Assessing Bay Scallop Abundance Using Image-Based and Diver Sampling

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Agenda

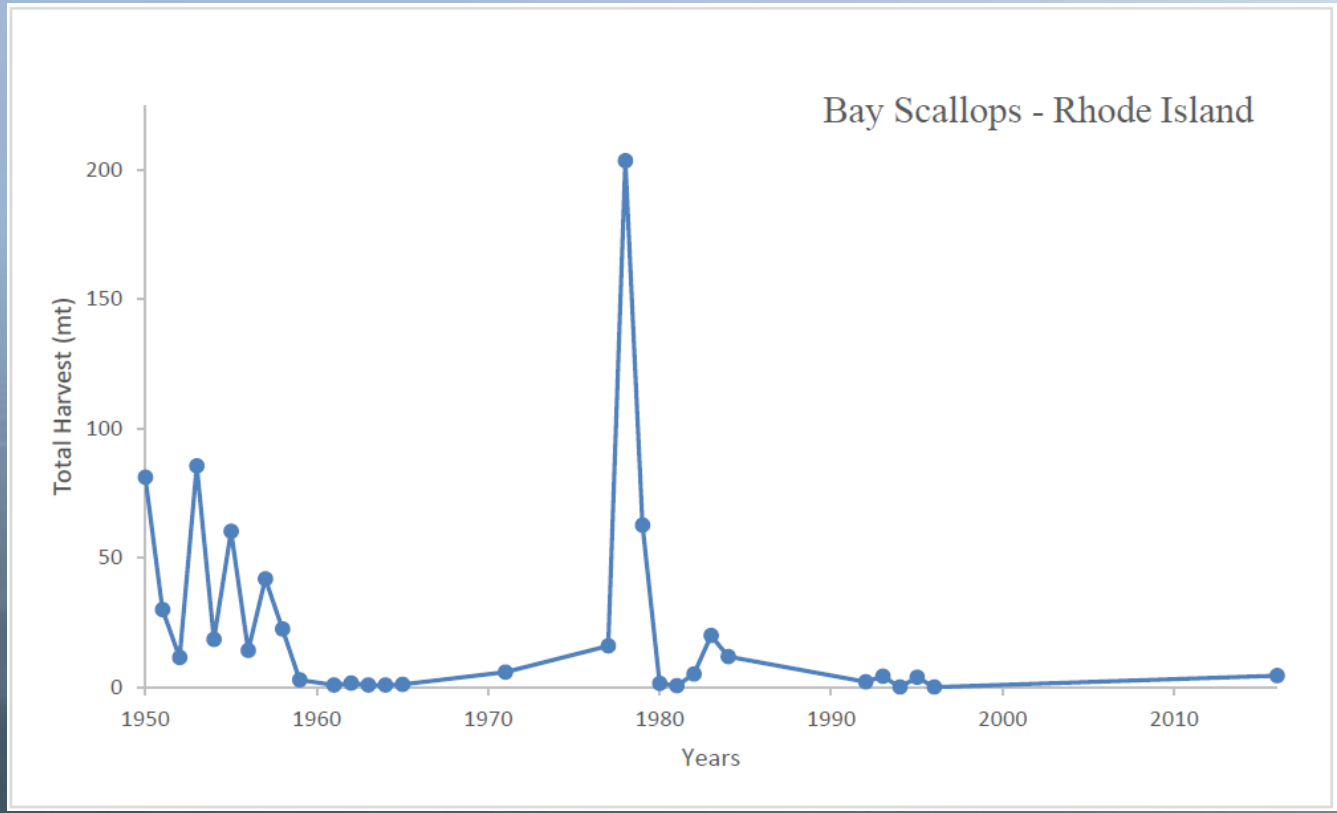
1. Background
2. Objective
3. Methods
4. Next Steps

Background

1. *Argopecten irradians*

Background

1. History of the Bay Scallop in Rhode Island



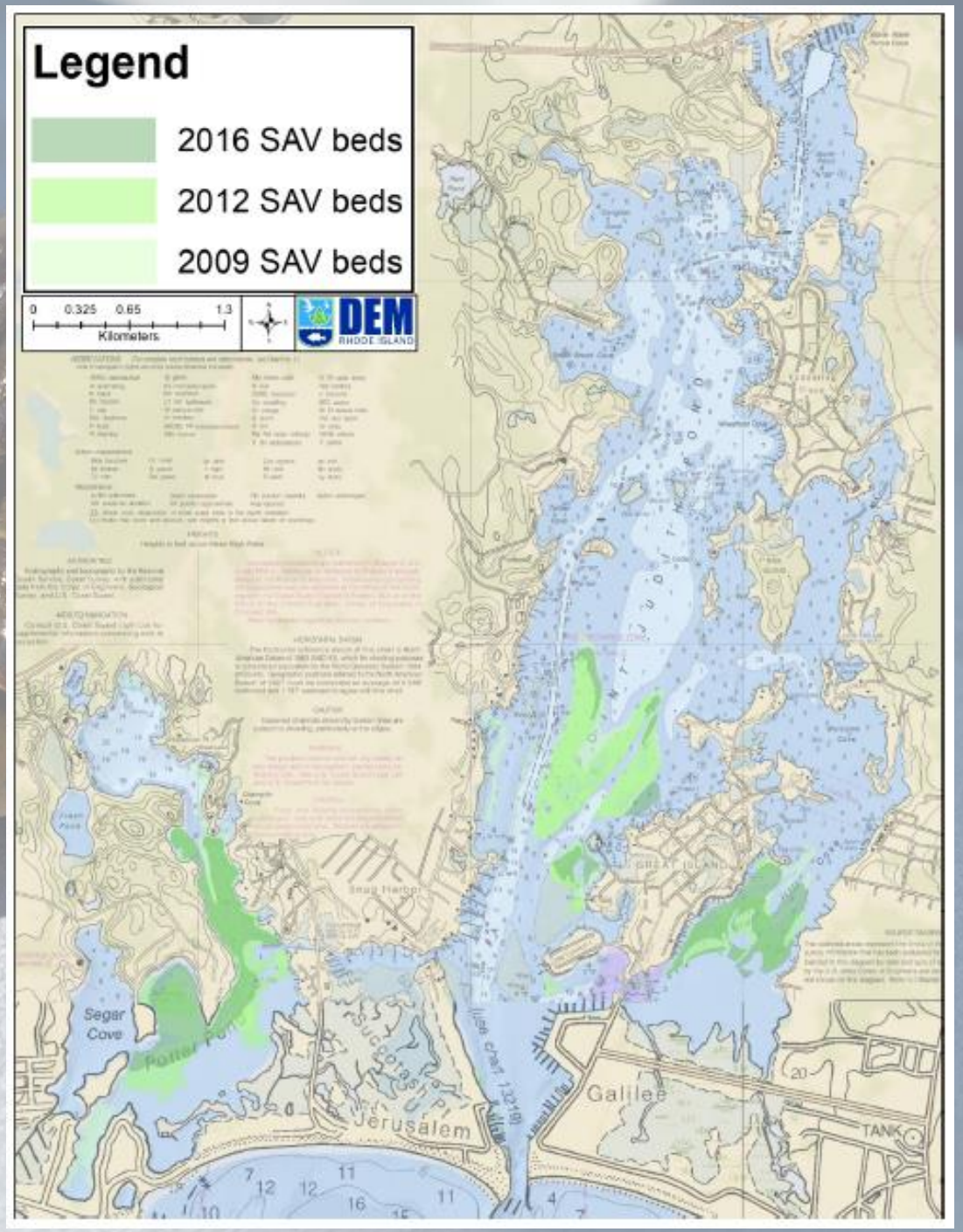
Objectives

1. Assessment of bay scallop population dynamics.

2. The establishment of a long-term bay scallop monitoring program within Rhode Island to improve the management and regulation of the species and its associated habitat.

Methods - Divers

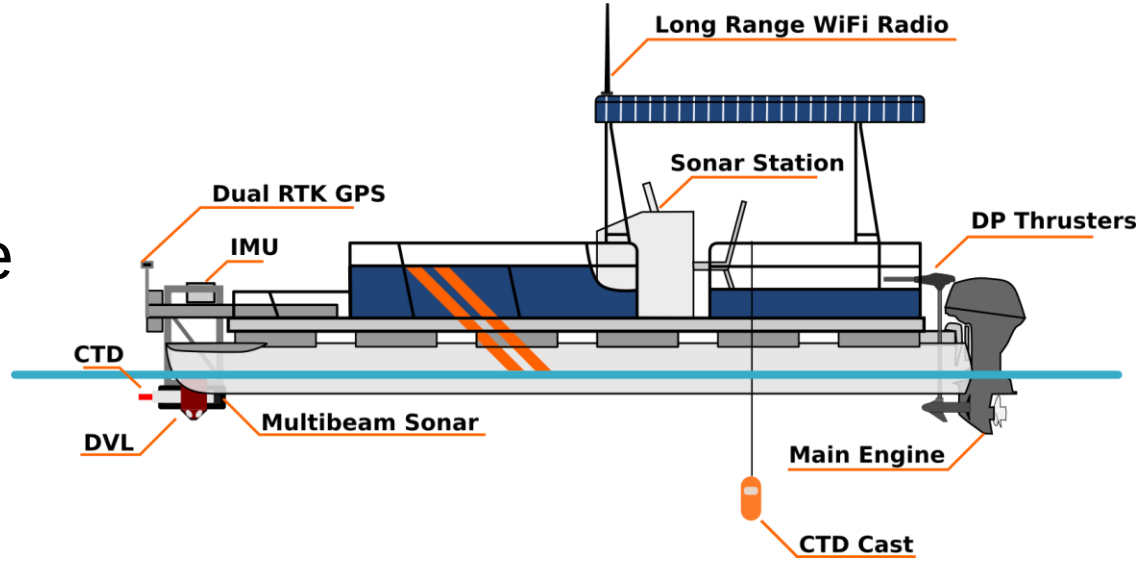
1. Site selection



Methods - Divers

1. Site selection
2. Dive Survey

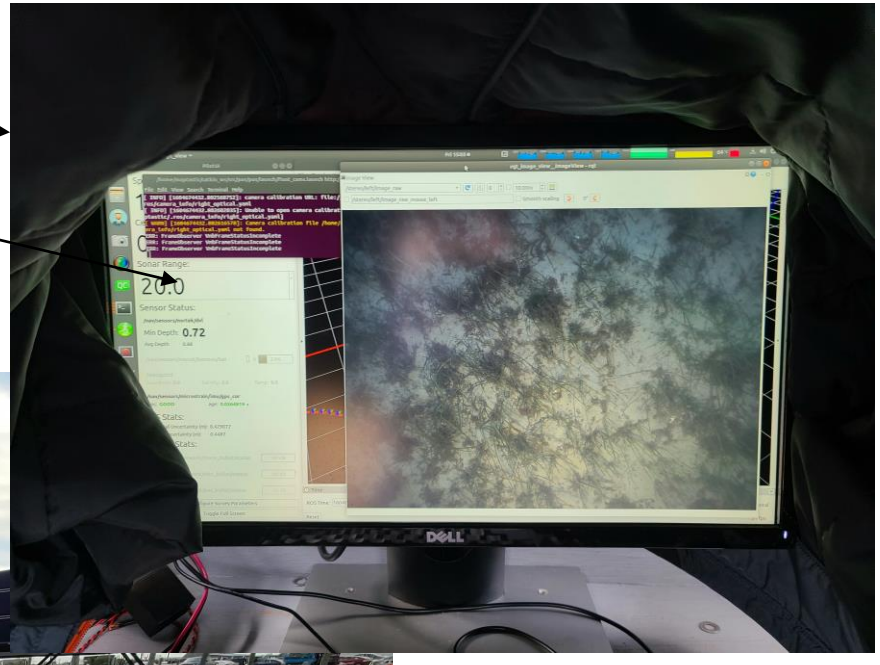
- Original plan
  - Autonomous kayak
  -
  -
  -
  -
  -
- This year
  - Pontoon of Science (POS)
  -



Towel of Science (TOS)

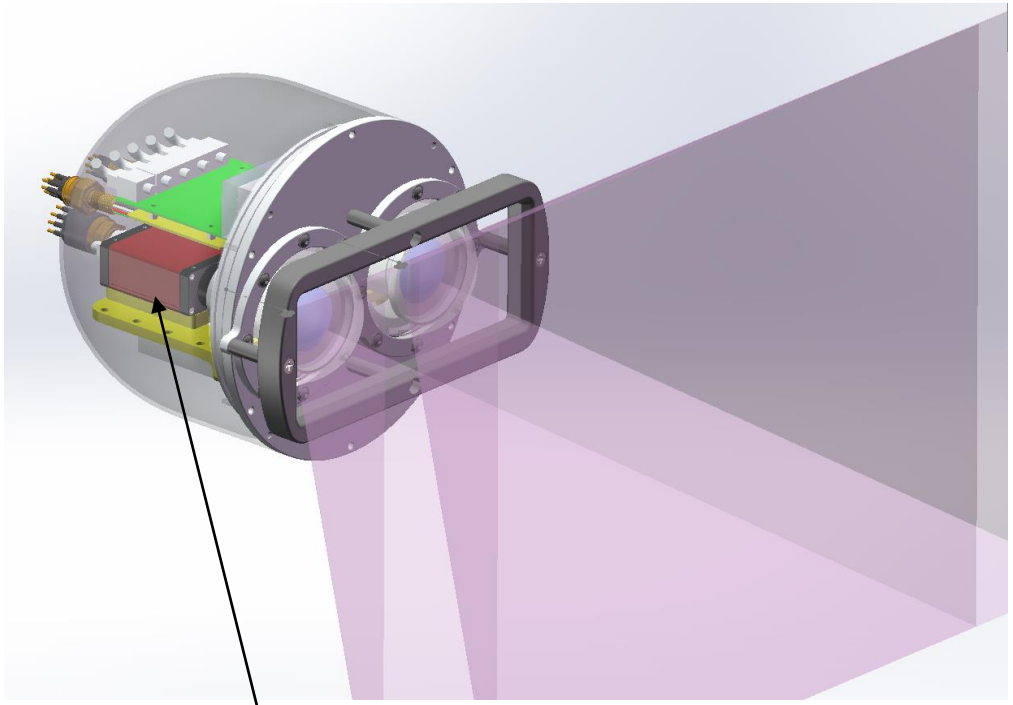
Realtime image viewing

My boat

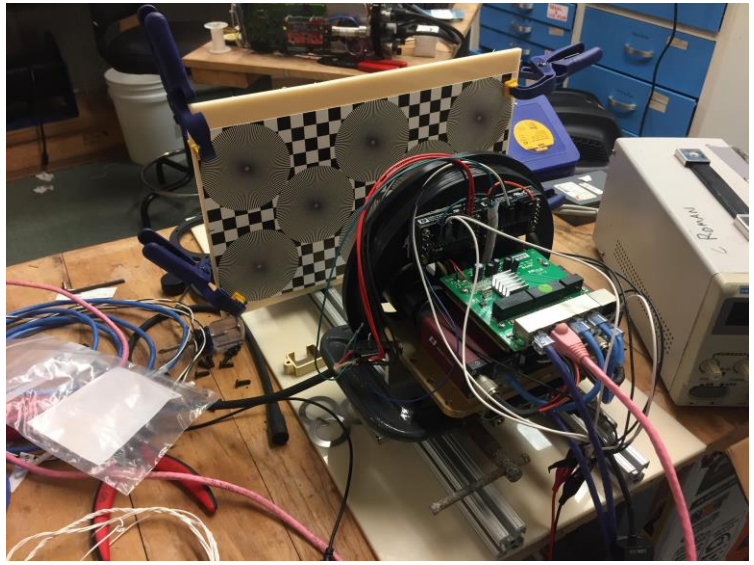


Busted outboard

Camera system



- Cameras – Prosilica Manta G-1236C
- - 4,112 x 3,008
  - -12 mega pixel
  - -12 bit
  - 60 deg wide field of view

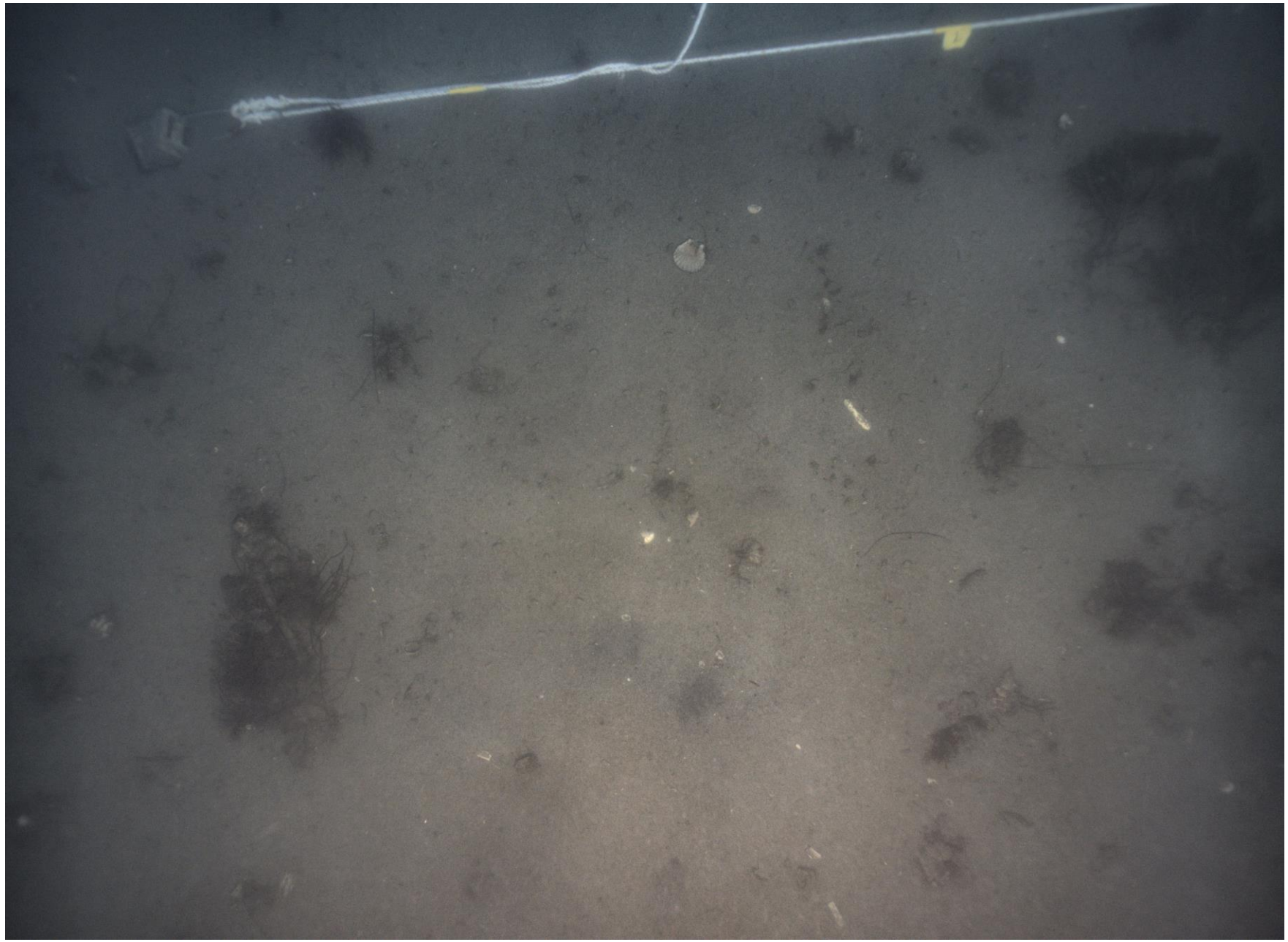


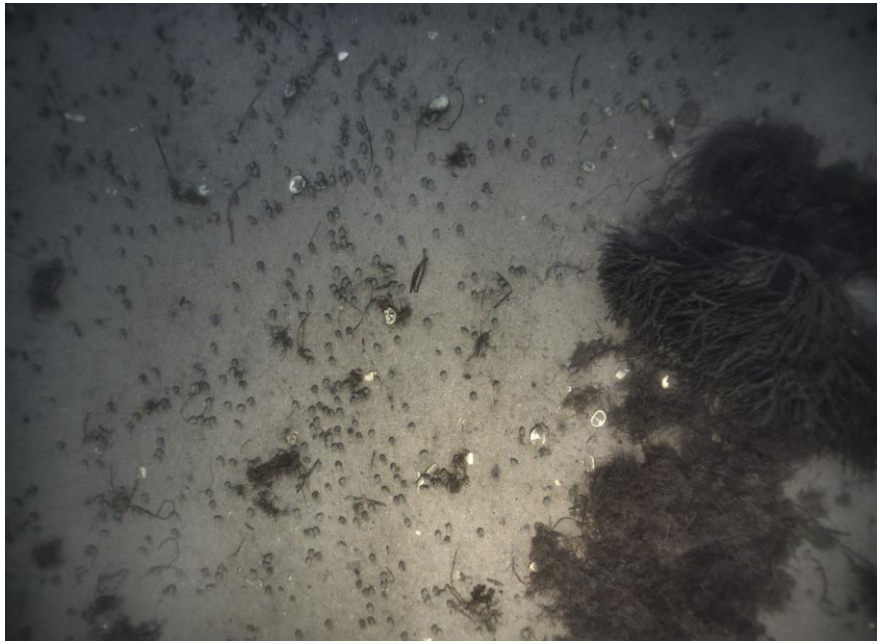
Camera system

LED strobe
(2 msec flash)

Cameras

Doppler Velocity Log (DVL)
Velocity over the bottom, altitude
(not really necessary for this application)





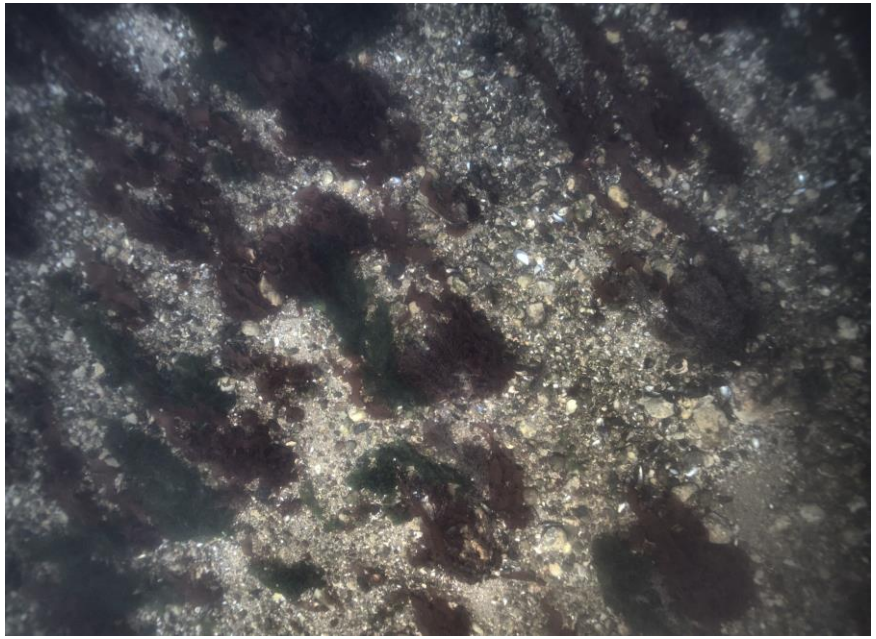
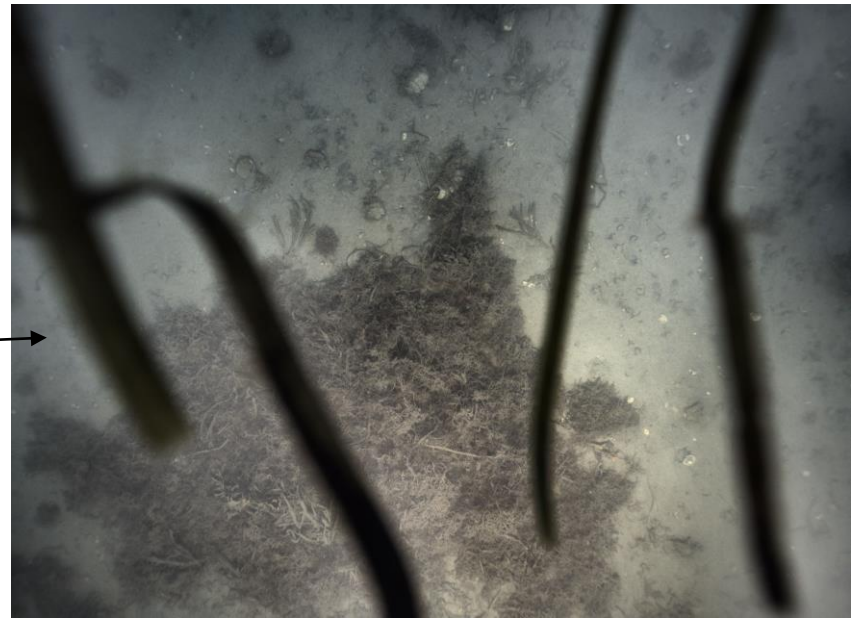
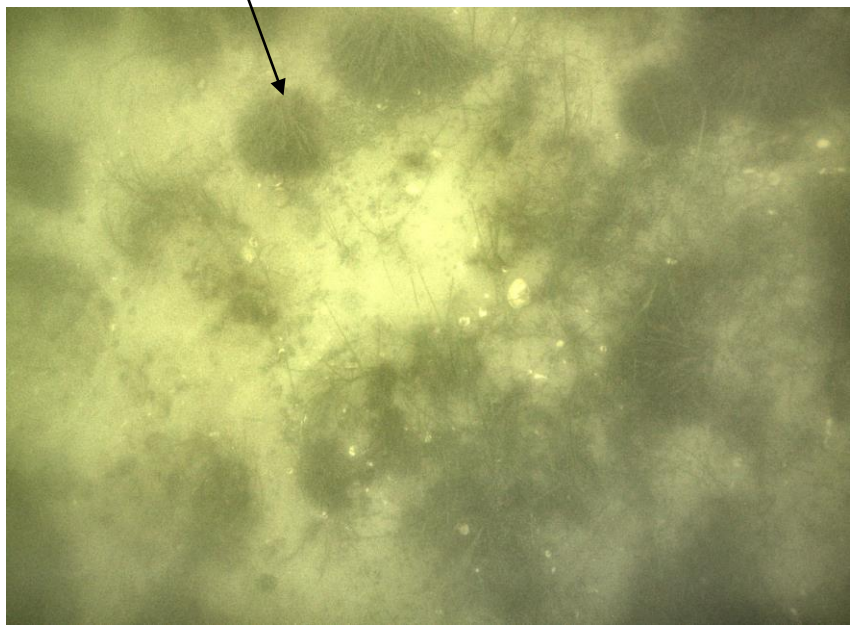


Image issues

Seaweed



No strobe



Too deep

Sample survey tracklines

- Survey at ~3 knots

Diver lines

General thoughts

- Cameras and strobe worked pretty well
  - More light would be nice, less motion blur
  - Will improve edge focus
- Seems reasonable to move to kayak next year
- Currently range limited to about 1.5 meters of water; light and particulates
- Need to automate some more of the processing
  - Culling images that are too deep or just crappy
  - Color correction, light balancing
  - Geo reference for each image (.kml or ARCgis files)
- Figure out an annotation scheme

Next Steps…

1. Analyzing the 2020 survey data

2. Expand survey area for next year


Questions?