

Figure 1. Vicinity map.¹

Location: Turkey Cove, St. George River, St. George, Knox County, Maine

Purpose: Experimental lease for the bottom culture of American/Eastern Oyster (*Crassostrea virginica*).

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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.



Maine Department of Marine Resources Site Report

Jeffrey Schroeder
Turkey Cove, St. George River
St. George

Application Overview

The applicant, Jeffrey Schroeder, is requesting 2.0 acres in Turkey Cove in the St. George River for the bottom culture of American oysters (*Crassostrea virginica*). The applicant plans to conduct seeding and harvesting activities from April through December. The proposed lease will not be routinely tended from January through March.²

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 7:40 AM. Turkey Cove, which surrounds the proposed site, consists of a rocky, seaweed covered coastline with patches of gravely mud that leads into forested uplands.

Depth

MDMR staff began collecting depths at the proposed site shortly after low tide at approximately 7:40AM. Measured depths at corners of the proposed lease site ranged from 1.8 to 5.7 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 0.9 to 4.8 feet (Table 1). During the site visit, an intertidal rock approximately three feet across was observed in the northeast corner of the proposal (Image 1). The water surrounding the observed rock was entirely subtidal.



Image 1. Intertidal rock observed during MDMR site visit.

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Table 1. Predicted tidal heights in Port Clyde, Maine.³

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 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 composed of mud and shell substrate.

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 Oyster Rubble Mussel 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 2).

Application Coordinates (WGS84) – 2.0 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.959684°	-69.260305°	then 301.9 feet at 072° True to
NE	43.959943°	-69.259216°	then 190.5 feet at 150° True to
SE	43.959488°	-69.258860°	then 352.6 feet at 221° True to
SW	43.958761°	-69.259743°	then 367.6 feet at 336° True to NW

³ <https://www.ussharbor.com/harbor/maine/port-clyde-me/tides/?tide=2023-10#monthly-tide-chart>



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

Feature	Distance
NE corner to northeast shoreline of Turkey cove MLW	~9.6' to the north
SE corner to northeast shoreline of Turkey cove MLW	~10.6' to the southeast
SW corner to southwest shoreline of Turkey Cove at MLW	~1086.2' to the southwest
NW corner to southwest shoreline of Turkey Cove at MLW	~1,139.6' to the southwest



Jeffrey Schroeder (Bottom Culture) - Turkey Cove, St. George

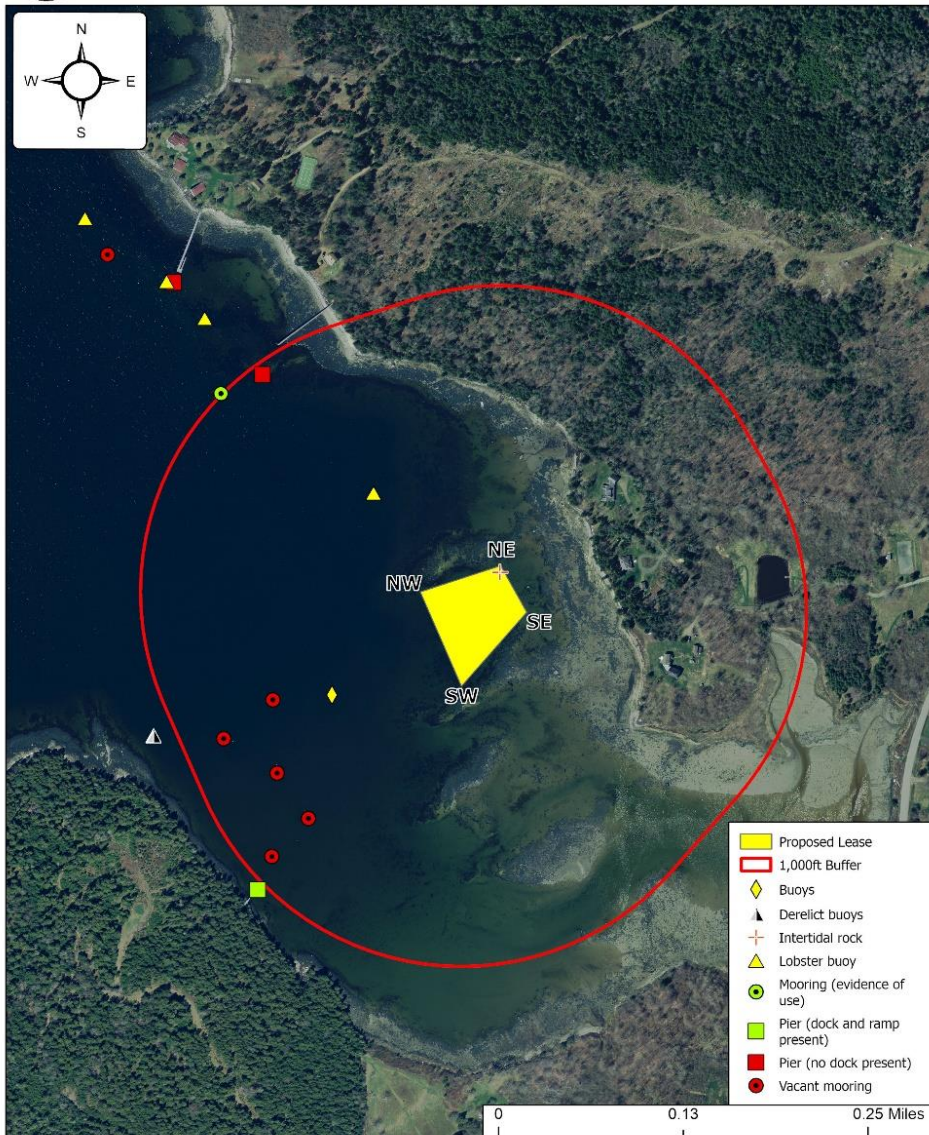


Figure 2. Proposed lease area with site visit observations.



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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 five vacant moorings within 1,000 feet of the proposed lease. The mooring nearest to the proposed lease site was located approximately 637.3 feet to the southwest. MDMR scientists observed one pier with a dock and ramp present, located 1,028.8 feet to the southwest of the proposed site. MDMR scientists also observed two piers on Turkey Point northwest of the proposed site. At the time of the site assessment, there was no associated dock or ramp observed connected to the piers. Based on the time of year the site visit occurred (late fall), it is likely these docks were removed for overwintering and are in use seasonally. One pier was 959.9 feet northwest of the proposed site and the other was over 1,000 feet away from the proposal.

A Harbormaster Questionnaire was completed by the local harbormaster and submitted to the MDMR Aquaculture Division on June 7, 2023. The harbormaster indicated that the proposed lease should not impact riparian ingress and egress.

(2) Navigation

The proposal is located within Turkey Cove approximately 2,760 feet to the east of the navigational channel (Figure 3). While Turkey Cove is not part of the main navigational channel, there are riparian landowners within the cove who may navigate to and from their property. If the proposal is granted, there would be approximately 1,086.15 feet of navigable water to the west of the site at MLW. During MDMR's site visit, no vessel traffic was observed.

The harbormaster indicated in the Harbormaster Questionnaire that the proposed lease should not impact navigation in the area of the proposal.

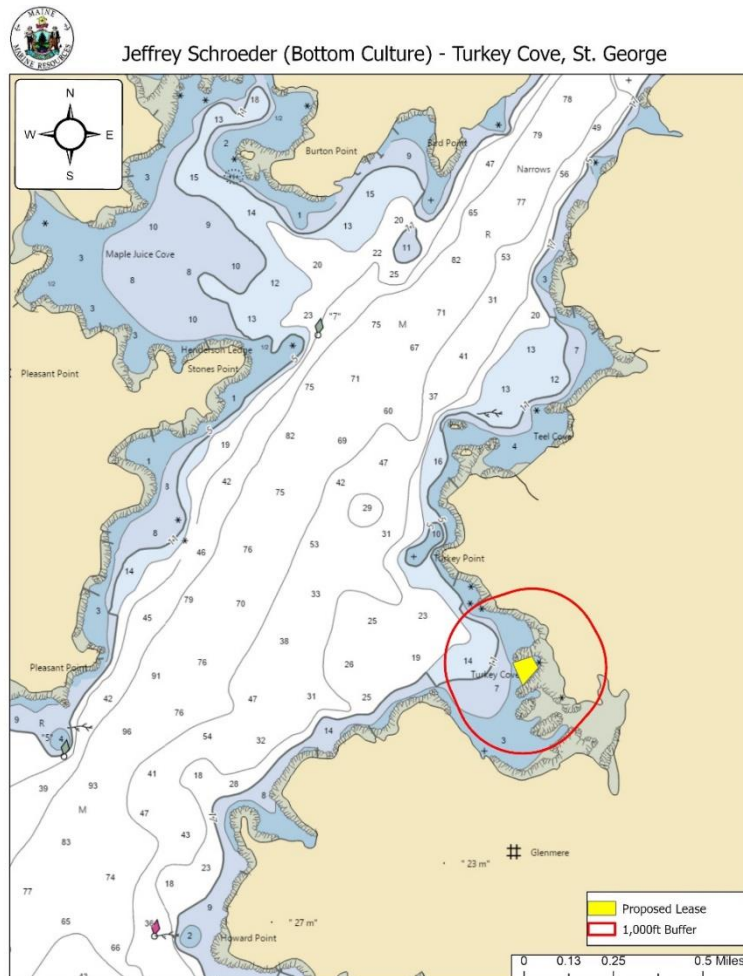


Figure 3. Navigational channels in the vicinity of the proposed lease area.

(3) Fishing and Other Uses

During the site visit, MDMR scientists observed one lobster buoy within 1,000 feet of the proposal approximately 393.5 feet to the north. Three additional lobster buoys were observed within Turkey Cove (Figure 2) and moderate lobster fishing was observed to the west of the proposed site. Additionally, during the site visit, MDMR scientists observed a group of buoys identified as “buoys” in Figure 2. The buoys were black and non-descript. No aquaculture gear was observed attached to it, but it is possible the buoys were associated with one of the Limited Purpose Aquaculture (LPA) licenses in the general area (JSCH1022 or JSCH1122).

The harbormaster indicated in the Harbormaster Questionnaire that there is very little commercial and recreational fishing within the area of the proposed lease.



(4) Other Aquaculture Uses

There are no active aquaculture leases within 1,000 feet of the proposal. There are four Limited Purpose Aquaculture (LPA) licenses within 1,000 feet of the proposal (JSCH922, JSCH1022, JSCH1122, and TSCH522). The nearest LPA is located approximately 318.9 feet to the southeast of the proposed lease. The applicant holds three of the LPAs (JSCH922, JSCH1022, and JSCH1122). The fourth LPA, TSCH522, is licensed to the applicant’s wife (Figure 4).

The applicant, Jeffrey Schroeder, has an additional pending experimental lease application located approximately 593 feet southwest of this proposal. The application was deemed complete by MDMR on February 13, 2023. All four LPAs mentioned above are within the footprint of the applicant’s other pending proposal and would be relinquished if the other proposal is granted.⁴

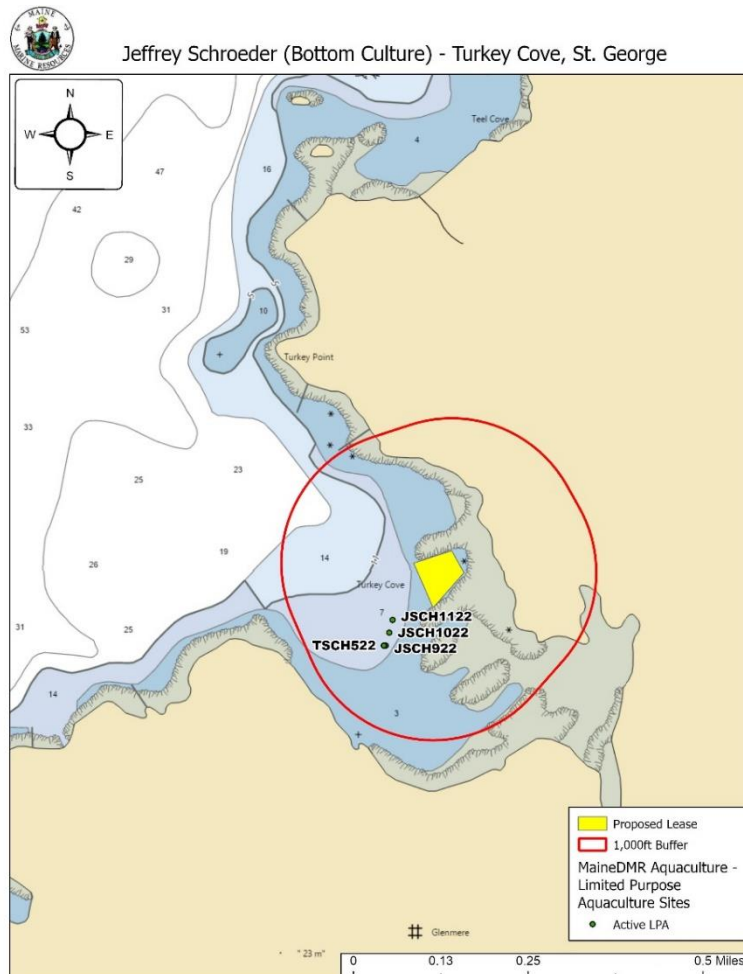


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.

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(5) Existing System Support

Epibenthic Flora and Fauna

On October 18, 2023, 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 transect is described below in Table 4.

Table 4. Species observed using underwater camera footage.

Species Observed	Abundance
Blue Mussel (<i>Mytilus edulis</i>)	Rare
Rock Crab (<i>Cancer irroratus</i>)	Common
Green crab (<i>Carcinus maenas</i>)	Common
Bladder Wrack (<i>Fucus vesiculosus</i>)	Rare
Pancake batter tunicate (<i>Didemnum vexillum</i>)	Occasional
Rockweed (<i>Ascophyllum nodosum</i>)	Common
Jonah crab (<i>Cancer borealis</i>)	Rare
Periwinkle (<i>Littorina spp.</i>)	Common
Slipper snail (<i>Crepidula spp.</i>)	Occasional
Sponge (<i>Halichondria sp.</i>)	Rare
Rough Barnacle (<i>Balanus balanus</i>)	Common
Hermit Crab (<i>Pagurus spp.</i>)	Common
Flounder (Order, Pleuronectiformes)	Rare

Eelgrass (*Zostera marina*)

Records of eelgrass collected by the Maine Department of Environmental Protection (MDEP) in 2023 indicate mapped eelgrass presence within and in the vicinity of the proposal. The proposed lease encompasses half of a mapped 1.27-acre eelgrass patch. There are additional mapped eelgrass patches located in the vicinity of the proposal (Figure 5).

MDMR scientists confirmed the presence of rooted eelgrass within the proposal boundaries during the site visit on October 18, 2023. Rooted eelgrass was observed near the southwest corner and center of the proposal (Figure 5). Eelgrass observed in the SW corner of the proposal was dense, rooted to the seafloor, and measured approximately 10 x 10 feet in area (Image 2). Eelgrass observed near the center of the proposal was sparse to moderate in density and rooted to the seafloor (Image 3). Water depth in this area is approximately 0.9 to 4.8 feet at MLW. MDMR scientists noted that the observed eelgrass had begun its seasonal senescence.

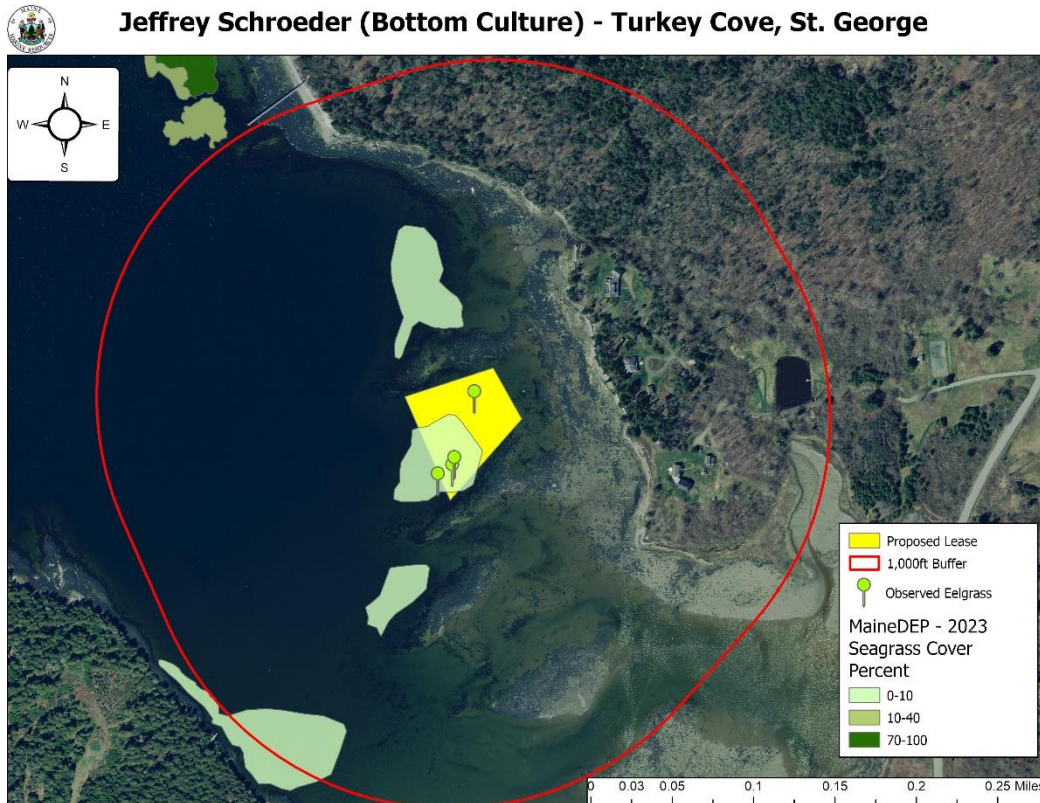


Figure 5. Mapped and observed eelgrass (*Z. marina*) in the vicinity of the proposal.



Image 2. Observed eelgrass in the SW corner of the proposal.



Image 3. Observed eelgrass near the center of the proposal.

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 148.5 feet within 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 shows the closest mapped bald eagle nesting site to be approximately 2.1 miles northwest of the proposal.

On July 17, 2023, a Wildlife Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” stating that the proposed lease is within Tidal Waterfowl and Wading Bird Habitat as well as a Shorebird Area; both of which are considered Significant Wildlife Habitat. It is MDIFW’s recommendation that this lease not be located within these resources.⁵

During MDMR’s site visit, scientists observed double-crested cormorants (*Nannopterum auritum*), herring gulls, (*Larus argentatus*), osprey (*Pandion haliaetus*), Canadian goose (*Branta canadensis*), common loon (*Gavia immer*), rock crabs (*Cancer irroratus*), and scoter (*Melanitta sp.*) in the general vicinity of the proposal.

⁵ Email correspondence between MDIFW and MDMR

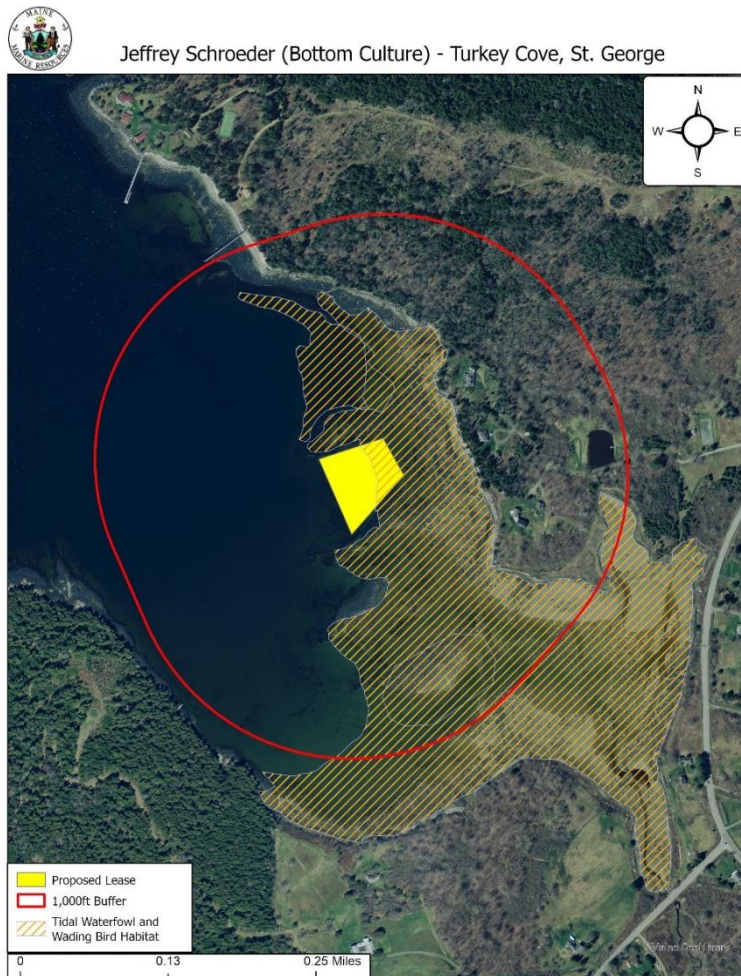


Figure 6. Tidal Waterfowl and Wading Bird Habitat. ⁶

(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.

⁶ Data obtained from USFWS “Bald_Eagle_Nests_-_Maine_2023” and MDIFW maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”