

Figure 1: Vicinity map¹

Location: East of Woodward Point, New Meadows River, Brunswick, Cumberland County, Maine

Purpose: Standard lease for the suspended and bottom culture of American/eastern oysters (*Crassostrea virginica*), European oysters (*Ostrea edulis*), sea scallops (*Placopecten magellanicus*), surf clams (*Spisula solidissima*), and hard clams (*Mercenaria mercenaria*)

Site Review by: Flora Drury and Cheyenne Adams

Report Preparation by: Cheyenne Adams, Marcy Nelson, and Flora Drury

Report Completed: May 28, 2021

¹All figures in this report were created in ArcMap version 10.6 using digitized NOAA Nautical Charts or geo-referenced aerial photographs provided by The Maine Office of GIS (orthoCoastalCascoBay2018).

Application Overview

The applicant, NICE Oyster Company, LLC, is requesting 4.49 acres east of Woodward Point, in the New Meadows River, for the suspended culture of shellfish.² The proposed standard lease, if granted, would replace and expand the existing experimental lease NMR WPx. The applicant requests to culture oyster, scallops, and clams using floating mesh bags (30”L x 22”W x 4”H) and seed boxes (24”L x 18”W x 3”H), lantern-style nets (30”L x 24”W x 10”H), and bottom cages (40”H x 48”L x 32”W) and trays (36”W x 36”L x 4”H).³ A floating wooden work raft (approximately 10’W x 12’L x 1.3’H) would also be moored on either the southern end or western middle of the proposal.⁴ The floating mesh bags and seed boxes would be arranged in a total of 10 longlines, each 150 feet in length with 2 rows of 75 bags/trays on either side of the line. Lantern-style nets are proposed to be deployed on 2 longlines in the southwest quadrant of the lease, each 150 feet in length.⁵ Bottom planting of oysters and hard clams would occur in the late fall or early spring, and bottom planted shellfish would be harvested via snorkeling, SCUBA diving, bull raking, or tonging. All surface gear, including lantern-style nets, would be removed and shellfish would be transferred to bottom cages from December-March, with the exception of marker buoys.⁶

General Characteristics

Maine Department of Marine Resources (MDMR) Scientists Flora Drury and Cheyenne Adams visited the proposed lease site on May 5, 2021. MDMR staff arrived onsite at approximately 10 am; the tide was ebbing. The proposed lease area is located in subtidal water to the west of the New Meadows River’s marked navigation channel, which extends to the north and southeast of the proposal (Figure 1, Images 1-3). Farther to the east, across the navigation channel, is a tidally exposed sand bar known as Middle Ground, which bisects the upper segment of the New Meadows River (NOAA Nautical Chart, submerged during the MDMR site assessment which occurred near mid-tide). To the south and southeast are the largely undeveloped Iron, Bombazine, and Upper and Lower Coombs Islands (Image 4). Woodward Point is to the west of the proposal, which exhibits a rocky shoreline leading to mixed forest, lawn, and residential uplands (Images 5-7).

² Application, pages 1 and 3

³ Application page 6

⁴ Application, page 7

⁵ Application, page 34

⁶ Application, pages 6 and 10



Image 1. Looking north (upriver) toward Getchell's Ledge and the main navigation channel from near the proposed NW corner (May 5, 2021).



Image 2. Looking east across the main navigation channel toward the West Bath shoreline from near the proposed NW corner (May 5, 2021).



Image 3. Looking southeast (downriver) toward the main navigation channel from near the proposed NW corner (May 5, 2021).



Image 4. Looking south toward Iron, Bombazine, Lower Coombs, and Upper Coombs Islands from near the proposed NW corner (May 5, 2021).



Image 5. Looking southwest toward Iron Island and Woodward Point from near the proposed NW corner (May 5, 2021).



Image 6. Looking west toward the Woodward Point shoreline from near the proposed NW corner (May 5, 2021).



Image 7. Looking west toward the Woodward Point shoreline from near the proposed NW corner (May 5, 2021).

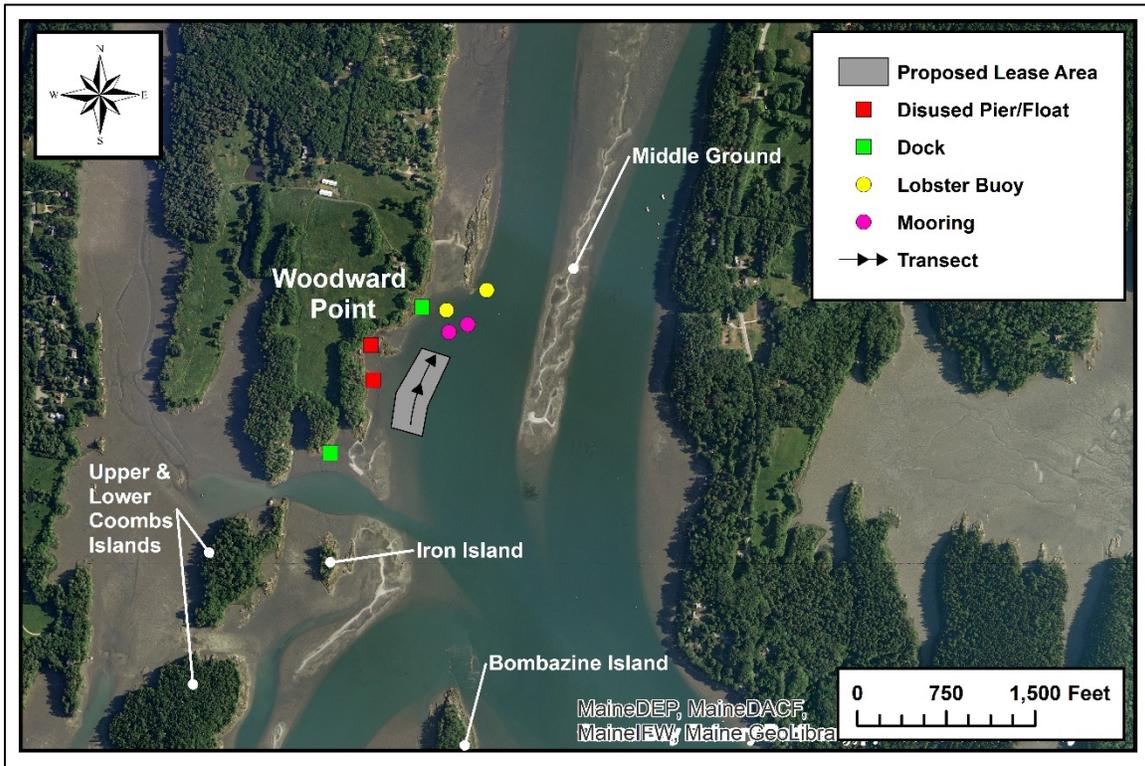


Figure 2: Drop camera transect through the proposed lease area and nearby docks, moorings, and lobster traps (May 5, 2021).

Depth

MDMR staff collected depths at approximately 10:00 am on May 5, 2021, using a transom mounted depth sounder. Water depths at the corners of the proposed tracts ranged from 8.6 to 19.6 feet, sloping deeper toward the proposed eastern boundary. Correcting for tidal range would derive water depths approximately 3.4 feet greater at the nearest high water (12-23 feet) on May 5, 2021. At mean low water (MLW, 0.0 feet) depths would vary between approximately 2.9 and 13.9 feet.

Table 1: Tide predictions at Howard Point, New Meadows River, ME (43.8900° N, 69.8833° W)⁷

Date	Time	Height (ft)
5/5/2021	12:50 AM	1.38 L
5/5/2021	7:00 AM	9.15 H
5/5/2021	1:31 PM	0.54 L
5/5/2021	7:47 PM	8.79 H

Bottom Characteristics

Soft mud composes the bottom of proposed lease. 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; no sediment samples were taken or grain size analysis performed. The dominant substrate type observed during the drop camera transect was soft mud.

⁷ <http://tbone.biol.sc.edu/tide/tideshow.cgi>

Table 2: Bottom characteristics of proposed site.

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group
Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Mud

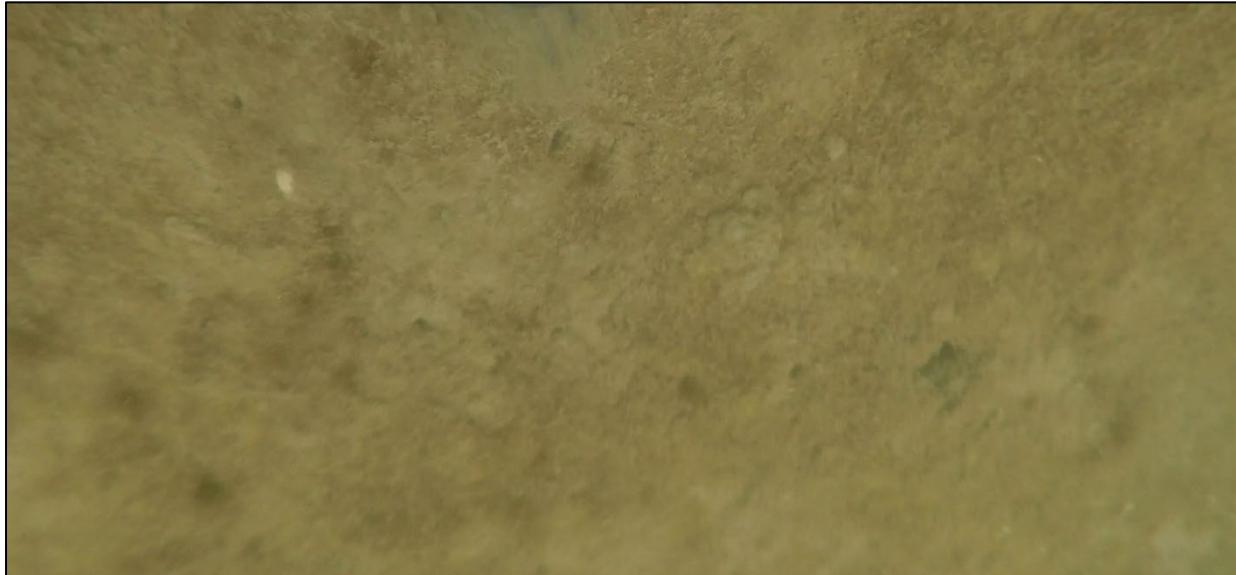


Image 8. Mud sediment on the bottom of the proposed lease site (May 5, 2021).

Position and Distances to Shore

The measuring tool and coordinate geometry (COGO) report tool in ArcMap 10.6 were used to verify the distances and bearings between proposed lease corners. Distances to shore were determined using the measuring tool in ArcMap 10.6, digital orthophotography provided by the Maine Office of GIS, and the application coordinates.

Application Coordinates (WGS84)– 4.49 Acres (Figure 2)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NW	43° 52' 16.27" N	69° 53' 54.82" W then 251.90 feet at 108.16° True to
NE	43° 52' 15.52" N	69° 53' 51.54" W then 454.48 feet at 204.98° True to
ME	43° 52' 11.43" N	69° 53' 54.10" W then 258.60 feet at 190.08° True to
SE	43° 52' 8.91" N	69° 53' 54.68" W then 272.55 feet at 285.91° True to
SW	43° 52' 9.62" N	69° 53' 58.27" W then 296.11 feet at 8.16° True to
MW	43° 52' 12.52" N	69° 53' 57.74" W then 435.68 feet at 34.49° True to NW.

Table 3: Approximate distances from proposed lease to surrounding features (Figures 1 & 2).⁸

Feature	Distance
NW-NE Boundary to nearest mooring	~200 feet to the north
NW-NE Boundary to Getchell's Ledge, nearest point (~MLW)	~590 feet to the north
NW Corner to nearest dock	~345 feet to the north
NW-MW Boundary to Woodward Point, nearest point (~MLW)	~140 feet to the west
MW-SW Boundary to Woodward Point, nearest point (~MLW)	~160 feet to the west
SW Corner to tidally exposed bar extending from Woodward Point, nearest point (NOAA Chart)	~150 feet to the southwest
SE Corner to Middle Ground, nearest point (~MLW)	~810 feet to the east
ME Corner to Middle Ground, nearest point (~MLW)	~850 feet to the east
NE Corner to Middle Ground, nearest point (~MLW)	~700 feet to the east

The criteria MDMR uses to determine the suitability of an aquaculture operation to a particular area (MDMR Regulations Chapter 2.37(1)(A)) are discussed, with respect to the proposal, below:

(1) Riparian Ingress and Egress

The proposed lease is in the New Meadows River, between the river's western shoreline and a tidally exposed sandbar known as Middle Ground, which is located in the middle of the river. The eastern shoreline of the New Meadows River is located over 1,700 feet from the proposed lease. Due to this distance, and the natural barrier created by Middle Ground, the proposed lease should not unreasonably interfere with the ingress and egress of riparian owners on the eastern shoreline.

On May 5, 2021 docks and moorings were present along the western shoreline of the New Meadows River, near the proposed lease site (Figure 2). No vessels were observed on the moorings nor at the docks. The closest dock to the proposed lease was located approximately 345 feet to the north; the closest observed mooring was located approximately 200 feet to the north of the proposal. MDMR also noted what appeared to be a disused pier and associated float to the west of the proposed lease site. If this structure were in use, accessing it from the main navigation channel would require navigating around the proposal to reach the river's western shoreline where it is located. However, the condition of this structure suggests that it is no longer functional. Considering the distances between the proposal and the other docks and moorings in the area, and their locations to the north and south of the proposal, it is unlikely that the proposed lease, if granted, would interfere with the use of these pieces of infrastructure. While landowners attempting to access the shoreline to the west of the proposal from the water would need to transit around proposed lease, there remains at least 160 feet of space between the proposal and Woodward Point to the west. This distance is likely sufficient for vessels capable of shore landing to navigate. Moreover, according to the Brunswick Harbormaster, riparian landowners would have sufficient room to access their properties from the water if the proposal were granted.⁹

⁸ Measurements were made using digital orthophotography provided by The Maine Office of GIS (orthoCoastalCascoBay2018)

⁹ Response to the Harbormaster Questionnaire dated 5/4/2021

(2) Navigation

The marked navigation channel in the New Meadows River is located between Middle Ground, which bisects the river, and the proposal (Figure 1). Both commercial and recreational vessels utilize this channel, with vessel traffic heaviest during the summer months. During MDMR's site assessment on May 5, 2021, 1 small motorized vessel was observed navigating in the channel. However, MDMR visits this general vicinity frequently and has observed heavy boating activity during the summer months.

Although roughly half of the proposed lease area is within the 17-foot contour line associated with the marked navigational channel (NOAA Chart, Figure 1), it is unlikely that many mariners traditionally transit through the proposed lease area due to the presence of a tidally exposed mud flat to the south and Getchell's Ledge to the north. These features act as natural barriers for vessels transiting north-south in the main navigation channel. Moreover, the applicant's existing experimental lease, NMR WPx, is also positioned so that roughly half of the lease area is to the east of this 17-foot contour line, and to MDMR Aquaculture Division's knowledge, no navigational concerns have been raised about the presence of NMR WPx. Furthermore, the Brunswick Harbormaster indicated that the proposed site is unlikely to cause issues with navigation in the area.⁹

(3) Fishing and Water-Related Uses

On May 5, 2021, two lobster buoys were observed to the north of the proposed lease (Figure 2). Since the lobster fishery in Maine follows the annual migration and molt cycle of lobsters (*Homarus americanus*), it is possible that lobster fishing occurs to a greater extent or in closer proximity to the proposal during other times of the year than what was observed during the site assessment. However, the Brunswick Harbormaster only described lobster fishing within the channel, presumably outside of the proposed lease area.¹⁰ MDMR scientists did not observe lobsters during the drop camera transect conducted through the proposed lease site.

The Brunswick Harbormaster additionally indicated that there is shellfish harvesting in the general vicinity of the proposal, including a European oyster bed less than 700 feet to the north. As the Brunswick Harbormaster indicates that most shellfish harvesters access this area by foot, it is unlikely that the proposed lease site would impede access. Commercial harvest also occurs on Middle Ground, which is on the opposite side of the marked navigational channel as the proposed lease area.¹⁰

Recreational hook and line fishing for striped bass (*Morone saxatilis*) occurs regularly throughout the New Meadows River. Considering the bottom topography of the proposed lease site, which is gently sloping with mud sediment, and lack of topographical features that typically attract striped bass, it is unlikely the proposal would interfere with traditional angling in the area. Furthermore, the Brunswick Harbormaster stated that "the proposed lease area shouldn't be a problem" for recreational fishing in the general area.¹⁰

Other uses nearby consist of recreational walking trails at Woodward Point Preserve, to the west and northwest of the proposal. Woodward Point Preserve also offers public access to a hand-carry boat launch, which is located to the west of Getchell's Ledge. Since hand-powered vessels such

¹⁰ Response to the Harbormaster Questionnaire dated 5/4/2021

as kayaks are most likely to use this launch, and the considering the distance to the proposal, the proposed lease area is unlikely to interfere with the use of this launch.

(4) Other Aquaculture Uses

Within 1 mile of the proposal, there are three active leases and 22 Limited Purpose Aquaculture (LPA) license sites (Figure 3). The nearest active lease, which is overlapping with and intended to be replaced by the proposal, is the applicant's existing experimental lease approved for the suspended and bottom culture of shellfish. The two active leases not associated with the applicant (NMR EMG and NMR EMG2) are to the east of Middle Ground and are approved for the suspended culture of shellfish. The nearest LPA is CBUR219, which is over 1,700 feet to the southwest and approved for the suspended culture of American/eastern oysters.

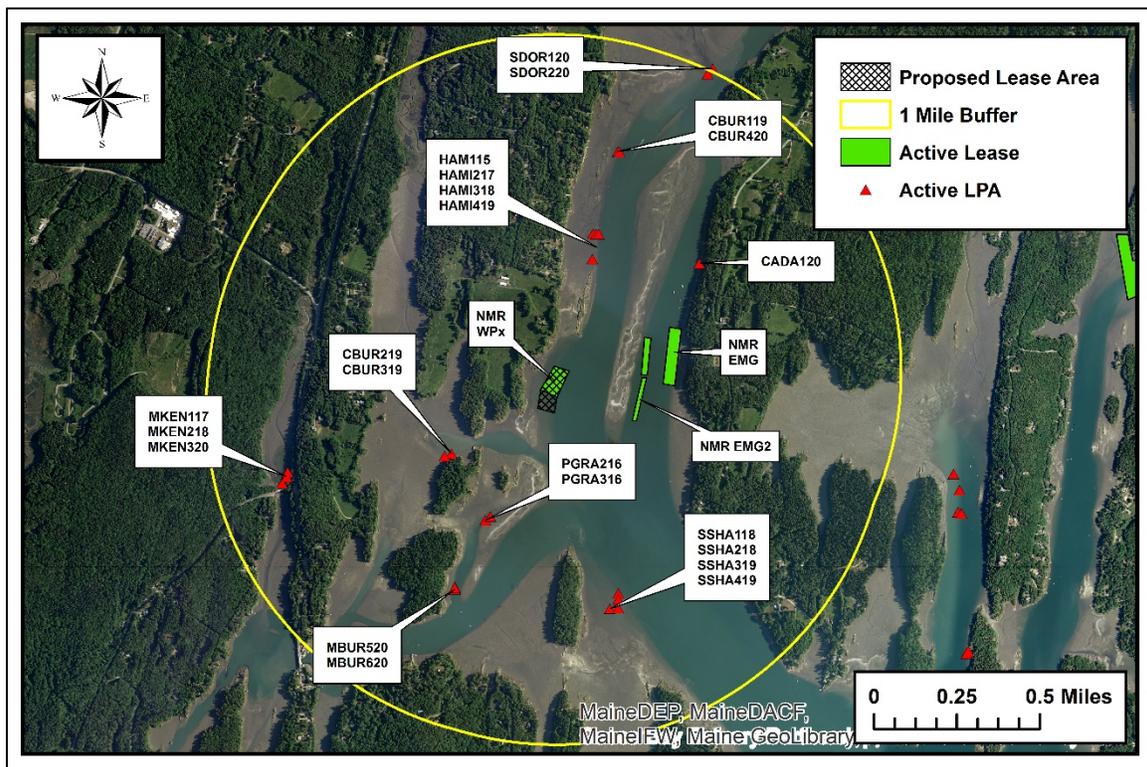


Figure 3: Active aquaculture leases and licenses nearby the proposed lease.

(5) Existing System Support

On May 5, 2021, a handheld digital video camera contained within an underwater housing was used to document the epibenthic ecology of the proposed lease area (Figure 2). The bottom of the proposed lease site is composed of soft mud. Moon jellies (*Aurelia aurita*) were abundant in the water column within the proposed lease boundaries (Image 9). Moon jellies were also observed in abundance throughout the upper New Meadows River, and the free-swimming medusae of this species typically occurs in seasonal blooms. A single horseshoe crab (*Limulus polyphemus*) was also observed.

Table 4: Species observed via drop camera within the proposed lease site on May 5, 2021.

Species Observed	Abundance
Moon Jelly	Abundant
Clam holes	Abundant
Horseshoe Crab	Rare



Image 9: Moon Jelly (*A. aurita*) medusae observed within the proposed lease boundaries (May 5, 2021).

Eelgrass (*Zostera marina*)

According to data collected by The Maine Department of Environmental Protection and Casco Bay Estuary Partnership in 2018, the closest record of eelgrass to the proposed lease site was a small bed located approximately 900 feet to the southeast, with a percent coverage of 10%-40% (Figure 4). No eelgrass was observed during the Department’s underwater site assessment on May 5, 2021.

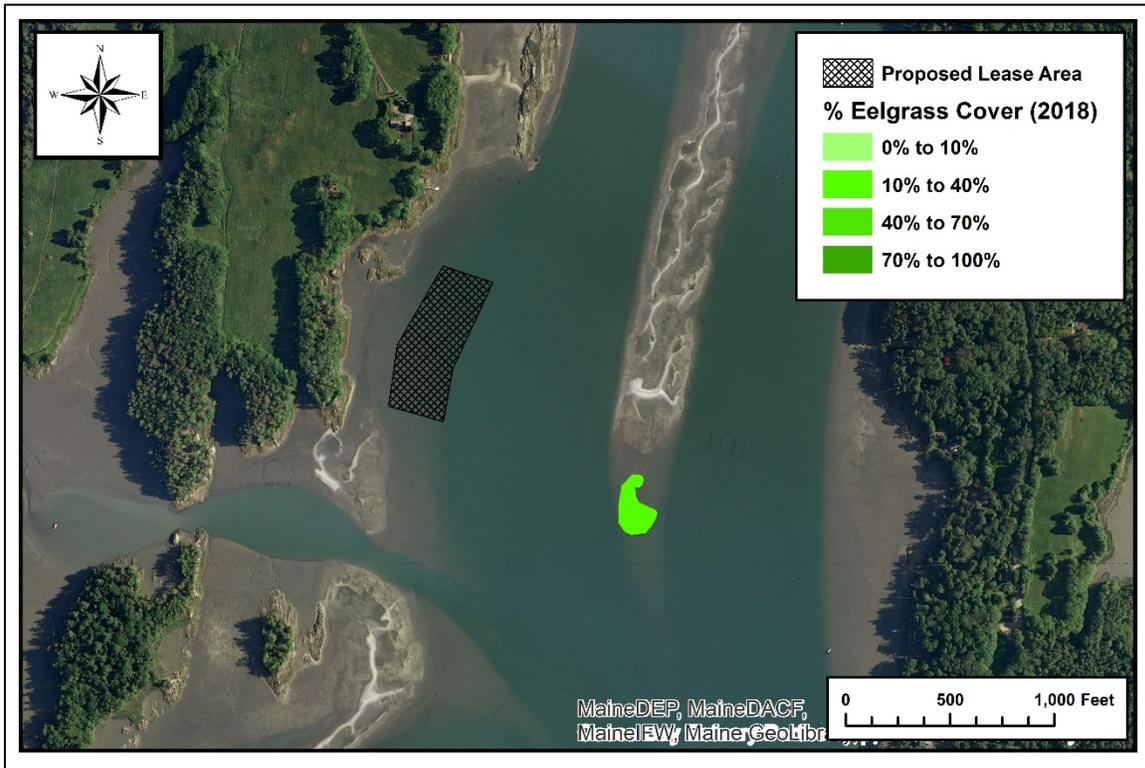


Figure 4: Historical records of eelgrass (*Z. marina*) near the proposed lease.¹¹

Wildlife

According to GIS (Geographic Information System) data maintained by MDIF&W and available through the Maine Office of GIS, the proposed lease is over 600 feet to the west of an area designated as Tidal Waterfowl and Wading Bird Habitat, specifically classified as reef-mudflat complex (Figure 5). Tidal Waterfowl and Wading Bird Habitat is defined under Maine's Natural Resources Protection Act (NRPA) as Significant Wildlife Habitat. The proposed lease is also over 200 feet to the northeast of Great Blue Heron (*Ardea herodias*) habitat, which is considered a Species of Special Concern in Maine (Figure 5).

According to U.S. Fish and Wildlife Service data, the proposed lease is located over 2,000 feet from the 660-foot buffer around a documented bald eagle (*Haliaeetus leucocephalus*) nest (Figure 5). In Maine, bald eagles are no longer considered a Species of Special Concern but they are still protected under federal law by The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) of 1940.

¹¹ Data obtained from MDEP maintained SDE Feature Class "GISVIEW.MDEP.Eelgrass2018"

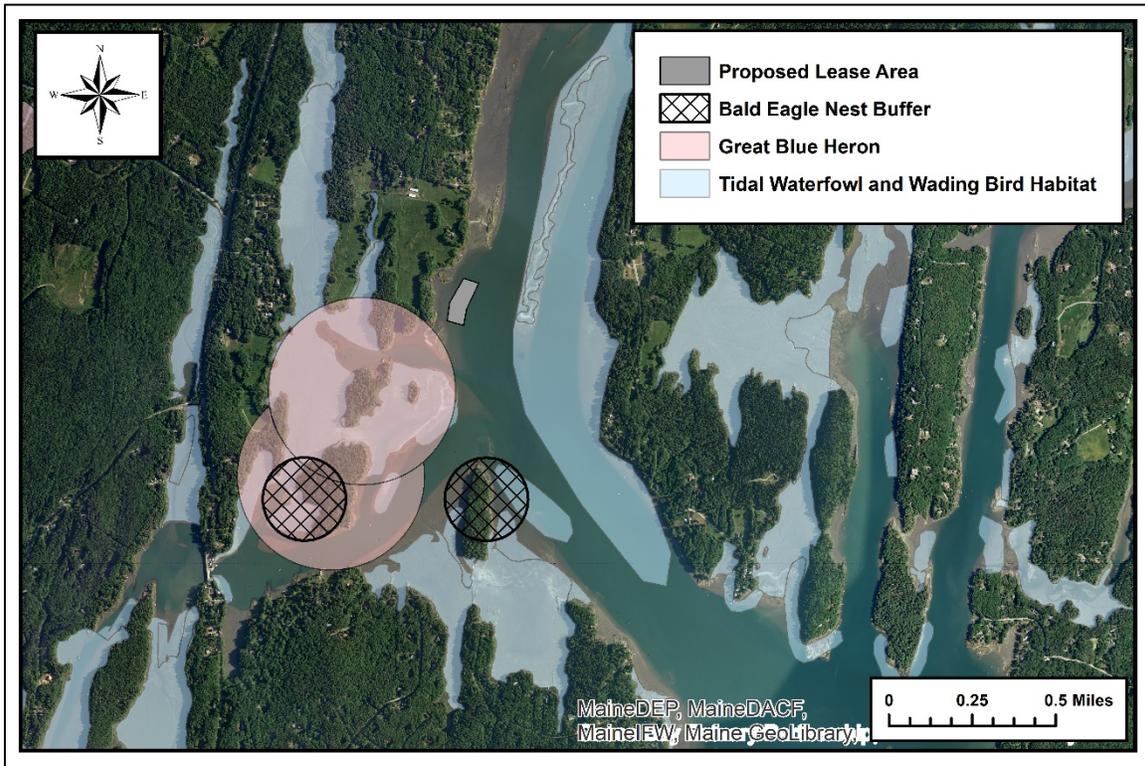


Figure 5: Endangered, Threatened, or Species of Special Concern Habitat (Great Blue Heron),¹² Tidal Wading Bird and Waterfowl Habitat,¹³ and bald eagle nest buffer¹⁴ near the proposed lease site.

(6) Interference with Public Facilities

Getchell’s Ledge, a designated “Coastal Island”, owned by the Maine Bureau of Parks and Land, is located approximately 590 feet from the proposed lease site at mean low water. There are no other publicly-owned beaches, parks, docking facilities, or conserved lands owned by municipal, state, or federal government within 1,000 feet of the proposed lease site (Figure 6).

The closest conserved land to the proposed lease is the Woodward Point, which is located approximately 140 feet to the west at the nearest point and is held in private conservation by Maine Coast Heritage Trust.

¹² Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.ETSC”

¹³ Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”

¹⁴ Data obtained from USFWS: <https://services.arcgis.com/QVENGdaPbd4LUkLV/ArcGIS/rest/services>



Figure 6: Conserved lands in vicinity of proposed lease site.¹⁵

(7) Water Quality

The proposed lease site is in an area currently classified as open/approved for the harvest of shellfish.

(8) Lighting

The applicant does not propose the use of lighting at the lease site or working beyond daylight hours except during rare and/or extreme circumstances.¹⁶

(9) Noise

According to the application, a battery-powered washdown pump and grader, as well as an electric winch, may be used on the proposed lease site. The electric winch would be used for raising cages from the bottom during the spring, and the grader is proposed to be used once or twice per year. The applicant intends to access the site with the use of 19' and 24' Carolina skiffs, or similar boats.¹⁷

Noise would be reduced at the boundaries of the lease site by turning off motors and grading by hand when possible, and selecting a quiet washdown pump. Additionally, one boat is equipped with a 4 stroke engine (45 horse-power), and the other engine (2-stroke, horsepower not specified)

¹⁵Data obtained from SDE Feature Class sourced from The Maine Office of GIS "GISVIEW.MECONSLANDS.Conserved_Lands"

¹⁶ Application, page 12

¹⁷ Application, page 11

will eventually be replaced by a 4-stroke engine.¹⁸ These boat lengths and engines are representative of what is used commercially and recreationally along the Maine coast.

(10) Visual Impact

The aquaculture equipment and vessels proposed for use, should the lease be granted, meet the visual impact standards as set forth in MDMR Regulation Chapter 2.37(A).

¹⁸ Application, page 12