
To:	Eric Ham and Kristen Chamberlain Maine Department of Transportation	From:	Paul Sokoloff Topsham, ME Office
File:	Sears Island Eelgrass Survey	Date:	April 12, 2024

Reference: Eelgrass Survey for the Proposed Sears Island Offshore Wind Terminal – August 2022 and September 2023 Survey Results

The purpose of this Eelgrass Survey memo is to present resource data collected to support a National Environmental Policy Act Environmental Impact Statement and state and federal permitting for a proposed Offshore Wind Port and Wind Turbine Launch Site (Project). The Project is being developed by the Maine Department of Transportation and they are evaluating a location on the western shoreline of Sears Island to serve as a potential Project site. Based on the June 2023 conceptual Project design, the Sears Island site may require approximately 30 acres of intertidal and subtidal fill (Figure 1). On September 20, 2023, Stantec completed a dive survey to map eelgrass (*Zostera marina*) present at the Sears Island Project Area (Figure 1). Additionally, Stantec completed an eelgrass survey of the previous version of the Project site on August 23 and 24, 2022, including areas previously mapped with eelgrass in 2010 by the Maine Department of Marine Resources (Figure 2).

This memo describes the results of the 2022 and 2023 surveys in the Project Area, including eelgrass survey observations, substrate characterization, and list of species observed.

METHODOLOGY

Stantec conducted the eelgrass survey based on the Joint Federal Agency Submerged Aquatic Vegetation Survey Guidance for the New England Region Tier 1 methodology¹ within the survey limits provided by MaineDOT identified on Figure 2. This methodology delineates the extent of the continuous eelgrass meadow using SCUBA. Where eelgrass has a patchy distribution the edge of the continuous eelgrass meadow is defined as 0.5 meters (m) beyond the last shoot. The last shoot is defined as a shoot that is within 1 m of an area in the interior of the bed where there are ≥ 3 shoots/0.25m² within 1 m of adjacent shoots (Washington Department of Natural Resources 2014²). When observed, eelgrass meadow boundaries are delineated by Stantec divers who communicated their position to surface support staff using buoys. Eelgrass boundaries are recorded by surface support staff using a Global Positioning System Trimble GeoExplorer Series Receiver with sub-meter accuracy. In addition to the eelgrass survey, Stantec records the following information for observations within eelgrass meadows and survey limits:

1. General sediment type (e.g., silt, mud, sand, and shell)
2. Qualitative estimate of the percent cover of eelgrass within the project vicinity (e.g., barren, sparse [1–10% cover], low [11–25%], moderate [26–50%], and high [>50%]). This was done for each survey area as a whole and within individual eelgrass beds where percent cover is highly variable
3. Epiphyte coverage (i.e., absent, light, or heavy)

¹ [https://www.nae.usace.army.mil/portals/74/docs/regulatory/JurisdictionalLimits/Submerged_Aquatic_Vegetation_Survey_Guidance\(11-Aug-2016\).pdf](https://www.nae.usace.army.mil/portals/74/docs/regulatory/JurisdictionalLimits/Submerged_Aquatic_Vegetation_Survey_Guidance(11-Aug-2016).pdf)

² Washington State Department of Natural Resources. 2014. Technical Memorandum: Operational Definition of an Eelgrass (*Zostera marina*) Bed.

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Descriptions of the substrate in the Sears Island Project Area described in this memo are based on diver observations and side-scan sonar data collected by Steele Associates Marine Consultants, LLC. (Steele).³ In 2022, Stantec divers surveyed transects the length of the 2022 Sears Island Project site. Each diver surveyed within a defined depth range (0–5 feet [ft], 5–10 ft, 10–15 ft, and 15–20 ft). These the centerline of these transects are shown on Figure 2 along the -3, -7, -13 and -18 ft mean lower low (MLLW) contours. Divers did not survey beyond the -20 ft MLLW contour based on the depth limits of eelgrass anticipated in the survey area. During the 2023 survey, Stantec divers surveyed transects the length of the 2023 Sears Island Project Area that had not been surveyed in 2022 along the -2.5 ft MLLW (Figure 2). T

SURVEY RESULTS

EELGRASS

The eelgrass surveys were completed on August 22 and 23, 2022, and September 20, 2023. No eelgrass was observed in the Sears Island Project Area (Figure 2). Appropriate depths and substrate types for eelgrass are present in portions of the surveys area. No eelgrass leaves or shoots were observed in the wrack line in the intertidal at Sears Island mixed with algae. The 2023 survey was conducted outside of the recommended survey window in the Joint Federal Agency Submerged Aquatic Vegetation Survey Guidance for the New England Region Tier 1 methodology⁴, however if eelgrass was growing the Survey Area along the -2.5 ft MLLW transect it would have been observed but at a reduced percent cover and density.

SUBSTRATE

The substrate in the eelgrass survey area at Sears Island was generally silty sands with scattered, gravel, cobble, and boulders (Photo 1). The survey area south of the jetty was dominated boulders and cobble. The boulders and cobble present were mostly covered in crustose coralline algae due to urchin grazing (Photos 2 and 3). Mapping of substrate types within the survey area based on the side-scan imagery is detailed in the Steele survey report.

SPECIES LIST

The following marine species were observed during the 2022 and 2023 dive surveys at Sears Island:

- Acadian hermit crab (*Pagurus acadianus*)
- American lobsters (*Homarus americanus*) (Photo 4)
- Blue mussel (*Mytilus edulis*)
- Brown filamentous algae (*Ectocarpus* spp.)
- Burrowing Anemone (*Ceriantheopsis austroafricanus*)
- Common periwinkle (*Littorina littorea*) (Photo 5)
- Common slipper shell (*Crepidula fornicata*)
- Crustose coralline algae (*Corallinales*)

³ Steele Associates Marine Consultants, LLC, (2023) Hydrographic and Marine Geophysical Site Characterization Surveys. Mack Point and Sears Island. December 2023.

⁴ [https://www.nae.usace.army.mil/portals/74/docs/regulatory/JurisdictionalLimits/Submerged_Aquatic_Vegetation_Survey_Guidance\(11-Aug-2016\).pdf](https://www.nae.usace.army.mil/portals/74/docs/regulatory/JurisdictionalLimits/Submerged_Aquatic_Vegetation_Survey_Guidance(11-Aug-2016).pdf)

April 12, 2024

Eric Ham

Page 3 of 3

Reference: Eelgrass Survey for the Proposed Sears Island Offshore Wind Terminal – August 2022 and September 2023 Survey Results

- Cunner (*Tautoglabrus adspersus*)
- Encrusting bryozoan (*Membranipora membranacea*)
- False Irish moss (*Mastocarpus stellatus*)
- Finger sponge (*Haliclona oculata*)
- Green crab (*Carcinus maenas*)
- Green sea urchin (*Strongylocentrotus droebachiensis*) (Photos 5 and 6)
- Northern rock barnacle (*Semibalanus balanoides*) (Photo 5)
- Pipefish (*Syngnathus fuscus*) (Photo 7)
- Rock Crab (*Cancer irroratus*)
- Razor clams (*Ensis directus*) (shells)
- Sand shrimp (*Crangon septemspinosa*)
- Sand dollar (*Echinarachnius parma*) (Photo 8)
- Sea Star (*Asterias rubens*) (Photo 9)
- Sea vase (*Ciona intestinalis*) (Photo 6)
- Surf clams (*Spisula solidissima*)
- Unidentified brown filamentous algae
- Unidentified encrusting black tunicate (Photo 10)
- Unidentified globular sponges
- Winter flounder (*Pseudopleuronectes americanus*)

Stantec Consulting Services Inc.



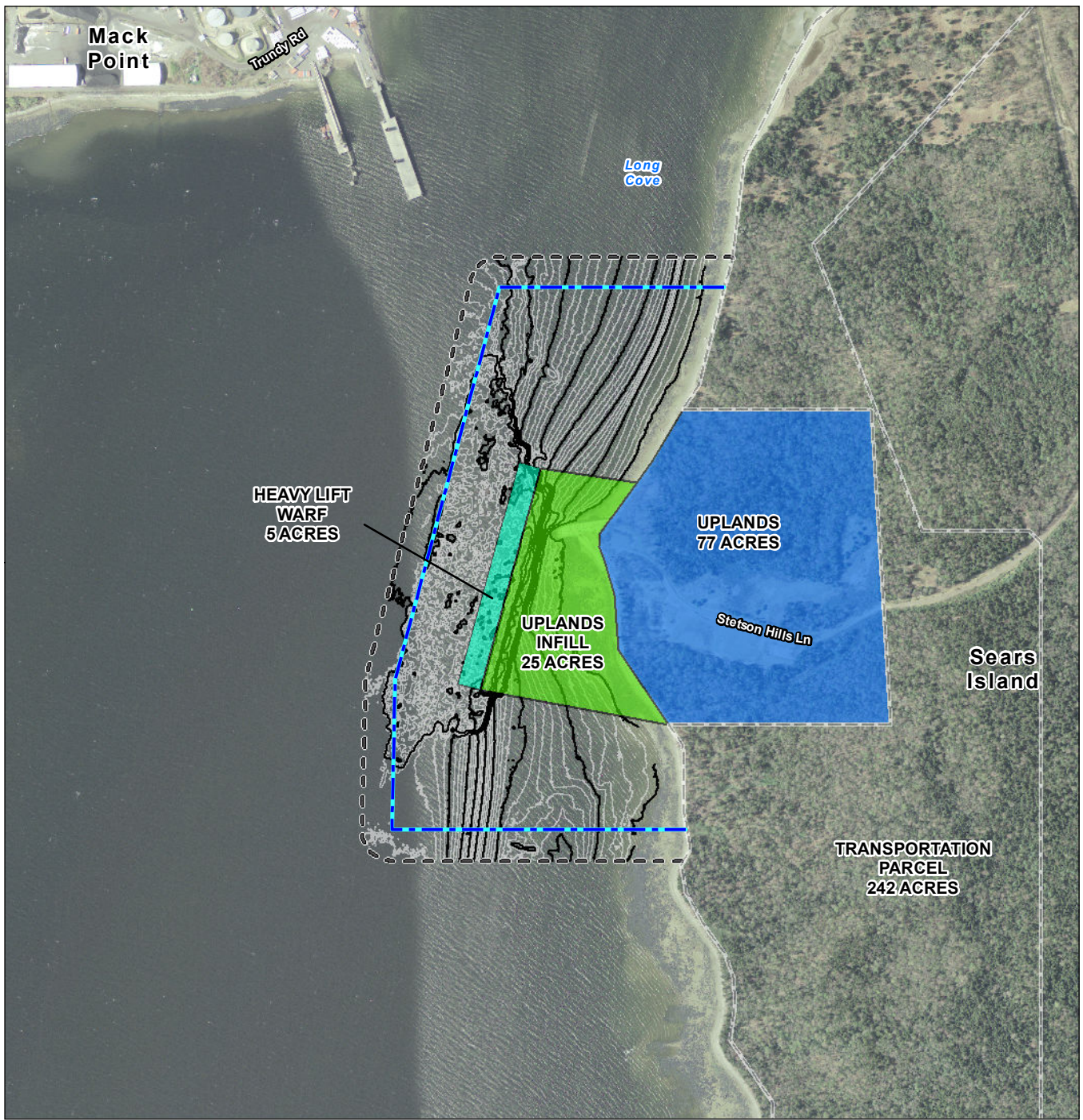
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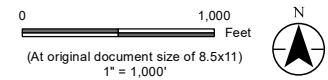
Attachment: Figure 1. Maine Floating Offshore Wind Port Sears Island Alternative, June 2023 Conceptual Design
Figure 2. 2022 and 2023 Sears Island Eelgrass Transects and Survey Area
Representative Photographs



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- Legend**
- 200 ft Buffer
 - Potential Intertidal and Subtidal Project Footprint
 - Uplands (77 acres)
 - Uplands Infill (25 acres)
 - Heavy Lift Warf (5 acres)
 - Transportation Parcel (242 acres)



Project Location
Searsport, Maine

Prepared by PWB on 2024-04-11
TR Review by KWH on 2024-04-11
IR Review by PS on 2024-04-11

Client/Project
Maine Department of Transportation 195602718

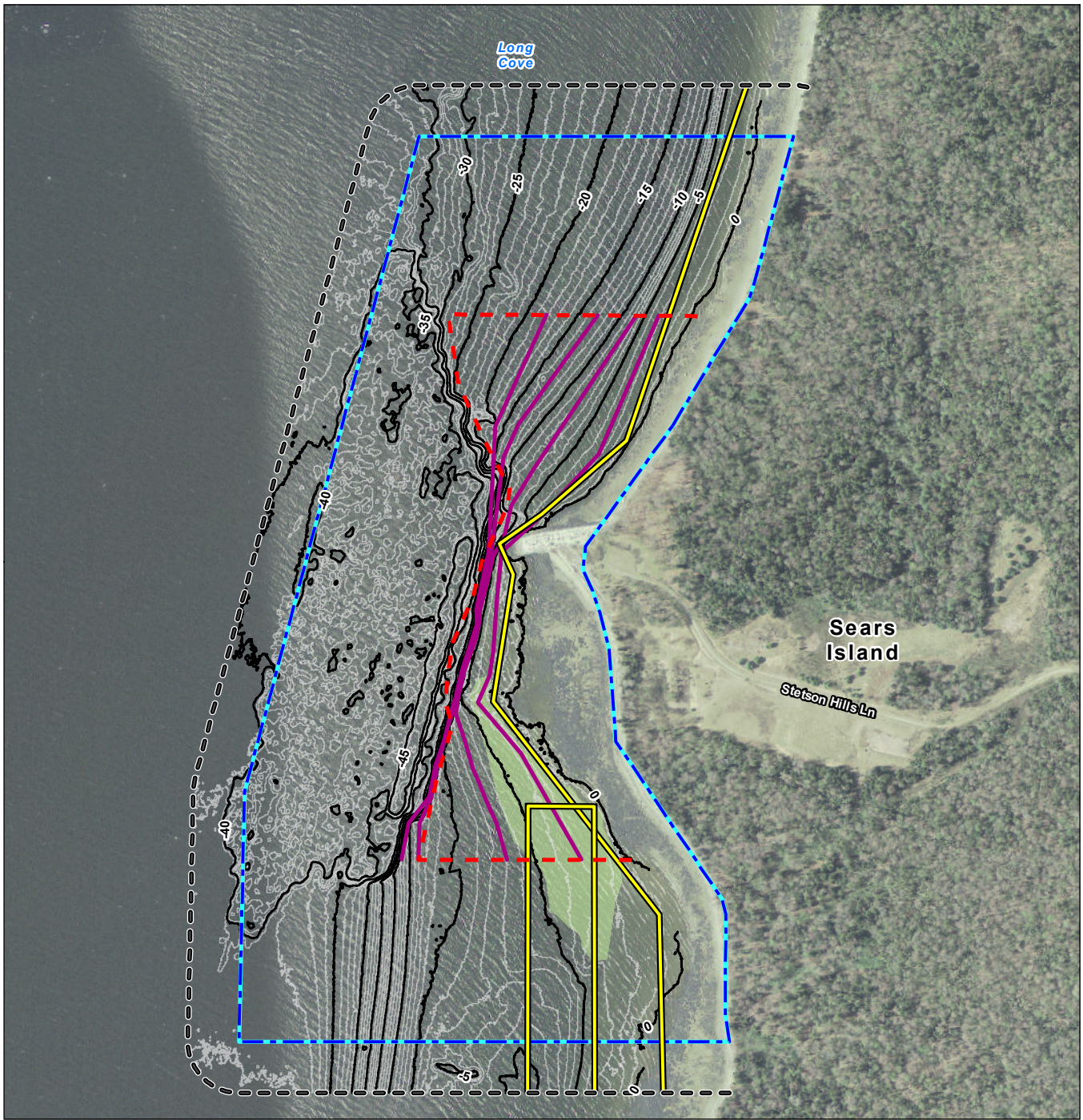
Figure No.
1

Title
Sears Island Conceptual Design

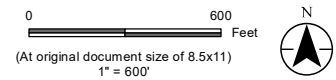
- Notes**
1. Coordinate System: NAD 1983 StatePlane Maine East FIPS 1801 Feet
 2. Vertical Datum: Mean Lower Low Water (MLLW).
 3. Data Sources: MEDOT, Stantec
 4. Background: Maine Orthoimagery Regional, 2015

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

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- Legend**
- Bathymetry Contour 1ft
 - Bathymetry Contour 5ft
 - 200 ft Buffer
 - 2022 Eelgrass Survey Area
 - 2022 Eelgrass Transects
 - 2023 Eelgrass Transects
 - Potential Project Footprint
 - Maine DMR Aerial Interpreted
 - Eelgrass 2010



Project Location
Searsport, Maine

Prepared by PWB on 2024-04-01
TR Review by KWH on 2024-04-01
IR Review by PS on 2024-04-01

Client/Project
Maine Department of Transportation

195602718

Figure No.
2

Title
2022 and 2023 Sears Island Eelgrass Survey Transects

- Notes**
1. Coordinate System: NAD 1983 StatePlane Maine East FIPS 1801 Feet
 2. Vertical Datum: Mean Lower Low Water (MLLW).
 3. Data Sources: MEDOT, Stantec
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Photo 1. Silty sands with scattered, gravel, cobble, and boulders at Sears Island. September 2023.



Photo 2. Boulders and cobble with crustose coralline algae due to urchin grazing at Sears Island. September 2023.

April 12, 2024

Eric Ham

Page Attachments

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Photo 3. Boulders and cobble with crustose coralline algae due to urchin grazing at Sears Island. September 2023.

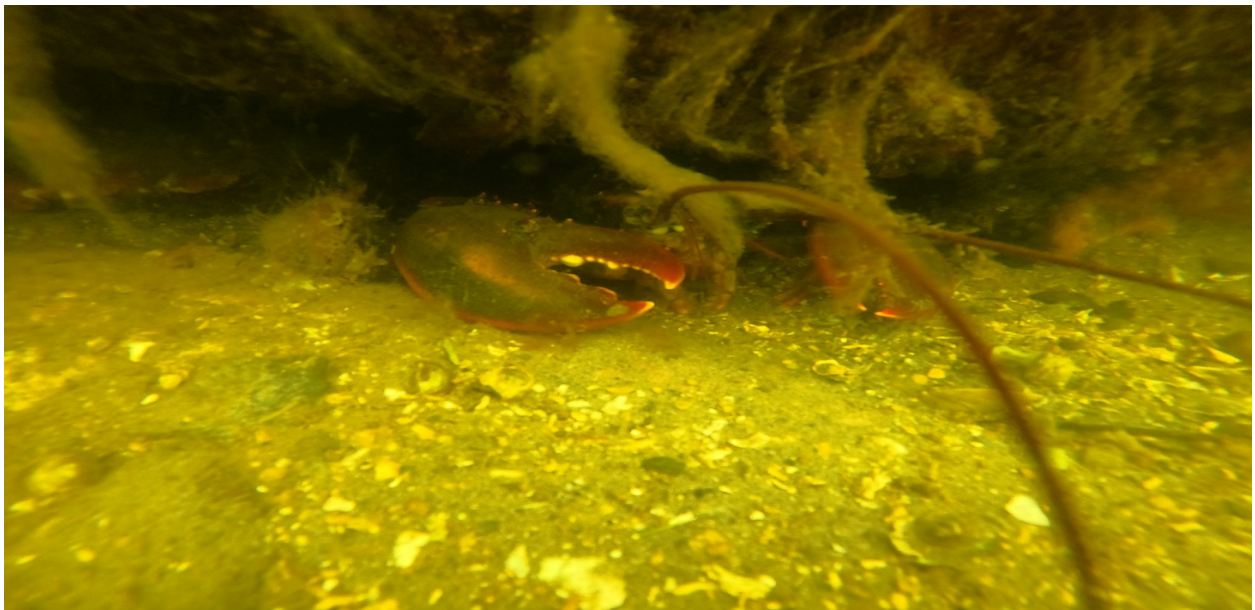


Photo 4. Lobster at Sears Island. August 2022.

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Photo 5. Green sea urchins, common periwinkles, and northern rock barnacles on a boulder in the shallow subtidal at Sear Island. September 2023.

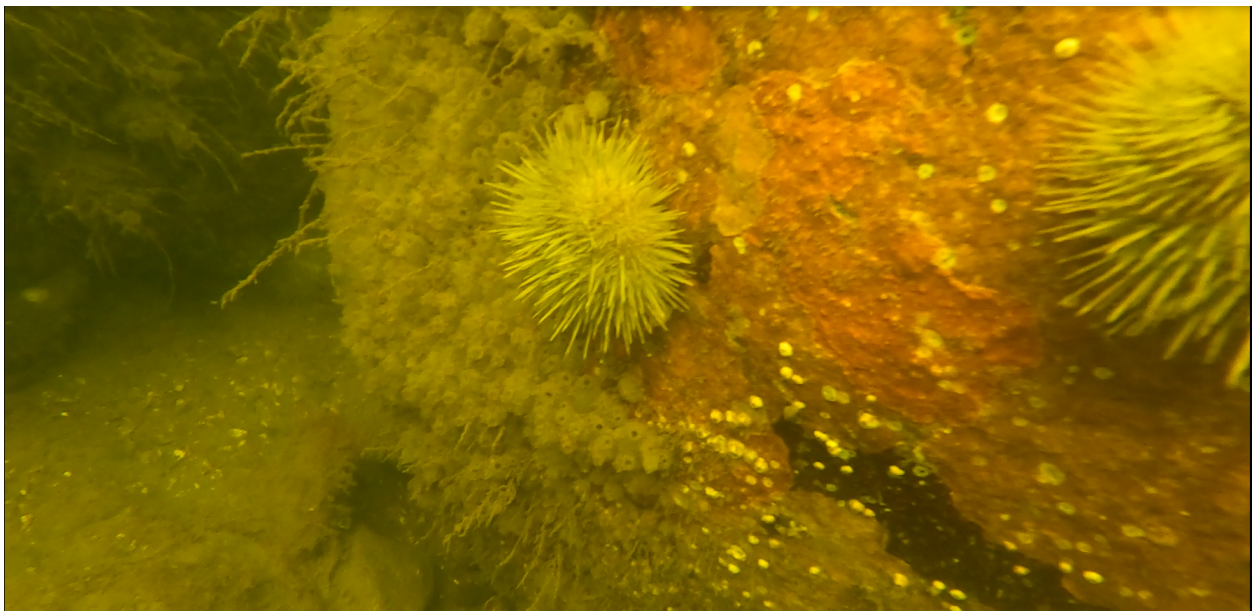


Photo 6. Green sea urchin and sea vase in the shallow subtidal at Sears Island. September 2023.

April 12, 2024

Eric Ham

Page Attachments

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Photo 7. Pipefish at Sears Island. August 2022.

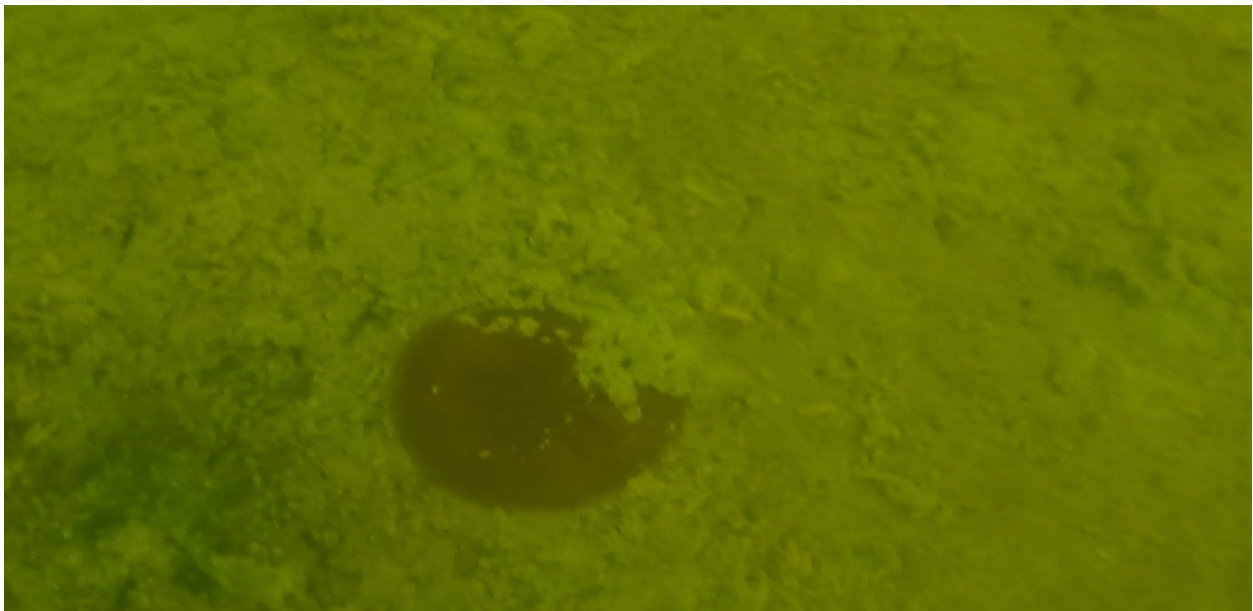


Photo 8. Sand dollar at Sears Island. August 2022.

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Photo 9. Sea star in the shallow subtidal at Sears Island. September 2023.



Photo 10. Encrusting black tunicate at Sears Island. August 2022.