

Figure 1. Vicinity map.¹

Location: Fitch Cove, Damariscotta River, Walpole/South Bristol, Lincoln County, Maine

Purpose: Experimental lease for bottom culture of American oysters (*Crassostrea virginica*)

Site Review: Geoffrey Shook, Chloe Kilborn

Report Preparation: Geoffrey Shook, 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 georeferenced aerial photographs provided by The Maine Office of GIS.



Application Overview

The applicant, Dodge Cove Marine Farm, is requesting a 1.84-acre² experimental lease in Fitch Cove of the Damariscotta River within the village of Walpole, South Bristol for the bottom culture of American oysters (*Crassostrea virginica*). The applicant does not intend to have any gear on site other than the required lease corner markers.³ Seeding would generally occur August-December and harvesting could occur year-round. Harvest methods could include diving, hand raking, or a drag towed by a boat.⁴

General Characteristics

On September 26, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 3:06 PM. The proposal is located in shallow water along the eastern shore of the Damariscotta River, directly east of Glidden Ledge on the western side of Fitch Cove. The shoreline in the area consists of seaweed covered rocks and ledges with areas of mud. Uplands are forested. There are two residences within 1,000 feet of the proposal (Figure 3).

Depth

On September 26, 2023, MDMR scientists began collecting depths at the proposed site at approximately 3:14 PM. The tide was flooding with the next high tide predicted at 9:04 PM (Table 1). Depths were determined to be between 0.25-9.8 feet. Correcting for tidal variations derives depths at mean low water (MLW, 0.0 feet) to be between 0.0-9.2 feet. Corners D and G have derived depths that indicate they are intertidal at MLW (Figure 2).

Table 1. Predicted tidal heights in Walpole, South Bristol, Maine.⁵

Date	Time	Height (ft)
2023/09/26	2:33 AM	0.1 L
2023/09/26	8:47 AM	8.8 H
2023/09/26	2:48 PM	0.6 L
2023/09/26	9:04 PM	10.2 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 lease site is primarily composed of mud and shell rubble.

² Applicant originally requested 1.9 acres. MDMR calculations indicate the area is 1.84 acres.

³ Application page 1,15

⁴ Application page 6,7

⁵ <https://www.ussharports.com/harbor/maine/south-bristol-me/tides/?tide=2023-09#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
Biogenic Substrate	Shell Substrate	Shell Rubble	Clam Rubble

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, digital orthophotography provided by the Maine Office of GIS, and the application coordinates (Table 3, Figure 3).

Application Coordinates (WGS84) – 1.84 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
A	43.968775°	-69.569478°	then 231.7 feet at 167° True to
B	43.968158°	-69.569267°	then 248.8 feet at 148° True to
C	43.967583°	-69.568758°	then 14.2 feet at 001° True to
D	43.967622°	-69.568758°	then 66.2 feet at 011° True to
E	43.967800°	-69.568708°	then 49.8 feet at 076° True to
F	43.967833°	-69.568525°	then 75.5 feet at 150° True to
G	43.967656°	-69.568378°	then 53.6 feet at 121° True to
H	43.967581°	-69.568203°	then 151.2 feet at 004° True to
I	43.967994°	-69.568167°	then 417.6 feet at 322° True to
J	43.968892°	-69.569153°	then 95.6 feet at 243° True to A



Table 3. Approximate distances from proposal corners to surrounding features (Figure 4).

Feature	Distance
Corner A to Glidden Ledge closest point at charted MLW	~0.0 feet
Corner B to Fitch Point closest point at charted MLW	~5.1 feet to the west
Corner J to Glidden Ledge western extent at MLW	~1,125.3 feet to the northwest
Corner H to Fitch Cove closest point at charted MLW	~2.5 feet to the south
Corner I to Fitch Cove eastern shoreline MLW	~814.7 feet to the east

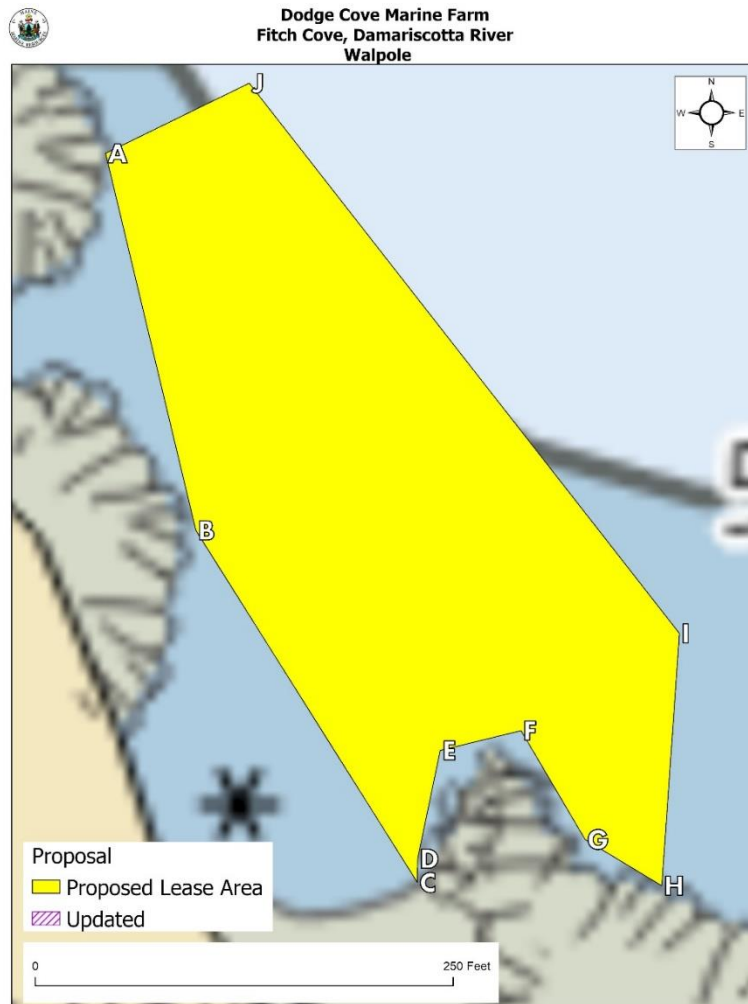


Figure 2. Detailed view of lease corner locations.

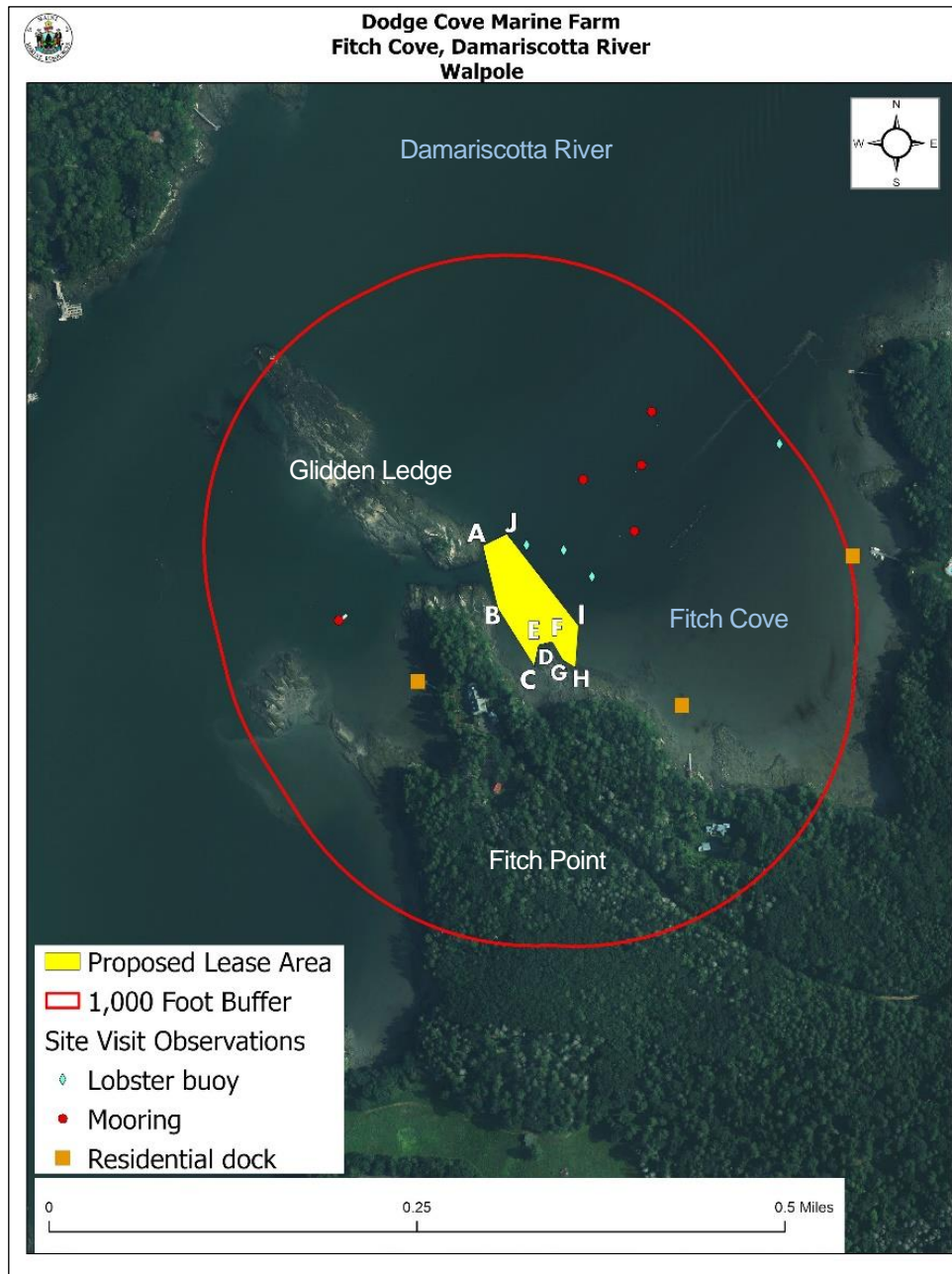


Figure 3. Proposed lease area with site visit observations.

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 MDMR's site assessment, scientists observed one pier with a dock in Fitch Cove within 1,000 feet of the proposal approximately 513.7 feet to the southeast.⁶ A second pier and dock was observed within Fitch Cove approximately 1,080 feet to the east. Aerial imagery⁷ also indicates a dock and pier on the west side of Fitch Point, outside of Fitch Cove, within 1,000 feet of the proposal, approximately 374.3 feet to the southwest. Scientists also observed four moorings in Fitch Cove within 1,000 feet of the proposal. The mooring observed closest to the proposal was located approximately 337.3 feet to the northeast. Aerial imagery indicates that there are two moorings on the west side of Fitch Point outside of Fitch Cove with the closest located approximately 582.9 feet to the west (Figure 3).

On April 26, 2023, MDMR received a completed Harbormaster Questionnaire. In it the local harbormaster indicated that riparian owner access should not be affected.

Since a portion of the proposal is intertidal, the applicant is required to obtain written consent from the upland owner for use of their intertidal land. The applicant did not provide this permission with the application. The applicant needs to include written permission from parcel 30-11-C.

(2) Navigation

The proposal is located in shallow water directly adjacent to Glidden Ledge and Fitch Point. Glidden Ledge is an intertidal ledge that restricts navigation in this part of the river. The main navigational channel for the Damariscotta River is located west of Glidden Ledge approximately 1,162.5 feet northwest of the proposal (Figure 4).

MDMR scientists observed boats transiting the main channel while enroute to the site visit, but did not observe any boats in the channel while conducting the site assessment. Scientists observed boats operating near the western shore of the river approximately 0.4 miles to the northwest.

In the Harbormaster Questionnaire it was indicated that the proposal would not affect navigation because it is located behind a ledge and away from the navigation channel.

⁶ The distance measurement provided is as observed on aerial imagery. Depth restrictions due to tidal stage at the time of the site visit prevented MDMR scientists from approaching the dock by vessel so the waypoint was placed as close as possible.

⁷ Maine Orthoimagery Coastal Midcoast 2023

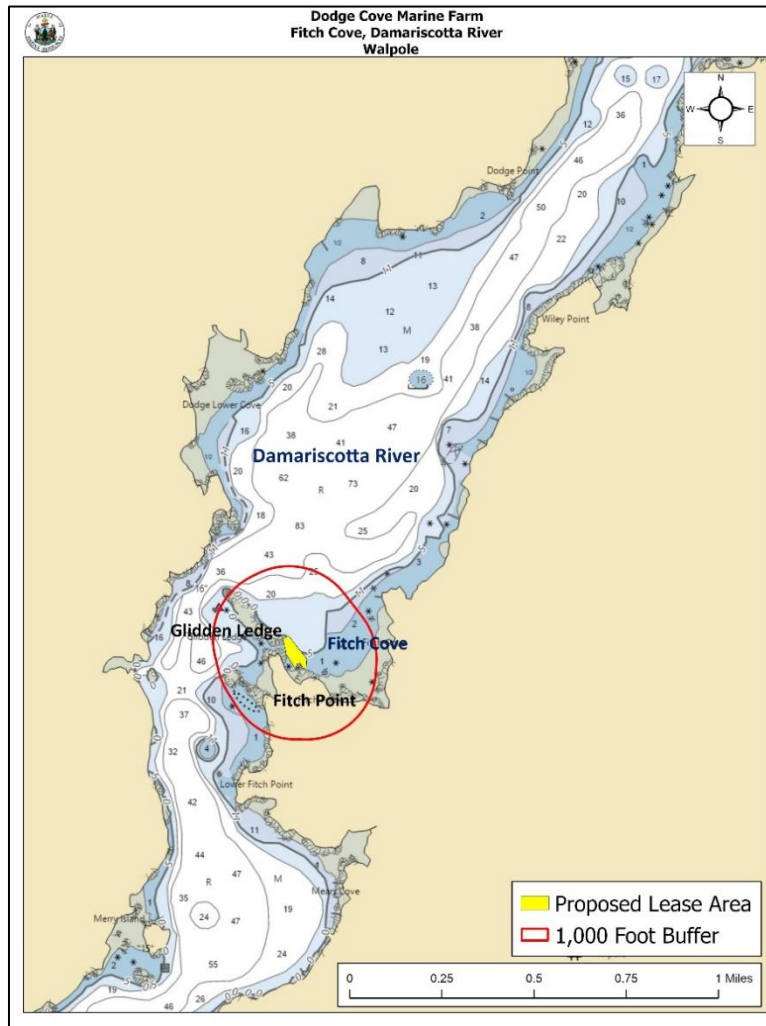


Figure 4. Charted navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During MDMR's site assessment, scientists observed light lobstering activity in the vicinity of the proposal. Four lobster buoys were observed within 1,000 feet of the proposal with the closest located approximately 31.5 feet to the east.

The Harbormaster Questionnaire indicated that lobstering may be impacted slightly, but fishing for striped bass (*Morone saxatilis*) and Atlantic mackerel (*Scomber scombrus*) should not be affected by the proposed lease area. The applicant is requesting that commercial and recreational shellfish harvest be excluded from the proposed lease area.⁸

⁸ Application page 10



The Town of South Bristol has a shellfish conservation program in accordance with 12 M.R.S.A. § 6671 and because the site is partially located within the intertidal, the applicant is required to obtain consent from the municipality. The applicant did not provide this permission with the application.

(4) Other Aquaculture Uses

There are no active aquaculture leases within 1,000 feet of the proposal. There are four active Limited Purpose Aquaculture (LPA) sites within 1,000 feet of the proposal (MELA115, MELA215, MELA418, MELA518). The closest LPA is located approximately 548.8 feet northeast of the proposal (Figure 5). The LPAs are operated by Rod Melanson.

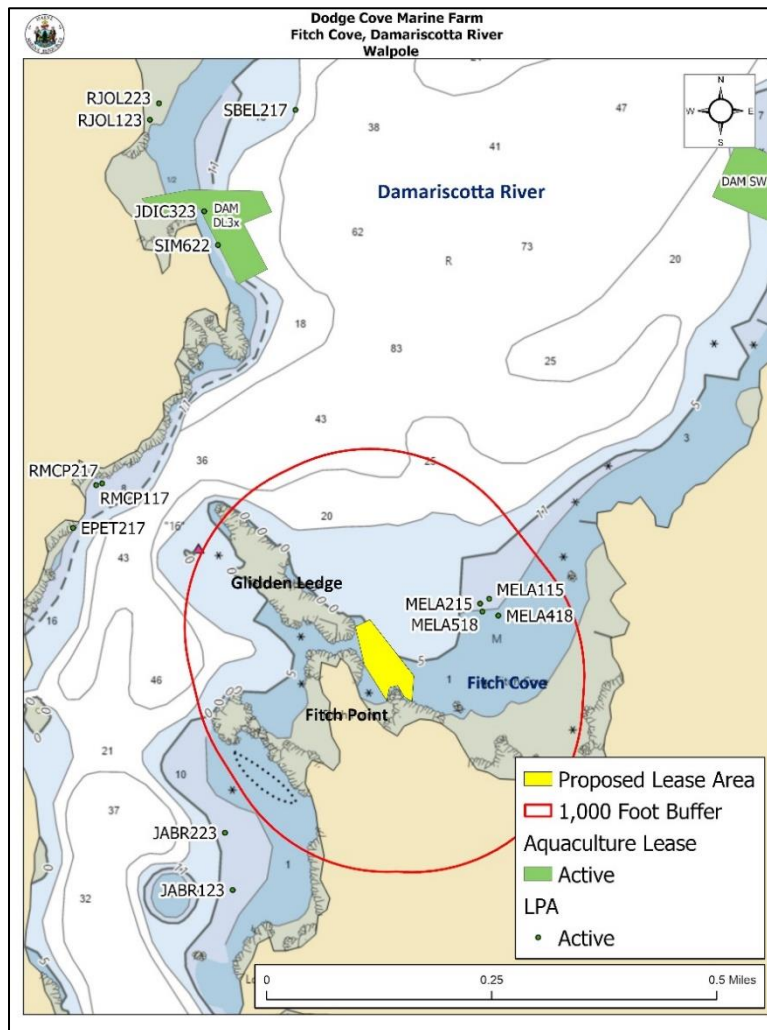


Figure 5. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

MDMR scientists used a remotely operated vehicle (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 on underwater video footage.

Species Observed	Abundance
Green crab (<i>Carcinus maenas</i>)	Common
Hermit crab (<i>Pagurus sp.</i>)	Occasional
Horseshoe crab (<i>Limulus polyphemus</i>)	Rare
Sand shrimp (<i>Crangon septemspinosa</i>)	Common
Tunicates (<i>Didemnum vexillum</i>)	Common
Sponge (<i>Porifera spp.</i>)	Occasional
Green filamentous algae (<i>Ulva intestinalis</i>)	Common
Red filamentous algae (<i>Dasysiphonia japonica</i>)	Common



Eelgrass (*Zostera marina*)

Records of seagrass collected by Maine Department of Environmental Protection (MDEP) in 2023⁹ indicate that there is no mapped eelgrass within 1,000 feet of the proposal. During MDMR's site assessment, scientists did not observe any eelgrass.

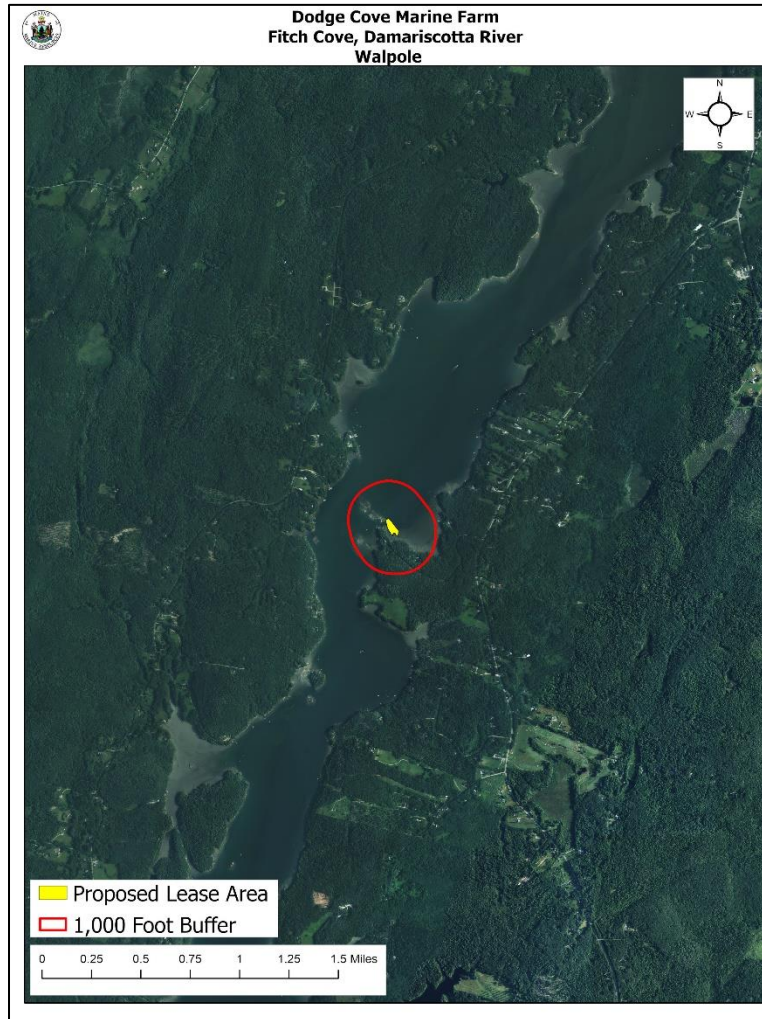


Figure 6. Mapped eelgrass in the vicinity of the proposed lease area.

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), the proposed lease is directly adjacent to Tidal Waterfowl and Wading Bird Habitat (TWWH) on Glidden Ledge located to the west. In addition, there is an area of TWWH mapped in Fitch Cove approximately

⁹ 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.



150.1 feet southeast of the proposal. The nearest mapped bald eagle nest (*Haliaeetus leucocephalus*) is located approximately 0.81 miles to the southwest of the proposal (Figure 7).

On September 18, 2023, a Resource Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” stating that the proposal is adjacent to Tidal Waterfowl and Wading Bird Habitat and minimal impacts are anticipated.

During MDMR’s site assessment, scientists observed osprey (*Pandion haliaetus*), herring gulls (*Larus argentatus*), a kingfisher (*Alcedinidae* sp.), American crow (*Corvus brachyrhynchos*), as well as a seal (*Phocidae* sp.) in the vicinity of the proposal.

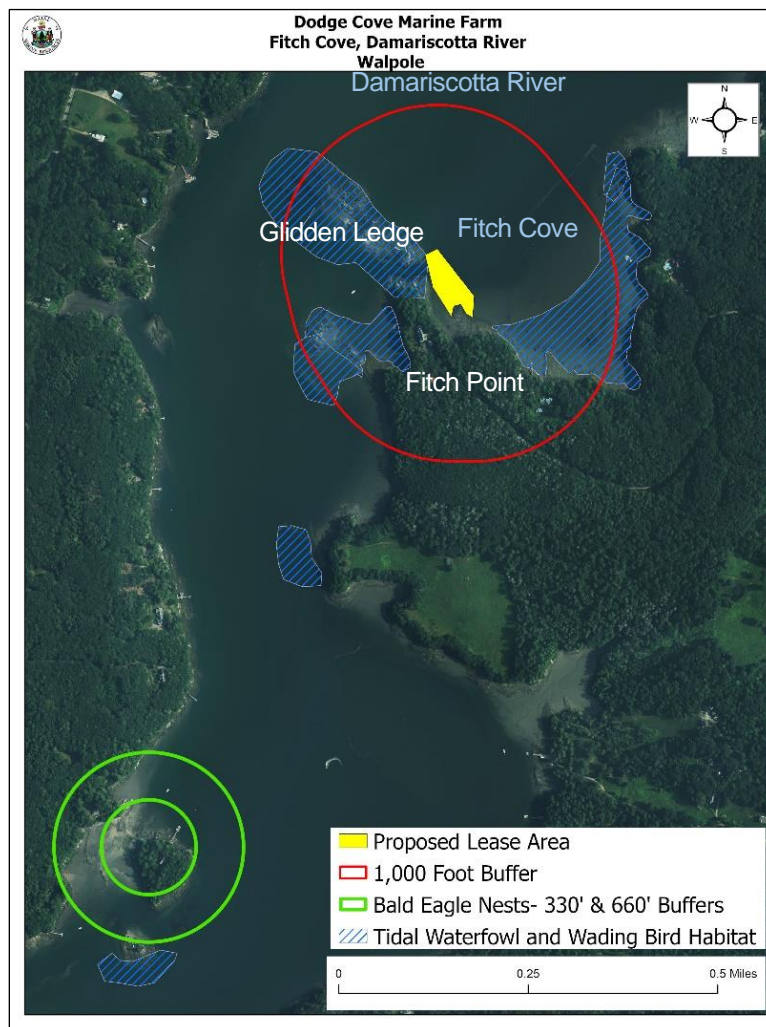


Figure 7. Mapped Tidal Waterfowl and Wading Bird Habitat and bald eagle nests in the vicinity of the proposed lease area.¹⁰

¹⁰ 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 located within an area that is currently classified as Open/Approved for the harvest of shellfish by the MDMR Bureau of Public Health and Aquaculture.

Intertidal Site

Given the charted depths at MLW, MDMR scientists visited the proposed lease site near low tide to help assess whether any portion of the site was intertidal. Corner D and corner G from the original application have derived depths that indicate they are intertidal at MLW. MDMR scientists generated updated boundaries so the entire proposal area would be located within subtidal waters (Figure 8).

Proposed intertidal sites have certain permission requirements. If the applicant wishes to proceed with the original application coordinates, the applicant will have to obtain written permission from the upland landowner to use the intertidal area of parcel 30-11-C. In addition, the Town of South Bristol has a municipal shellfish conservation program established pursuant to 12 M.R.S.A. §6671. Therefore, in accordance with 12 M.R.S.A. §6072(3), the applicant would also need to obtain consent from municipal officers within the Town of South Bristol.

Figure 8 depicts the original proposal overlaid with updated coordinates generated by MDMR scientists for the lease to be located entirely within subtidal waters.

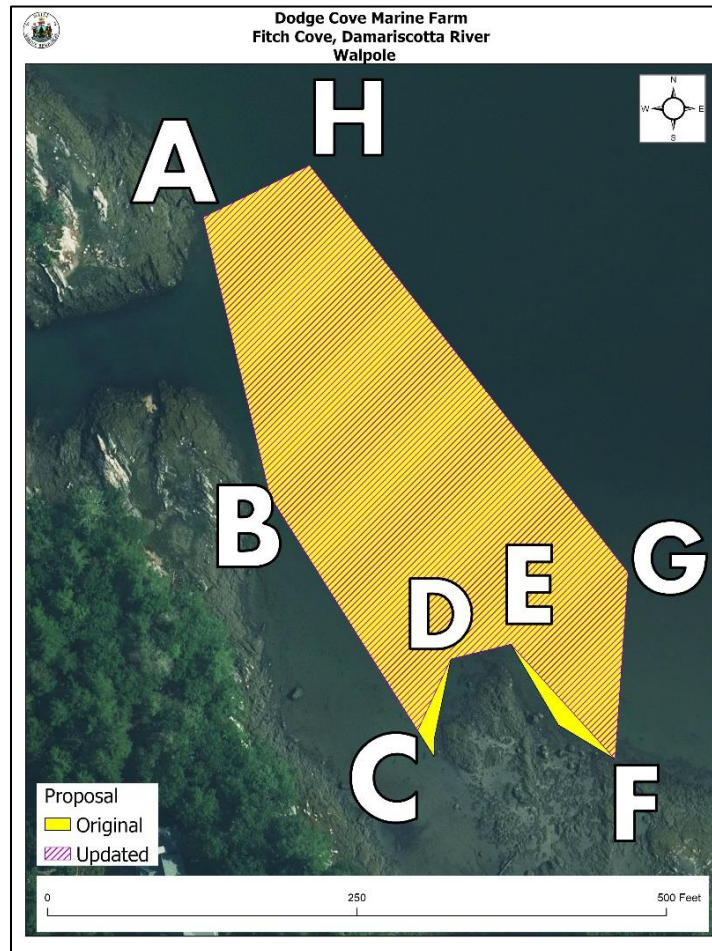


Figure 8. The original proposal overlaid with updated coordinates for the lease to be located entirely within subtidal waters.

Update Coordinates (WGS84) – 1.81 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
A	43.968775°	-69.569478°	then 231.7 feet at 167° True to
B	43.968158°	-69.569267°	then 223.8 feet at 148° True to
C	43.967632°	-69.568809°	then 63.9 feet at 024° True to
D	43.967800°	-69.568708°	then 49.8 feet at 076° True to
E	43.967833°	-69.568525°	then 125.3 feet at 137° True to
F	43.967581°	-69.568203°	then 151.2 feet at 004° True to
G	43.967994°	-69.568167°	then 417.6 feet at 322° True to
H	43.968892°	-69.569153°	then 95.6 feet at 243° True to A