

Figure 1. Vicinity map.¹

Location: East of Caldwell Island, St. George River, St. George, Knox County, Maine

Purpose: Experimental 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*)², dulse (*Palmaria palmata*), Irish moss (*Chondrus crispus*), and sea lettuce (*Ulva lactuca*).

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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 geo-referenced aerial photographs provided by The Maine Office of GIS.

² Application lists shotgun kelp as *Agarum cribrosum*, but current accepted name is *Agarum clathratum*.



Application Overview

The applicant, Albatross Fisheries, is requesting a 2.9-acre experimental lease east of Caldwell Island in the St. George River for the suspended culture of marine algae. The applicant intends to remove culture lines, crosslines, and depth control buoys from the site from June 16 until October 1. Moorings and mooring lines will remain on site from June 16 until October 1. Mooring balls will be removed and mooring lines will be sunk to the bottom on site. Required lease markers would remain on site year-round.³ In consideration of a comment received during the public comment period, the applicant submitted a revised proposal to reduce the northern boundary of the lease proposal by approximately 280 feet.⁴

General Characteristics

On October 18, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 11:14 AM. The proposal is located in subtidal waters in the St. George River approximately 160.5 feet to the east of Caldwell Island. The shoreline of Caldwell Island was observed to be rocky with forested uplands. One pier with a dock was observed within 1,000 feet of the proposal. Aerial imagery⁵ indicates the presence of a house within 1,000 feet of the proposal approximately 375 feet to the northwest of the observed dock. The house was not visible from the water when scientists conducted the site assessment (Figure 2).

Depth

On October 18, 2023, MDMR scientists began collecting depths at the proposed site at approximately 11:17 AM. The tide was flooding with the next high tide predicted at 1:41 PM (Table 1). Depths were determined to be between 31.8-41.9 feet.⁶ Correcting for tidal variations derives depths at mean low water (MLW, 0.0 feet) to be between 25-35.1 feet.

Table 1. Predicted tidal heights in Port Clyde, Maine.⁷

Date	Time	Height (ft)
2023/10/18	1:37 AM	8.7 H
2023/10/18	7:36 AM	0.9 L
2023/10/18	1:41 PM	9.8 H
2023/10/18	8:10 PM	0.1 L

Bottom Characteristics

MDMR scientists observed the bottom characteristics in the vicinity 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

³ Application page 8

⁴ Application page 27

⁵ Maine Orthoimagery Coastal Midcoast 2023

⁶ Reported depths are based on the original application coordinates. Depths in the northern portion of the reduced lease area are expected to be similar to depths in the original northern extent.

⁷ <https://www.usharbors.com/harbor/maine/port-clyde-me/tides/?tide=2023-10#monthly-tide-chart>



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.

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

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 2).

Application Coordinates (WGS84) – 2.90 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.93806°	-69.29180°	then 160.7 feet at 080° True to
NE	43.93814°	-69.29120°	then 779.2 feet at 168° True to
SE	43.93605°	-69.29058°	then 163.3 feet at 260° True to
SW	43.93597°	-69.29119°	then 778.6 feet at 348° True to NW

Table 3. Approximate distances from proposal corners to surrounding features (Figure 3).⁸

Feature	Distance
NW corner to Caldwell Island closest point MLW	~277.2 feet to the west
SW corner to Caldwell Island closest point MLW	~160.5 feet to the southwest
SE corner to Hupper Point closest point MLW	~4,450.1 feet to the east
SE corner to “DCR” buoy	~2,752.8 feet to the east
NE corner to Howard Point closest point MLW	~5,108.4 feet to the northeast

⁸ All distance measurements referenced in this report are based on the revised application coordinates.

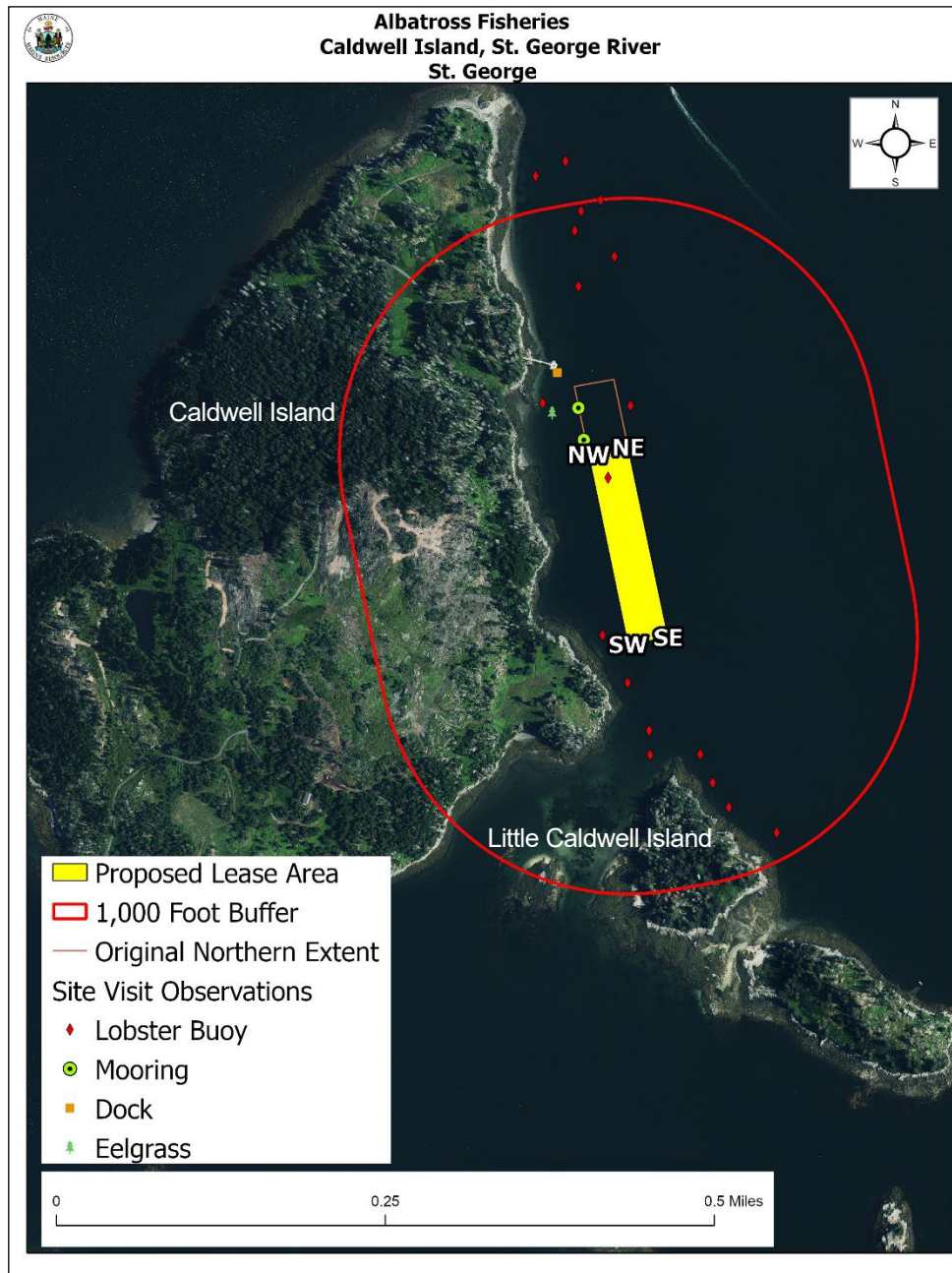


Figure 2. Proposed lease area with site visit observations.

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 MDMR's site assessment, scientists observed one pier with a dock within 1,000 feet of the proposal located approximately 368.5 feet to the northwest. At the time of MDMR's site assessment, a dinghy was tied to the dock. Scientists also observed two moorings within 1,000 feet of the proposal located approximately 62.3 and 191.6 feet to the north of the proposed lease area. Aerial imagery indicates the presence of at least one other pier and dock on Caldwell Island approximately 2,388.1 feet to the southwest. Imagery also indicates the presence of a house within 1,000 feet of the proposal on Little Caldwell Island. No pier or dock appears to be associated with the house and MDMR scientists did not observe a pier, dock, or mooring during the site assessment in the vicinity of Little Caldwell Island within 1,000 feet of the proposal (Figure 2).

(2) Navigation

The proposal is located in subtidal waters approximately 160.5 feet to the east of Caldwell Island, which is located near the mouth of the St. George River. There is approximately 4,450.1 feet of navigable water at MLW between the proposed lease area and Hupper Point on the eastern shoreline of the river. An additional marked navigation channel located to the west of Caldwell Island also provides access to and from the St. George River (Figure 3). During MDMR's site assessment, scientists observed two lobster boats navigating to the west of the site between the proposal and Caldwell Island.

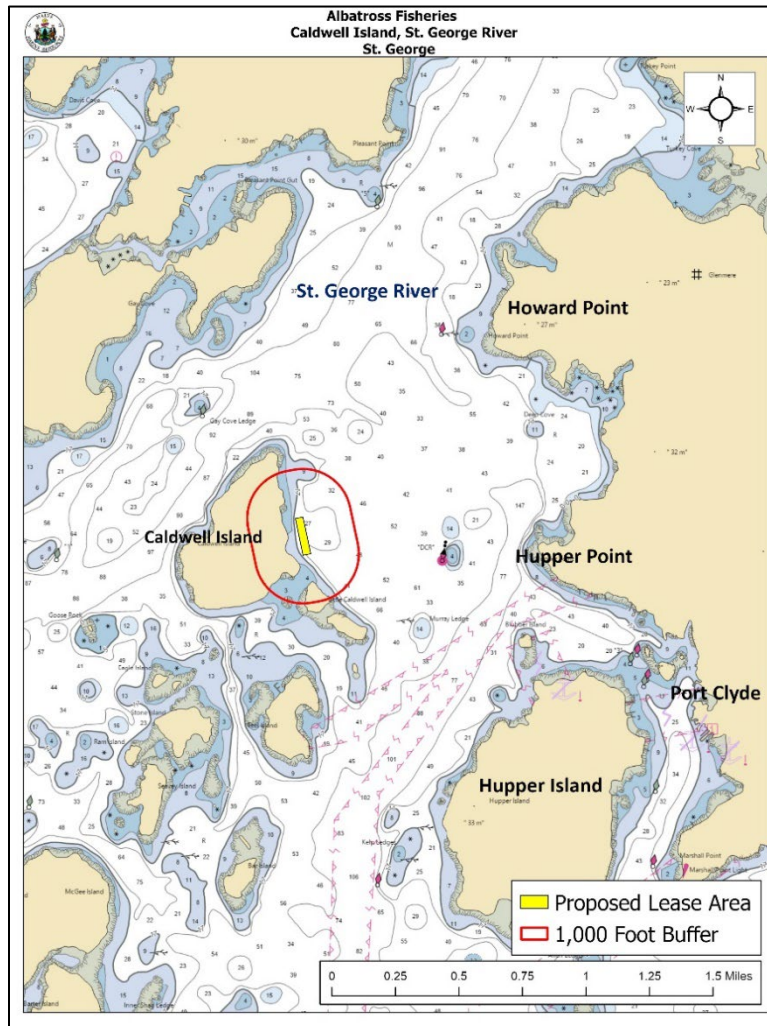


Figure 3. Charted navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During MDMR's site assessment, scientists observed light lobstering activity in the vicinity and to the north of the proposal. There were 16 lobster buoys observed within 1,000 feet of the proposal with one lobster buoy located within the boundaries of the proposal. The next closest buoy to the proposal was located approximately 92.2 feet to the west.



(4) Other Aquaculture Uses

There are no active aquaculture leases or LPAs within 1,000 feet of the proposal.

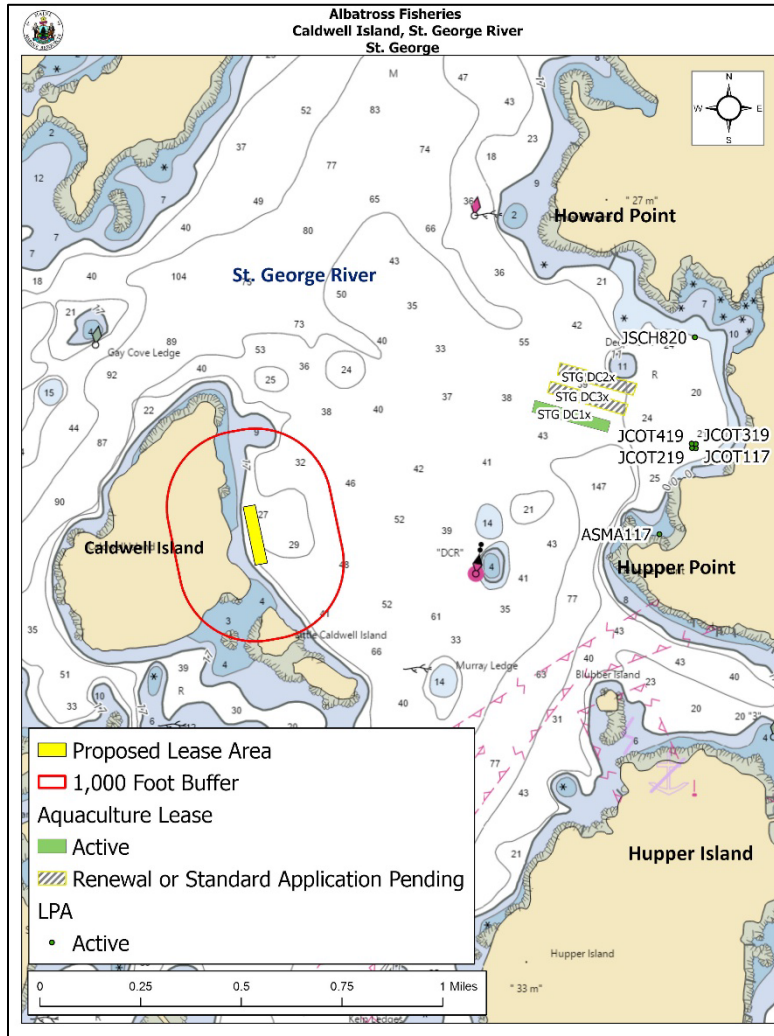


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

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 is described below in Table 4.

Table 4. Species observed on underwater video footage.

Species Observed	Abundance
Rock/Jonah crab (<i>Cancer spp.</i>)	Common
Northern Cerianthids (<i>Pachycerianthus borealis.</i>)	Occasional
Sand shrimp (<i>Crangon septemspinosa</i>)	Common
Tunicates (<i>Didemnum vexillum</i>)	Rare
Sponge (<i>Porifera spp.</i>)	Rare
Sugar kelp (<i>Saccharina latissima</i>)	Rare
Red filamentous algae (<i>Dasysiphonia japonica</i>)	Rare
Longfin squid (<i>Doryteuthis pealeii</i>) egg mass	Rare

Eelgrass (*Zostera marina*)

Records of seagrass collected in 2023⁹ indicate that there is mapped eelgrass within 1,000 feet of the proposal located approximately 157.2 feet to the west of the proposal (Figure 5). During MDMR’s site assessment, scientists observed very sparse eelgrass rooted to the seafloor in an area approximately 225.4 feet to the north of the proposal boundaries (Image 1).¹⁰ Water depth in this general area is approximately 26.2 feet at MLW. In addition, MDMR scientists observed an approximately 8-square foot area of sparse to moderate rooted eelgrass approximately 223 feet to the northwest of the proposal, with additional very sparse rooted eelgrass in the vicinity (Image 2, Figure 2). Water depth in that area is approximately 4 feet at MLW. MDMR scientists did not observe any eelgrass within the proposal boundaries.

Eelgrass is typically found in shallower water depths in subtidal to low intertidal areas to allow for adequate light penetration. MDMR expects seasonal regrowth of eelgrass to occur in April/May and seasonal senescence of eelgrass to occur in October/November. The applicant is proposing to seasonally culture marine algae on longlines from November to June.

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.

¹⁰ At the time of MDMR’s site assessment, the northern area assessed with the ROV was within the proposal boundaries.

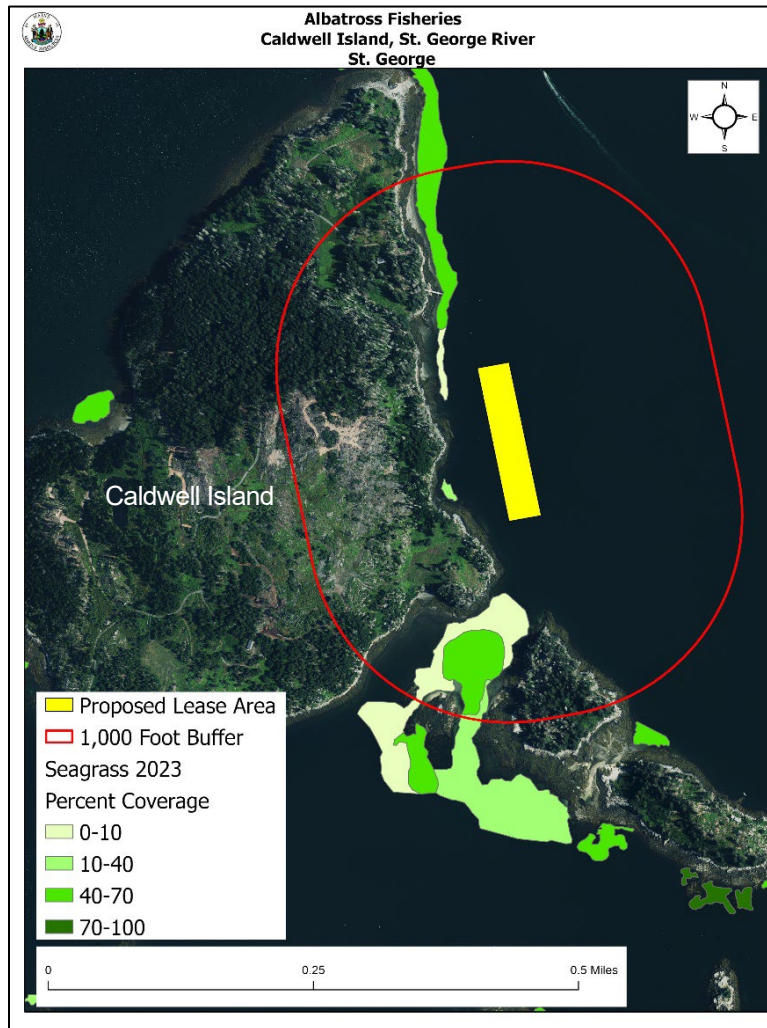


Figure 5. Mapped eelgrass in the vicinity of the proposed lease area.



Image 1. Very sparse eelgrass observed in the vicinity of the proposal.



Image 2. Sparse to moderate eelgrass patch observed to the northwest of the proposal.



Department of Marine Resources Site Report

Albatross Fisheries
St. George River
St. George

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 within 1,000 feet of Tidal Waterfowl and Wading Bird Habitat (TWWH). There is an area of TWWH located approximately 168.6 feet to the west of the proposal, as well as another area of TWWH located approximately 275.1 feet to the south. In addition, there is a bald eagle (*Haliaeetus leucocephalus*) nest mapped approximately 495.6 feet to the west of the proposal on Caldwell Island (Figure 6).

On August 9, 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. Minimal impacts are anticipated as long as eelgrass or substrate suitable for eelgrass is not present.

During MDMR’s site assessment, scientists observed herring gulls (*Larus argentatus*), a great blue heron (*Ardea herodias*), a loon (*Gavia immer*), and black guillemots (*Cepphus grylle*) in the vicinity of the proposal.

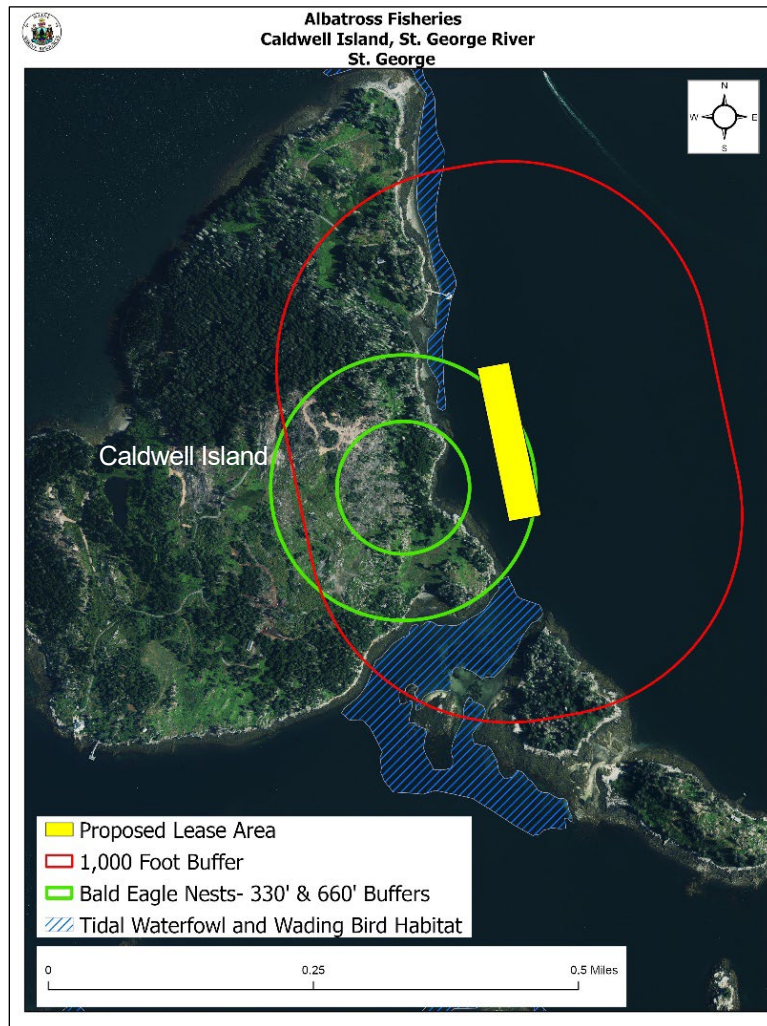


Figure 6. Mapped TWWH and bald eagle nests in the vicinity of the proposed lease area. ¹¹

(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 by the MDMR Bureau of Public Health and Aquaculture.

¹¹ Data obtained from USFWS "Bald_Eagle_Nests_-_Maine_2023" and MDIFW maintained SDE Feature Class "GISVIEW.MEIFW.Twwh"