



Miss Madisyn - East of Caldwell Island, St. George

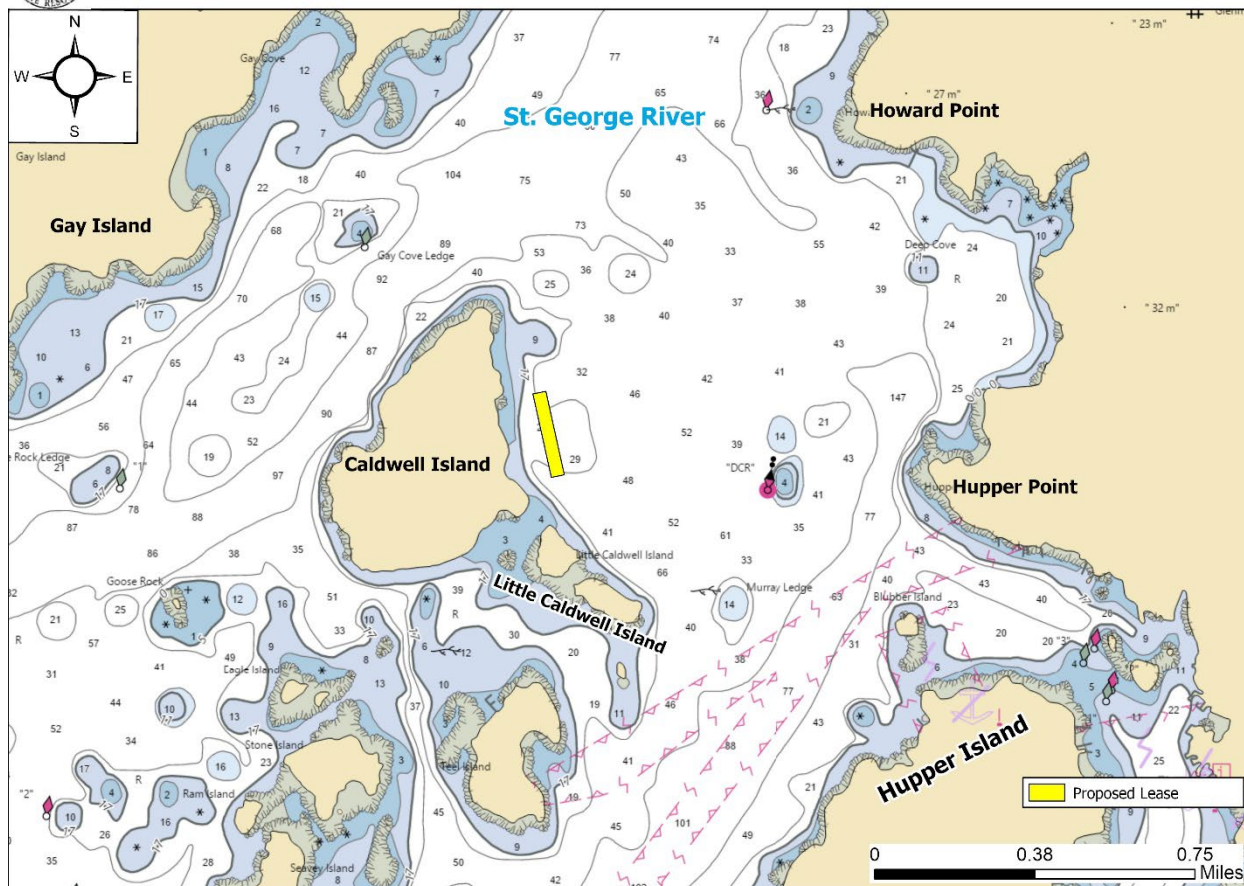


Figure 1. Vicinity map.¹

Location: East of Caldwell Island², 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*)³, dulse (*Palmaria palmata*), Irish moss (*Chondrus crispus*), and sea lettuce (*Ulva lactuca*).

Site Review: Meryl Grady, Geoff Shook, and Katie von Hohenleiten

Report Preparation: Katie von Hohenleiten, Geoff Shook, 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 geo-referenced aerial photographs provided by The Maine Office of GIS.

² Application lists the general description as west of Caldwell Island, but the proposal is east of Caldwell Island.

³ Application lists the scientific name as *Agarum cribosum*, however the accepted scientific name is *Agarum clathratum*.



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Application Overview

The applicant, Miss Madisyn, is requesting a 3.98⁴ acre experimental lease east of Caldwell Island at the mouth of the St. George River for the suspended culture of marine algae. The applicant is proposing to culture marine algae from October 1-June 15. From June 16-September 30, the applicant is proposing to remove all culture/long lines, cross lines, and depth control buoys. Mooring blocks, mooring chains, mooring lines, and all required lease marker buoys will remain in place year-round, though mooring chains and lines will be sunk to the bottom from June 16-September 30.⁵

General Characteristics

On August 23, 2024, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 10:57 AM. The eastern shore of Caldwell Island consists of a rocky coastline leading to forested uplands with one pier approximately 285 feet northwest of the proposal.

Depth

MDMR scientists began collecting depths at the proposed site during a rising tide at approximately 10:59 AM. Measured depths at corners of the proposed lease site ranged from 35.0 to 37.5 feet. Correcting for tidal variation derives water depths at the corners of the proposal at mean low water (MLW, 0.0 feet) to be from 31.4 to 33.9 feet (Table 1).

Table 1. Predicted tidal heights in Port Clyde, Maine.⁶

Date	Time	Height (ft)
2024/08/23	1:54 AM	10.7 H
2024/08/23	8:09 AM	-1.0 L
2024/08/23	2:21 PM	10.7 H
2024/08/23	8:38 PM	-0.9 L

Bottom Characteristics

MDMR scientists observed the bottom characteristics of the proposed lease site via SCUBA dive. 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 composed of mud and sheet algal bed.

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
Benthic/Attached Biota	Aquatic Vegetation Bed	Benthic Macroalgae	Sheet Algal Bed

⁴ Applicant originally requested 4.0 acres. MDMR calculations indicate the area is 3.98 acres.

⁵ Application pages 8,9,17,18

⁶ <https://www.usharbors.com/harbor/maine/port-clyde-me/tides/?tide=2024-08#monthly-tide-chart>



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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, 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) – 3.98 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.93892°	-69.29125°	then 164 feet at 076° True to
NE	43.93901°	-69.29064°	then 1,057 feet at 167° True to
SE	43.93618°	-69.28976°	then 164 feet at 256° True to
SW	43.93609°	-69.29037°	then 1,057 feet at 347° True to NW

Table 3. Approximate distances from proposal to surrounding features (Figures 2 and 3).

Feature	Distance
NW corner to Caldwell Island shoreline at MLW	~345' to the west
NW corner to nearby riparian pier	~285' to the northwest
NE corner to Caldwell Island shoreline at MLW	~509' to the west
NE corner to Howard Point at MLW	~4,797' to the northeast
SE corner to "DCR" isolated danger buoy	~2,511' to the southeast
SE corner to Hupper Point at MLW	~4,247' to the southeast
SE corner to Little Caldwell Island at MLW	~642' to the south
SW corner to Little Caldwell Island at MLW	~580' to the south
SW corner to Caldwell Island shoreline at MLW	~373' to the west



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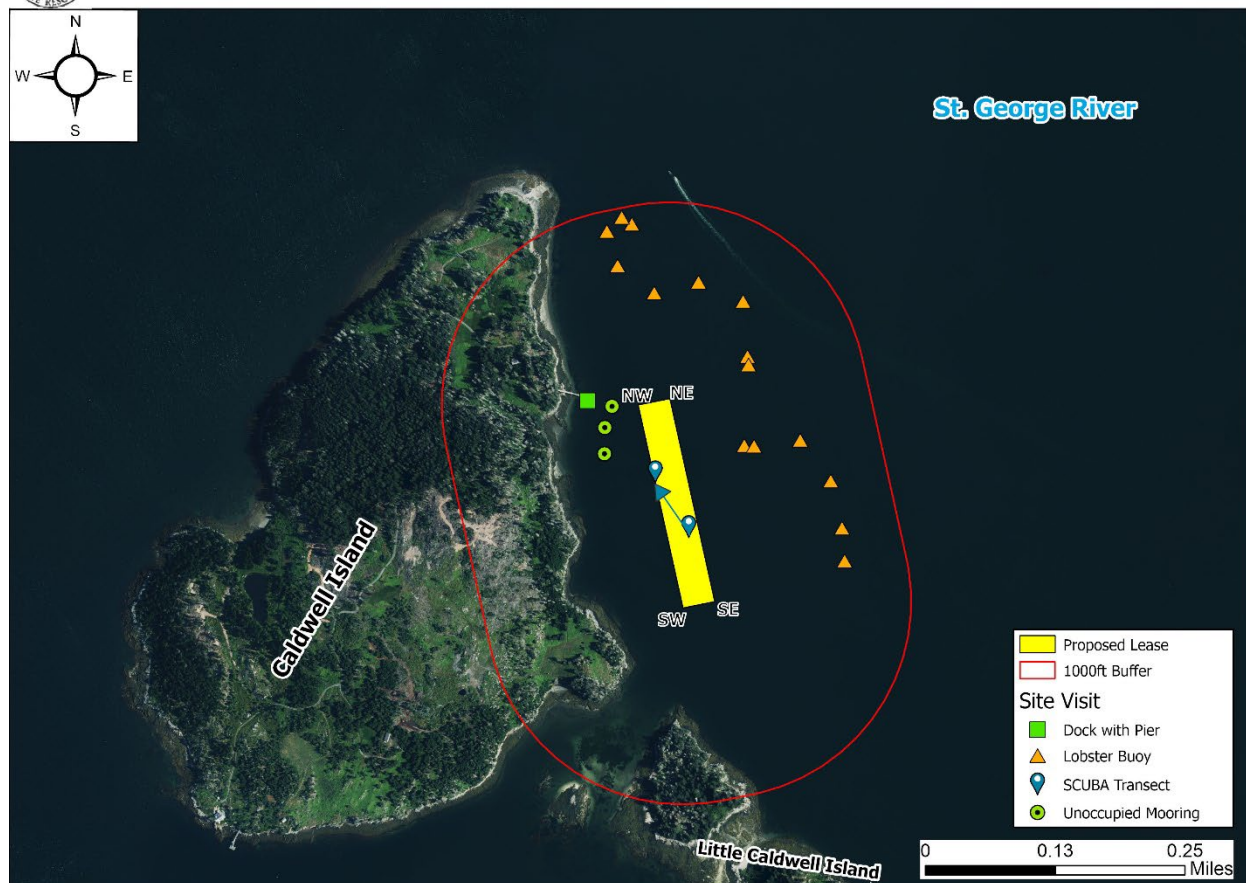


Figure 2. Proposed lease area with site visit observations.

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, MDMR scientists observed one riparian dock on the eastern shore of Caldwell Island located approximately 285 feet northwest of the proposal. Four kayaks were observed stored on the riparian dock, as well as a 20-foot powerboat tied to the dock. Three moorings were observed in the vicinity of the proposal. All three were unoccupied at the time of the site visit and are approximately 133 feet, 191 feet, and 222 feet west of the proposal (Figure 2). Little Caldwell Island is approximately 580 feet south of the proposal at MLW. Aerial imagery⁷ indicates a residential property and mooring on the northern shoreline of Little Caldwell Island

⁷ Maine Orthoimagery Coastal Midcoast 2023



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approximately 1,640 feet southeast of the proposal. No docks or moorings were observed on Little Caldwell Island during the site visit.

A Harbormaster Questionnaire was sent to the town of St. George. MDMR did not receive a response.

(2) Navigation

The proposal is located 345 feet east of Caldwell Island at MLW. When approaching from the north, the navigational channel splits and continues on both the eastern and western sides of Caldwell Island. On the eastern side of Caldwell Island, there is approximately 2,511 feet of navigable water between the SE corner of the proposal and isolated danger buoy “DCR” (Figure 3). During MDMR’s site visit, three sailboats, two recreational powerboats, and one commercial fishing vessel were transiting in the channel to the east of the proposal. Kayakers were observed paddling along the shoreline in the area of Hupper Point for the duration of MDMR’s site visit.

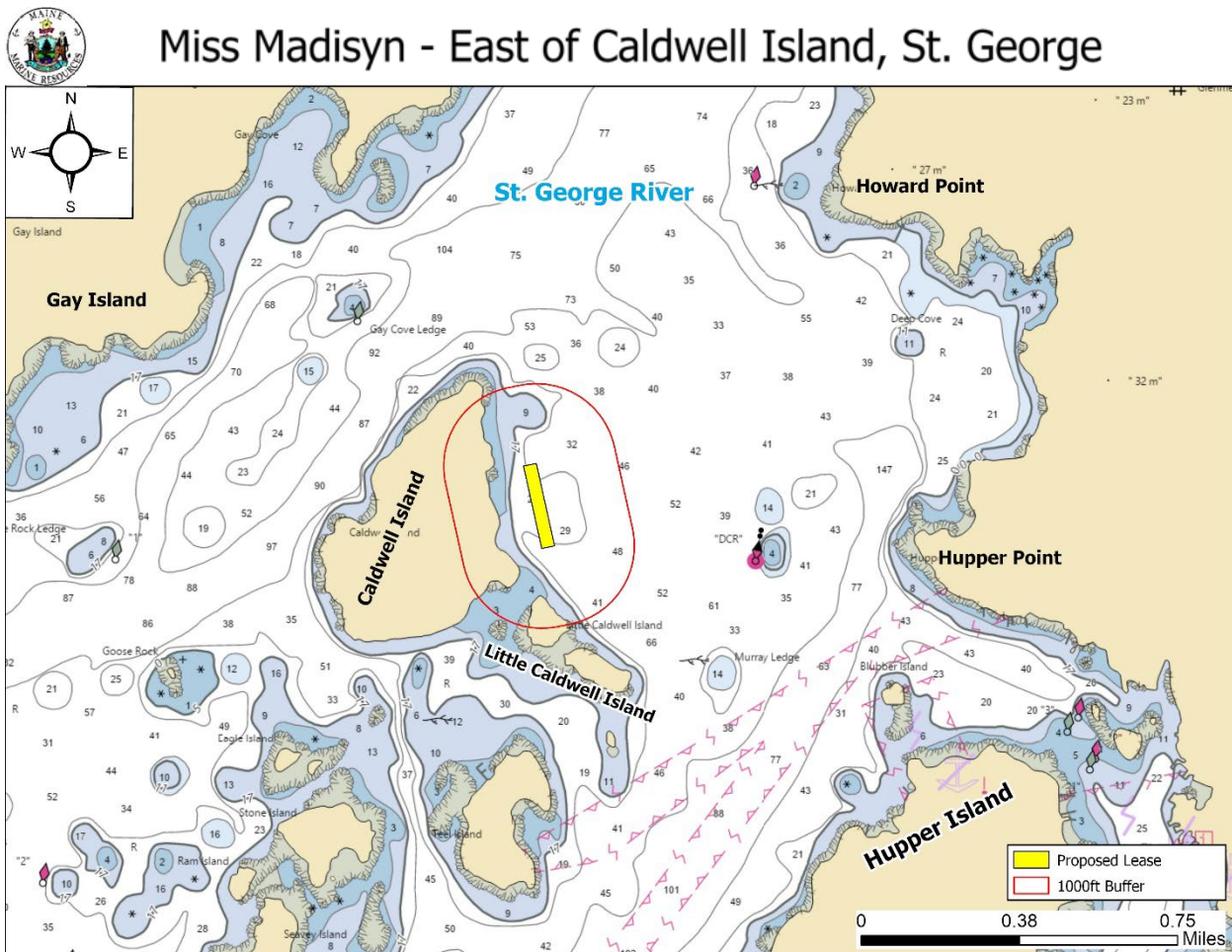


Figure 3. Navigational channels in the vicinity of the proposed lease area.



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(3) Fishing and Other Uses

During the site visit, MDMR documented 15 lobster buoys in the general vicinity of the proposal. The lobster buoys were predominately located east and north of the proposal with the closest buoy approximately 320 feet to the east (Figure 2). A commercial fishing vessel was observed actively hauling lobster gear south of Little Caldwell Island. Additionally, three powerboats were observed recreationally fishing with rod and reel along the shoreline of Caldwell Island west and south of the proposal.

A local Marine Patrol officer stated the area in the vicinity of the proposal is heavily used to harvest Menhaden (*Brevoortia tyrannus*) in the summer months as early as June. Lobster fishing occurs in the area throughout the year, including some winter fishing, with most lobster gear present from June through November.

(4) Other Aquaculture Uses

There are no licensed aquaculture leases or limited purpose aquaculture (LPA) sites within 1,000 feet of the proposal. There are two applications under review by MDMR within 1,000 feet of the proposal. Albatross Fisheries is an experimental application approximately 50 feet west of this proposal. The application was deemed complete prior to this proposal. Devil's Apron Sea Farms App 2 is an experimental application approximately 617 feet northeast of this proposal. The application was deemed complete after this proposal (Figure 4).



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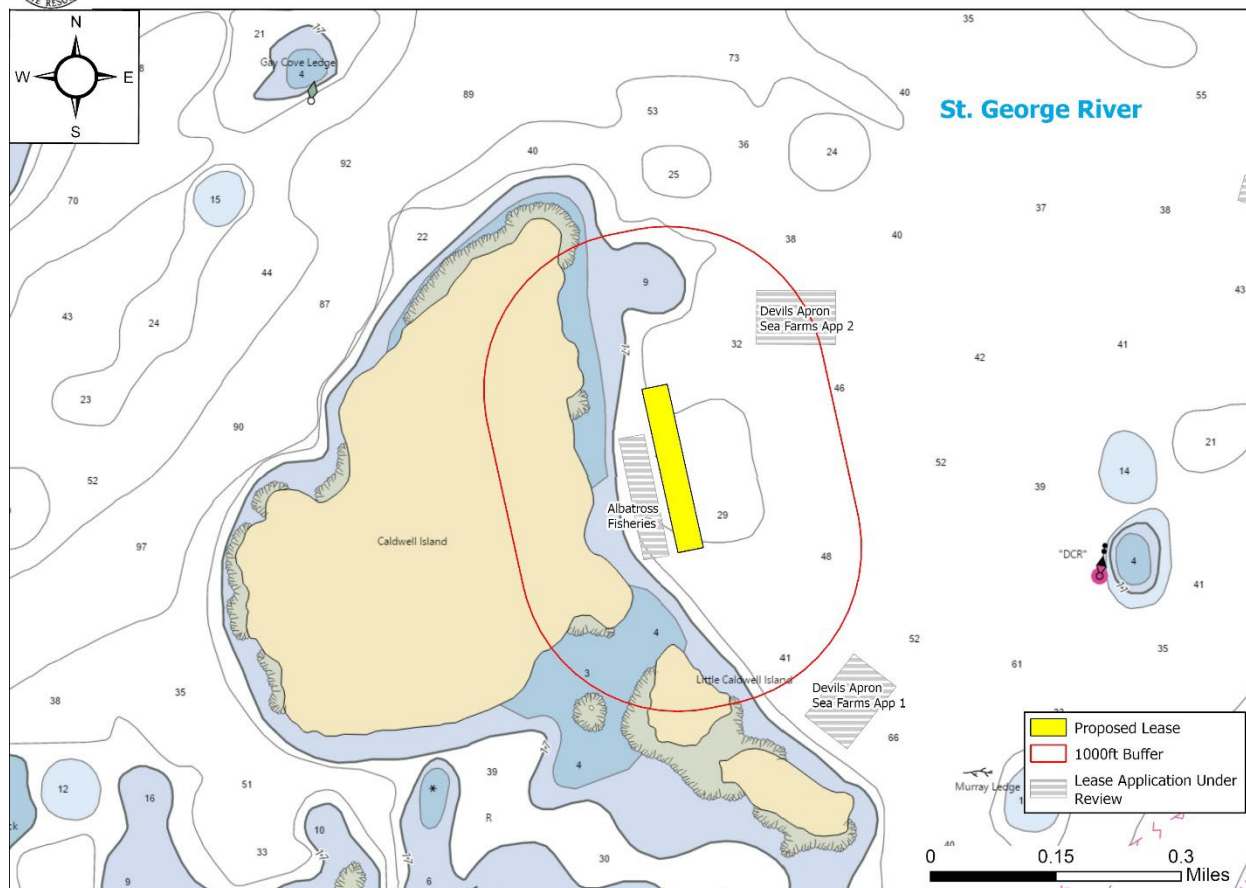


Figure 4. Aquaculture applications under review by MDMR in the vicinity of the proposal.

(5) Existing System Support

Epibenthic Flora and Fauna

On August 23, 2024, MDMR scientists assessed the epibenthic ecology of the proposed lease via SCUBA. The relative abundance of epibenthic flora and fauna observed in the video footage is described below in Table 4.

Table 4. Species observed on underwater video footage.

Species Observed	Abundance
American Lobster (<i>Homarus americanus</i>)	Abundant
Sand shrimp (<i>Crangon septemspinosa</i>)	Common
Crab (<i>Cancer</i> spp)	Occasional
Kelp (<i>Saccharina latissima</i>)	Occasional



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Eelgrass (*Zostera marina*)

Records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) in 2023 indicate mapped eelgrass presence in the vicinity of the proposal. The nearest mapped eelgrass is approximately 286 feet west of the proposal (Figure 5).⁸ Eelgrass blades were observed drifting on the surface of the water in the vicinity of the proposal. Unattached eelgrass blades were observed drifting on the seafloor on underwater video footage within the proposal boundaries during MDMR's site visit. No eelgrass was observed attached to the seafloor within proposal boundaries.



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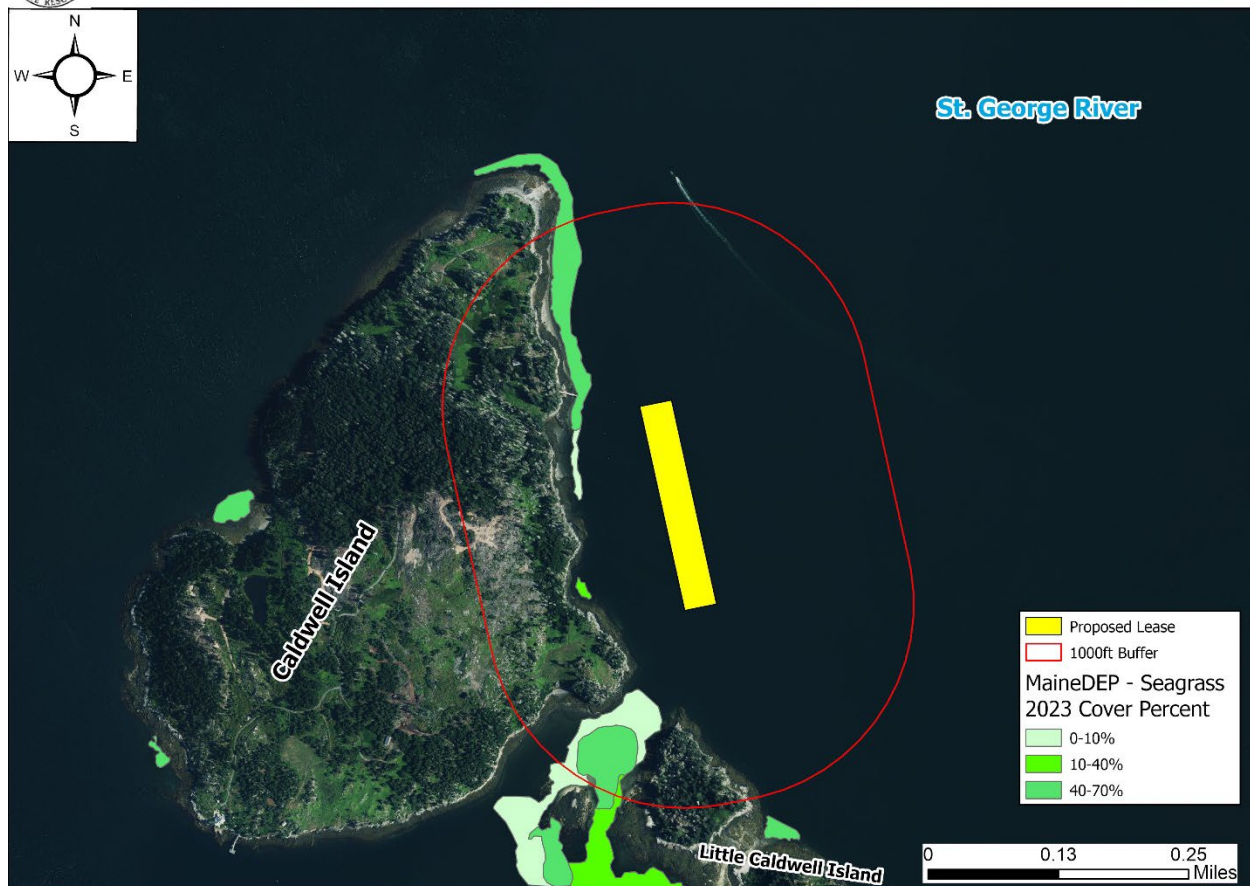


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

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

⁸ 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.



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proposed lease is located approximately 269 feet to the east of mapped Tidal Waterfowl and Wading Bird Habitat (TWWH). Data collected by the United States Fish and Wildlife Service in 2023 by aerial nest survey shows the closest mapped bald eagle nesting site to be approximately 711 feet west of the proposal (Figure 6).

During the site visit, MDMR scientists observed double-crested cormorants (*Nannopterum auritum*), osprey (*Pandion haliaetus*), black guillemot (*Cepphus grylle*), herring gull (*Larus argentatus*), laughing gull (*Leucophaeus atricilla*), and harbor seal (*Phoca vitulina*) in the general vicinity of the proposal.

On October 27, 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.⁹



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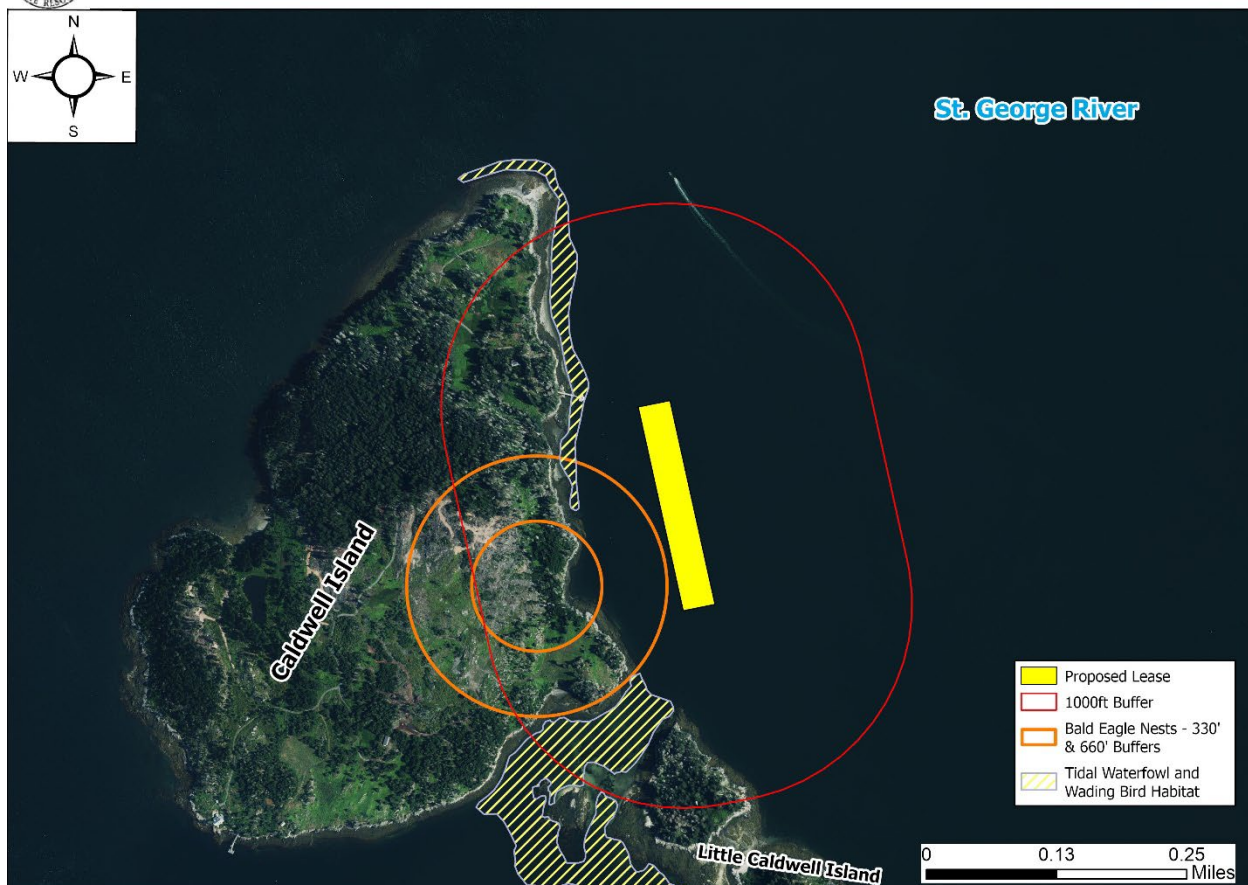


Figure 6. Mapped bald eagle nests and TWWH in the vicinity of the proposed lease area.¹⁰

⁹ Email correspondence between MDIFW and MDMR

¹⁰ Data obtained from USFWS “Bald_Eagle_Nests_-_Maine_2023” and MDIFW maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”



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(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 currently located within an area classified as Approved by the MDMR Bureau of Public Health and Aquaculture.