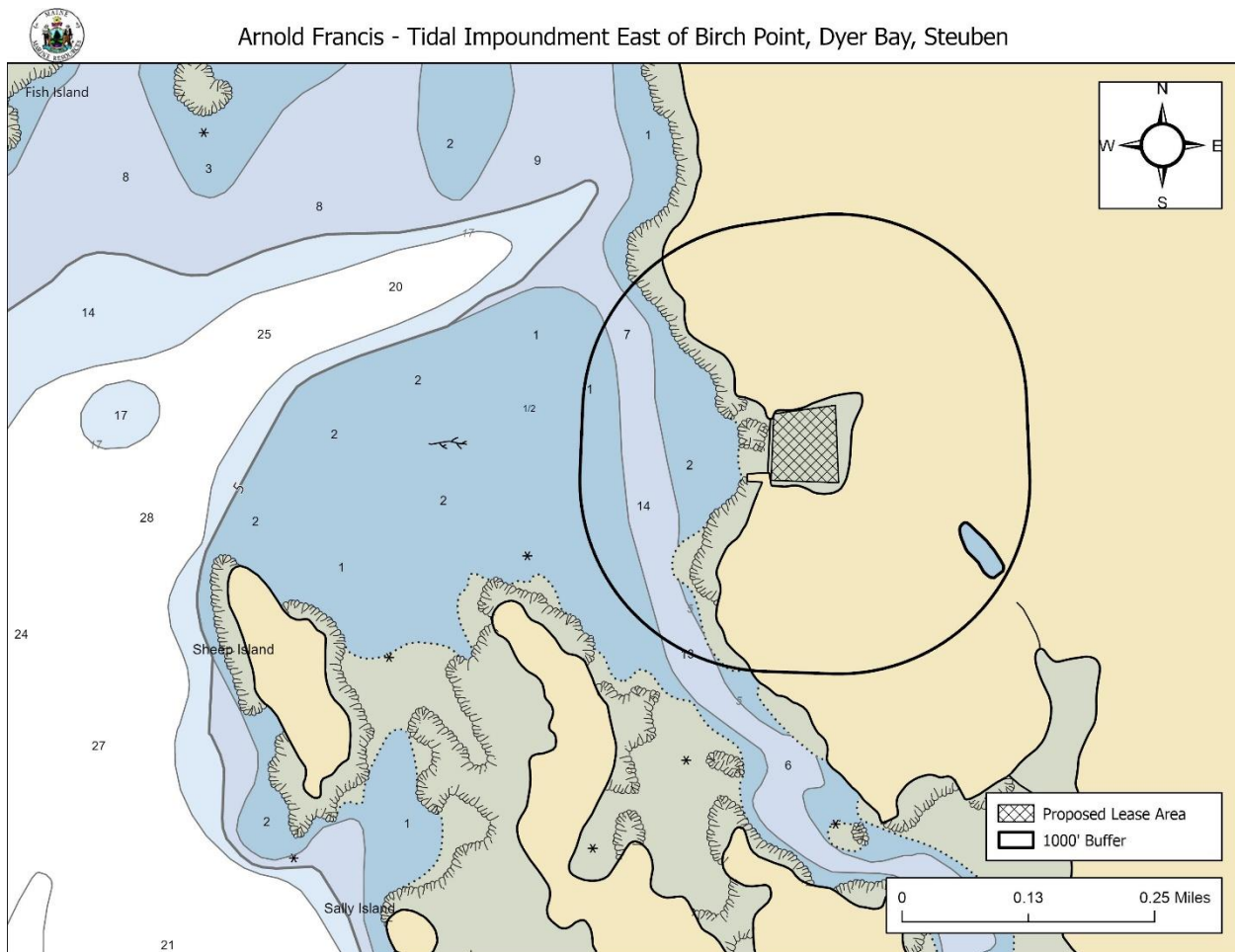


Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

MDMR did not observe any fishing activity within the impoundment during the site assessment. No fishing activity is expected to occur within the impoundment, except as authorized by the applicant, since the applicant owns and operates the impoundment.



The Town of Steuben has a shellfish conservation program in accordance with 12 M.R.S.A. § 6671 and because the site is located within the intertidal, the applicant is required to obtain consent from the municipality. The applicant provided this permission with the application.⁶

(4) Other Aquaculture Uses

The applicant currently operates experimental lease DYER BP2x within the boundaries of this proposal. This standard lease proposal is intended to replace DYER BP2x. There are no other aquaculture leases or limited purpose aquaculture licenses (LPA) within 1,000 feet of the proposed lease site (Figure 4).

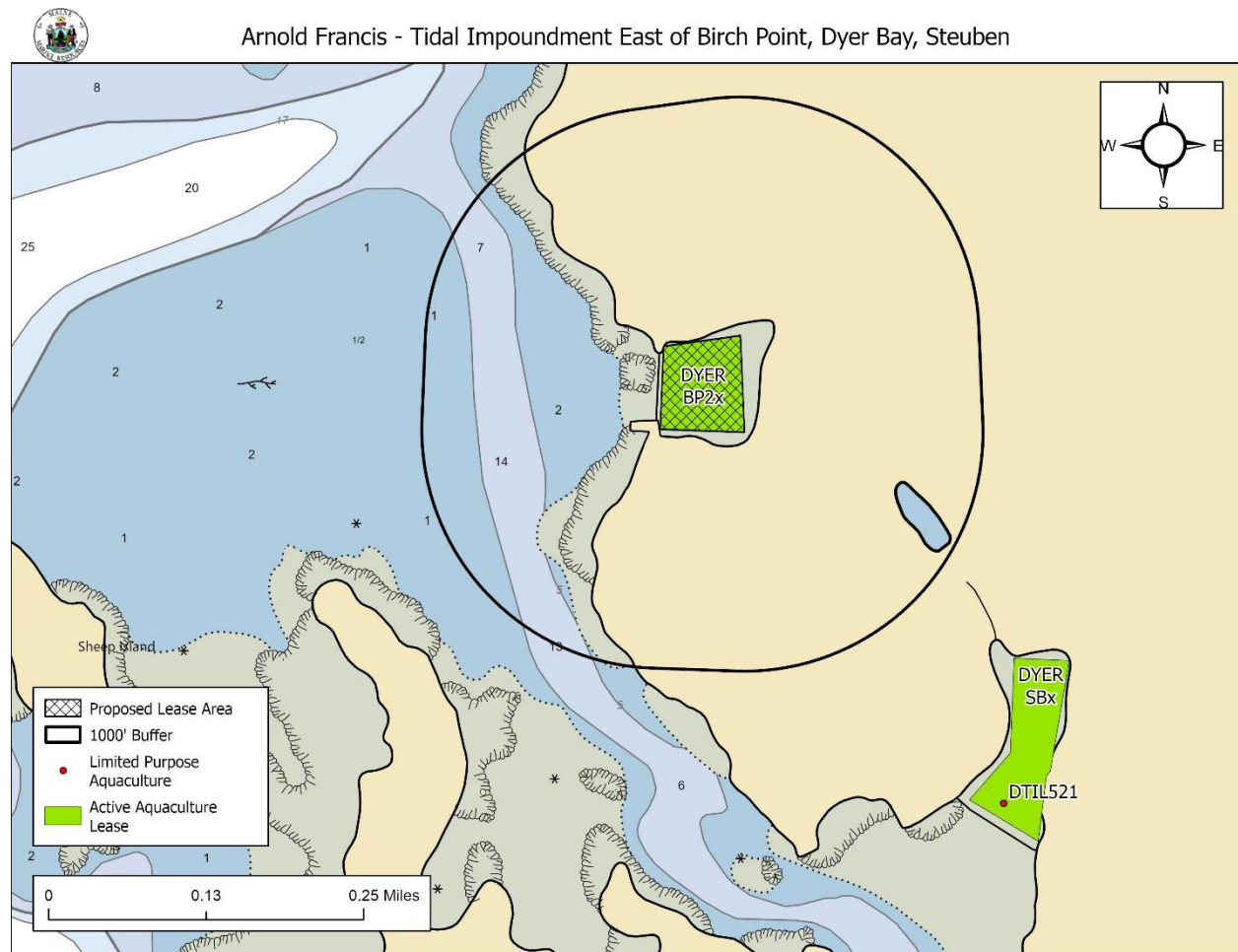


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

(5) Existing System Support

⁶ Application page 24 and 34



Epibenthic Flora and Fauna

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 transects is described below in Table 4.

Table 4. Species observed using underwater camera footage.

Species Observed	Abundance
Mud shrimp (<i>Crangon sp.</i>)	Occasional
European Green Crab (<i>Carcinus maenas</i>)	Occasional

Eelgrass (*Zostera marina*)

Historical records of eelgrass collected by MDMR in 2010 indicate no mapped eelgrass presence within 1,000 feet of the proposal (Figure 5).⁷ No eelgrass was observed within the proposal boundaries during MDMR's site assessment.

⁷ Data obtained from The Maine Office of GIS "GISVIEW.MEDMR.Eelgrass". This is the most current record of mapped eelgrass in the vicinity of the proposal.



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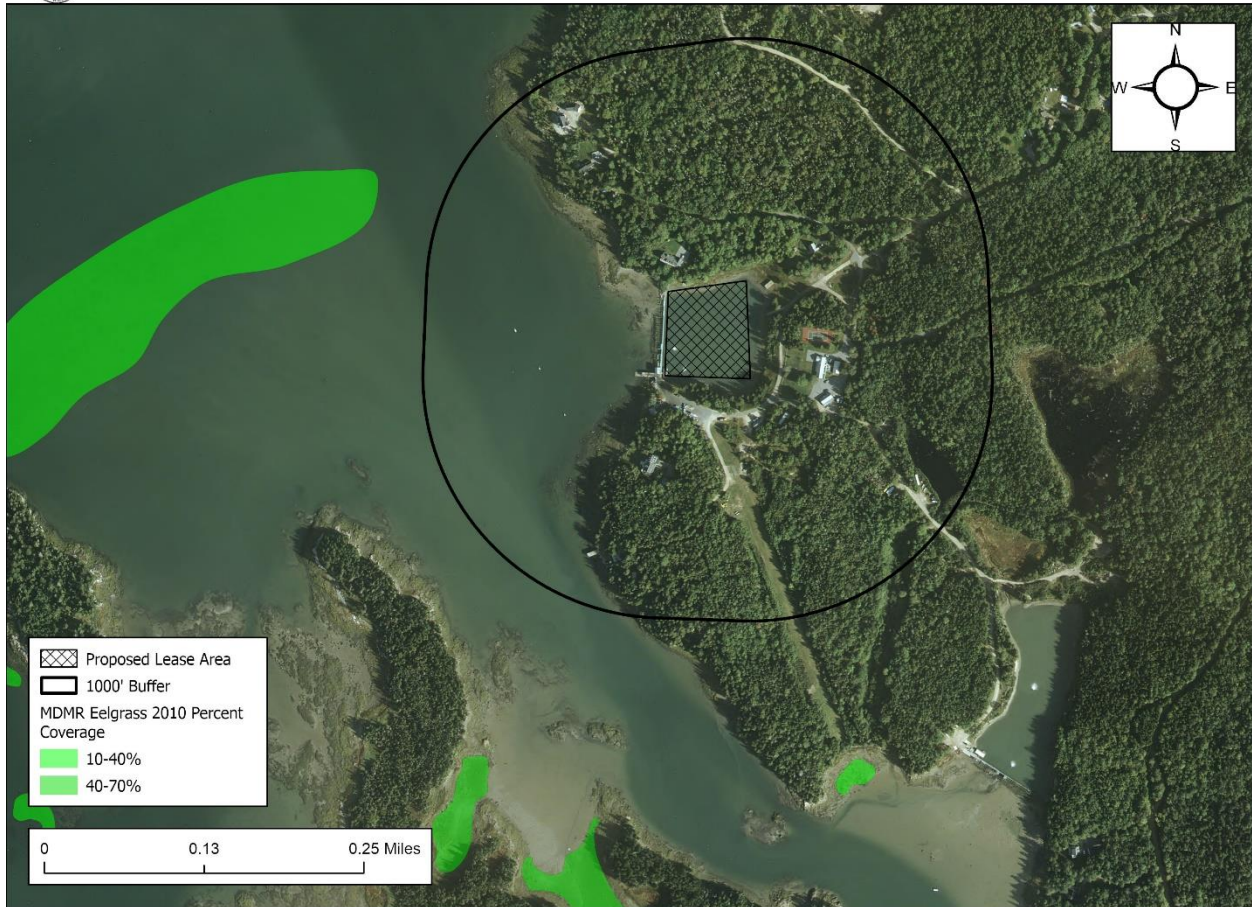


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

Wildlife

During the site assessment, MDMR scientists observed herring gulls (*Larus argentatus*), sandpiper (*Scolopacidae* family), European green crabs (*Carcinus maenas*), rockweed (*Ascophyllum nodosum*), and blue mussels (*Mytilus edulis*) in the general vicinity of the proposal. 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 458 feet east of mapped Tidal Waterfowl and Wading Bird Habitat. Data collected by the United States Fish and Wildlife Service in 2022 by aerial nest survey shows the closest mapped bald eagle nesting site to be approximately 2,700 feet southwest of the proposal (Figure 6).



On August 22, 2022, a Wildlife Biologist with MDIFW responded by email to a “Request for Agency Review and Comment”, stating that minimal impacts to wildlife are anticipated.⁸

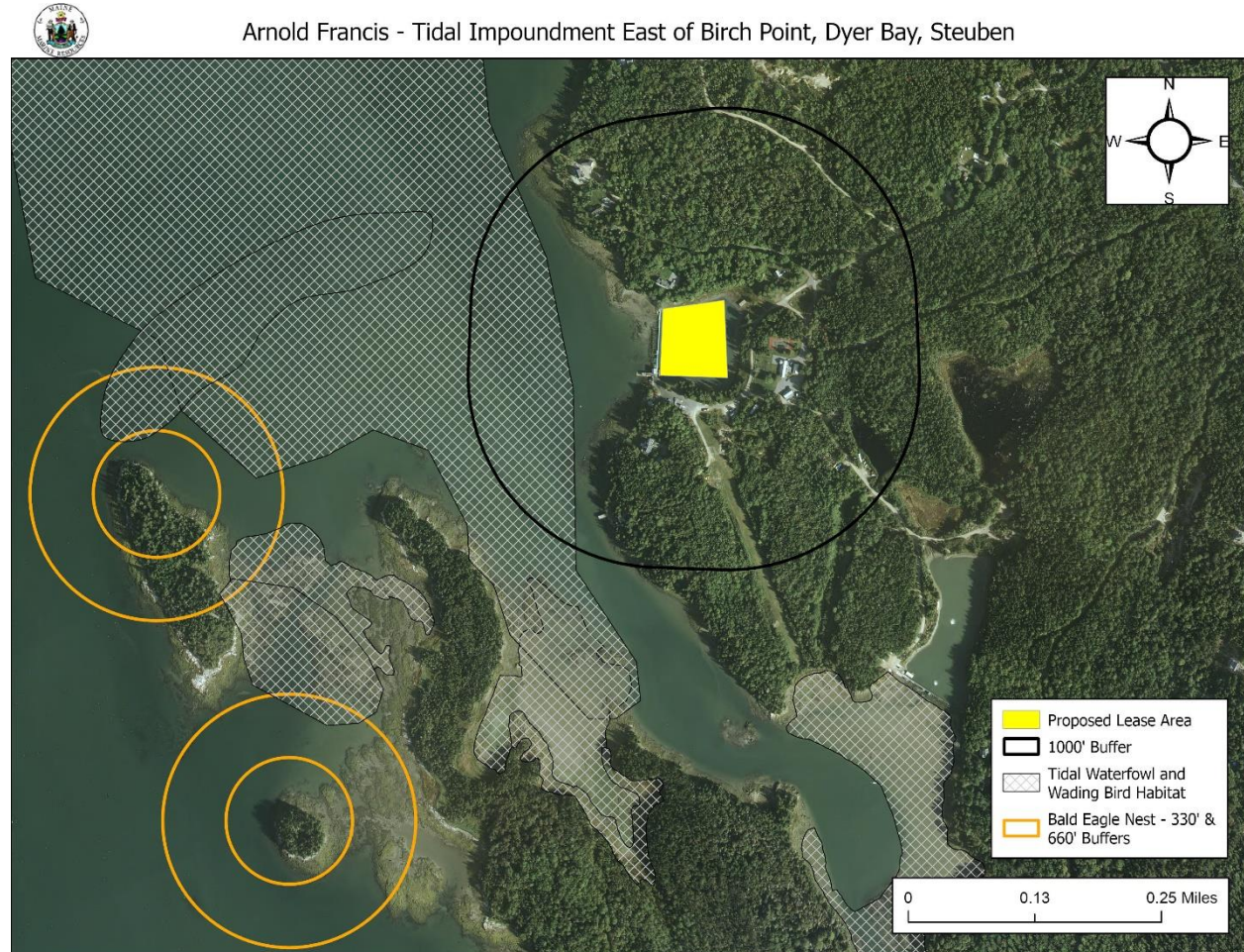


Figure 6. Mapped bald eagle nests and Tidal Waterfowl and Wading Bird Habitat.⁹

⁸ Email correspondence between MDIFW and MDMR

⁹ 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, docking facility, or conserved lands owned by federal, state, or municipal governments (Figure 7).

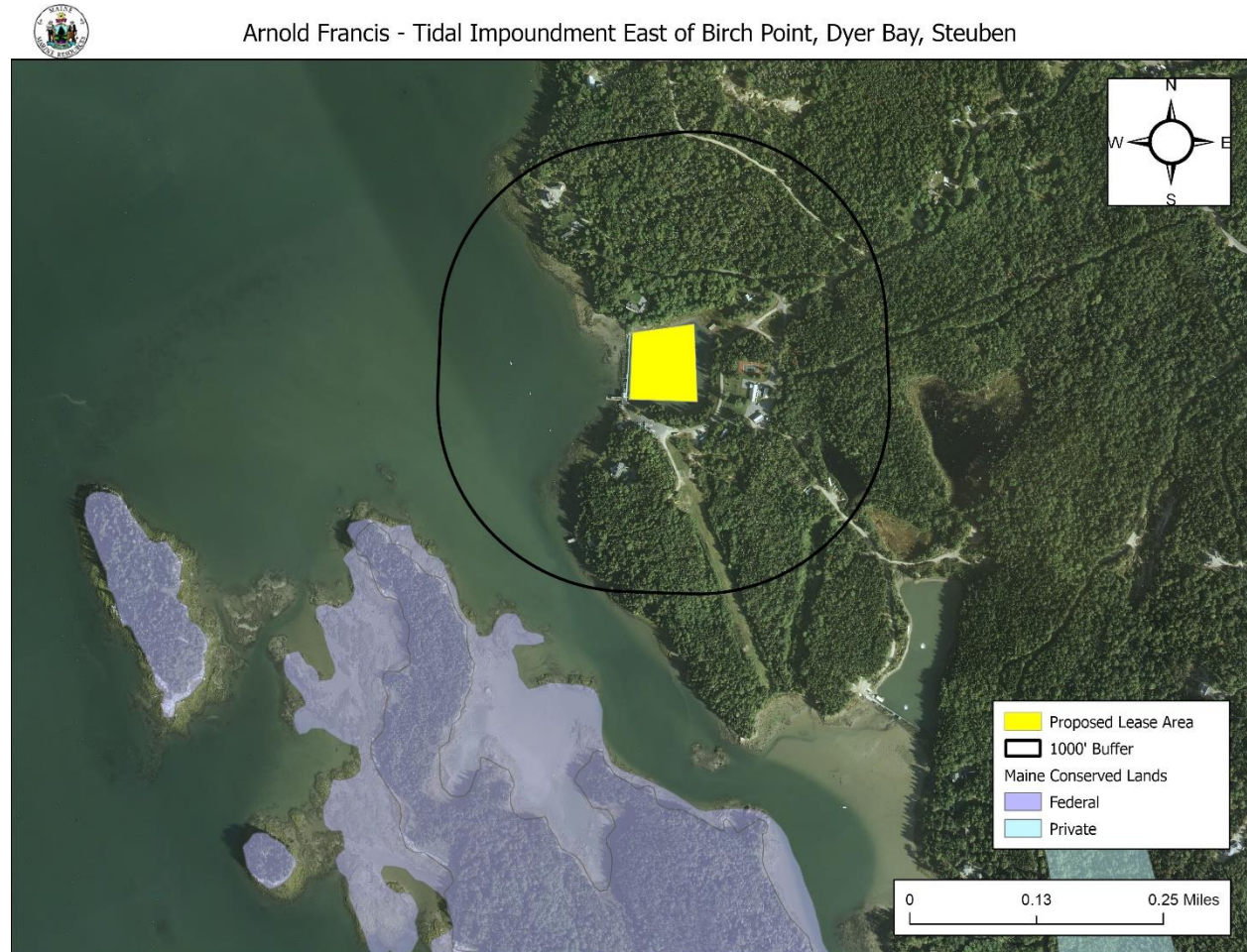


Figure 7. Public facilities near the proposed lease site.¹⁰

(7) Water Quality

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

¹⁰ Data obtained from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"