

Figure 1. Vicinity map.¹

Location: Blackstone Narrows, Upper Damariscotta River, Newcastle, Lincoln County, Maine

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

Site Review: Geoffrey Shook, Molly Waters

Report Preparation: Geoffrey Shook, Meryl Grady, 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 ESRI World Imagery (Firefly).



Application Overview

The applicant, George Faux Inc (DBA Great Salt Bay Oyster Company), is requesting a 1.66² acre standard lease in an area locally known as Blackstone Narrows south of Great Salt Bay in the Damariscotta River for the suspended culture of American/Eastern oysters (*Crassostrea virginica*). The applicant currently operates experimental leases DAM GPx and DAM GP2x within the same footprint of the proposed standard lease area. This proposal combines the two experimental leases with no modification to the footprint of the existing experimental leases. The applicant intends to keep gear on site year-round but plans to sink cages to the bottom beginning in November and ending in March. Work floats would also be removed during this time. Gear is intended to be on the surface at the site from March to November.³

General Characteristics

On August 1, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 12:00 PM. The southern shoreline of Blackstone Narrows is uninhabited. The shoreline in this area is a mixture of cobbles and boulders leading to mossy, mixed forest uplands. State Route 1 is nearby and a bridge over the Damariscotta River is approximately 925 feet to the southeast and is visible from the proposal. The southern corner of the proposal is approximately ten feet north of the shoreline at mean high water (MHW) and the northern boundary of the proposal is approximately 240 feet south of a point of land in Blackstone Narrows at MHW.⁴ There is a residential area to the northwest of the proposal along the northern shore of Blackstone Narrows. The shoreline in this area is a mixture of cobble and mud with grass and mixed forest uplands. On January 5, 2024, MDMR scientists revisited the site to confirm water depths at the southwest (SW) and Midwest (MW) corners, which are the two corners closest to shore. (Figure 2). MDMR scientists also measured the tidal range in Blackstone Narrows between locally observed high and low tide on January 5, 2024.

Depth

On August 1, 2023, MDMR scientists began collecting depths at the proposed site at approximately 12:34 PM. According to the nearest tidal station, approximately one mile downriver in Newcastle, the tide was falling with the next low tide predicted at 5:35 PM (Table 1). However, due to the geography of the river and natural restrictions downstream, MDMR scientists observed that the tide was still in the flood stage upon arrival. Therefore, MDMR scientists collected depths around the locally observed high tide. Depths were determined to be between 3-24.9 feet (Table 2). Correcting for tidal variations derives depths to be from 0 to 20.5 feet at mean low water (MLW). According to derived depths, the southern corner marker closest to shore, MW, is intertidal. All other corners are subtidal at MLW (Table 2).

² Applicant originally requested 1.8 acres. MDMR calculations indicate the area is 1.66 acres.

³ Application page 8

⁴ Navigational charts for this area do not show mean low water (MLW) contours so mean high water (MHW) is used as a reference.



On January 5, 2024, MDMR scientists revisited the proposed site to verify derived water depths. MDMR scientists began collecting depth measurements at 2:12 PM, approximately 1.25 hours before locally observed low tide. Upon completion of the second site visit on January 5, 2024, it was confirmed that corner MW is located within the intertidal.

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

Date	Time	Height (ft)
2023/08/01	5:29 AM	-0.9 L
2023/08/01	11:34 AM	9.5 H
2023/08/01	5:35 PM	0.0 L
2023/08/01	11:44 PM	11.6 H
2024/01/05	5:42 AM	8.6 H
2024/01/05	12:09 PM	1.6 L
2024/01/05	6:12 PM	7.7 H

Table 2. Depths recorded during MDMR site visit on August 1, 2023.

Corner	Recorded Depth (ft)	Derived MLW Depth (ft)
A	18.7	14.3
B	24.9	20.5
C	13.5	9.1
D	11.1	6.7
MW	3	0
NE	17.1	12.7
NW	14.5	10.0
SW	5.1	0.7

Bottom Characteristics

MDMR scientists observed the bottom characteristics of the proposed lease site via two drop camera transects (Figure 2). Bottom characteristics were categorized using the Coastal and Marine Ecological Classification Standard (CMECS), a national standard for describing features of the marine environment (Table 3). Sediment information was determined based on visual analysis of the video. The bottom of the lease site is primarily composed of gravel, cobble, and shell rubble with occasional boulders. Clam rubble appeared to be primarily composed of quahogs (*Mercenaria mercenaria*), razor clams (*Ensis directus*), and American/eastern oysters (*Crassostrea virginica*).

⁵ <https://www.us harbors.com/harbor/maine/newcastle-me/tides/>



Table 3. Bottom characteristics of the proposed site.

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group	Substrate Subgroup
Geologic Substrate	Unconsolidated Mineral Substrate	Course Unconsolidated Substrate	Gravel	N/A
Geologic Substrate	Unconsolidated Mineral Substrate	Course Unconsolidated Substrate	Gravel	Boulder, Cobble
Geologic Substrate	Unconsolidated Mineral Substrate	Course Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Muddy Sand
Biogenic Substrate	Shell Substrate	Shell Rubble	Clam Rubble Oyster Rubble	N/A

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 ESRI world imagery, NOAA nautical charts, and the application coordinates (Table 4, Figure 2).

Application Coordinates (WGS84) – 1.66 Acres

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
A	44.045853°	-69.518781°	then 218.4 feet at 78° True to
B	44.045972°	-69.517967°	then 391.8 feet at 99° True to
C	44.045819°	-69.516492°	then 497.0 feet at 258° True to
D	44.045539°	-69.518342°	then 56.4 feet at 281° True to
SW	44.045567°	-69.518553°	then 53.5 feet at 265° True to
MW	44.045556°	-69.518756°	then 260.1 feet at 307° True to
NW	44.045986°	-69.519544°	then 84.9 feet at 36° True to
NE	44.046172°	-69.519350°	then 189.5 feet at 129° True to A



Table 4. Approximate distances from proposal corners to surrounding features (Figure 2).⁶

Feature	Distance
Corner B to southern tip of peninsula in Blackstone Narrows	~240 feet to the north
Corner MW to nearest shoreline MHW	~15 feet to the south
Corner NE to point of land at southern entrance to Great Salt Bay MHW	~195 feet to the west-northwest
Corner C to Blackstone Narrows northern shoreline MHW	~630 feet to the northeast
Corner C to Route 1 Bridge	~925 feet to the southeast

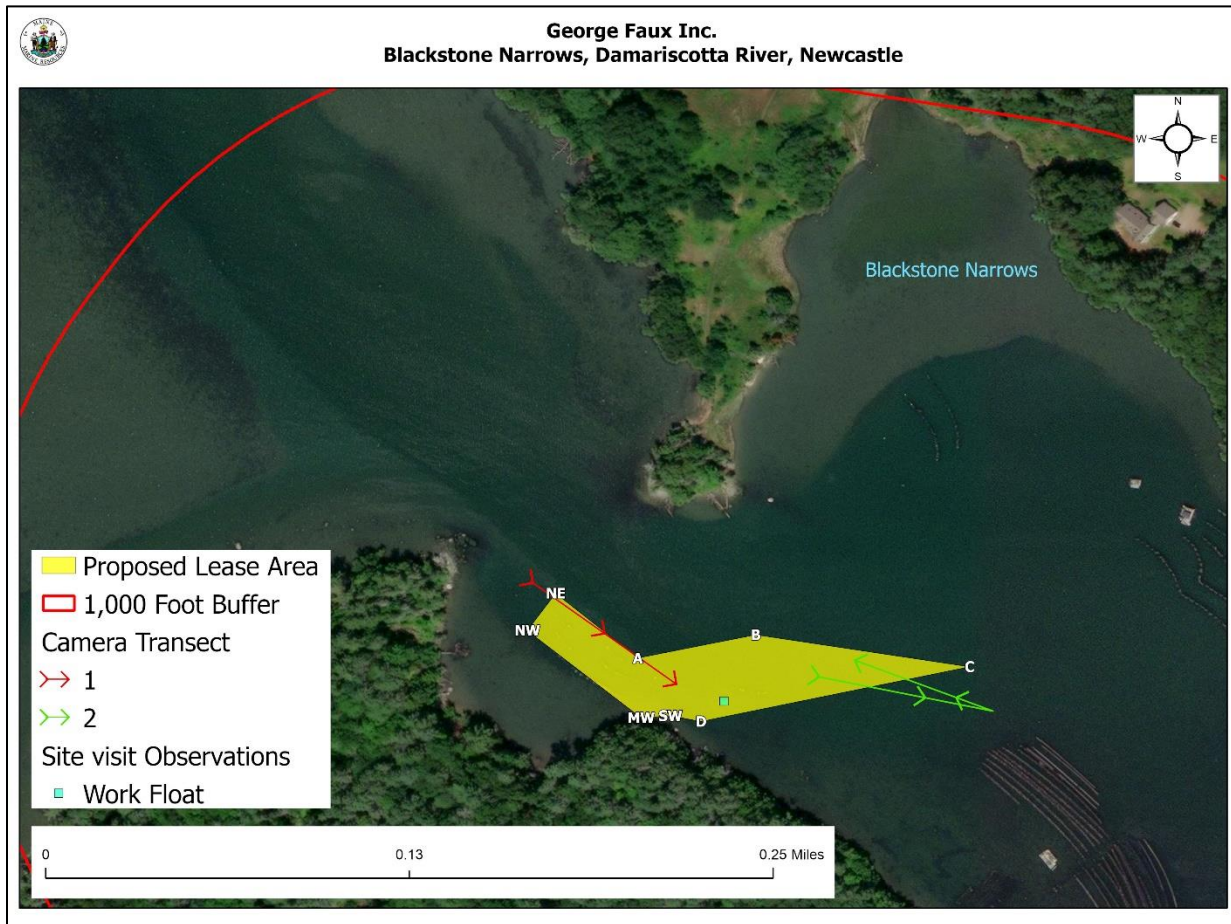


Figure 2. Proposed lease area with site visit observations.

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:

⁶ Navigational charts for this area do not show mean low water (MLW) contours so mean high water (MHW) is used as a reference.



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(1) Riparian Ingress and Egress

During MDMR's site assessment, scientists observed a residential area along the northern shoreline of the Blackstone Narrows approximately 630 feet to the northeast of the proposal. MDMR scientists observed two houses during the site assessment. Aerial imagery indicates that these houses are approximately 750 feet and 825 feet from the proposed lease. During MDMR's site assessment, scientists did not observe any piers, docks, stairs, or other structures used for shoreline access.

(2) Navigation

The proposal is located along the southwestern shoreline of Blackstone Narrows adjacent to a narrow passage that separates Blackstone Narrows from Great Salt Bay. There is approximately 240 feet of water at MHW between the northern boundary of the standard lease proposal and the tip of the peninsula to the north. The nearest navigation channel marker is over 1.5 miles downriver (Figure 3). Due to natural constraints and rapids downriver, powered vessels are not common in the area. During MDMR's site assessment, scientists observed two kayakers operating over 1,000 feet to the northwest of the lease in Great Salt Bay.

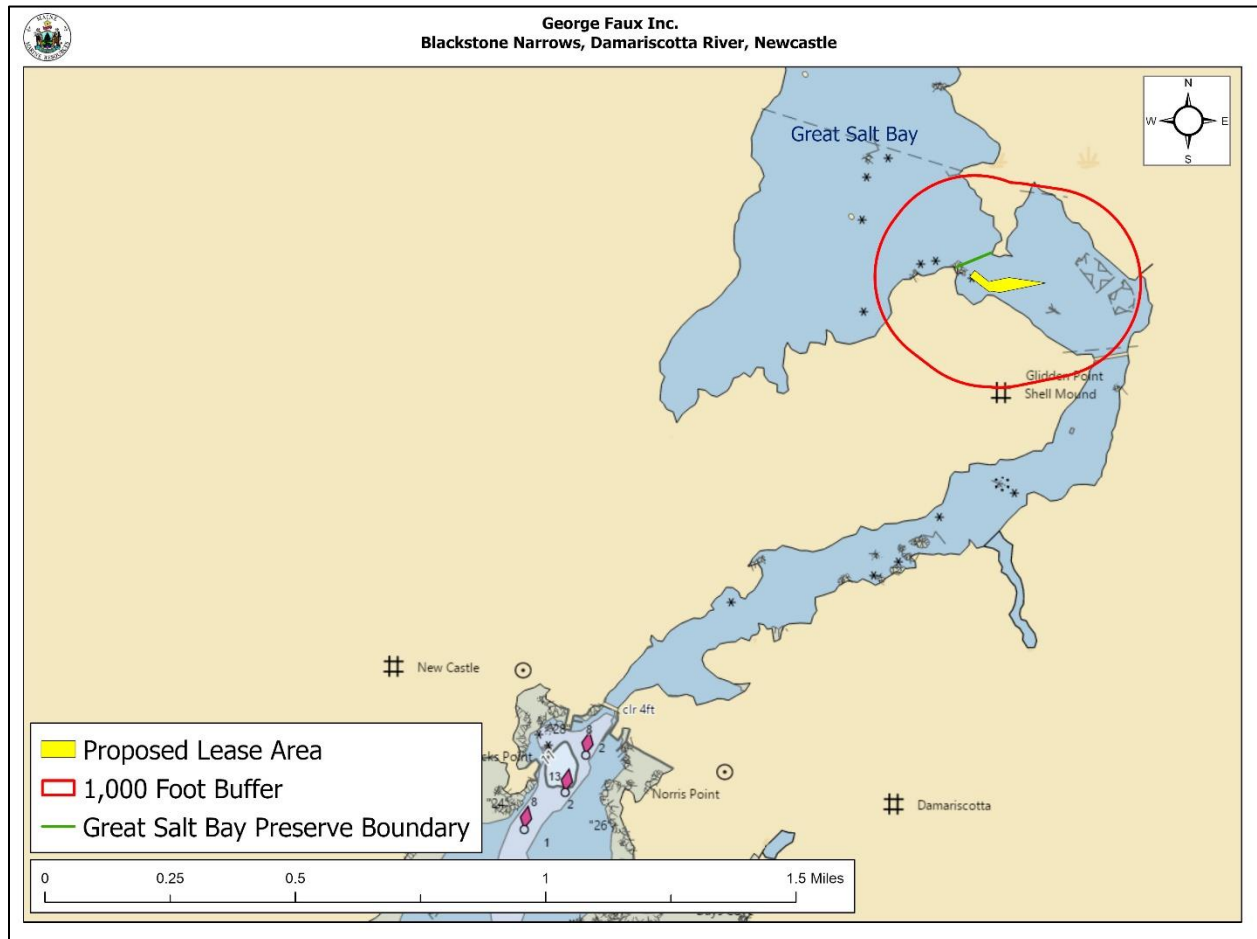


Figure 3. Navigational channels in the vicinity of the proposed lease area including the Great Salt Bay Preserve Boundary.

(3) Fishing and Other Uses

In accordance with 12 M.R.S.A. §6961 a portion of the Great Salt Bay, located to the north of the proposed lease, is designated a marine shellfish preserve (Figure 3). The harvesting of any shellfish species and other harvesting activities involving bottom disturbance are generally prohibited in the area designated a marine shellfish preserve. During MDMR's site assessment on August 1, 2023, no commercial or recreational fishing activity was observed within the boundaries or within 1,000 feet of the proposed lease.



(4) Other Aquaculture Uses

The applicant currently operates experimental leases DAM GPx and DAM GP2x within the boundaries of this proposal. This standard lease proposal is intended to replace both DAM GPx and DAM GP2x. There are three other active aquaculture leases within 1,000 feet of the proposal. DAM GS2 is leased to Muscongus Bay Aquaculture, Inc. and is approximately 80 feet to the south of the proposal. DAM BN is approximately 416 feet to the east and is leased to Johns River Shellfish, LLC. DAM BP is approximately 915 feet to the north of the proposal and is leased to the Coastal Rivers Conservation Trust. There are four limited purpose aquaculture (LPA) licenses within 1,000 feet of the proposed lease site – AGRO123, BPAR216, BPAR422, and KATW117.

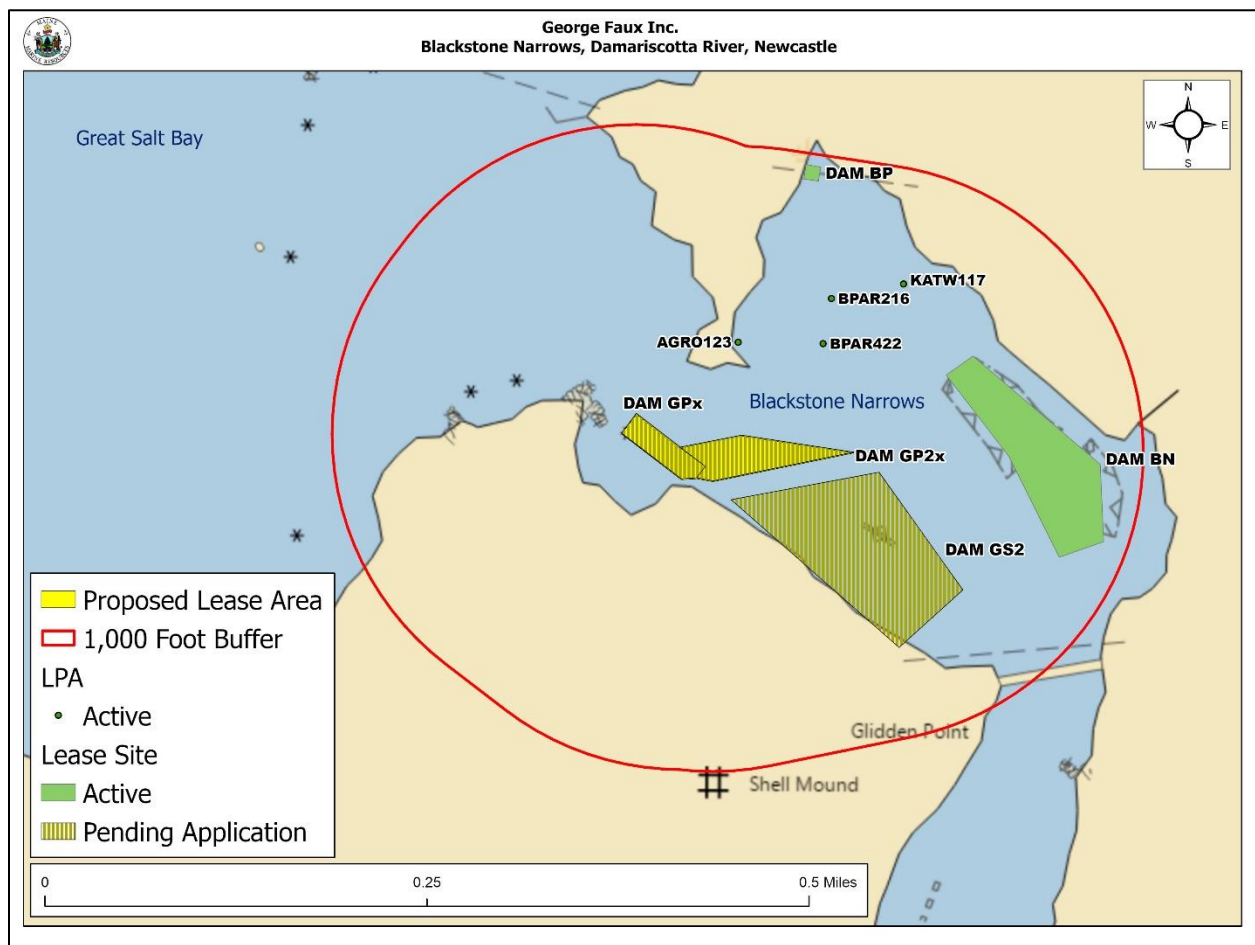


Figure 4. Aquaculture leases and LPA licenses in the vicinity of the proposed lease area.



(5) Existing System Support

Epibenthic Flora and Fauna

MDMR scientists conducted two drop camera transects 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 5.

Table 5. Species observed using underwater camera footage.

Species Observed	Abundance
Bladderwrack (<i>Fucus sp.</i>)	Occasional
Crab (<i>Cancer spp.</i>)	Occasional
<i>Ulva lactuca</i>	Common
Tunicate colonies (<i>Didemnum vexillum</i>)	Common
Red leafy algae spp.	Common
Sponge colonies	Occasional
Eelgrass (<i>Zostera marina</i>)	Occasional
Horseshoe crab (<i>Limulus polyphemus</i>)	Rare



Eelgrass (*Zostera marina*)

Historical records of eelgrass collected by MDMR in 2010⁷ indicate the presence of eelgrass within 1,000 feet of the proposal, directly adjacent to the proposal and potentially inside the lease boundaries near the southern corner (Figure 5). MDMR scientists observed detached eelgrass floating on the surface throughout the site tangled in much of the surface gear related to the experimental lease currently in operation (Image 1). Underwater footage collected during MDMR's site assessment indicated sporadic, sparse, individual blades of eelgrass attached to the bottom throughout the site inside the proposal boundaries and immediately adjacent to the proposal (Image 2).

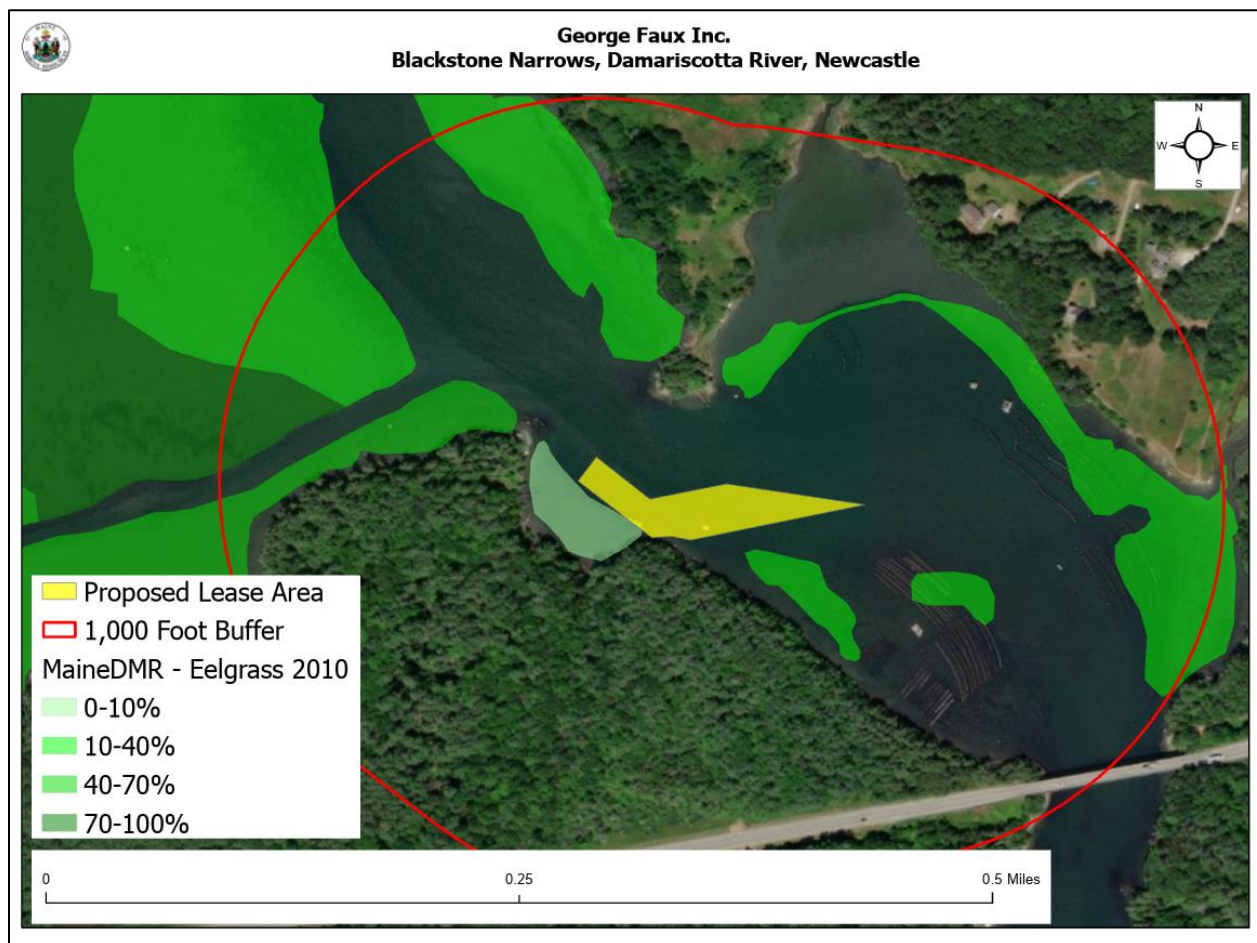


Figure 5. Mapped eelgrass (*Z. marina*) in the vicinity of the proposed lease area.

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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Image 1. Eelgrass observed tangled in surface gear during MDMR's site assessment.



Image 2. Typical attached eelgrass blade observed during MDMR's site assessment.



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), tidal waterfowl and wading bird habitat is approximately 245 feet to the north and northwest of the proposal. 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 1,700 feet northwest of the proposal (Figure 6).

On February 15, 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

During MDMR’s site assessment, scientists observed double-crested cormorants (*Nannopterum auritum*), common terns (*Sterna hirundo*), Canada goose (*Branta canadensis*), herring gulls (*Larus argentatus*), a bald eagle (*Haliaeetus leucocephalus*), and a hawk (*Buteo sp.*) in the vicinity of the proposed lease.

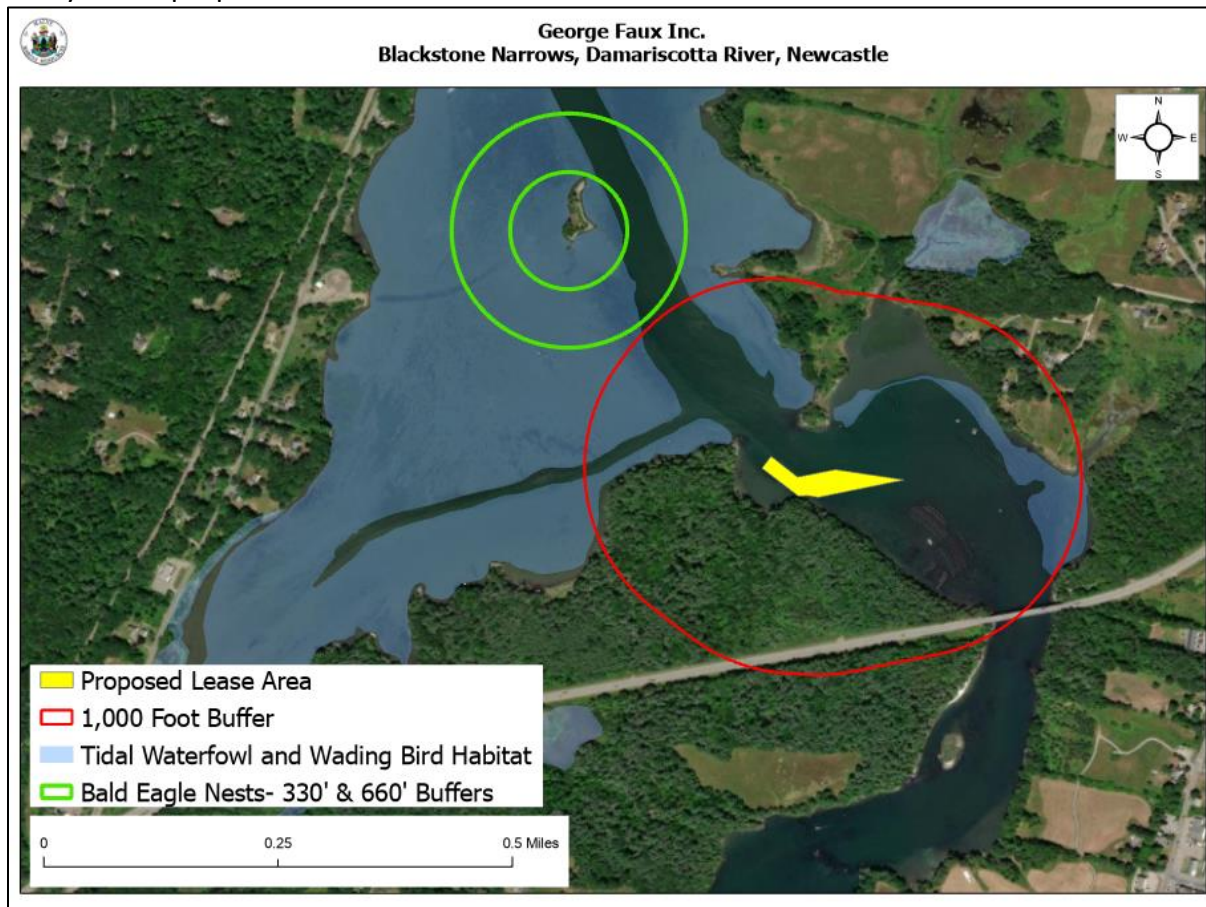


Figure 6. Mapped bald eagle nests and tidal waterfowl and wading bird habitat.⁹

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).

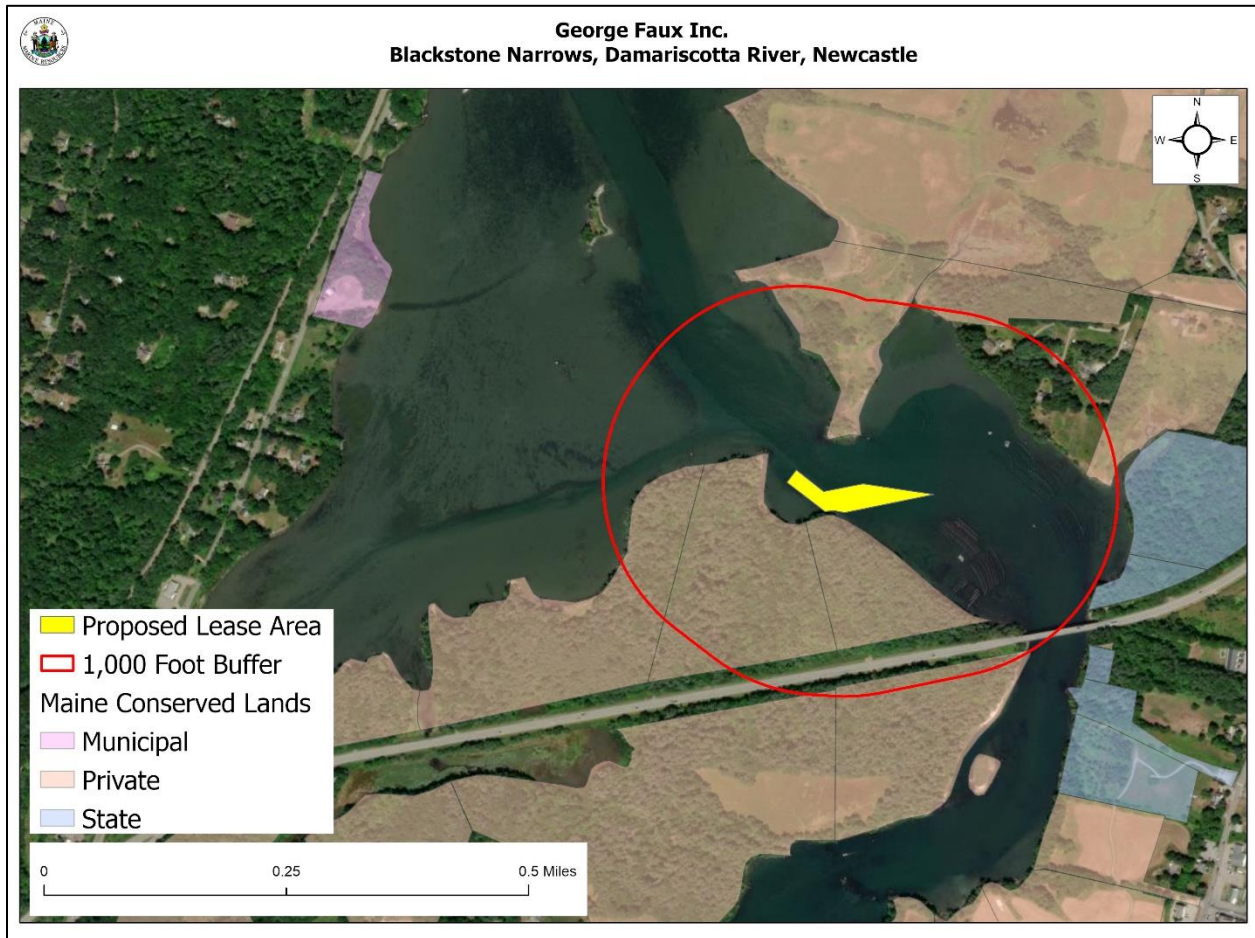


Figure 7. Public facilities near the proposed lease site.¹⁰

(7) Water Quality

The proposed lease is currently located within an area classified as Conditionally Approved for the harvest of shellfish by the MDMR Bureau of Public Health and Aquaculture. The area is conditional on the proper functioning of the Great Salt Bay Wastewater Treatment Plant.

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



Intertidal Site

Given the calculated depths at MLW (see page 2 and 3 of this report), MDMR scientists revisited the proposed lease site on January 5, 2024, around low tide, to assess whether a portion of the site was intertidal. The January 5, 2024, assessment confirmed that the MW corner of the applicant's original proposal is located within the intertidal. 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(s) to use the intertidal area. In addition, the Town of Newcastle 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 Newcastle.

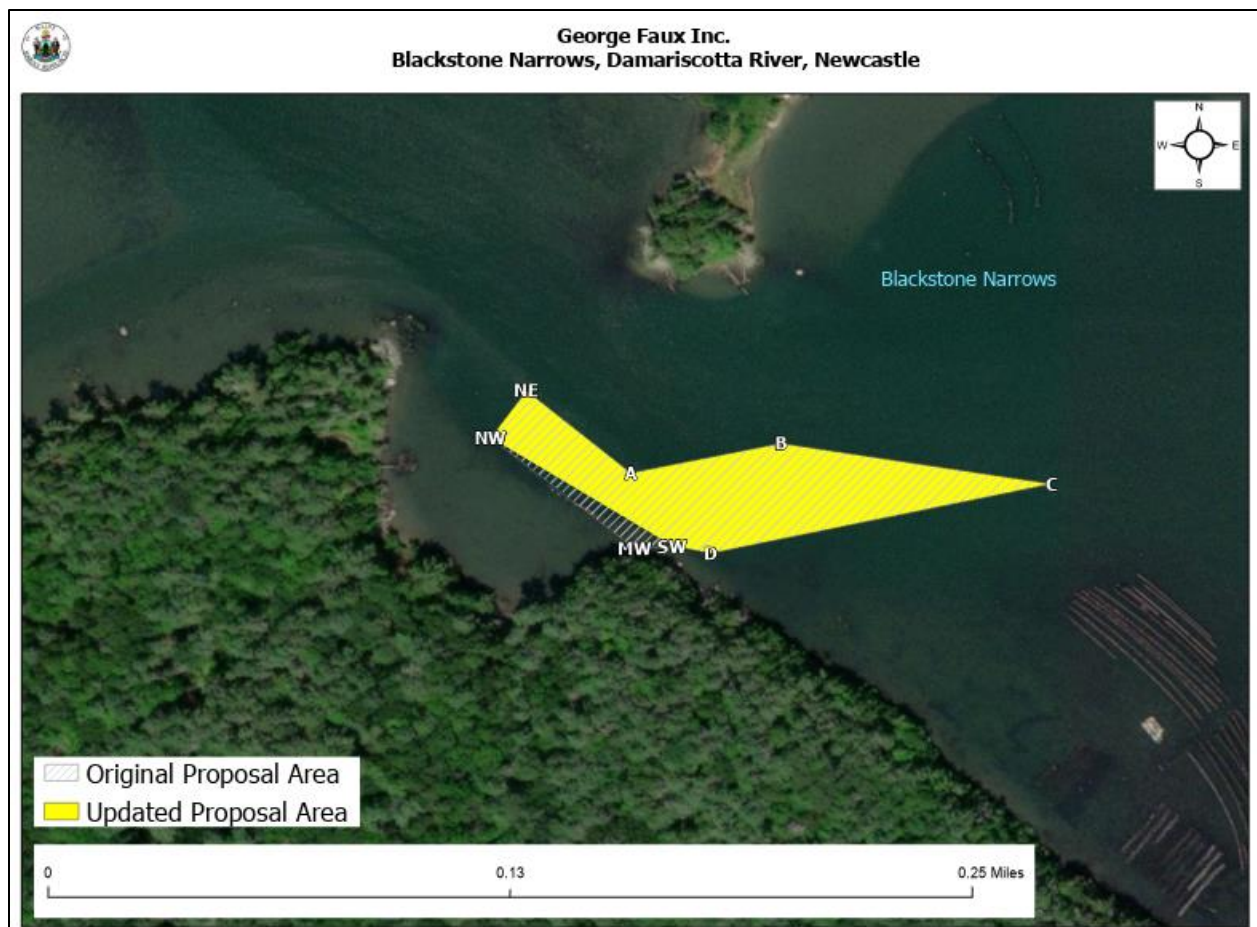


Figure 8. The original proposal overlaid with updated coordinates for the lease to be located entirely within subtidal waters.



**Maine Department of Marine Resources
Site Report**

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Updated Proposal Coordinates (WGS84) – 1.55 Acres

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