

Figure 1. Vicinity map.<sup>1</sup>

**Location:** West of Cow Island Ledge, Casco Bay, Long Island, Cumberland County, Maine

**Purpose:** Standard lease for suspended culture of sugar kelp (*Saccharina latissima*), skinny kelp (*Saccharina latissima forma angustissima*), winged kelp (*Alaria esculenta*), dulse (*Palmaria palmata*), and sea lettuce (*Ulva lactuca*).

Site Review: Geoffrey Shook, Molly Waters

Report Preparation: Geoffrey Shook, Meryl Grady

<sup>1</sup> 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.



## Department of Marine Resources Site Report

Ocean's Balance  
Cow Island Ledge, Casco Bay  
Long Island

### **Application Overview**

The applicant, Ocean's Balance, is requesting a 4.61-acre<sup>2</sup> standard lease west of Cow Island Ledge in Casco Bay, within the town of Long Island, for the suspended culture of marine algae. Gear related to algae production is intended to be on site from November 1 – May 31. From June 1 - October 31, the required lease corner markers will remain in place, as well as anchors, chains, and a section of mooring lines which will be stored on the bottom within the proposed lease area. Two pick-up buoys will be used to mark the gear's location.<sup>3</sup> The applicant currently operates experimental lease CAS Clx within the boundaries of the proposed standard lease.

### **General Characteristics**

On August 29, 2023, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 10:46 AM. The proposal is located approximately 20.6 feet to the west of Cow Island Ledge and approximately 156.8 feet to the northwest of Cow Island Ledge Light. There is no land within 1,000 feet of the proposed lease area. Cow Island Ledge Light consists of a cylindrical, concrete base with steel light and marker tower (Image 1).



**Image 1.** Cow Island Ledge Light.

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<sup>2</sup> Applicant originally requested 4 acres. MDMR calculations indicate the area is 4.61 acres.

<sup>3</sup> Application page 11



**Depth**

On August 29, 2023, scientists began collecting depths at the proposed site at approximately 10:47 AM. The tide was ebbing with the next low tide predicted at 3:59 PM (Table 1). Depths were determined to be between 31.2-45.3 feet. Correcting for tidal variations derives depths at mean low water (MLW, 0.0 feet) to be between 22.2-36.3 feet.

**Table 1.** Predicted tidal heights in Casco Bay, Maine.<sup>4</sup>

Date	Time	Height (ft)
2023/08/29	3:50 AM	-0.4 L
2023/08/29	10:04 AM	9.2 H
2023/08/29	3:59 PM	0.2 L
2023/08/29	10:18 PM	11.0

**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 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) – 4.61 Acres**

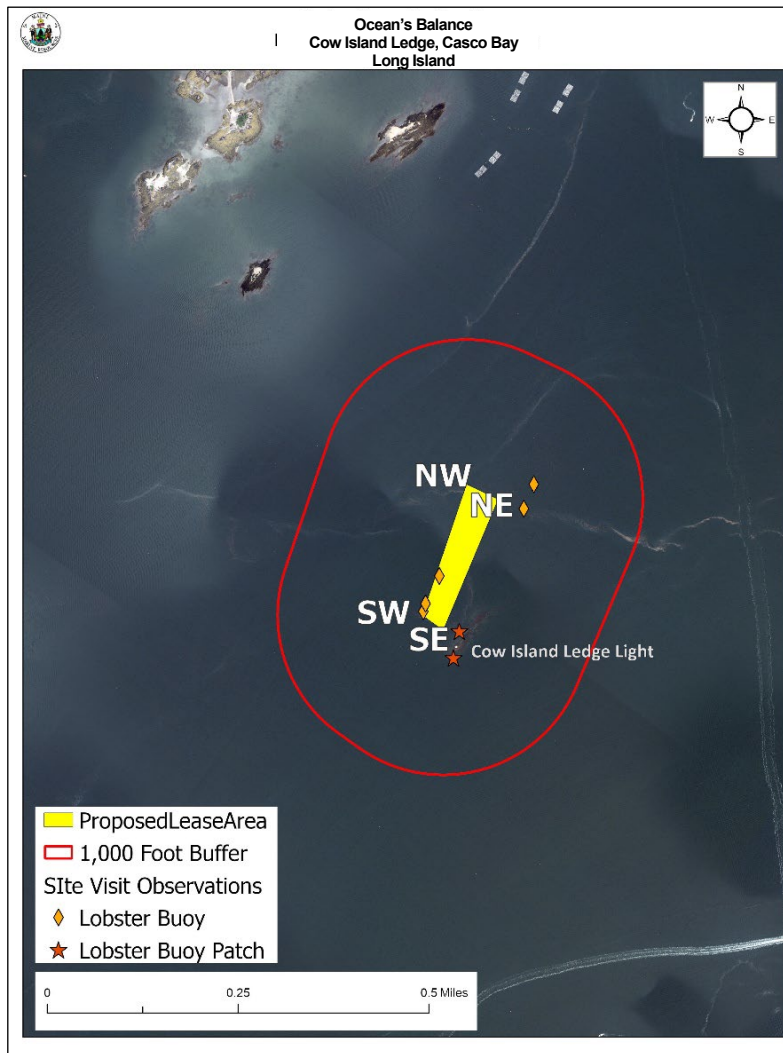
<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
NW	43.706111°	-70.188333°	then 242.5 feet at 114° True to
NE	43.705833°	-70.1875°	then 982.6 feet at 202° True to
SE	43.703333°	-70.188889°	then 178.4 feet at 302° True to
SW	43.703611°	-70.189444°	then 957.5 feet at 18° True to NW

<sup>4</sup> <https://www.us harbors.com/harbor/maine/portland-harbor-me/tides/?tide=2023-08#monthly-tide-chart>



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

Feature	Distance
NE corner to charted Cow Island Ledge closest point	~20.6 feet to the east
SE corner to Cow Island Ledge Light	~156.8 feet to the southeast
SW corner to red/green navigation buoy "CI"	~1,941.9 feet to the west-northwest
NW corner to Clapboard Island closest point MLW	~2,759.9 feet to the northwest
SE corner to Cow Island closest point MLW	~3,565.6 feet to the southeast
SE corner to green navigation buoy "11"	~3,968.5 feet to the east



**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:***



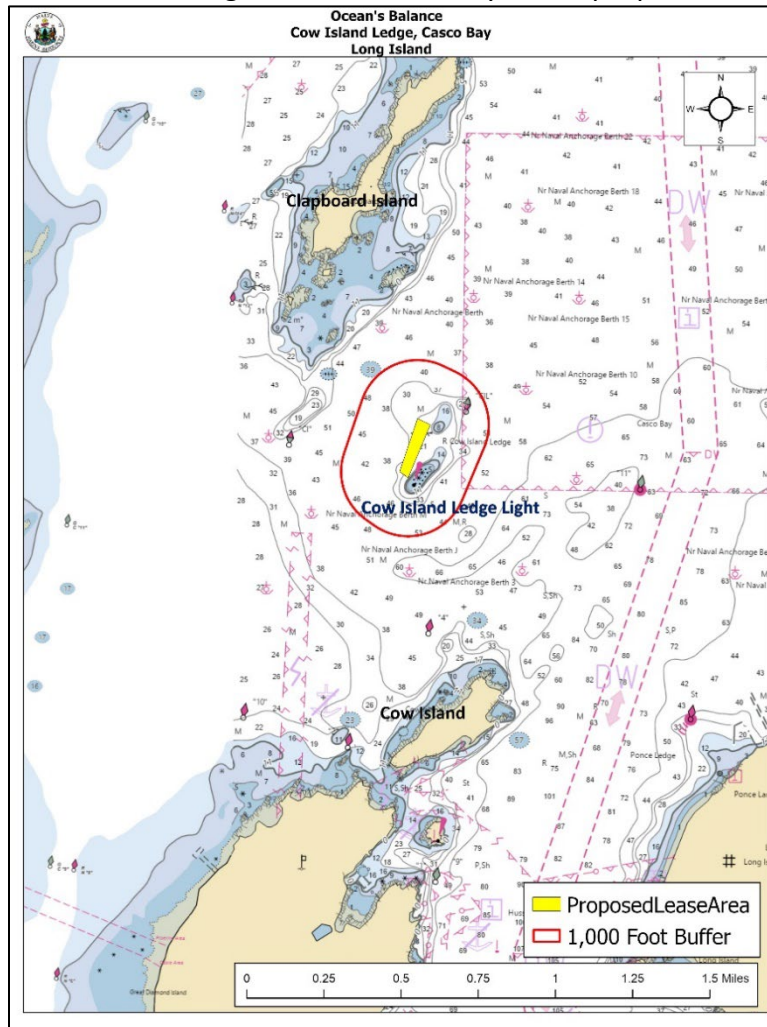
**(1) Riparian Ingress and Egress**

There is no land or mooring areas within 1,000 feet of the proposed lease area. Clapboard Island is located approximately 2,759.9 feet to the northwest of the proposal. Cow Island is located approximately 3,565.6 feet to the southeast of the proposal (Figure 3).

**(2) Navigation**

The proposal is located in subtidal waters approximately 156.8 feet to the northwest of the Cow Island Ledge light. The proposal is located directly to the west of Cow Island Ledge and within a secondary marked channel between Clapboard and Cow Islands. A primary marked navigation channel in the area is located approximately 3,968.5 feet to the east of the proposal.

During MDMR's site assessment, scientists observed seven recreational powerboats operating in the area with four of those boats observed traveling south and three travelling north. A sailboat was also observed traveling north in the vicinity of the proposal.



**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 within the vicinity of the proposal. One lobster buoy was located within the proposal boundaries with two others located approximately 2.5 and 4.1 feet from the western boundary. Two additional lobster buoys were observed approximately 194.3 and 267.7 feet to the northeast of the proposal, as well as two clusters of lobster buoys located around Cow Island Ledge Light (Figure 2). Clusters of lobster buoys contained approximately 2-4 buoys.

### (4) Other Aquaculture Uses

The applicant currently operates experimental lease CAS Clx within the boundaries of the proposed standard lease. There are no other active aquaculture leases or Limited Purpose Aquaculture (LPA) sites within 1,000 feet of the proposal (Figure 4).

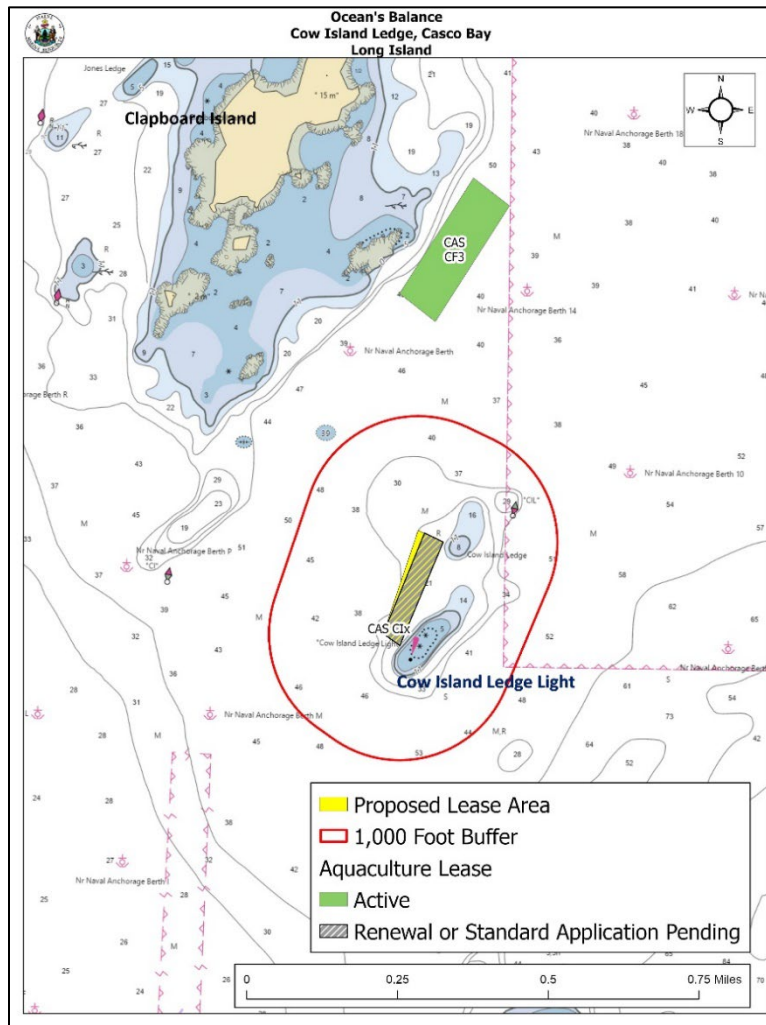


Figure 4. Aquaculture leases and LPAs in the vicinity of the proposed lease area.



**(5) Existing System Support**

**Epibenthic Flora and Fauna**

MDMR scientists observed the bottom characteristics in the vicinity of the proposed lease site via a ROV. The relative abundance of epibenthic flora and fauna observed in the video is described below in Table 4. Numerous American lobster (*Homarus americanus*) burrows were observed, but no lobsters were observed on underwater footage.

**Table 4.** Species observed on underwater footage during the site assessment.

Species Observed	Abundance
Red algae ( <i>Dasysiphonia japonica</i> )	Rare
Sugar kelp ( <i>Saccharina latissima</i> )	Rare
Sand shrimp ( <i>Crangon septemspinosa</i> )	Common



### Eelgrass (*Zostera marina*)

Recent records of seagrass collected in 2022<sup>5</sup> indicate that there no mapped eelgrass within 1,000 feet of the proposal. The nearest mapped eelgrass is a patch approximately 2,037 feet to the northwest of the proposal. During MDMR's site assessment, scientists observed unattached eelgrass floating in the vicinity of the proposed lease area. No eelgrass was observed on underwater footage.



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

<sup>5</sup>Data obtained from The Maine Office of GIS "GISVIEW.MEDEP.Seagrass2022". Widgeon grass was observed only in the New Meadows River area off Old Brunswick Road near shore. 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.





### 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), there is not mapped Tidal Waterfowl and Wading Bird Habitat (TWWH) within 1,000 feet of the proposal (Figure 6). The nearest mapped bald eagle (*Haliaeetus leucocephalus*) nest is located approximately 1.1 miles to the north of the proposal (Figure 6).

On December 6, 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.

During MDMR's site assessment, scientists observed osprey (*Pandion haliaetus*) and bonaparte's gulls (*Chroicocephalus philadelphia*) in the vicinity of the proposal.

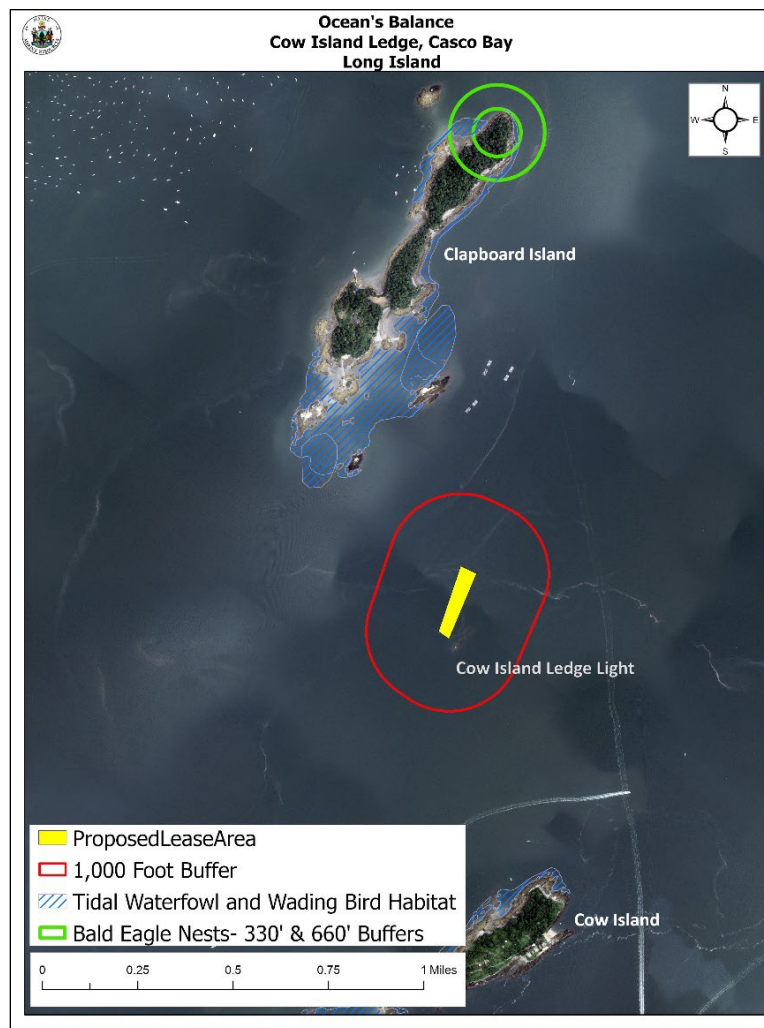


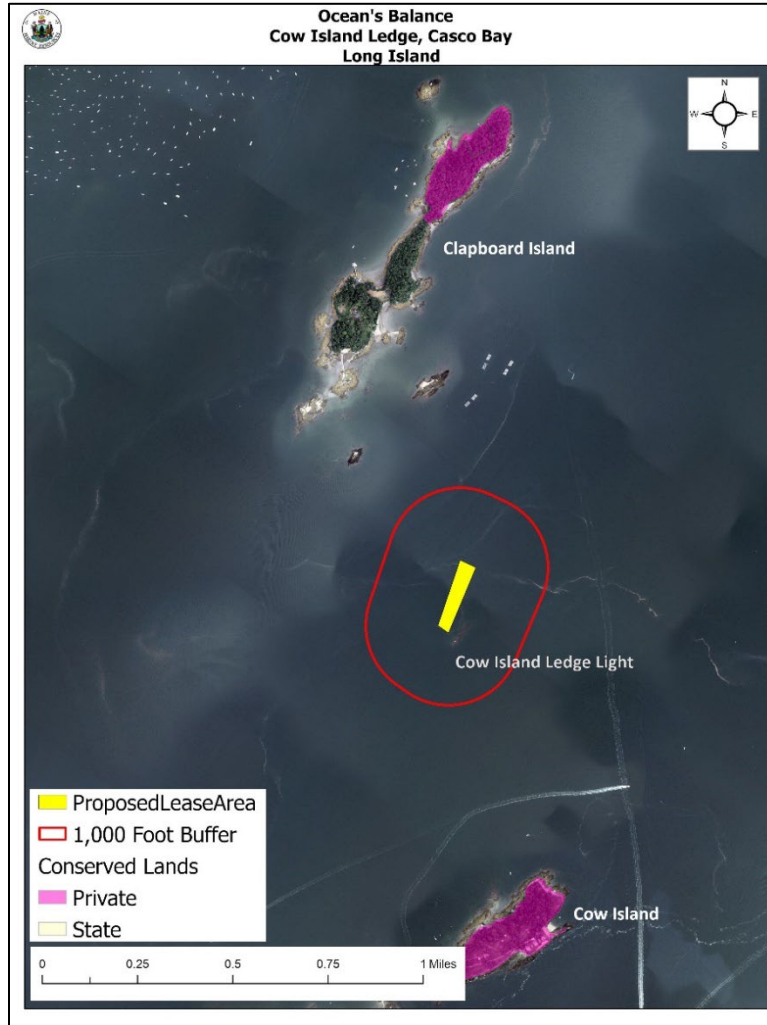
Figure 6. Mapped TWWH and bald eagle nesting sites.<sup>6</sup>

<sup>6</sup> 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.** Conserved lands in the vicinity of the proposal.

**(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.