

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

**Location:** East of Sturdivant Island, Casco Bay, Cumberland, Cumberland County, Maine

**Purpose:** Experimental lease for suspended culture of Sugar Kelp (*Saccharina latissima*) and Skinny Kelp (*Saccharina angustissima*)

Site Review: Cheyenne Adams

Report Preparation: Molly Waters, Geoffrey Shook, Meryl Grady, and Amanda Ellis

<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.



### **Application Overview**

The applicant, Brent Nappi, is requesting 3.96 acres<sup>2</sup> for a commercial experimental lease east of Sturdivant Island in Casco Bay for the suspended culture of marine algae (Figure 1). The applicant intends to seed, tend, and harvest the site from November 1<sup>st</sup> to June 1<sup>st</sup>.<sup>3</sup>

### **General Characteristics**

On April 25, 2022, Maine Department of Marine Resources (MDMR) scientists assessed the proposed lease site. MDMR scientists arrived on site at approximately 12:42 PM. Sturdivant Island is to the west of the proposed lease area. The shoreline is predominantly rocky and sandy with deciduous forested uplands. The island has several residential houses.

### **Depth**

MDMR scientists began collecting depths at the proposed site at approximately 12:42 PM on April 25, 2022. The tide was outgoing with the next low tide predicted at 1:44 PM. Depths at each corner were measured and determined to range from 27.4 to 39.7 feet. Correcting for tidal variations derives water depths to be from 26.6 to 38.9 feet at mean low water (MLW, 0.0 feet) (Table 1).

**Table 1.** Tide observations at Portland Station 8418150, Portland, Maine.<sup>4</sup>

Date	Time	Height (ft)
04/25/2022	12:58 AM	0.87 L
04/25/2022	07:17 AM	9.14 H
04/25/2022	01:44 PM	-0.09 L
04/25/2022	08:06 PM	8.63 H

### **Bottom Characteristics**

MDMR scientists observed the bottom characteristics of the area by collecting video with a drop-camera. 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 observed sea floor within the proposal boundaries was composed primarily of soft mud.

<sup>2</sup> Applicant originally requested 4 acres. MDMR calculations indicate the area is 3.96 acres.

<sup>3</sup> Application page 4

<sup>4</sup> <https://tidesandcurrents.noaa.gov/waterlevels.html?id=8418150>



**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 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) - 3.96 Acres**

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>
NW	43.742722 °	-70.174527° then 340.2 feet at 137° True to
NE	43.742033°	-70.173658° then 499.5 feet at 228° True to
SE	43.741087°	-70.175026° then 350.3 feet at 318° True to
SW	43.741796°	-70.175921° then 499.5 feet at 48° True to NW

**Table 3.** Approximate distances from proposed lease corners to surrounding features.

Feature	Distance
NW corner to nearest shoreline at MLW	~730 feet to the northwest
NE corner to center of navigation channel	~830 feet to east
SE corner to red navigational aid "4"	~2500 feet to the southeast
SW corner to nearest shoreline at MLW	~500 feet to the west



Brent Nappi - East of Sturdivant Island, Casco Bay, Cumberland



**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**

The proposed lease site is located approximately 500 feet east of Sturdivant Island at MLW. During MDMR's site assessment, scientists observed two houses located on Sturdivant Island in the general vicinity of the proposal. One house was located west of the proposal and one house was located southwest of the proposal. Both houses had stairs to access the shoreline. No docks were observed to be associated with either house. MDMR scientists also observed a house with a pier located approximately 1,100 feet southwest of the proposal. Three moorings were observed during the site assessment. One mooring was located approximately 330 feet to the west of the proposal, while the other two moorings were located 950 and 960 feet southwest of the proposal (Figure 2).

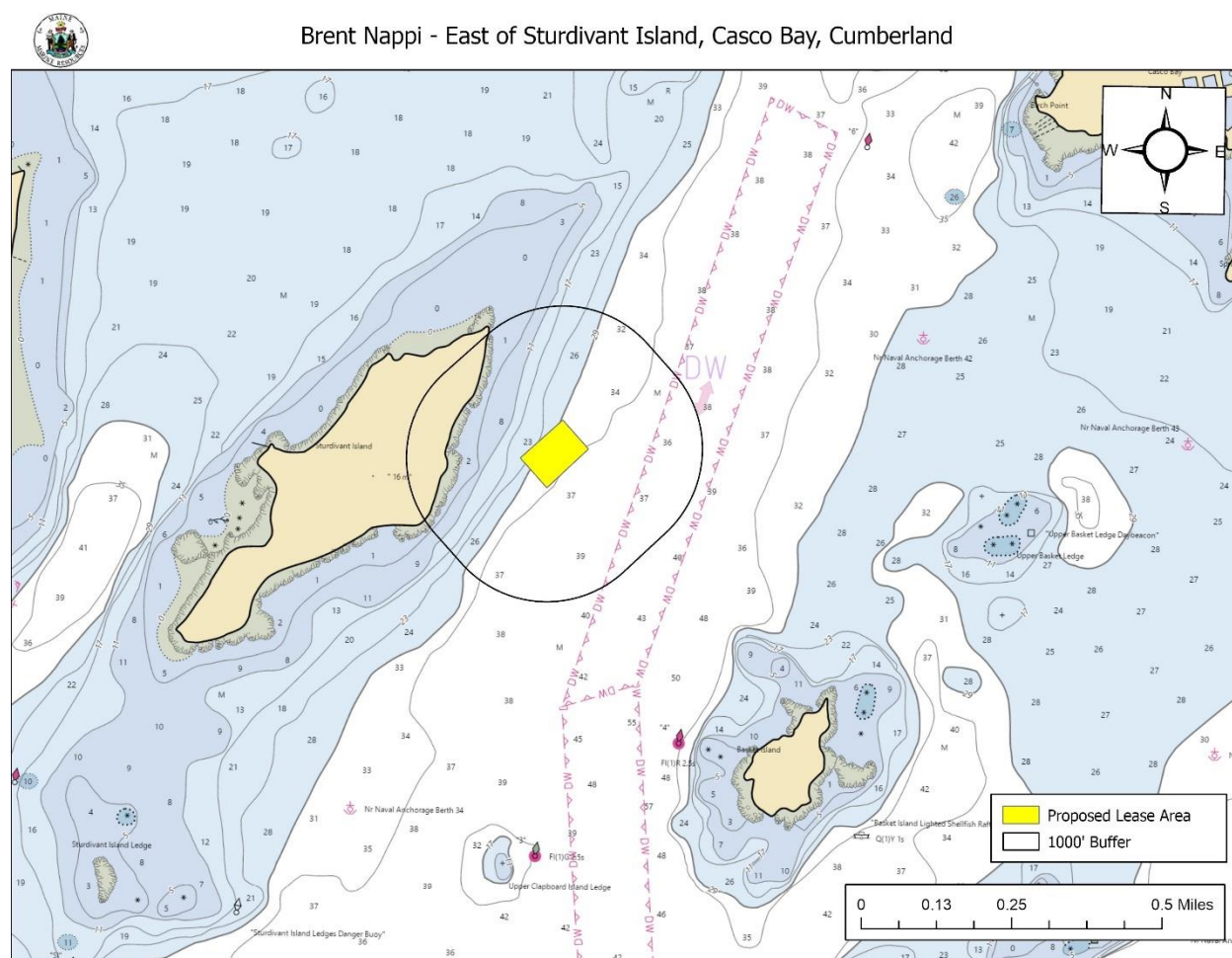




## (2) Navigation

The proposal is located approximately 830 feet to the west of the center of the designated deep water navigation route that leads to/from Cousins Island (Figure 3). During MDMR's site assessment, scientists did not observe any boats in transit in the vicinity of the proposal.

A Harbormaster Questionnaire was sent to the Town of Cumberland and the local harbormaster responded on May 13, 2022, stating minimal impacts to navigation are anticipated if gear is removed during the summer months.<sup>5</sup>



**Figure 3.** Navigational channels in the vicinity of the proposal.

<sup>5</sup> Harbormaster questionnaire received by MDMR on May 13, 2022

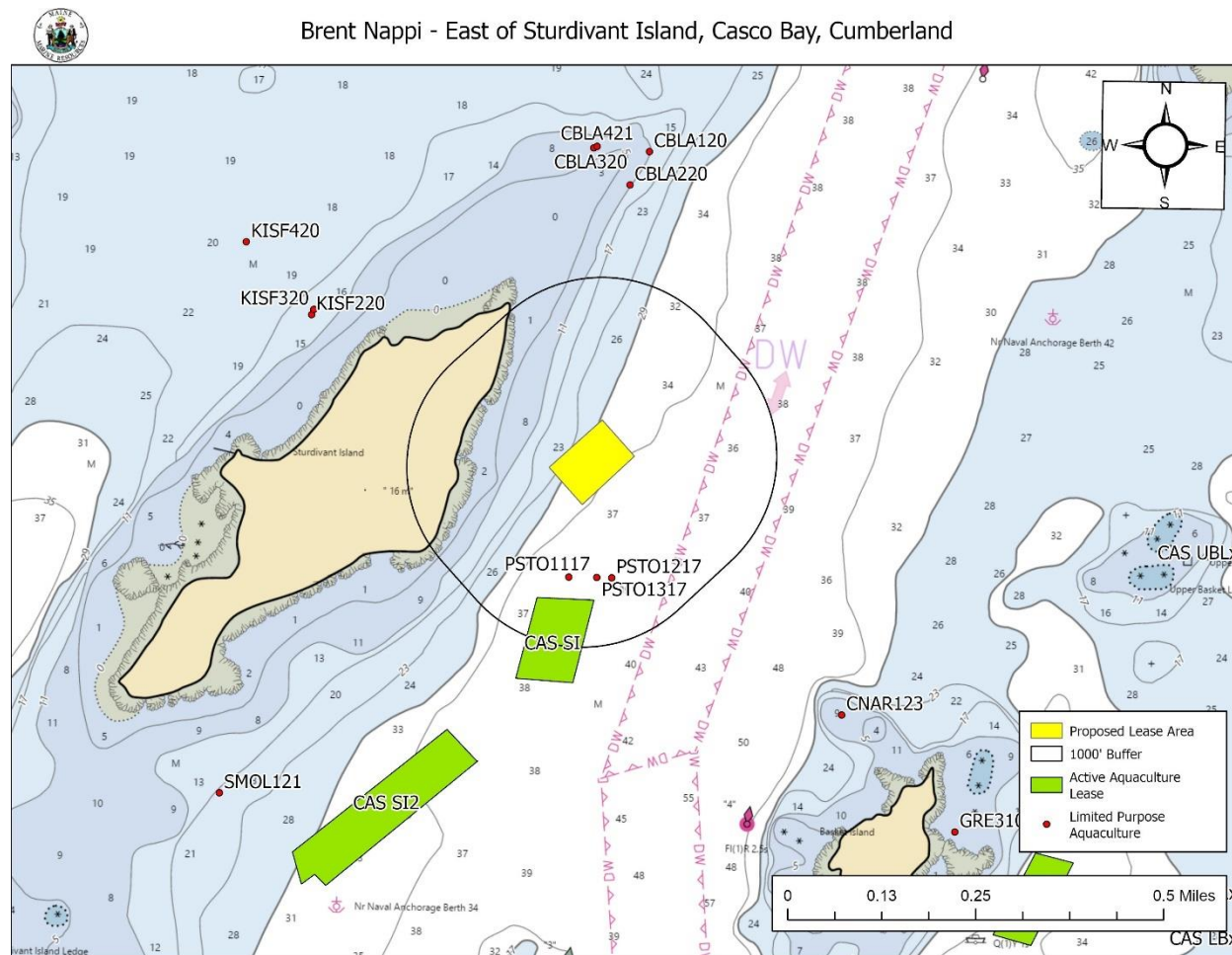


### (3) Fishing and Other Uses

During the site visit conducted on April 25, 2022, MDMR scientists observed two lobster buoys located approximately 320 and 400 feet to the southeast and east of the proposal, respectively (Figure 2). In response to the Harbormaster Questionnaire, the Cumberland Harbormaster indicated that recreational and commercial fishing is common in the area.<sup>6</sup>

### (4) Other Aquaculture Uses

There is one standard aquaculture lease, CAS SI held by Wild Ocean Aquaculture LLC, located approximately 665 feet south of the proposal. There are three Limited Purpose Aquaculture (LPA) sites, PSTO1117, PSTO1217, PSTO1317, approximately 515 feet south of the proposed lease area (Figure 4).



**Figure 4.** Existing aquaculture in the vicinity of the proposal.

<sup>6</sup> Harbormaster questionnaire received by MDMR on May 13, 2022



(5) Existing System Support

**Epibenthic Flora and Fauna**

On April 25, 2022, MDMR scientists conducted one video transect utilizing an underwater camera to assess the epibenthic ecology of the proposed lease. The observed bottom was mud. The relative abundance of epibenthic flora and fauna observed in the video transects is described below in Table 4. The video transect shows many lobster burrows, but no lobster was observed. MDMR scientists observed long-tailed ducks (*Clangula hyemalis*) and gulls (*Laridae* spp) during the site assessment.

**Table 4.** Species observed using underwater camera footage.

Species Observed	Abundance
Rockweed ( <i>Ascophyllum nodosum</i> )	Occasional

**Eelgrass (*Zostera marina*)**

Data collected by The Maine Department of Environmental Protection (MDEP) and Casco Bay Estuary Partnership (CBEP) in 2022 indicates eelgrass presence to the west of the proposal. The mapped eelgrass is located approximately 430 feet to the west of the southwestern corner and approximately 660 feet from the northwest corner (Figure 5). There was no eelgrass observed within the proposal boundaries during MDMR's site assessment.



Brent Nappi - East of Sturdivant Island, Casco Bay, Cumberland



**Figure 5.** Mapped eelgrass (*Z. marina*) near the proposed lease area utilizing 2022 data.<sup>7</sup>

## 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 proposal is located approximately 6 feet to the east of tidal waterfowl and wading bird habitat (Figure 6).

On May 16, 2022, a Wildlife Biologist with MDIFW responded by email to a “Request for Agency Review and Comment” recommending activities in the coastal wetland be minimized to the extent practicable.<sup>8</sup>

<sup>7</sup> Data obtained from The Maine Office of GIS “Seagrass 2022”

<sup>8</sup> Email correspondence between MDIFW and MDMR





The nearest mapped bald eagle nest is approximately 1.5 miles to the southwest of the proposal, located on Clapboard Island.<sup>9</sup>



Brent Nappi - East of Sturdivant Island, Casco Bay, Cumberland



**Figure 6.** Mapped tidal waterfowl and wading bird habitat<sup>10</sup> in the vicinity of the proposal.

#### **(6) Water Quality**

The proposed lease is currently located within an area classified as “Open/Approved” by the MDMR Bureau of Public Health.

#### **(7) Public Facilities**

The proposal is not located within 1,000 feet of any beach, park, or docking facility owned by federal, state, or municipal governments.

<sup>9</sup> Data obtained from USFWS “Bald\_Eagle\_Nests\_-\_Maine\_2023”

<sup>10</sup> Data obtained from MDIWF maintained SDE Feature Class “GISVIEW.MEIFW.Twwh”