

Figure 1: Regional map created in ArcMap version 9.2 using digitized NOAA Chart #13318.

Location: West of Stave Island in Frenchman Bay, Gouldsboro, Hancock County, Maine.

Purpose: Net-pen culture of Atlantic cod (*Gadus morhua*) and halibut (*Hippoglossus hippoglossus*).

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On **July 29, 2011** Maine Department of Marine Resources (MDMR) staff Jon Lewis and Marcy Nelson visited the proposed aquaculture lease located off the western shore of Stave Island in the town of Gouldsboro, Maine.

Bottom Topography and Currents and Depth

Bottom Topography and Currents

A Remotely Operated Vehicle (ROV) was used to document bottom characteristics and local flora and fauna. Figure 2 shows the approximate video transects completed. A GPS point was collected at the start of each transect. Due to tidal and wind driven currents the ROV was maneuvered in a general heading of north. The information garnered from the Department's epi-benthic survey is intended to supplement that provided in the "Baseline Site Survey Report" (see application).



Figure 2: Vicinity map created in ArcMap version 9.3 using geo-referenced aerial photographs taken at low tide (2008) and provided by The Maine Office of GIS.

The area of the proposed lease consists of a silt bottom with no rocky outcrops or substantial variation in topography. A gradual decrease in water depths occurs to the east (nearer Stave Island). Currents run primarily in a north/south direction depending upon tidal stage. Page “12 of 28” in the Baseline Site Survey Report submitted by the applicant indicates mean currents of approximately 10.5 cm/sec or approximately 1,240 feet per hour.

The proposed lease is more than 1,000 feet from the western shore of Stave Island. The upland is dominated by a steep rocky shoreline leading to mature undeveloped forest.

Depth

The predicted time of high tide for Bar Harbor 44°24'N 68°12'W, on July 29, 2011, was 1020 hours with a tidal height of 10.1 feet. Low tide was at 0412 with a height of 0.1 feet.

Water depths within the boundaries of the proposed lease site were collected via the ROV. Water depths ranged between 94 and 109 feet. Depths shallow on the eastern portion of the proposed lease site to 81 feet.

Water depths where pens would be moored are approximately 100 feet deep at MLW; more than adequate for fish pens that will be constructed with nets falling 30 feet into the water column (see page 40 of the application).

Position and Distances to Shore

A WAAS enabled global positioning system (GPS) was used during the site visit to verify the proposed location. POSAID Positioning Software was used to verify the metes and bounds of the proposed lease. Lease acreage was calculated using ArcMap 9.3.

Application Coordinates – 20.02 acres (Figure 2)

<u>Corner</u>	<u>Latitude</u>	<u>Longitude</u>	
SW (A)	44° 26' 00.00"N	68° 9' 00.00"W	<i>then 875 feet at 352° True to</i>
NW (B)	44° 26' 08.56"N	68° 9' 01.67"W	<i>then 1000 feet at 82° True to</i>
NE (C)	44° 26' 09.93"N	68° 8' 48.02"W	<i>then 870 feet at 172° True to</i>
SE (D)	44° 26' 01.42"N	68° 8' 46.35"W	<i>then 1000 feet at 262° True to</i>

Distances to Shore

SE corner to nearest Stave Island intertidal:	~1,138 feet at 093° True
NE corner to nearest Stave Island intertidal:	~1,216 feet at 088° True
NW Corner to Cod Farm at Preble Island:	~1.9 miles at 316° True

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

(1) Riparian Owners Ingress and Egress

The western shore of Stave Island is undeveloped; no houses, docks or moorings were visible on July 29, 2011. More than 850 feet of navigable waters, greater than 30 feet in depth at MLW, separate the proposed eastern boundary from the Stave Island shoreline.

(2) Navigation

The proposed lease would occupy approximately 1,000 feet of navigable waters (on an east-west orientation) along the western shore of Stave Island. Approximately 885 feet of navigable water would remain between the 30-foot depth contour along the western shore of Stave Island and the eastern boundary of the proposed lease.

Vessels transiting Frenchman Bay would be unimpeded by the proposed lease location. Only vessels transiting between the southern end of Stave Island and to the east of Calf Island and to the east of navigational can "1" would be affected. Those vessels would need to travel a course that is approximately 1,000 feet more to the west than might ordinarily be expected under current conditions. Total transit distance would increase approximately 650 feet if a vessel was required to travel around the proposed lease site instead of through it.

(3) Fishing

On July 29, 2011 lobster fishing was observed in the general area. Four vessels were noted hauling traps to the northeast and southwest of the proposed farm. The majority of fishing activity and observed trap buoys were scattered outside the western boundary, between Stave Island and Long Porcupine Island (Figure 1). A single vessel was also witnessed fishing between Stave Island and the proposed lease area. Another vessel, reportedly belonging to Mr. James West, transited through the proposed lease site during the Department's site visit.

Some shrimp harvesting may occur in the area during winter months; northern shrimp dominated the benthic landscape within the area of the proposed lease (Section (5) Existing System Support).

(4) Other Aquaculture Uses

The nearest aquaculture activity is the existing 35.66 acre Preble Island lease (FREN PI4) operated by the applicant. This farm is located ~1.9 miles to the northwest and is used for raising Atlantic cod.

For more information on aquaculture in the Mt. Desert Island area please visit:
<http://www.maine.gov/dmr/aquaculture/leaseinventory/index.htm>.

(5) Existing System Support

Flora and fauna from underwater video observations

The epibenthic macro-flora and fauna observed during the video transect (Figure 2) on July 29, 2011 are described below.

Date: July 29, 2011

Time: 40 min

Direction: variable – see figure 2

Visibility: ~5 feet

Max depth: 109 feet

The area of the proposed lease consists of soft mud bottom with no rocky outcrops or substantial variation in topography. A gradual decrease in water depths occurs to the east (nearer Stave Island). No flora (attached or drift) was observed.

Fauna observed during the video was sparse with only Northern Shrimp (*Pandalus borealis*) commonly observed. One sculpin (*Myoxocephalus spp.*) was encountered. The soft mud bottom also had a number of small holes that likely have been made by wrymouth eels (*Cryptacanthodes maculates*) although no eels were encountered.

Eelgrass (*Zostera marina*) beds, ranging from 10-70% benthic coverage, are present between the eastern shore of Stave Island and South Gouldsboro (Figure 3).

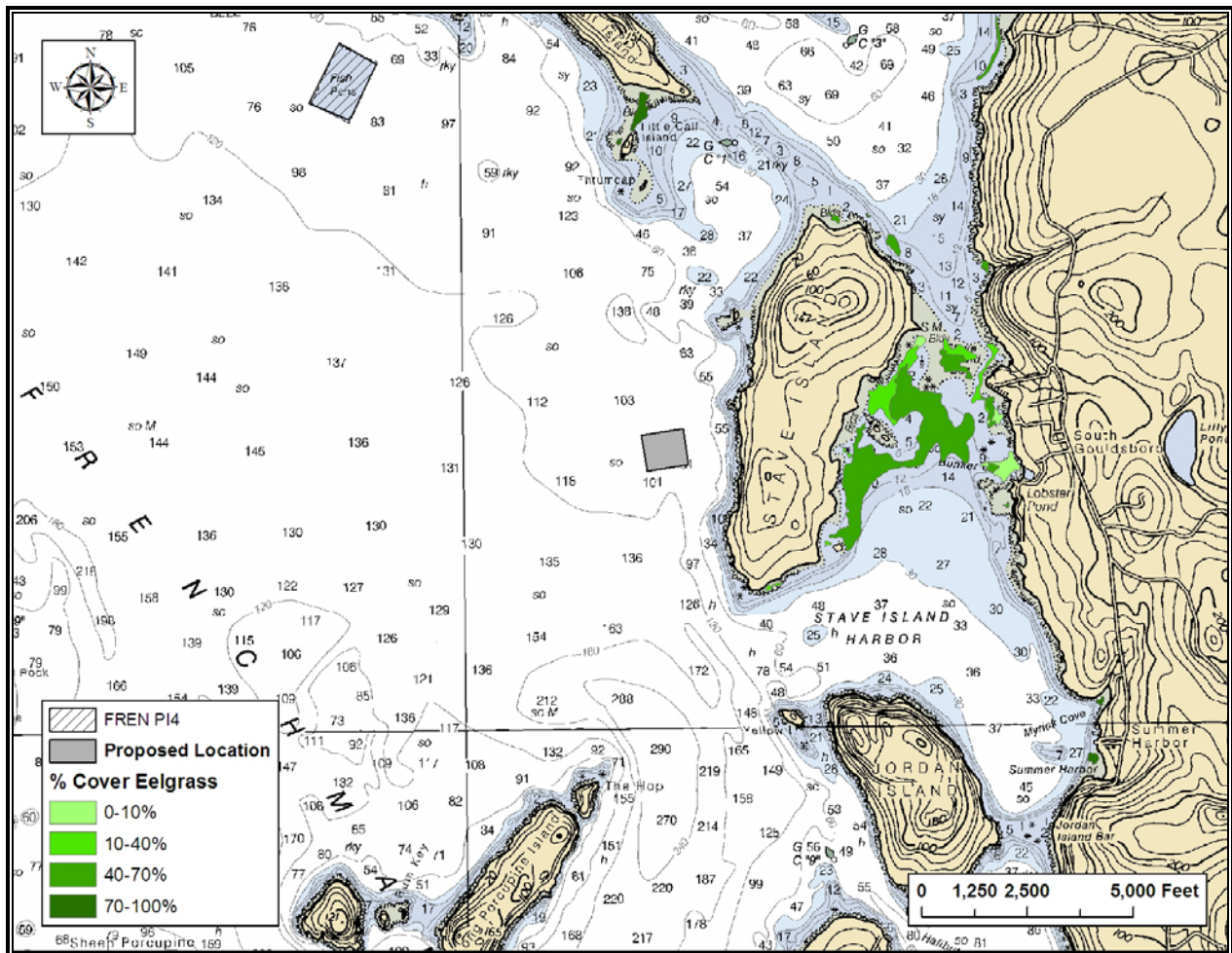


Figure 3: NOAA Chart #13318 depicting historical MDMR documented eelgrass (*Zostera marina*) beds.

Marine Mammals and Wildlife

Harbor porpoises (*Phocoena phocoena*), harbor seals (*Phoca vitulina*) and gray seals (*Halichoerus grypus*) should be expected to transit the area of the proposed lease.

According to maps available through the Maine Department of Inland Fisheries and Wildlife (MDIF&W) and the Maine Office of GIS, there are no Essential or Significant Wildlife Habitats surrounding the proposal (i.e. seabird nesting islands). On March 3, 2011 a request for review and comment was sent to Steve Timpano (Environmental Coordinator) and Thomas Schaeffer (Regional Biologist) of MDIF&W. At the time of this report no response had been received.

The waters around the southern tip of Stave Island have been designated as a “rafting bird area” where coastal waterfowl aggregate in the fall. These data were compiled from seasonal aerial surveys conducted by MDIF&W between 2000 and 2004. The proposed cod farm, if granted, would be located more than 2,000 feet from the designated area. There exists, however, the potential for aggregations of birds to be attracted to the farm. According to information provided in the application, bird nets would be deployed to exclude waterfowl from the fish pens. Top nets or bird nets are a routinely used predator deterrent method in marine aquaculture.

Federally protected bald eagle (*Haliaeetus leucocephalus*) nests are present on Long Porcupine Island, more than 1.4 miles to the south of the proposed lease, and Calf Island, more than 1 mile to the north of the proposed lease.

(6) Interference with Public Facilities

There are no public docking facilities or beaches within 1,000 feet of the proposed lease.

(7) Lighting

The applicant has proposed that normal work at the site would not occur beyond daylight hours therefore exterior work lighting is not anticipated other than for emergencies.

The U.S. Coast Guard may require navigational lighting on the lease site, however these would be navigational aids not illuminating devices.

(8) Noise

The applicant has proposed using diesel powered feed barges and work barges, outboard and inboard powered boats, gas powered feed blowers and an occasional pressure washer. The applicant states that each of these is equipped with a muffler. Each piece of equipment generates noise levels similar to those currently occurring from fishing and other vessel activity in the area. Noise levels would be similar to those produced at the existing Preble Island lease site.

(9) Visual Impact

Maine Aquaculture Regulations (Chapter 2.37(10)) pertaining to visual impact apply to “all equipment, buildings, and watercraft used at an aquaculture facility”. Specifically, there are considerations for building profile, height, roof and siding and color. No building is planned as part of this proposal. The applicant indicates “no permanent onsite support structures are anticipated for the operation of these facilities”.