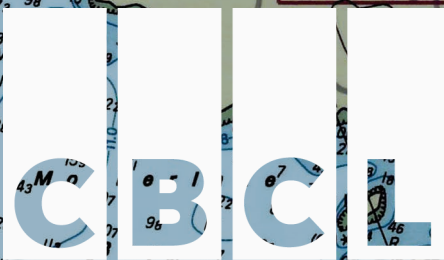


MARINE ATLANTIC INC.

Port aux Basques Harbour Navigation Improvement Project Underwater Benthic Habitat Survey Port aux Basques, NL

Final



	Final	Loretta Hardwick	03/15/2021	Chris Thorpe
	Draft	Loretta Hardwick	04/11/2020	Colin McVarish
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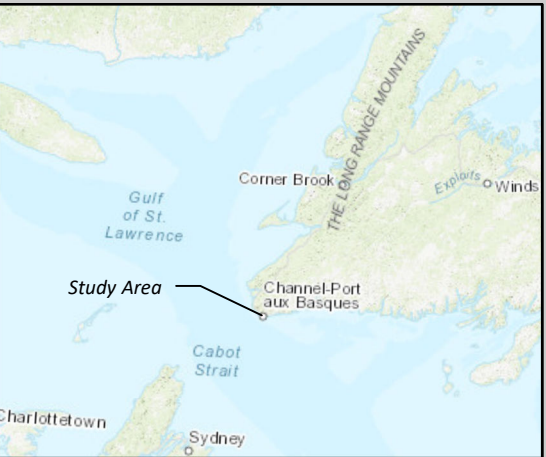
Marine Atlantic Inc. (MAI) is proposing improvements to the navigation conditions in Port aux Basques Harbour, (the Project), on the southwestern tip of Newfoundland (Figure 1). The proposed navigational improvements in the harbour involve realignment of the navigation channel and the establishment of a new turning basin. Activities required to achieve these navigational improvements include deepening the realigned channel and new turning basin, removal of Vardy's Island, partial removal of Baldwin Rock, and re-use and/or disposal of the dredged material.

To support the design of the Project and applications for environmental approvals, CBCL Limited (CBCL) completed an underwater benthic habitat survey (UBHS) in Port aux Basques Harbour to describe the present state of the benthic habitat within the harbour.

This report presents the findings of a UBHS field survey consisting of 38 transects, 159 spot checks, 10 baited remote underwater video stations (BRUVS) and seven shoreline survey transects. Six potential dredge or infill areas were assessed:

- **Baldwin Rock** – located in the navigation channel in the outer harbour
- **Graveyard Point** – located in the navigation channel in the outer harbour
- **South Turning Basin** – located in the southwest corner of the turning basin and navigation channel in the inner harbour
- **Vardy's Island** – located in the center of the turning basin in the inner harbour
- **Pikes Island Infill area** – located between Vardy's and Pikes Island
- **Pikes Island Breakwater** – located south of Pikes Island

The UBHS also included assessment of marine habitats in the inner and outer harbour. The survey locations are shown in Figures 2 to 4.

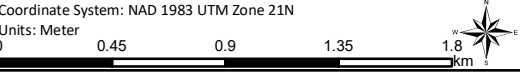


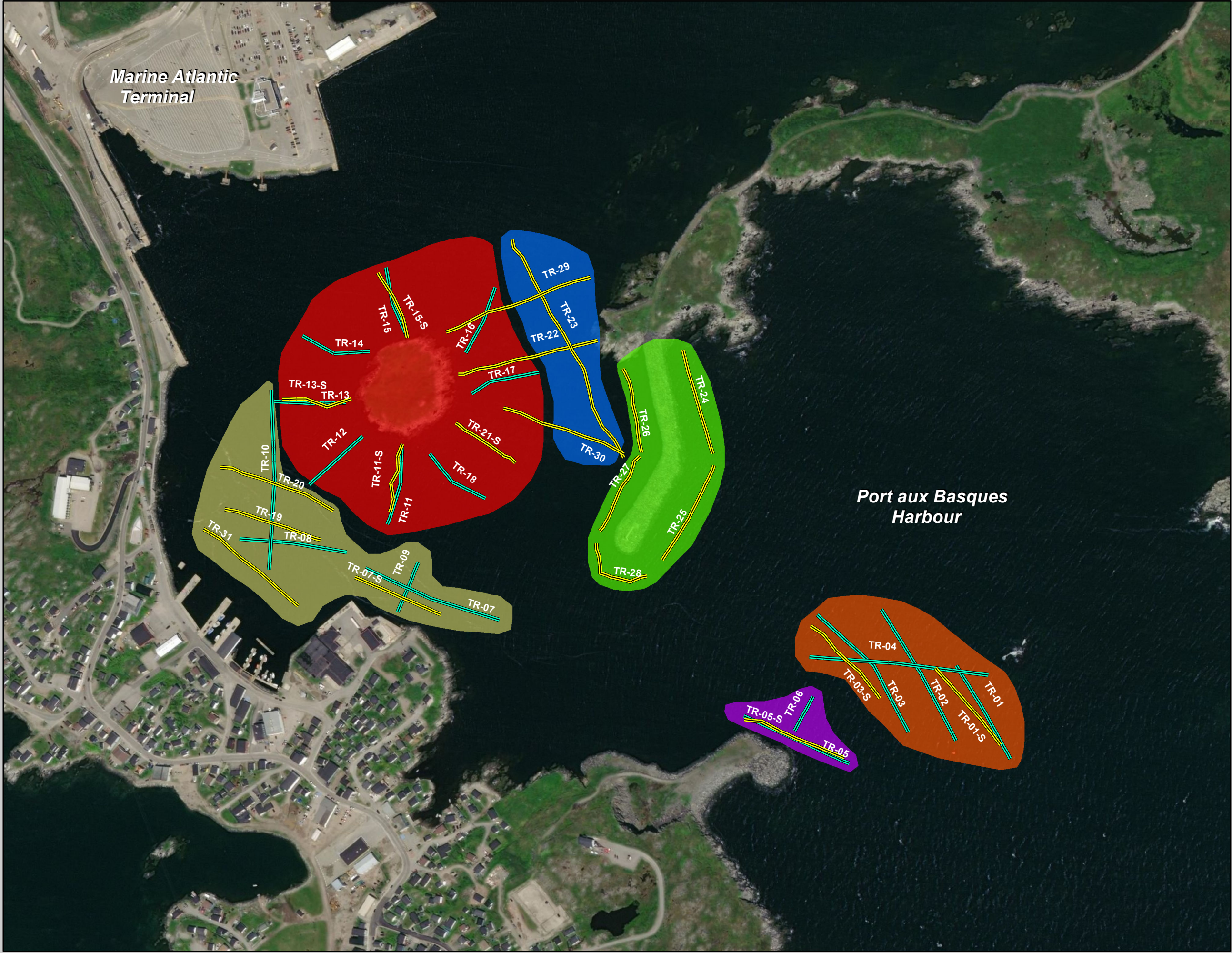
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Figure 1: Site Location

Drawn by: NH	Date: 2020-09-24
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:30,000

Notes:
Under Water Benthic Habitat Survey (UBHS) location: Port aux Basques Harbour, Newfoundland





Legend

Summer Transects
Winter Transects

Transect_Area

Baldwin's Rock
Grave Yard Point
Pikes Island Breakwater
Pikes Island Infill
South Turning Basin
Vardys Island

CBCL

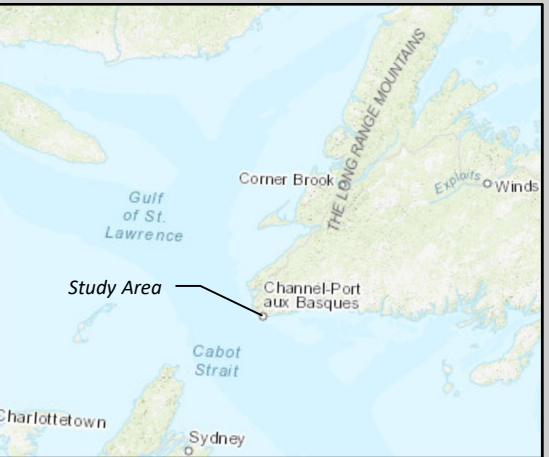
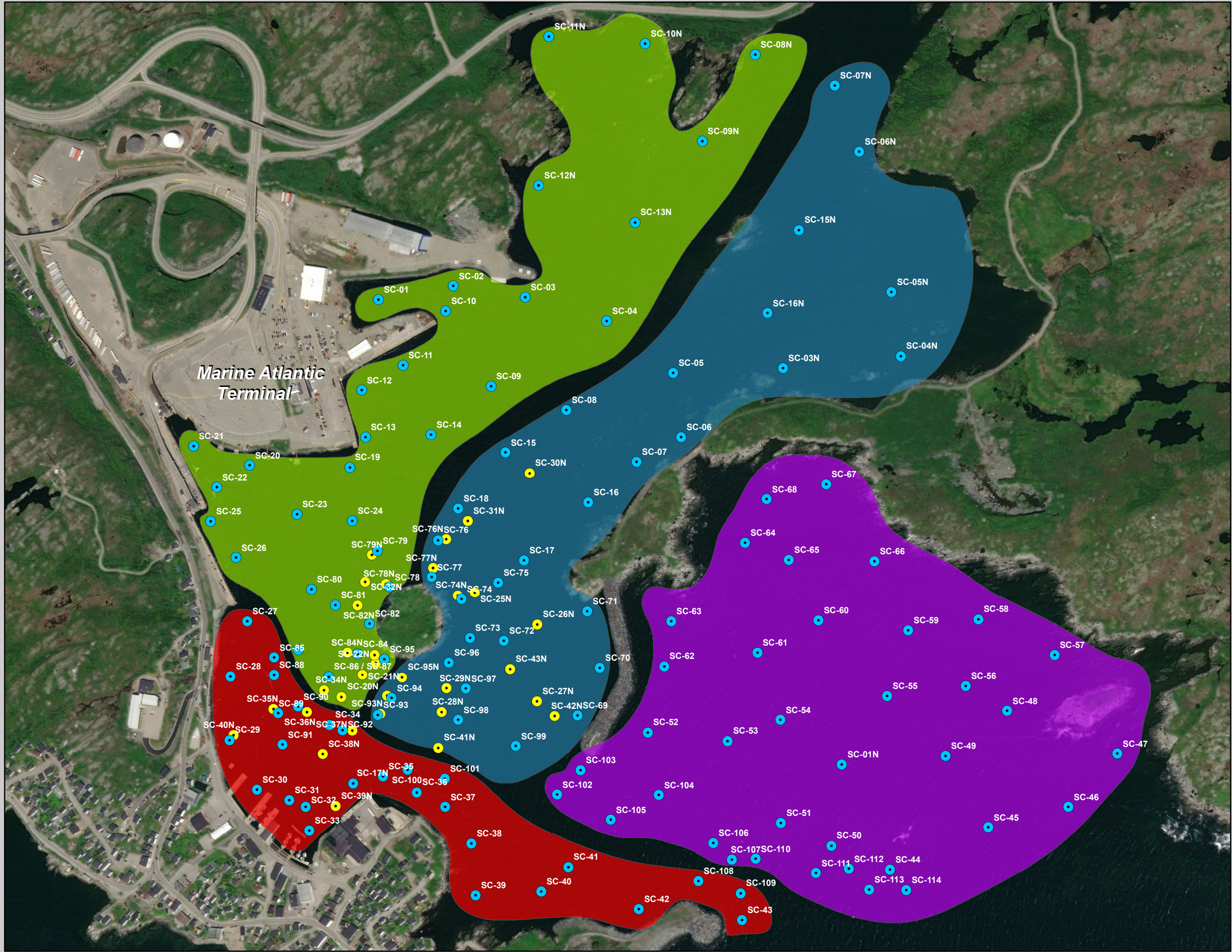
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Figure 2: Transect Locations

Drawn by: NH	Date: 2020-10-16
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:5,000

Notes: Underwater Benthic Habitat Survey (UBHS) winter transects were surveyed in February 2020 and summer transects were surveyed in July 2020

Coordinate System: NAD 1983 UTM Zone 21N
Units: Meter
0 0.075 0.15 0.225 0.3 km



- Legend**
- Summer Spot Check Locations
 - Winter Spot Check Locations
 - Spot Check Area 1
 - Spot Check Area 2
 - Spot Check Area 3
 - Spot Check Area 4

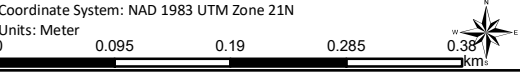


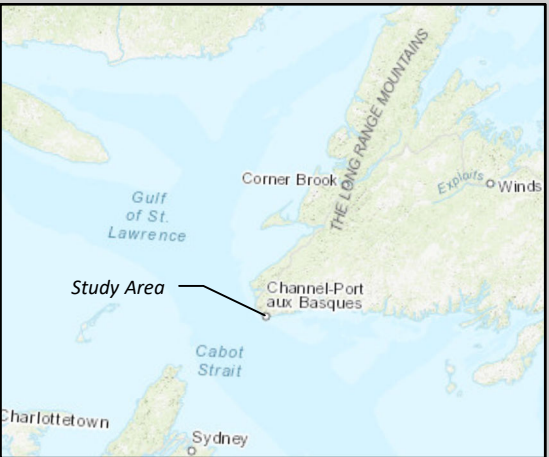
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Figure 3: Spot Check Locations

Drawn by: NH	Date: 2020-10-16
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:6,200

Notes:
Underwater Benthic Habitat Survey (UBHS) winter spot checks were conducted in february 2020, summer spot checks were conducted in July 2020





Legend

-  BRUV Stations
-  Shoreline Survey

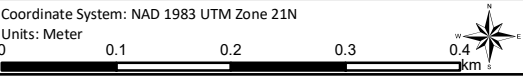


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Figure 4: BRUVS and Shoreline Survey

Drawn by: NH	Date: 2020-09-24
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:6,600

Notes:
Baited Remote Underwater Survey (BRUVS) and Shoreline Survey



The UBHS program was developed following guidance documents issued by the Fisheries and Oceans Canada (DFO) Fish and Fish Habitat Protection Program (DFO, 2020), provisions under the federal *Fisheries Act* and the *Species at Risk Act* (SARA), and the professional judgement of CBCL biologists. CBCL field staff, aided by a sub-contracted commercial diving organization (Sparkes Subsea Construction), completed the UBHS in Port aux Basques Harbour from February 24 to 29, 2020 and from July 23 to 29, 2020.

CBCL and Sparkes Subsea Construction (Sparkes) deployed to the survey areas on a small landing craft owned and operated by Sparkes for dive tendering service. CBCL supervised the deployment of 38 linear transects, 159 spot checks, 10 BRUVS and 7 shoreline surveys and were present for the entirety of each survey. Videos transects and spot checks were filmed using a GoPro Hero 6+ high definition camera encased in a waterproof shell, with dual high-intensity LEDs providing supplementary lighting.

2.1 Transect Survey

The UBHS transect survey consisted of 38 linear transects conducted at predetermined locations in six proposed dredge/infill areas and navigation channel (Figure 2). 18 transects were surveyed during the winter deployment, and 13 transects were surveyed during the summer deployment. Seven (7) transects were surveyed during the winter and again during summer deployment. The repeated transects were to gauge whether the biota in the area changed markedly during the summer growing season, to accommodate alterations to dredge areas, and to target shallower depths. The completed transects measured between 50 metres and 350 metres in length. Each linear transect was demarcated in the field using a lead line marked at 5- and 10-metre intervals. The divers stopped at every 10-metre interval (0 to 10 metres, 10 to 20 metres, etc.) and perform 180° pans of their video camera to record the surrounding habitat, in addition to the benthic environment along the transect line. The diver generally started recording at the 0-metre interval and proceeded in 10-metre intervals to the end of the transect line.

Videos were recorded along the linear transect by divers using SCUBA and covered an approximately 2- to 4-metre wide swath of bottom centered on the transect line. The divers swam along the transect at a relatively slow pace in order to provide sufficient clarity for interpretation of the recorded videos. In general, the divers spent between one and three minutes surveying each 10-metre interval. The divers also probed benthic sediments at each 5- or 10-metre interval using a 1-metre rebar probe to estimate sediment depths along each transect line. The results of the transect survey are provided in Appendix A.1. Start and end coordinates for the transects are provided in Appendix B.

2.2 Spot Check Survey

The UBHS spot check survey consisted of 360° video pan spot checks at 159 locations in Port aux Basques Harbour. A total of 110 planned and 17 additional spot checks were completed during the winter deployment. 32 spot checks were conducted during the summer deployment. The camera operator recorded 60 to 120 seconds of benthic footage at each spot check location while slowly rotating through 360 degrees within the spot check area. The full results of the spot check survey are provided in Appendix A.2. Coordinates for the spot checks are provided in Appendix B. Spot check locations are depicted in Figure 3.

2.3 Shoreline Survey

The UBHS shoreline survey consisted of 7 transects conducted from a small watercraft. The survey was completed in shallow waters near shore, up to the intertidal zone where possible. CBCL field staff visually documented the shoreline and subtidal habitats using a handheld camera and an underwater viewer that allowed for bottom viewing in up to 5 metres of water. The divers simultaneously recorded video footage along each shoreline transect using an underwater video camera attached to the end of a telescopic rod, which could be extended approximately 3.5 metres out from the side of the boat. The camera operator recorded both the exposed shoreline and intertidal habitats, as well as subtidal habitats below the low water mark.

The full results of the shoreline survey are provided in Appendix A.3. Start and end coordinates for the transects are provided in Appendix B. Shoreline transect locations are depicted in Figure 4.

2.4 Baited Remote Underwater Video Stations

BRUVS were deployed in 10 locations in Port aux Basques Harbour, including the proposed dredge and disposal areas, to ascertain the presence of motile fish species in the harbour. Sites selected for the BRUVS were based on two criteria: 1) the location of the proposed dredging and disposal areas in the harbour, and 2) to provide a spatially balanced representation of habitats found throughout the inner and outer harbour. The position of each BRUVS was adjusted *in situ* if visibility was obstructed by dense algal coverage.

CBCL personnel deployed a BRUVS consisting of the GoPro high-definition camera and supplemental LED lights attached to a weighted frame for approximately 30 minutes on bottom at each station. Each BRUVS was baited with a combination of fresh caught cod and canned sardines placed into a plastic mesh bait bag which was attached to the end of the frame at a distance of about 0.8 metres from the camera.

Video footage for each station was reviewed in two-minute intervals, during which time all finfish species observed within this interval were identified and enumerated. The relative abundance was determined by identifying the maximum number of each individual species in the video frame at any one time per interval. Identifying the maximum number of individual fish per interval reduces the chance of recounting the same fish.

The full results of the BRUVS survey are provided in Appendix A.4. Coordinates for each BRUVS are provided in Appendix B. BRUVS locations are depicted in Figure 4.

2.5 Habitat Classification and Function

Upon review of the underwater video, habitats were categorized based on substrate type and the observed presence of flora and fauna. Substrate types were approximated visually using the Udden-Wentworth sediment classification scale (Wentworth, 1922):

- **Boulder** – > 256 mm
- **Cobble** – 64 to 256 mm
- **Gravel** – 2 to 64 mm
- **Fines** – < 2 mm (sand and mud)

The Udden-Wentworth sediment classification scale (Wentworth, 1922) does not address bedrock substrate types; continuous solid bedrock was observed in the Project Area and was noted in addition to the listed substrate types described by Udden-Wentworth.

For the purpose of mapping substrates in the harbour, nine substrate categories were assigned based on the proportion of each of the substrate types defined above. These categories were estimated during video interpretation and include the following:

- **Bedrock Dominant** – ≥60% bedrock substrate
- **Boulder Dominant** – ≥60% boulder substrate
- **Cobble Dominant** – ≥60% of cobble substrate
- **Gravel Dominant** – ≥60% of gravel substrate
- **Cobble and Gravel Dominant** – ≥60% combined cobble and gravel substrates
- **Rocky Dominant - Mixed** – ≥60% combined two or more types of rock (excluding cobble and gravel)
- **Mixed Variable Rock** – ≥60% combined four or more types of rock
- **Fines with Variable Rock** – ≥40% fines substrates and ≤60% of two types of rock
- **Fines Dominant** – ≥60% fines substrate

Marine macrofauna species abundance was estimated through a modified Connor and Hiscock (1996) semi-quantitative scale:

- **Abundant (A)** – Numerous observations
- **Common (C)** – Frequent observations
- **Occasional (O)** – Intermittent observations
- **Uncommon (U)** – Rare or infrequent observations

Marine macrofloral species abundance was also estimated through a modified Connor and Hiscock (1996) semi-quantitative scale:

- **Abundant (A)** – Total percent coverage between 75 to 100%
- **Common (C)** – Total percent coverage between 50 to 74%
- **Occasional (O)** – Total percent coverage between 25 to 49%

- **Uncommon (U)** – Total percent coverage between 0 to 24%

An interpretation table describing benthic substrate composition, macroflora, and macrofauna observed along each 10-metre interval during the transect survey is provided in Appendix A.1. An interpretation table describing the surveyed spot checks locations is provided in Appendix A.2.

2.6 UBHS Quality Assurance / Quality Control

High-resolution digital video was recorded at each of the 38 transects, 159 spot checks, 10 BRUVS and 7 shoreline surveys as per the field survey program designed by CBCL. The imagery collected accurately represents the observed benthic habitats at the time field work was conducted, and depicts benthic substrates, macroflora and macrofauna (if present) at each of the surveyed locations. An object of known dimension is present in each transect (demarcated transect line) and provides scale to the observer. This allowed for a more accurate estimation of benthic habitat and substrate types, and can aid in the identification of macroflora and macrofauna. Metadata collected for each site included time of day, geospatial waypoint location, and depth to the bottom from the keel of the boat, in addition to overall weather and light conditions and underwater visibility range, as estimated by divers and field personnel.

Divers' comments were recorded upon completion and used to supplement the desktop video interpretation as necessary. These comments were utilized in certain instances to augment and supplement the interpretation of the benthic environment. For instance, the diver may describe the bottom as sandy or silty fines, depending on their location in the harbour.

A brief description of the predominant benthic substrate, macroflora, and macrofauna observed during the transect survey in each area is provided in the following subsections. A map of the transects is provided in Figure 2. The full video interpretation results of the transect survey is provided in Appendix A.1. Representative images of habitats and species observed in each area are provided in Appendix C.

3.1 Baldwin Rock Transects

Six transects measuring from 140 metres up to 250 metres in length were completed in the Baldwin Rock dredge area. Benthic substrates observed in this dredge area are generally bedrock, with occasional patches consisting of boulder, cobble, gravel, and fines. Fines were primarily located in fractures in the bedrock.

3.1.1 Transect 1

Transect 1 covered 150 metres aligned northwest to southeast through the eastern portion of the dredge area. Benthic substrate observed in Transect 1 primarily consisted of a bedrock outcrop occasionally overlain with rocky substrates including boulder, cobble, and gravel. Fine sediment (sand) was infrequently observed in small patches in bedrock fractures.

Nearly all available rocky substrates were colonized by encrusting red coralline algae and an over-canopy of kelps and fucoids (*Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina longicuris*). The total coverage of the algal over-canopy varied along the transect, and the presence of green sea urchins appeared to be strongly associated with the presence of kelp. Kelps were abundant where urchins were absent or uncommon. As the number of urchins observed increased, the abundance of kelp decreased, and vice versa. In a few intervals the algal over-canopy appeared to have been consumed by grazing urchins. One juvenile sculpin (*Myoxocephalus* sp.) was observed, along with other common fauna including urchins, mussels (*Mytilus* sp.), frill sea anemones (*Metridium senile*), littorines, seastars, brittlestars, limpets, chitons, small shrimp, and ctenophores.

Interpretation of the video recorded along Transect 1 is summarized as follows:

- **0 to 120 m** – Rocky habitat predominantly composed of bedrock (60 to 100%) with less frequent observations of boulder (0 to 15%), cobble (0 to 25%), and gravel (0 to 10%)
- **120 to 140 m** – Mixed rocky habitat composed of bedrock (45 to 50%), boulder (5%), and cobble (5 to 10%) with sandy fines (40%) accumulated in bedrock fractures
- **140 to 150 m** – Rocky habitat predominantly composed of bedrock (80%) with occasional boulder substrate (10%), and infrequent cobble (5%) and sandy fines (5%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy varied between uncommon and abundant in the transect

- **Macrofauna** – Uncommon to abundant in the transect
- **Depth Range** – 3.1 to 21.4 metres

3.1.2 Transect 1-S

Transect 1-S covered 145 metres aligned northwest to southeast through the eastern portion of the dredge area. Benthic substrate observed in Transect 1-S primarily consisted of a shallow bedrock outcrop occasionally overlain with other mixed rocky substrates including boulder, cobble, and gravel.

Nearly all available rocky substrates were colonized by encrusting red coralline algae and a mixed over-canopy of kelps and fucoids (*Agarum clathratum*, *Alaria esculenta*, *Laminaria digitata*, *Saccharina longicuris*) which primarily consisted of *Agarum clathratum*. The observed algal over-canopy was not particularly dense and did not exceed more than 0.5 metres in height from the bottom. Overall bottom coverage was good, however, with coverage between 75 to 100% between the 0-metre and 100-metre intervals. Algal bottom cover was lesser in the last 40 metres of the transect, with occasional bottom coverage ranging from 25 to 50%. One American lobster (*Homarus americanus*) was observed sheltering in the algal canopy over bedrock bottom, along with other common fauna including green sea urchins (*Strongylocentrotus droebachiensis*), waved whelk (*Buccinum undatum*), mussels (*Modiolus modiolus* and *Mytilus* sp.), sea peach tunicates (*Halocynthia pyriformis*), littorines, seastars, brittlestars, limpets, chitons, slipper snails, mysid shrimp (*Mysis* sp.), and ctenophores.

Interpretation of the video recorded along Transect 1-S is summarized as follows:

- **0 to 40 m** – Rocky habitat predominantly composed of bedrock (60 to 100%) with occasional boulder (0 to 20%), cobble (0 to 10%), and gravel (0 to 10%) substrates
- **40 to 50 m** – Mixed rocky habitat composed of bedrock (20%) and boulder (25%) with small beds of mixed cobble (30%) and gravel (25%) substrates
- **50 to 70 m** – Rocky habitat primarily composed of bedrock (80%) with infrequent patches of boulder (5%), cobble (10%) and gravel (5%) substrates
- **70 to 80 m** – Rocky habitat primarily consisting of boulder (60%) over bedrock (20%) substrate with patches of mixed cobble (10%) and gravel (10%)
- **80 to 140 m** – Rocky habitat predominantly composed of bedrock (65 to 90%) with occasional boulder (5 to 25%) substrates and lesser quantities of cobble (5 to 10%) and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy varied between occasional and abundant in the transect
- **Macrofauna** – Uncommon to occasional in the transect
- **Depth Range** – 3.0 to 18.3 metres

3.1.3 Transect 2

Transect 2 was a 200-metre transect aligned northwest to southeast through the central portion of the dredge area. Benthic substrate observed in Transect 2 consisted almost entirely of a bedrock outcrop infrequently overlain with small quantities of rocky substrates including boulder, cobble, and gravel.

Nearly all available rocky substrates were colonized by encrusting red coralline algae and an over-canopy of fucoid and kelp algae (*Agarum clathratum*, *Alaria esculenta*). The algal over-canopy of *Agarum clathratum* was particularly dense with bottom coverage of 80 to 90% through most intervals.

Green sea urchin was infrequently to occasionally observed through the transect. The dense coverage of algae may be associated with fewer observations of urchins. Other macrofauna observed through this transect included one toad crab (*Hyas araneus*) and occasional blue mussels, frilled sea anemones, stalked jellyfish (*Lucernarnia quadricomis*), littorines, seastars, brittlestars, limpets, chitons, small shrimp, and ctenophores.

Interpretation of the video recorded along Transect 2 is summarized as follows:

- **0 to 200 m** – Rocky habitat composed of bedrock (70 to 100%) with infrequent patches of boulder (0 to 20%), cobble (0 to 10%), and gravel (0 to 25%) substrates overlaying bedrock
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy is abundant in the transect
- **Macrofauna** – Uncommon to occasional in the transect, except for one interval with abundant urchins
- **Depth Range** – 5.5 to 14.6 metres

3.1.4 Transect 3

Transect 3 was a 200-metre transect aligned northwest to southeast through the western portion of the dredge area. Benthic substrate observed in Transect 3 primarily consisted of a bedrock outcrop occasionally overlain with lesser quantities of rocky substrates including boulder, cobble and gravel. One interval included a small patch of fine sediment (sand) and gravel in a large bedrock fracture.

Nearly all available rocky substrates were colonized by encrusting red coralline algae and an over-canopy of *Agarum clathratum*. The total coverage of the algal over-canopy was largely consistent through the transect and covered between 80 and 90% of the bottom, except for a few intervals with abundant green sea urchins. As the number of urchins observed increased, the abundance of the algal over-canopy decreased, and vice versa. In a few intervals the algal over-canopy appeared to have been largely consumed by grazing urchins. Other macrofauna infrequently to occasionally included horse mussels (*Modiolus modiolus*), frilled sea anemones, stalked jellyfish, littorines, seastars, brittlestars, limpets, chitons, small shrimp, breadcrumb sponge (*Halichondria* sp.), sea peach tunicates (*Halocynthia pyriformis*), fan worms (*Myxicola infundibulum*), and ctenophores.

Interpretation of the video recorded along Transect 3 is summarized as follows:

- **0 to 150 m** – Rocky habitat composed of bedrock (80 to 100%) with less frequent observations of boulder (0 to 15%) and cobble (0 to 5%)
- **150 to 160 m** – Mixed rocky habitat predominantly composed of bedrock (60%) with a patch of sandy fines (35%) and gravel (5%) in a large bedrock fracture
- **160 to 200 m** – Rocky habitat predominantly composed of bedrock (95 to 100%) with infrequent sandy fines (5%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy varied between uncommon and abundant in the transect
- **Macrofauna** – Uncommon to abundant in the transect
- **Depth Range** – 6.1 to 18.9 metres

3.1.5 Transect 3-S

Transect 3-S was a 140-metre transect aligned northwest to southeast through the western portion of the dredge area. Benthic substrate observed in Transect 3-S primarily consisted of a shallow bedrock outcrop occasionally overlain with lesser quantities of rocky substrates including boulder, cobble and gravel. One small patch of fine sediment (sand), gravel and shell grit was also observed in a shallow depression between bedrock ridges.

Nearly all available rocky substrates were colonized by encrusting red coralline algae, an over-canopy of *Agarum clathratum* and *Alaria esculenta*, and an under-canopy of *Polysiphonia* sp. and *Desmarestia* sp. Total bottom coverage of the algal over-canopy was consistently covered between 75 and 100% of the bottom. *Agarum clathratum* was observed in abundance through most intervals, except between the 100-metre and 130-metre intervals where *Alaria esculenta* was observed in abundance. The 30-metre stretch of bottom was fairly shallow (4- to 6-metres deep) and the transition from predominantly *Agarum* in deeper water to *Alaria* in shallower water likely represents vertical algal zonation. Small zones of *Laminaria digitata* and *Desmarestia* sp. were also observed along the transect.

Macrofauna was observed along the transect in small numbers. One American lobster, one ocean pout (*Zoarces americanus*), one sculpin, and one winter flounder (*Pseudopleuronectes americanus*) were observed on bottom, and a fairly large school of 30 or more cunner (*Tautoglabrus adspersus*) was observed a few metres above bottom. Other macrofauna infrequently to occasionally included urchins, mussels, frilled sea anemones, stalked jellyfish, littorines, seastars, brittlestars, limpets, chitons, mysid shrimp, breadcrumb sponge (*Halichondria* sp.), sea peach tunicates, jellyfish (medusa-phase), and ctenophores.

Interpretation of the video recorded along Transect 3-S is summarized as follows:

- **0 to 140 m** – Bedrock dominated substrate composed of bedrock (70 to 90%) with lesser amounts of boulder (0 to 20%), cobble (0 to 10%), and gravel (0 to 10%) substrates
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy was abundant in the transect
- **Macrofauna** – Uncommon to occasional in the transect
- **Depth Range** – 4.0 to 12.2 metres

3.1.6 Transect 4

Transect 4 covered 250 metres aligned west to east through the center of the dredge area. Benthic substrate observed in Transect 4 consisted entirely of bedrock outcrop with very infrequent observations of gravel and crushed shell grit in small bedrock fractures.

Nearly all available rocky substrates were colonized by encrusting red coralline algae. The algal over-canopy of kelps and fucoids (*Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina longicuris*) varied in total coverage through the transect, and the appeared to be strongly associated with the presence of green sea urchins. Attached algae was abundant through the middle intervals of the transect where urchins were absent or uncommon, however coverage was sparse on the west and east ends of the transect where urchins were abundant. In a few intervals the algal over-canopy appeared to have been largely consumed by grazing urchins. Other macrofauna infrequently observed

included one small sculpin, one whelk (*Buccinum undatum*), and one toad crab, as well as mussels, stalked jellyfish, littorines, seastars, brittlestars, limpets, chitons, small shrimp, and ctenophores.

Interpretation of the video recorded along Transect 4 is summarized as follows:

- **0 to 200 m** – Rocky habitat composed of bedrock (95 to 100%) with infrequent patches of gravel (0 to 5%) substrate overlaying bedrock
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy varied between uncommon and abundant in the transect
- **Macrofauna** – Uncommon to abundant in the transect
- **Depth Range** – 4.6 to 11.0 metres

3.2 Graveyard Point Transects

Three transects measuring between 50 and 150 metres were completed in the Graveyard Point dredge area. The Graveyard Point dredge area consists of a submerged portion of the Graveyard Point breakwater, and bedrock footing around the base of the breakwater.

3.2.1 Transect 5

Transect 5 covered 150 metres aligned west to east through this small dredge area. Benthic substrate observed in Transect 5 consisted of the boulder slope of the Graveyard Point breakwater and the underlying bedrock at the base of the breakwater, with infrequent patches of gravel and crushed shell grit in the interstices of boulders and in small bedrock fractures.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina longicuris*) and an under-canopy of red and brown algae including *Polysiphonia* sp. and *Desmarestia* sp. The total coverage of the algal over-canopy was largely consistent through the transect and covered between 70 and 90% of the bottom. Green sea urchin was infrequently observed in this transect, as well as infrequent to occasional blue mussels, stalked jellyfish, frilled anemones, littorines, seastars, brittlestars, limpets, chitons, and small shrimp.

Interpretation of the video recorded along Transect 5 is summarized as follows:

- **0 to 90 m** – Rocky habitat composed of boulder (80 to 100%) with infrequent observations of underlying bedrock (0 to 20%)
- **90 to 100 m** – Mixed rocky habitat composed of boulder (50%) and underlying bedrock (50%)
- **100 to 150 m** – Rocky habitat consisting entirely of bedrock (100%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy was abundant in the transect
- **Macrofauna** – Uncommon to occasional in the transect
- **Depth Range** – 4.9 to 13.5 metres

3.2.2 Transect 5-S

Transect 5-S covered 150 metres aligned west to east through this small dredge area along the Graveyard Point breakwater. Benthic substrate observed in Transect 5-S consisted of the boulder slope of the breakwater with infrequent patches of gravel and crushed shell grit overtop and in between the interstices of boulders.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina longicuris*) and an under-canopy of red and brown algae including *Polysiphonia* sp. and *Desmarestia* sp. The total coverage of the algal over-canopy was largely consistent through the transect and covered between 75 and 100% of the bottom. The algal over-canopy ranged in height between 0.5 and 1.0 metres in this area.

Two American lobsters and two rock gunnells (*Pholis gunnellus*) were observed sheltering in the interstices of boulder substrate on the breakwater slope, and one cunner was observed overtop of the algal canopy. Other macrofauna infrequently to occasionally observed included mussels, stalked jellyfish, frilled anemones, littorines, seastars, brittlestars, hermit crab (*Pagurus* sp.), mysid shrimp, limpets, chitons, slipper snails, bread crumb sponge, and sea peach tunicates.

Interpretation of the video recorded along Transect 5-S is summarized as follows:

- **0 to 150 m** – Rocky habitat composed of boulder (90 to 100%) with infrequent observations of cobble (0 to 5%) and gravel (0 to 5%) overtop of the boulder substrate
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy was abundant in the transect
- **Macrofauna** – Uncommon through the transect
- **Depth Range** – 6.4 to 12.2 metres

3.2.3 Transect 6

Transect 6 covered 50 metres aligned north to south through the center of this small dredge area. Benthic substrate consisted of a part of the boulder slope of the Graveyard Point breakwater at shallower depth and transitioned to the underlying bedrock footing at the base of the breakwater at deeper depth. Infrequent patches of crushed shell grit were observed in the interstices of boulders and in small bedrock fractures.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae with an algal over-canopy of kelp and fucoids (*Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina longicuris*) and an under-canopy of red and brown algae including *Polysiphonia* sp. and *Desmarestia* sp. The total coverage of the algal over-canopy was largely consistent through the transect and covered between 70 and 90% of the bottom. Macrofauna was infrequently observed in this transect and included small mussels, littorines, small shrimp and ctenophores.

Interpretation of the video recorded along Transect 6 is summarized as follows:

- **100 to 90 m** – Rocky habitat composed of boulder (10%) over underlying bedrock (90%)
- **90 to 50 m** – Rocky habitat consisting entirely of bedrock (100%)

- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; algal over-canopy was abundant in the transect
- **Macrofauna** – Uncommon in the transect
- **Depth Range** – 7.9 to 22.3 metres

3.3 South Turning Basin Transects

Eight transects were completed in the South Turning Basin dredge area. Transects measured between 75 and 250 metres, however the longest completed transect was 200 metres. Transects 7 and 10 were not completed to their intended end points of 200 and 250 metres, respectively, due to depths exceeding the divers' limit of approximately 18 metres. The end points of these transects were instead captured during the spot check survey, which was completed with a drop camera. Habitats observed in this area are quite variable.

3.3.1 Transect 7

Transect 7 covered 170 metres roughly aligned west to east through the center of this dredge area. After the 140-metre interval the depth of the transect line exceeded the acceptable diver limit of 18.3 metres. Rather than swim to the harbour bottom, the diver swam above the transect line at 18.3-metres depth to the 170-metre interval. Benthic substrates in this transect varied between mixed rocky (boulder, cobble, gravel and fines), predominantly boulder, and fines. Mixed rocky substrates were observed over the first 40 metres, which transitions to predominantly boulder from the 40-metre interval to the 90-metre interval. The bottom pitches downward and transitions to fines-dominant substrates in 12.5 metres of water after the 90-metre interval. Fines were observed to the 170-metre interval on the harbour bottom in 21 metres of water. A water intake pipe was also noted between the 110- and 120-metre interval. The divers indicated this pipe conveys water from outside the Pikes Island breakwater to a lobster holding facility on shore adjacent to Transect 7.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina latissima*) and an under-canopy of red algae including *Polysiphonia* sp. and filamentous red algae. The algal canopy was dense and covered 80 to 100% of the bottom to about the 90-metre interval. After this point the substrate transitioned to predominantly fines and the algal canopy was much sparser due the lack of rocky substrate. Fauna was infrequently observed in the transect and included littorines, limpets, stalked jellyfish, frilled sea anemone, and small shrimp. One very small fish was also observed but could not be identified to species.

Interpretation of the video recorded along Transect 7 is summarized as follows:

- **0 to 40 m** – Mixed rocky habitat composed of boulder (30 to 40%) and gravel (50 to 60%) with lesser amounts of cobble (5%) and sandy fines (5%)
- **40 to 90 m** – Rocky habitat predominantly composed of boulder (80 to 90%) with lesser amounts of cobble (5 to 15%), gravel (5%), and fines (0 to 10%)
- **90 to 140 m** – Fines-dominant substrates consisting of sand with silt (70 to 90%) with lesser amounts of boulder (0 to 15%), cobble (0 to 10%), and gravel (5 to 20%)

- **140 to 170 m** – Diver indicated the bottom remained predominantly fines on harbour bottom
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates and infrequent to occasional in the intervals consisting primarily of fines
- **Macrofauna** – Uncommon to occasional in the transect
- **Depth Range** – 10.1 to 21.0 metres

3.3.2 Transect 7-S

Transect 7-S covered 130 metres roughly aligned west to east through the center of this dredge area. Benthic substrates in this transect varied between mixed rocky (boulder, cobble, gravel and fines) and predominantly boulder. Mixed rocky substrates were observed over the first 40 metres, which transitions to predominantly boulder from the 40-metre interval to the 80-metre interval. After the 80-metre interval the substrate becomes mixed rocky again until the end, with one return to boulder dominated in the 100- to 110-metre interval.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina longicuris*, and *Alaria esculenta*) and an under-canopy of algae including *Polysiphonia* sp., *Desmarestia* sp., and *Ulva lactuca*. The algal canopy was abundant. Fauna was infrequently to occasionally observed in the transect and included four American lobster, rock crab, mysid shrimp, ctenophore, breadcrumb sponge, mottled chiton, seastar, Arctic shanny, sea peach tunicate, *Mytilus* sp., *Crepidula* sp., stalked jellyfish, bloodstar, limpets, and Northern lacuna.

Interpretation of the video recorded along Transect 7-S is summarized as follows:

- **0 to 40 m** – Mixed rocky habitat composed of bedrock (0 to 5%), boulder (35 to 45%) cobble (30 to 35%), gravel (15 to 25%) and fines (0 to 10%)
- **40 to 80 m** – Boulder dominated substrate consisting of boulder (65 to 85%) with lesser quantities of cobble (15 to 25%), gravel (5 to 10%), and fines (0 to 5%)
- **80 to 100 m** – Mixed rocky habitat composed of boulder (45 to 55%), cobble (20 to 25%), gravel (15 to 20%) and fines (0 to 10%)
- **100 to 110 m** – Boulder dominated substrate consisting of boulder (70%) with lesser quantities of cobble (20%) and gravel (10%)
- **110 to 130 m** – Mixed rocky habitat composed of boulder (45 to 55%) cobble (20 to 25%), gravel (15 to 20%) and fines (10%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates
- **Macrofauna** – Infrequent to occasional in the transect; and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 5.2 to 11.6 metres

3.3.3 Transect 8

Transect 8 covered 150 metres roughly aligned west to east through the center of this dredge area. Benthic substrates were predominantly fine-substrates (sand and silt) with varying coarse substrates

including bedrock, boulder, cobble and gravel in the transect, and the last few intervals toward the east end of the transect consisted entirely of fines.

Total algal coverage in this transect was moderate, due to fewer hard substrates for attachment, although most available hard substrate was encrusted with coralline red algae and colonized by an over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina latissima*). Algal debris was frequently observed in the last 40 metres of the transect. This debris could provide ephemeral cover, but no fauna was observed sheltering in the debris. Macrofauna was infrequently observed through the first 90 metres of this transect and consisted of urchins, littorines, stalked jellyfish, and ctenophores. Fauna was not observed through the last 60 metres of the transect.

Interpretation of the video recorded along Transect 8 is summarized as follows:

- **200 to 185 m** – Mixed rocky habitat composed of boulder (40%), cobble (30%), and sandy fines (30%)
- **185 to 100 m** – Fines-dominant substrate (60 to 85%) with lesser amounts of boulder (0 to 10%), cobble (10 to 35%), and gravel (0 to 5%)
- **100 to 90 m** – Mixed rocky habitat composed of boulder (30%), cobble (20%), gravel (5%), and fines (45%)
- **90 to 50 m** – Fines-dominant substrate (80 to 100%) with small amounts of boulder (0 to 10%), cobble (0 to 5%), and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates, and infrequent or absent in the intervals consisting primarily of fines
- **Macrofauna** – Absent to occasional in the transect
- **Depth Range** – 9.1 to 18.3 metres

3.3.4 Transect 9

Transect 9 covered 75 metres roughly aligned north to south through the eastern portion of this dredge area. Benthic substrates were predominantly mixed rocky substrates with varying coarse substrates including bedrock, boulder, cobble and gravel. Fines were also observed in the transect but were not the predominant substrate. A water intake pipe was also noted between the 0- and 10-metre interval. The divers indicated this pipe conveys water from outside the Pikes Island breakwater to a lobster holding facility on shore adjacent to Transect 9.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina longicuris*, *Saccharina latissima*) and an under-canopy of red, green and brown algae including *Ulva lactuca*, *Polysiphonia* sp. and *Desmarestia* sp. The total coverage of the algal over-canopy was largely consistent through the transect and covered between 50 to 75% of the bottom. Macrofauna was infrequently observed in this transect and included littorines, chitons, limpets, frilled sea anemone, stalked jellyfish, and small shrimp.

Interpretation of the video recorded along Transect 9 is summarized as follows:

- **0 to 20 m** – Mixed variable rocky habitat and fines composed of bedrock (0 to 10%), boulder (0 to 10%), cobble (10 to 20%), gravel (20 to 45%), and sandy fines (30 to 40%);
- **20 to 30 m** – Rocky dominant substrate consisting of bedrock (40%) and boulder (40%) with lesser quantities of cobble (5%), gravel (5%), and fines (10%);
- **30 to 75 m** – Bedrock substrate (60 to 70%) with lesser quantities of fines (20 to 30%) and boulder (0 to 10%);
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in most intervals and most abundant on bedrock substrates deeper than 5.5 metres;
- **Macrofauna** – Uncommon to occasional in the transect; and
- **Depth Range** – 2.4 to 18.9 metres.

3.3.5 Transect 10

Transect 10 covered 200 metres aligned north to south through the western portion of this dredge area. After the 80-metre interval the depth of the transect line exceeded the acceptable diver limit of 18.3 metres. Rather than swim to the harbour bottom, the diver swam above the transect line at 18.3-metres depth to the 200-metre interval. Benthic substrates in this transect were quite variable. The predominant substrate consisted of various rocky substrates (bedrock, boulder, cobble, and gravel), with intervals predominantly consisting of cobble and gravel, and intervals consisting of fines. Fines-dominant substrates were observed through the first 60 metres of the transect. The bottom then transitioned to cobbles and gravels for about 100 metres of the transect. After this point, the depth increased and the bottom transitioned from rocky to fines dominant substrates on the harbour bottom.

Algal coverage was abundant with an over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina latissima*) and under-canopy of red and brown algae including *Polysiphonia* sp., *Phyllophora* sp., and filamentous red algae. Algal coverage was essentially non-existent in the deeper sections dominated by fines substrates on the harbour bottom. Coralline red algae were observed on most rocky substrates. Macrofauna was observed in the area and consisted of one rock crab (*Cancer irroratus*), one toad crab, one sea scallop (*Placopecten magellanicus*), a few urchins, and frequently observed littorines, stalked jellyfish, limpets, small shrimp, and ctenophores.

Interpretation of the video recorded along Transect 10 is summarized as follows:

- **250 to 190 m** – Fines-dominant substrates consisting of sand with silt (60 to 80%), with lesser quantities of boulder (5 to 10%), cobble (10 to 25%), and gravel (0 to 10%)
- **190 to 140 m** – Rocky substrates consisting primarily of mixed gravel (45%) and cobble (25%) with infrequent boulders (5%) and patches of sandy fines (25%)
- **140 to 130 m** – Gravelly substrate (60%) with lesser quantities of cobble (25%), boulder (5%), and sandy fines (10%)
- **130 to 100 m** – Cobbly substrate (60 to 80%) with lesser quantities of boulder (15 to 20%) and gravel (10 to 20%)
- **100 to 90 m** – Boulder substrate (70%) with lesser quantities of cobble (20%) and gravel (10%);
- **90 to 80 m** – Cobbly substrate (70%) with lesser quantities of bedrock (5%), boulder (15%), and gravel (10%)

- **80 to 50 m** – Fines-dominant substrates consisting of sand with silt (80 to 100%) with lesser quantities of cobble (0 to 5%) and gravel (0 to 15%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates, and absent to abundant in the intervals consisting primarily of fines
- **Macrofauna** – Uncommon to occasional in most of the transect, and absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 8.2 to 18.3 metres

3.3.6 Transect 19

Transect 19 covered 140 metres across the turning basin. Substrates on the through the turning basin were composed of variable mixed substrates (bedrock, boulder, cobble, gravel, fines) between the 0-metre interval and the 140-metre interval. The bottom transitioned from fines with variable rock to varies rock dominated substrates. The transect moves in to shallower water throughout. The diver started in about 14.33 metres of water in subtidal waters along the shoreline and ended up in 7.62 metres of water at the end of the 140-metre transect line.

The total algal canopy was dense and composed of *Saccharina latissima* and *Agarum clathratum*. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia* sp., *Polysiphonia* sp., *Ulva lactuca*, *Palmaria palmata* and filamentous red algae. Encrusting red algae was also present on rocky substrate observed through the transect. The harbour bottom primarily consisted of a mix of fines and rocky habitat.

Macrofauna was infrequently to commonly observed in the transect and included green sea urchin, limpets, stalked jellyfish, littorines, slipper snails, sea stars, scallops and small shrimp. One small fish was also observed, but could not be identified to species due to its small size.

Interpretation of the video recorded along Transect 19 is summarized as follows:

- **0 to 20 m** – Fines with variable rocks. Fines (40 to 50%), boulder (40 to 50%) and cobble (10%)
- **20 to 50 m** – Rocky dominant mixed substrate consisting of boulder (25 to 50%), cobble (25 to 30%), gravel (0 to 20%) and patches of fines (20 to 30%)
- **50 to 60 m** – Fines with variable rocks. Fines (45%), boulder (25%) and cobble (25%)
- **60 to 70 m** – Cobble and gravel dominant substrate, cobble (20%) with fines patches (20%)
- **70 to 90 m** – Gravel dominant substrate (50 to 60%) with small patches of boulder (5 to 10%), cobble (20 to 25%) and fines (15%)
- **90 to 120 m** – Fines with variable rocks. Fines (45%), boulder (15%), gravel (15%) and cobble (25%)
- **120 to 130 m** – Predominantly fines substrate (65%) with small patches of boulder (15%) cobble (10%) and gravel (10%)
- **130 to 140 m** – Rocky dominant mixed substrate consisting of boulder (30 to 50%), cobble (25 to 40%), gravel (0 to 10%) and fines (10 to 35%)
- **Macroflora** – Crustose coralline algae covered some available rocky substrates; the algal over-canopy was abundant in most intervals with rocky substrates, and abundant in the intervals consisting of fines and variable rock

- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 7.92 to 14.33 metres

3.3.7 Transect 20

Transect 20 covered 170 metres across the turning basin. Substrates through the turning basin were predominantly composed of mixed rocky substrates (bedrock, boulder, cobble, gravel) between the transect start and the 30-metre interval. The bottom then transitioned to cobble and gravel dominated between 30 and 160 metres, except for two intervals dominated by cobble between the 60-and 80-metre intervals. 160 metres to end of transect was composed of mixed variable rock. The diver's first recorded depth was 8.84 metres of water and ended in 8.84 metres of water at the end of the 170-metre transect line. The harbour bottom primarily consisted of a mix of fines and rocky habitat.

The total algal canopy was dense and composed of *Saccharina latissima* and *Agarum clathratum*. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia* sp., *Polysiphonia* sp., *Ulva lactuca*, *Palmaria palmata* and filamentous red algae. Encrusting red algae was also present on most rocky substrate observed through the transect.

Macrofauna was infrequently to occasionally observed in the transect and included Atlantic Sea raven (*Hemitripterus americanus*), cunner, gunnel, sea urchin, mussels, chintons, stalked jellyfish, sea stars and Jonah crab (*Cancer borealis*).

Interpretation of the video recorded along Transect 20 is summarized as follows:

- **0 to 30 m** – Mixed rocky dominated bedrock (10 to 25%), boulder (20 to 40%), cobble (35 to 45%) and gravel (10%)
- **30 to 50 m** – Cobble and gravel dominated substrate consisting of cobble (45 to 55%) and gravel (30%) with some boulder (10 to 20%) and small patches of bedrock (5%)
- **50 to 70 m** – Cobble dominated substrate consisting of cobble (65%) and gravel (30%) and small patches of boulder (5%)
- **70 to 160 m** – Cobble and gravel dominated substrate consisting of cobble (20 to 50%) and gravel (40 to 55%) some fines (0 to 20%) and small patches of bedrock (0 to 5%) and boulder (0 to 5%)
- **160 to end** – Mixed variable rock substrate with boulder (15%), cobble (20%), gravel, (30%) protruding from the bottom surrounded with fines (35%)
- **Macroflora** – Crustose coralline algae covered some available rocky substrates; the algal over-canopy was abundant in all intervals
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 8.84 to 9.75 metres

3.3.8 Transect 31

Transect 31 covered 170 metres parallel to the public wharves area. Substrates through the turning basin were predominantly composed of fines between the transect start and the 70-metre interval. The bottom then transitioned to bedrock dominated between 70 and 170 metres except for two intervals

dominated by fines (110 to 120 metres and 130 to 140 metres) and one interval of fines with variable rock (120 to 130 metres). The diver's first recorded depth was 8.53 metres of water and ended in 1.83 metres of water at the end of the 170-metre transect line.

In rocky areas the total algal canopy was dense and composed of *Saccharina latissima* and *Agarum clathratum*. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia* sp., *Polysiphonia* sp., *Ulva lactuca*, *Palmaria palmata* and filamentous red and brown algae. Encrusting red algae was also present on some rocky substrate observed through the transect. The harbour bottom primarily consisted of a mix of fines and rocky habitat.; attached algae was infrequently observed due to the lack of rocky substrate in fines area.

Macrofauna was infrequently to commonly observed in the transect and included Cunner, juvenile Atlantic cod, flatfish, slipper snails, yellow sponge, American lobster, rock crab, barnacles, sea stars, stalked jellyfish, chiton, sea urchins and mussels. One small "eel shaped" fish was also observed, but could not be identified to species due to its small size.

Interpretation of the video recorded along Transect 31 is summarized as follows:

- **0 to 70 m** – Fines dominated substrate with Fines (70 to 100%) with some protruding boulder (0 to 30%)
- **70 to 110 m** – Bedrock dominated substrate consisting of bedrock (60 to 75%) with cobble (5 to 10%), Gravel (10%) and fines (10 to 20%)
- **110 to 120 m** – Fines dominated substrate with Fines (70%) with some cobble (20%) and gravel (10%)
- **120 to 130 m** – Fines with variable rocks. Fines (40%) with bedrock (40%), boulder (10%) and cobble (10%)
- **130 to 140 m** – Fines dominated substrate with Fines (60%) with some bedrock (20%), boulder (5%), cobble (5%) and gravel (5%)
- **140 to 170 m** – Bedrock dominated substrate consisting of bedrock (80 to 90%) with cobble (5%) and fines (5 to 10%)
- **Macroflora** – Crustose coralline algae covered some available rocky substrates; the algal over canopy was abundant in rocky intervals and absent in fines intervals
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 10.67 to 1.83 metres

3.4 Vardy's Island Transects

Thirteen transects were completed around the periphery of Vardy's Island. Each transect measured 100 metres and was placed as close to the intertidal shoreline as practicable from the diver tender vessel.

3.4.1 Transect 11

Transect 11 covered 100 metres from the south shoreline of Vardy's Island through the dredge area into the harbour's turning basin. Substrates on the south point of the island were predominantly bedrock in

the intertidal and subtidal waters to 4-metres depth. The bottom flattened out at the 10-metre interval and transitioned to mixed gravel, cobble, and fines (sand and shell grit) to the 50-metre interval. The bottom transitioned again to rocky boulder substrate for 20 metres and steeply dropped from 9.1 to 27.4-metres deep. The harbour bottom was observed at 80 m in 27.4 m of water and was composed of fines.

The total algal canopy was dense in the first 80-metres of the transect from the shallow subtidal rocky habitats to the harbour bottom. The algal over-canopy consisted of furoid and kelp found in the harbour including *Saccharina latissima* and *Agarum clathratum*. The algal under-canopy was sporadic and patchily distributed, and consisted of *Chordaria flagelliformis*, *Desmarestia* sp., *Polysiphonia* sp. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algae was absent due to the lack of hard substrate for attachment.

Macrofauna observed in the rocky habitat on the slope of Vardy's Island included one Atlantic wolffish (*Anarhichas lupus*) which was resting in the interstices of boulders in 21.3 metres of water. The Atlantic wolffish is currently listed under SARA Schedule 1 as Special Concern. One toad crab, one sea scallop, urchins, frilled anemone, stalked jellyfish, littorines, mussels, seastars, brittlestars, and sea peach tunicates were also infrequently observed through the rocky habitats. No fauna was observed on the harbour bottom.

Interpretation of the video recorded along Transect 11 is summarized as follows:

- **0 to 10 m** – Entirely steeply pitched bedrock (100%)
- **10 to 50 m** – Rocky substrates consisting primarily of mixed gravel (20 to 65%) and cobble (0 to 50%) with infrequent bedrock (0 to 10%) and boulders (0 to 20%) and patches of sandy fines (0 to 30%) and shell grit
- **50 to 85 m** – Steep rubble slope consisting of boulder (90%) and cobble (10%)
- **85 to 100 m** – Fines-dominant substrates consisting of sand and silt (100%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates, and absent to abundant in the intervals consisting primarily of fines
- **Macrofauna** – One Atlantic wolffish was observed; other fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 4.0 to 29.0 metres

3.4.2 Transect 11-S

Transect 11-S covered 100 metres from the south shoreline of Vardy's Island through the dredge area into the harbour's turning basin. Substrates on the south point of the island were predominantly bedrock in the intertidal and subtidal waters to 4-metres depth. The bottom flattened out at the 0 to 10-metre interval and transitioned to mixed gravel, cobble, and fines (sand and shell grit) to the 30-metre interval. The bottom transitioned again to rocky boulder substrate for 40 metres and steeply dropped from 11.3 to 26.5-metres deep. The harbour bottom was observed at 80 m in 27.1 m of water and was composed of fines.

The total algal canopy was dense in the first 60-metres of the transect from the shallow subtidal rocky habitats to the harbour bottom. The algal over-canopy consisted *Saccharina latissima* and *Agarum clathratum*. The algal under-canopy was sporadic and patchily distributed, and consisted of *Chordaria flagelliformis*, *Desmarestia* sp., *Polysiphonia* sp. *Plumaria plumose*, and *Phyllophora* sp. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algae was absent due to the lack of hard substrate for attachment.

Macrofauna observed in the rocky habitat on the slope of Vardy's Island included cunner, Northern lacuna, *Crepidula* sp., urchins, Northern red anemone anemone, breadcrumb sponge, *Halichondria* sp. sponge, seastars, toad crab, and sea peach tunicates were also infrequently observed through the rocky habitats. No fauna was observed on the harbour bottom.

Interpretation of the video recorded along Transect 11-S is summarized as follows:

- **0 to 20 m** – Flat gravel dominant substrate (65 to 70%) with smaller amounts of Bedrock (0 to 5%), boulder (5%) cobble (5%) and fines (20%)
- **20 to 30 m** – Cobble and gravel dominant consisting primarily of mixed gravel (50%) and cobble (35%) with infrequent bedrock (5%) and patches of fines (10%) and shell grit
- **30 to 100 m** – Steep rubble slope dominant by boulder consisting of boulder (60 to 90%) and cobble (10 to 15%) with small amounts of bedrock (0 to 5%) and gravel (0 to 20%)
- **85 to 100 m** – Fines-dominant substrates consisting of sand and silt (90 to 100%) and small amounts of gravel (0 to 10%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was common to abundant in the intervals with rocky substrates, and absent to abundant in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect with one interval of abundant mysid shrimp and consisted of fauna observed in similar habitats in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 9.1 to 27.1 metres.

3.4.3 Transect 12

Transect 12 covered 100 metres from the southwest shoreline of Vardy's Island through the dredge area into the turning basin. Substrates on the southwest corner of Vardy's Island were predominantly bedrock in the intertidal and subtidal zone to 6-metres depth. The bottom flattened out just after the 0-metre interval and transitioned from bedrock to mixed boulder, cobble, and gravel for the first 20 metres of the transect. The bottom steeply dropped from 13.1 to 25.3-metres deep between the 25 and 40-metre interval. The harbour bottom was observed in 25.3 metres of water and was composed of fines, except for a patch of rocky substrate toward the end of the transect.

The total algal canopy was dense in the first 40-metres of the transect from the shallow subtidal rocky habitats to the harbour bottom. The algal over-canopy consisted of furoid and kelp found in the harbour including intertidal *Ascophyllum nodosum* and subtidal *Saccharina latissima* and *Agarum clathratum*. The algal under-canopy was sparse and consisted of filamentous red algae. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna observed in the rocky habitat on the slope of Vardy's Island included one toad crab and infrequent observations of frilled anemone, stalked jellyfish, littorines, brittlestars, and ctenophores. No fauna was observed on the harbour bottom.

Interpretation of the video recorded along Transect 12 is summarized as follows:

- **0 to 25 m** – Rocky habitat composed of cobble (55 to 60%) and gravel (10 to 35%) with boulder (0 to 30%) and patches of fines (0 to 10%); this habitat was located at the base of a steep bedrock slope which reaches up to the intertidal zone
- **25 to 40 m** – Steep rubble slope consisting of boulder (70 to 80%) and cobble (20 to 30%)
- **40 to 90 m** – Fines-dominant substrate consisting of sand and silt (100%)
- **90 to 100 m** – Fines-dominant substrate (45%) with a rocky outcropping consisting of boulder (40%), cobble (10%), and gravel (5%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates, and absent to abundant in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 6.0 to 25.6 metres

3.4.4 Transect 13

Transect 13 covered 100 metres from the west shoreline of Vardy's Island through the dredge area into the turning basin. Substrates on the west point of Vardy's Island were predominantly rocky (boulder and bedrock) in the intertidal and subtidal zone to 10-metres deep. The bottom flattened out after the 10-metre interval and became variably rocky with patches of mixed bedrock, boulder, cobble, gravel and coarse fines to the 60-metre interval. The bottom pitched down and dropped from 10.9 to 27.0-metres deep between the 10- and 65-metre interval. After 65 metres the substrate transitioned to fines on the harbour bottom to the end of the transect.

The total algal canopy was dense in the first 40-metres of the transect in the shallow subtidal rocky habitats. Midway down the slope the algal canopy was occasional and some rocky substrates were bare. The algal over-canopy consisted of furoid and kelp found in the harbour including intertidal *Ascophyllum nodosum* and subtidal *Saccharina latissima* and *Agarum clathratum*. The algal under-canopy was sparse and consisted of *Polysiphonia* sp., *Phyllophora* sp., and filamentous red algae. Encrusting red algae was also present on most rocky substrates observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna observed on the rocky slope of Vardy's Island included one American lobster sheltering in the interstices between boulders in 11.0 metres of water. One toad crab, urchins, frilled and red anemone, stalked jellyfish, littorines, mussels, seastars, brittlestars, and sea peach tunicates were also infrequently observed through the rocky habitats. No fauna was observed on the harbour bottom.

Interpretation of the video recorded along Transect 13 is summarized as follows:

- **0 to 60 m** – Variable compositions of mixed rocky substrates including bedrock (0 to 70%), boulder (0 to 30%), cobble (0 to 10%), gravel (5 to 50%), and patches of fines (10 to 50%)
- **60 to 100 m** – Fines-dominant substrate consisting of sand and silt (100%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and absent in the intervals consisting primarily of fines
- **Macrofauna** – One American lobster was observed; other fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 4.6 to 27.8 metres

3.4.5 Transect 13-S

Transect 13-S covered 100 metres from the west shoreline of Vardy’s Island through the dredge area into the turning basin. Substrates on the west point of Vardy’s Island were predominantly rocky (boulder and bedrock). The transect starts as the bottom flattened out and becomes variably rocky with patches of mixed bedrock, boulder, cobble, gravel and coarse fines to the 50-metre interval. The bottom pitched down and dropped from 10.7 to 26.8-metres deep between the 20- and 70-metre interval. After 70 metres the substrate transitioned to fines on the harbour bottom to the end of the transect.

The total algal canopy was dense in the first 60-metres of the transect. Towards the bottom of the slope the algal canopy was occasional and some rocky substrates were bare. The algal over-canopy consisted of mostly kelp found in the harbour including *Saccharina latissima* and *Agarum clathratum*. The algal under-canopy was sparse and consisted mostly of *Polysiphonia* sp., *Phyllophora* sp., and filamentous red algae. Encrusting red algae was also present on most rocky substrates observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna were observed infrequently to occasionally on the rocky slope of Vardy’s Island and harbour bottom and included urchins, frilled, red and other anemones, stalked jellyfish, littorines, Northern lacuna, mottled chiton, *Crepidula* sp., seastars, winter flounder, sand and mysid shrimp and sea peach tunicates were also infrequently observed through the rocky habitats.

Interpretation of the video recorded along Transect 13S is summarized as follows:

- **0 to 50 m** – Variable compositions of mixed rocky substrates including bedrock (20 to 45%), boulder (20 to 40%), cobble (10 to 20%), gravel (15 to 20%), and patches of fines (10%)
- **50 to 70 m** – Bedrock-dominant substrate consisting of bedrock (70 to 100%), boulder (0 to 20%) and cobble (0 to 10%)
- **70 to 100 m** – Fines-dominant substrate consisting of sand and silt (80 to 100%) and bedrock (0 to 20%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and absent in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour

- **Depth Range** – 9.8 to 27.7 metres

3.4.6 Transect 14

Transect 14 covered 100 metres from the northwest shoreline of Vardy’s Island through the dredge area into the turning basin. The intertidal zone on the northwest corner of Vardy’s Island consisted of mixed rocky substrates composed of bedrock and boulders. Subtidal substrates were predominantly composed of fines and sporadic patches of bedrock, boulder, cobble, and gravel. Rocky substrate was observed through the first 60 m of the transect after which the bottom transitioned entirely to fines. This side of the island doesn’t steeply pitch downward toward the harbour bottom as it does in Transects 11, 12 and 13. The bottom quickly dropped to 7.3-metres depth at the start of the transect and gradually dropped to 20.7-metres depth on the harbour bottom.

Algae was patchily distributed in the transect on rocky substrates. The algal over-canopy of *Saccharina latissima* and *Agarum clathratum* was dense where rocky substrate was available, but as rocky substrates transitioned to fines the algal canopy became sparse to absent. The algal under-canopy was limited to infrequent *Phyllophora* sp. and filamentous red algae. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna infrequently observed through the transect included sea scallop, urchins, frilled anemone, stalked jellyfish, littorines, mussels, seastars, brittlestars, and small shrimp. No fauna was observed on the fines-dominant substrates on the harbour bottom.

Interpretation of the video recorded along Transect 14 is summarized as follows:

- **0 to 50 m** – Predominantly fines substrate (60 to 90%) with variable rocky substrates including bedrock (0 to 20%), boulder (5 to 25%), cobble (5 to 30%) and gravel (0 to 5%)
- **50 to 60 m** – Rocky substrate composed of boulder (15%) and cobble (40%) with fines (45%)
- **60 to 100 m** – Entirely fines-dominant substrate consisting of sand and silt (100%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and absent in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 2.1 to 20.7 metres

3.4.7 Transect 15

Transect 15 covered 100 metres from the north shoreline of Vardy’s Island through the dredge area into the harbour. Substrate on the north shore of Vardy’s Island was predominantly bedrock between the 0- and 20-metre interval. The bottom substrate transitioned to fines for the remaining 80 m of the transect aside from a few small patches of cobble and boulder. This part of the island doesn’t steeply pitch downward toward the harbour bottom as it does in Transects 11, 12 and 13. The bottom dropped to 4.6 metres just below the intertidal zone at the 0-metre interval and gradually dropped to 15.5-metres deep at the end of the transect line.

The total algal canopy was dense in rocky intertidal (*Fucus vesiculosus* and *Ascophyllum nodosum*) and subtidal (*Saccharina latissima* and *Agarum clathratum*) habitat on the shoreline of the island. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia* sp., *Polysiphonia* sp., *Ulva lactuca* and filamentous red algae. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna was infrequently observed in the rocky intervals of the transect and consisted of green sea urchin, littorines and small shrimp. No fauna was observed on the fines-dominant substrates on the harbour bottom.

Interpretation of the video recorded along Transect 15 is summarized as follows:

- **0 to 20 m** – Rocky substrates consisting of bedrock (50 to 100%) with lesser quantities of boulder (0 to 5%), cobble (0 to 20%), and fines (0 to 25%)
- **20 to 50 m** – Primarily fines-dominant substrate (50 to 100%) with patches of rocky habitat composed of boulder (0 to 20%) and cobble (0 to 30%)
- **50 to 100 m** – Entirely fines-dominant substrate consisting of sand and silt (100%);
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and absent in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was occasionally observed on the transect in rocky habitats and consisted of fauna observed in similar habitats in the harbour; fauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 4.3 to 15.5 metres

3.4.8 Transect 15-S

Transect 15-S covered 110 metres from the north shoreline of Vardy's Island through the dredge area into the harbour. Substrate on the north shore of Vardy's Island was predominantly boulder between the 0- and 10-metre interval. The bottom substrate transitioned to fines for the remaining 100 m of the transect. This part of the island doesn't steeply pitch downward toward the harbour bottom as it does in Transects 11, 12 and 13. The bottom dropped to 1.5 metres just below the intertidal zone at the 0-metre interval and gradually dropped to 16.2-metres deep at the end of the transect line.

The total algal canopy was sparse in the fines area with infrequently *Saccharina longicuris* and *Agarum clathratum*. *Saccharina longicuris* was abundant in the 0-10 metre boulder dominated interval. The under-canopy consisted of infrequent *Desmarestia* sp. And *Ectocarpus* sp. / *Pylaiella* sp. Encrusting red algae were also present on some rocky substrate observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent after 50 metres due to the lack of rocky substrate.

Macrofauna was infrequently to abundantly observed in the transect and consisted of two American lobsters, mysid shrimp, *crepidula* sp. green sea urchin, Northern lacuna, Northern red anemone, winter flounder and sea peach tunicate.

Interpretation of the video recorded along Transect 15-S is summarized as follows:

- **0 to 10 m** – Boulder dominated substrate consisting of boulder (60%) with lesser quantities of bedrock (20%), gravel (10%), and fines (10%)
- **20 to 110 m** – Primarily fines-dominant substrate (65 to 100%) with patches of rock composed of boulder (0 to 10%), cobble (0 to 10%) and gravel (0 to 15%)
- **Macroflora** – Crustose coralline algae covered some rocky substrates; the algal over-canopy was non-existent to infrequent in the fines area
- **Macrofauna** – Fauna was infrequently to abundantly observed on the transect and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 1.5 to 16.2 metres

3.4.9 Transect 16

Transect 16 covered 100 metres from the northeast shoreline of Vardy’s Island through the dredge area into the harbour. Substrate on the northeast corner of Vardy’s Island predominantly consisted of boulders with cobbles between the 0- and 20-metre intervals. The bottom transitioned to predominantly fines-substrate mixed with gravels, cobble and boulders between the 20- and 50-metre intervals. After this the bottom transitioned to fines which continued to the end of the transect line. This part of the Island was relatively shallow and gently sloped to the harbour bottom between the subtidal shoreline (2.7 metres) and the end of the transect line (11.6 metres).

The total algal canopy was dense in rocky intertidal (*Fucus vesiculosus* and *Ascophyllum nodosum*) and subtidal (*Saccharina latissima*, *Saccharina longicuris*, and *Agarum clathratum*) habitat on the shoreline of the island. The under-canopy consisted of mixed brown, red and green algae including *Palmaria palmata*, *Desmarestia* sp., *Polysiphonia* sp., and filamentous red and green algae. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of fines and algal debris; attached algae was absent due to the lack of rocky substrate.

Macrofauna was infrequently to occasionally observed in the transect and included northern red anemone, stalked jellyfish, littorines, seastars, small shrimp, and ctenophores. No fauna was observed on the fines-dominant substrates on the harbour bottom; however, miniscule upright mud tubes (~5 mm in height) were observed protruding from the fines-substrate. There were assumed to be polychaete worm tubes, which are commonly found in fine marine sediment.

Interpretation of the video recorded along Transect 16 is summarized as follows:

- **0 to 20 m** – Rocky substrate consisting of boulder (80%) and cobble (20%)
- **20 to 50 m** – Predominantly fines substrate (50 to 70%) with lesser quantities of rocky substrate composed of boulder (0 to 20%), cobble (10%) and gravel (20%)
- **50 to 100 m** – Fines-dominant substrate consisting of sand and silt (90 to 100%) with small quantities of boulder (0 to 5%) and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and absent in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour; macrofauna was absent from fines-dominant

substrates on the harbour bottom; mud tubes present in fine substrate on the bottom suggest the presence of polychaete infauna

- **Depth Range** – 2.7 to 11.6 metres

3.4.10 Transect 17

Transect 17 covered 100 metres from the east shoreline of Vardy's Island through the dredge area into the harbour. Substrates on the east point of Vardy's Island were predominantly rocky substrates (boulder, cobble, gravel) over bedrock from the shoreline to the 50-metre interval. The bottom then transitioned to predominantly fines to the 100-metre interval. This part of the Island remained relatively shallow between the intertidal shoreline (2.1 metres) and the end of the transect line (9.1 metres).

The total algal canopy was dense in rocky intertidal (*Fucus vesiculosus* and *Ascophyllum nodosum*) and subtidal (*Saccharina latissima*, *Saccharina longicuris*, and *Agarum clathratum*) habitat on the shoreline of the island. The under-canopy consisted of mixed brown, red and green algae including *Palmaria palmata*, *Desmarestia* sp., *Polysiphonia* sp., and *Ulva lactuca*. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom consisted of primarily of fines and algal debris; attached algae was occasionally observed due to infrequent rocky substrate.

Macrofauna was uncommon to abundant in the transect; littorines and small shrimp were observed in particular abundance. Observations of green sea urchin, chiton, limpet, and stalked jellyfish were infrequent on rocky substrates.

Interpretation of the video recorded along Transect 17 is summarized as follows:

- **0 to 40 m** – Rocky substrate consisting of bedrock (20 to 30%) and boulder (45 to 50%) with cobble (20 to 25%) and small patches of sandy fines (5%)
- **40 to 50 m** – Variable rocky substrate composed of bedrock (20%), boulder (25%), cobble (25%) and sandy fines (30%)
- **50 to 100 m** – Fines-dominant substrate consisting of sand and silt (75 to 95%) with patches of boulder (5 to 20%), cobble (5%), and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and occasional in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to abundant in most of the transect and consisted of fauna observed in similar habitats in the harbour; macrofauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 2.4 to 10.4 metres

3.4.11 Transect 18

Transect 18 covered 100 metres from the southeast shoreline of Vardy's Island through the dredge area to the turning basin. Substrates on the southeast corner of Vardy's Island were predominantly composed of variable rocky substrates (bedrock, boulder, cobble, gravel) between the shoreline and the 40-metre interval. The bottom then transitioned to fines between 50 and 100 m, except for two intervals with exposed bedrock between the 60- and 80-metre intervals. The bottom on this side of the island was more steeply pitched than those on the north and east sides of the island. The diver started

in about 6.1 metres of water in subtidal waters along the shoreline and ended up in 17.1 metres of water at the end of the 100 metre transect line.

The total algal canopy was dense in rocky intertidal (*Fucus vesiculosus* and *Ascophyllum nodosum*) and subtidal (*Saccharina latissima* and *Agarum clathratum*) habitat on the shoreline of the island. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia* sp., *Polysiphonia* sp., *Ulva lactuca*, and filamentous red and green algae. Encrusting red algae was also present on most rocky substrate observed through the transect. The harbour bottom primarily consisted of fines and algal debris; attached algae was infrequently observed due to the lack of rocky substrate.

Macrofauna was infrequently to commonly observed in the transect and included green sea urchin, mussels, limpets, stalked jellyfish, littorines, seastars, and small shrimp. One small fish was also observed, but could not be identified to species due to its small size.

Interpretation of the video recorded along Transect 18 is summarized as follows:

- **0 to 10 m** – Intertidal and subtidal bedrock (0 to 95%) and boulder (5 to 50%) steeply pitched downward to the subtidal bottom with cobble (40%) and gravel (10%) at the base of the slope
- **10 to 40 m** – Rocky substrate consisting of boulder (60 to 80%) with cobble (20 to 40%) and small patches of fines (0 to 5%)
- **50 to 60 m** – Fines-dominant substrate consisting of sand and silt (70 to 100%) with patches of boulder (0 to 25%) and cobble (0 to 5%)
- **60 to 80 m** – Bedrock substrate (70 to 80%) protruding from the bottom surrounded with fines (20 to 30%)
- **80 to 100 m** – Predominantly fines substrate (80 to 90%) with small patches of boulder (10 to 20%);
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; the algal over-canopy was occasional to abundant in the intervals with rocky substrates, and occasional in the intervals consisting primarily of fines
- **Macrofauna** – Fauna was uncommon to occasional in most of the transect and consisted of fauna observed in similar habitats in the harbour; macrofauna was absent from fines-dominant substrates on the harbour bottom
- **Depth Range** – 4.0 to 17.1 metres

3.4.12 Transect 21

Transect 21 covered 100 metres moves off the southwest of Vardy's island. Benthic substrates in this transect varied between mixed rocky (boulder, cobble, gravel and fines), cobble dominated, bedrock dominated and fines dominated. Cobble dominated substrates were observed over the first 30 metres, which transitions to mixed rocky for the 30 to 40-metre interval. Substrate becomes bedrock dominated from 40 to 60 metres before becoming fines dominated until the end with one return to bedrock dominated in the 70 to 80-metre interval.

Nearly all of the available rocky substrates observed in the transect were colonized by encrusting red coralline algae and an algal over-canopy of kelp and fucoids (*Agarum clathratum*, *Saccharina longicuris*) and an under-canopy of algae including *Polysiphonia* sp., *Desmarestia* sp., and *Ulva lactuca*. The algal

canopy was abundant. Fauna was infrequently to abundantly observed in the transect and included one American lobster, mysid shrimp, green sea urchin, seastar, and one sculpin.

Interpretation of the video recorded along Transect 21 is summarized as follows:

- **0 to 30 m** – Cobble dominated substrate consisting of cobble (70 to 100%) with lesser quantities of boulder (30%)
- **30 to 40 m** – Mixed rocky habitat composed of bedrock (40%), boulder (20%) and cobble (40%)
- **40 to 60 m** – Bedrock dominant substrate consisting of bedrock (60 to 70%), boulder (10 to 20%), cobble (0 to 10%) and fines (0 to 30%)
- **60 to 70 m** – Primarily fines-dominant substrate (70%) with patches of bedrock (30%)
- **70 to 80 m** – Bedrock dominant substrate consisting of bedrock (90%) and fines (10%)
- **80 to 100 m** – Primarily fines-dominant substrate (60 to 85%) with patches of bedrock (15 to 40%)
- **Macroflora** – Crustose coralline algae covered nearly all available rocky substrates; the algal over-canopy was abundant in the intervals with rocky substrates and common to infrequent in fines substrate
- **Macrofauna** – Infrequent to abundant in the transect and consisted of fauna observed in similar habitats in the harbour
- **Depth Range** – 3.7 to 12.8 metres

3.5 Pikes Island Breakwater Transects

Five transects measuring from 110 up to 150 metres in length were completed in the Pikes Island Breakwater area. Benthic substrates observed in this dredge area are generally boulder dominated, with occasional patches bedrock, mixed rock and fines.

3.5.1 Transect 24

Transect 24 covered 150 metres roughly aligned north to south along the outside of the Pikes Island Breakwater near the toe of the breakwater slope. Benthic substrates observed in this transect were primarily bedrock and boulder. Boulder dominates from 0 to 80 metres before transitioning to bedrock for the rest of the transect 80 to 150 metres.

Algal coverage in this transect was abundant for most intervals. Hard substrates were heavily encrusted with coralline red algae and were colonized by a dense over-canopy of fucoids and kelp (*Agarum clathratum*, *Saccharina longicruris*, *Alaria esculenta*, and *Laminaria digitata*). The algal under-canopy was diverse with *Polysiphonia* sp., *Desmarestia* sp., *Phyllophora* sp., *Plumaria plumose*, *Ulva lactuca*, *Dictyosiphon* sp., *Porphyra* sp., *Petalonia* sp., and *Chordaria flagelliformis*.

Macrofauna directly observed in this transect included three American lobster, four winter flounder, two arctic shanny, and rock crab. Other fauna, which were infrequently to abundant observed, included cunner, mottled chiton, blue mussel, barnacles, mysid shrimp, littorines, seastar, green sea urchin, Northern lacuna, *crepidula* sp., limpets, and horse mussel.

Interpretation of the video recorded along Transect 24 is summarized as follows:

- **0 to 80 m** – Boulder dominated (60 to 80%) with lesser amounts of bedrock (10 to 30%), cobble (5 to 10%) and gravel (0 to 5%)
- **90 to 150 m** – Bedrock dominated (60 to 100%) with lesser amounts of boulder (0 to 25%), cobble (0 to 15%) and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was abundant in most intervals
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 0.9 to 11.0 metres

3.5.2 Transect 25

Transect 25 covered 150 metres roughly aligned north to south along the outside of the Pikes Island Breakwater near the toe of the breakwater slope. Benthic substrates observed in this transect were primarily boulder. Boulder dominates all intervals aside from 50 to 70 metres which is composed of mixed rock.

Algal coverage in this transect was abundant for most intervals. Hard substrates were heavily encrusted with coralline red algae and were colonized by a dense over-canopy of fucoids and kelp (*Agarum clathratum*, *Saccharina longicuris*, *Alaria esculenta*, and *Laminaria digitata*). The algal under-canopy was diverse with *Polysiphonia* sp., *Dictyosiphon foeniculaceus*, *foeniculaceus*, *Desmarestia* sp., *Plumaria* sp., *Ulva lactuca*, *Porphyra* sp., *Petalonia* sp., *Ectocarpus* sp. / *Pylaiella* sp., and *Chordaria flagelliformis*.

Macrofauna directly observed in this transect included one sculpin, two rock gunnels, one winter flounder and more than 50 cunner were observed. Other fauna, which were infrequently to abundant observed, included ctenophore, mysid shrimp, littorines, seastar, green sea urchin, limpets, moon jellyfish, breadcrumb sponge, brittlestar, mottled chiton and horse mussel.

Interpretation of the video recorded along Transect 25 is summarized as follows:

- **0 to 50 m** – Boulder dominated (90 to 100%) with lesser amounts of cobble (0 to 10%)
- **50 to 70 m** – Mixed rocky substrate with boulder (55%) with lesser amounts of cobble (15 to 25%) and gravel (10%)
- **70 to 150 m** – Boulder dominated (70 to 80%) with lesser amounts of bedrock (0 to 10%), cobble (5 to 10%) and gravel (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was abundant in most intervals
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 2.7 to 19.8 metres

3.5.3 Transect 26

Transect 26 covered 120 metres roughly aligned north to south along the inside of the Pikes Island Breakwater near the toe of the breakwater slope. Benthic substrates observed in this transect were composed of many different substrate types, including bedrock dominated, boulder dominated, rocky dominated, fines with variable rock, fines dominated, and mixed variable rock.

Algal coverage in this transect was common to abundant for most intervals. Hard substrates were partially to heavily encrusted with coralline red algae and were colonized by a dense over-canopy of *Agarum clathratum*, *Saccharina longicruris* and *Saccharina latissima*. The algal under-canopy was diverse with *Ectocarpus* sp., *Polysiphonia* sp., *Desmarestia* sp., *Palmaria palmata*, *Chorda* sp., *Ulva lactuca*, attached algae was infrequently observed due to the lack of rocky substrate.

Macrofauna directly observed in this transect included one American lobster and one rock crab. Other fauna, which were infrequently to abundantly observed, included Mysid shrimp, sand dollar, crepidula sp., and breadcrumb sponge.

Interpretation of the video recorded along Transect 26 is summarized as follows:

- **0 to 30 m** – Bedrock dominated (70 to 100%) with lesser amounts of boulder (0 to 10%) and cobble (0 to 20%)
- **30 to 40 m** – Boulder dominated (65%) with lesser amounts of cobble (30%) and fines (20%)
- **40 to 50 m** – Mixed rocky composed of boulder (55%), cobble (40%) and fines (5%)
- **50 to 60 m** – Fines with variable rock, Fines (45%), boulder (15%), cobble (20%) and gravel (20%)
- **60 to 80 m** – Fines dominated (70%) with lesser amounts of cobble (5%) and gravel (25%)
- **80 to 110 m** – Mixed variable rock composed of boulder (25 to 55%), cobble (35 to 45%), gravel (5 to 10%) and fines (5 to 25%)
- **110 to 120 m** – Boulder dominated (70%) with lesser amounts of cobble (20%), gravel (5%) and fines (5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was abundant in most intervals
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 1.8 to 8.2 metres

3.5.4 Transect 27

Transect 27 covered 120 metres roughly aligned northeast to southwest along the inside of the Pikes Island Breakwater near the toe of the breakwater slope. Benthic substrates observed in this transect were primarily fines at the base of the breakwater slope and boulder on the breakwater. The toe of the breakwater slope was irregular in places and therefore the transect line passed over both boulder on the slope and fines on harbour bottom within a single 10-metre interval. Although intervals may be classified as predominantly boulder or fines-dominant, the benthic substrates in the area of this transect transition from boulder on the breakwater slope to fines on the harbour bottom.

Algal coverage in this transect was moderate, primarily due to the lack of hard substrates for attachment on the predominantly fines harbour bottom. Hard substrates on the boulder slope of the breakwater were heavily encrusted with coralline red algae and were colonized by a dense over-canopy of fucoids and kelp (*Agarum clathratum* and *Saccharina longicruris*). The algal under-canopy was limited to a few patches of *Polysiphonia* sp. and *Desmarestia* sp. on the slope of the breakwater. Algal debris was also noted in moderate to frequent abundance on the fines-dominant harbour bottom; debris on bottom was directly observed providing shelter for fauna.

Macrofauna directly observed in this transect included one goosefish (*Lophius americanus*), one juvenile winter flounder, one juvenile sculpin, and two small cod-like fish that were too small to be identified to species. Divers also reported cunner over boulders on the breakwater, but these were not recorded on video. Other fauna infrequently observed on the boulder substrate of the breakwater included littorines, slipper snails, breadcrumb sponge and occasional mysid shrimp. One sea scallop (*Placopecten magellanicus*) was observed on the fines bottom at the base of the breakwater.

Interpretation of the video recorded along Transect 27 is summarized as follows:

- **0 to 20 m** – Mixed rocky habitat predominantly composed of fines (40 to 50%) on the harbour bottom and boulder (30 to 35%) on the breakwater with lesser amounts of cobble (10%) and gravel (10 to 15%)
- **20 to 90 m** – Predominantly fines (65 to 100%) on harbour bottom and boulder (0 to 30%) on the breakwater with a few patches of cobble (0 to 10%)
- **90 to 120 m** – Predominantly boulder (60 to 100%) on the breakwater slope and fines (0 to 40%) on harbour bottom
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was moderate in the transect and abundant on the breakwater slope
- **Macrofauna** – Macrofauna was uncommon to occasional in the transect; several fish were observed sheltering in algal debris or on the breakwater slope
- **Depth Range** – 9.1 to 20.4 metres

3.5.5 Transect 28

Transect 28 covered 110 metres around the south tip of the Pikes Island Breakwater near the toe of the breakwater slope. Benthic substrates observed in this transect were primarily boulder. Boulder dominates all intervals aside from 0 to 20 metres and 30 to 40 metres, which are composed of fine.

Total algal coverage in this transect was abundant for most intervals. Hard substrates were heavily encrusted with coralline red algae and were colonized by a dense over-canopy of *Agarum clathratum* and *Saccharina longicuris*. The algal under-canopy was diverse with *Polysiphonia* sp., *Phyllophora* sp., *Desmarestia* sp., and *Plumaria plumosa* attached algae was infrequently observed due to the lack of rocky substrate.

Macrofauna directly observed in this transect included one winter flounder, one juvenile ocean pout, and one possible Atlantic cod. Other fauna, which were infrequently observed, included cunner, sea scallop, breadcrumb sponge, sea peach tunicates, blood star, seastar, Northern lacuna and frilled sea anemone.

Interpretation of the video recorded along Transect 28 is summarized as follows:

- **0 to 20 m** – Fines dominated (70 to 100%) with lesser amounts of boulder (0 to 30%)
- **20 to 30 m** – Boulder dominated (80%) with lesser amounts of fines (20%)
- **30 to 40 m** – Completely Fines dominated (100%)
- **40 to 110 m** – Boulder dominated (70 to 100%) with lesser amounts of fines (0 to 30%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was abundant in most intervals

- **Macrofauna** – Macrofauna was uncommon in the transect
- **Depth Range** – 15.2 to 24.4 metres

3.6 Pikes Island Infill Transects

Four transects measuring from 180 up to 350 metres in length were completed in the Pikes Island Infill area. Benthic substrates observed in this dredge area are generally fines or fines with variable fines, with occasional patches consisting of mixed rock and rock near the shorelines.

3.6.1 Transect 22

Transect 22 covered 200 metres roughly orientated east to west from Pikes Island to Vardy's Island. This area covers the approximate center of the Mass Infill Area along Pikes Island and stretches across to the east side of the Vardy's Island dredge area. Benthic substrates observed in this transect was quite variable and transitioned from predominantly bedrock on Pikes Island to mixed rocky substrates and fines across to the intertidal bedrock slope of Vardy's Island. The bedrock and mixed rocky substrates were observed closer to the shorelines of the islands, whereas fines were the predominant substrate type approximately midway between the islands. However, even in the areas of a predominant substrate type, the bottom was patchily distributed and regularly transitioned from small areas of rocky substrates to fines, and vice versa.

Total algal coverage in this transect was moderate, due to fewer hard substrates for attachment, although most of the available hard substrate was encrusted with coralline red algae and colonized by an over-canopy of kelp and fucoids (*Saccharina longicruris* and *Agarum clathratum*). The algal under-canopy of red, brown and green algae was variable and depended on the predominant substrate type; rocky substrates provided substrate for a variety of species including *Phyllophora* sp., *Polysiphonia* sp., *Fucus* sp., *Desmarestia* sp., *Chordaria flagelliformis*, *Dictyosiphon foeniculaceus*, *Ulva lactuca*, and a filamentous brown alga (*Ectocarpus* sp. / *Pylaiella* sp. or similar). Algal debris consisting primarily of *Saccharina* fronds was also frequently observed throughout the transect; this debris likely provides ephemeral cover in the area, but fauna was not observed sheltering in it at the time of the assessment.

Macrofauna directly observed in this transect included one Arctic shanny, one cunner and one rock crab. Other fauna infrequently to occasionally observed in the transect included littorines, mottled chiton, limpets, slipper snails, mussels, stalked jellyfish, seastars, and sand shrimp (*Crangon septemspinosa*). Mysid shrimp were also observed throughout the transect, and were in particular abundance over *Saccharina* fronds, with estimated counts numbering in the hundreds over a 10-metre interval.

Interpretation of the video recorded along Transect 22 is summarized as follows:

- **0 to 30 m** – Rocky habitat predominantly composed of bedrock (70 to 100%) with lesser amounts of cobble (5 to 15%) and fines (0 to 15%)
- **30 to 60 m** – Mixed variable rocky substrates composed of gravel (45 to 65%), cobble (5 to 15%) and fines (20 to 30%) with some exposed bedrock (0 to 25%) and small amount of boulder (5 to 10%)

- **60 to 150 m** – Predominantly fines-dominant substrates (45 to 85%) with varying amounts of rocky substrates including boulder (5 to 10%), cobble (0 to 15%), and gravel (10 to 35%)
- **150 to 200 m** – Variable rocky substrates composed of boulder (10 to 60%), cobble (10 to 40%), gravel (5 to 10%) with patches of fines (10 to 50%)
- **Macroflora** – Crustose coralline algae covered nearly most available rocky substrates; algal over-canopy was occasional to abundant in the transect
- **Macrofauna** – Macrofauna was uncommon to occasional in the transect; however, mysid shrimp were occasional to very abundant
- **Depth Range** – 1.5 to 10.1 metres

3.6.2 Transect 23

Transect 23 covered 350 metres roughly aligned between Vardy's island and Pikes island moving northwest from the inside of the Pikes Island Breakwater. Benthic substrates observed in this transect were composed of five reoccurring substrate types including fines dominated, fines with variable rock, mixed variable rock, boulder dominated and cobble and gravel dominated.

Total algal coverage in this transect was uncommon to abundant. Hard substrates were partially to heavily encrusted with coralline red algae and were colonized by an over-canopy of *Agarum clathratum* and *Saccharina longicuris*. The algal under-canopy was diverse with *Ectocarpus* sp., *Polysiphonia* sp., *Desmarestia* sp., attached algae was infrequently observed in fines area due to the lack of rocky substrate.

Macrofauna directly observed in this transect included three rock crab, two sea scallops, one Arctic shanny and one winter flounder. Other fauna, which were infrequently to abundantly observed, included mysid shrimp, seastar, sand shrimp, Northern lacuna, green sea urchin, brittlestar crepidula sp., littorines and breadcrumb sponge.

Interpretation of the video recorded along Transect 23 is summarized as follows:

- **0 to 20 m** – Fines dominated (90 to 100%) with lesser amounts of boulder (0 to 10%)
- **20 to 30 m** – Fines with variable rock, fines (50%) and boulder (50%)
- **30 to 80 m** – Fines dominated (65 to 90%) with lesser amounts of boulder (0 to 10%), cobble (0 to 15%) and gravel (0 to 10)
- **80 to 90 m** – Mixed variable rock composed of boulder (30%), cobble (15%), gravel (20%) and fines (35%)
- **90 to 100 m** – Fines with variable rock, fines (55%) with boulder (30%), cobble (15%), and gravel (15%)
- **100 to 110 m** – Mixed variable rock composed of boulder (40%), cobble (15%), gravel (20%) and fines (25%)
- **110 to 140 m** – Boulder dominated (70%) with lesser amounts of cobble (10 to 15%), and fines (15 to 20%)
- **140 to 160 m** – Mixed variable rock composed of boulder (35%), cobble (25%), gravel (15 to 25%) and fines (15 to 25%)
- **160 to 190 m** – Fines with variable rock, fines (40 to 45%) with boulder (5%), cobble (15 to 20%), and gravel (30 to 45%)

- **190 to 200 m** – Cobble and gravel dominated cobble (30%), gravel (35%) with lesser amounts of boulder (10%) and fines (25%)
- **200 to 210 m** – Fines with variable rock, fines (40%) with boulder (10%), cobble (15%), and gravel (35%)
- **210 to 220 m** – Fines dominated (60%) with lesser amounts of boulder (5%), cobble (10%) and gravel (25%)
- **220 to 230 m** – Mixed variable rock composed of boulder (15%), cobble (20%), gravel (35%) and fines (30%)
- **230 to 270 m** – Fines dominated (60 to 90%) with lesser amounts of boulder (0 to 15%), cobble (0 to 15%) and gravel (0 to 20%)
- **270 to 290 m** – Fines with variable rock, fines (40 to 45%) with bedrock (0 to 50%), boulder (5 to 30%), cobble (5 to 15%), and gravel (0 to 5%)
- **290 to 300 m** – Boulder dominated (70%) with lesser amounts of cobble (10%), gravel (10%) and fines (10%)
- **300 to 310 m** – Fines dominated (70%) with lesser amounts of boulder (30%)
- **310 to 330 m** – Boulder dominated (60 to 80%) with lesser amounts of cobble (10%) and fines (10 to 30%)
- **330 to 350 m** – Fines dominated (90%) with lesser amounts of boulder (10%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was present in rocky intervals
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 7.6 to 14.0 metres

3.6.3 Transect 29

Transect 29 covered 215 metres roughly moving between the northeast corner of Vardy's island to Pikes island. Benthic substrates observed start in a rocky area composed of boulder dominated and rocky mixed before moving into a fines-dominated area from 20 metres to the end.

Total algal coverage in this transect was mostly uncommon to occasionally. Hard substrates were partially to heavily encrusted with coralline red algae. Two rocky intervals were colonized by an over-canopy of *Agarum clathratum* and *Saccharina longicuris*. The algal under-canopy was composed of *Ectocarpus* sp./ *Pylaiella* sp., *Polysiphonia* sp., *Ulva lacuca*, and *Desmarestia* sp., attached algae was not observed to infrequently observed in fines area due to the lack of rocky substrate.

Macrofauna directly observed in this transect included eight rock crab, two winter flounder, one juvenile flounder and one American lobster. Other fauna, which were infrequently to abundantly observed, included mysid shrimp, seastar, sand shrimp, Northern lacuna, green sea urchin, crepidula sp., littorines and frilled sea anemone.

Interpretation of the video recorded along Transect 29 is summarized as follows:

- **0 to 10 m** – Boulder dominated (60%) with lesser amounts of cobble (10%), gravel (15%) and fines (15%)
- **10 to 20 m** – Mixed rocky composed of boulder (45%), cobble (25%), gravel (15%) and fines (15%)

- **20 to 215 m** – Fines dominated (65 to 100%) with lesser amounts of boulder (0 to 10%), cobble (0 to 15%) and gravel (0 to 20%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was present in rocky intervals and not present to uncommon in fines areas
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 1.8 to 10.7 metres

3.6.4 Transect 30

Transect 30 covered 180 metres roughly moving between the northeast corner of Vardy's island to Pikes island. Benthic substrates observed in this transect were composed of five reoccurring substrate types including fines dominated, fines with variable rock, mixed variable rock, boulder dominated and rocky mixed dominated. Starts in a fines-dominated area and transitions to a rocky area after 60 metres.

Total algal coverage in this transect was uncommon to abundant. Hard substrates were partially to heavily encrusted with coralline red algae. Rocky intervals were colonized by an over-canopy of *Agarum clathratum* and *Saccharina longicuris*. The algal under-canopy was composed of *Ectocarpus* sp./ *Pylaiella* sp., *Polysiphonia* sp., *Phyllophora* sp. and *Desmarestia* sp., attached algae was not observed to infrequently observed in fines area due to the lack of rocky substrate.

Macrofauna directly observed in this transect included one rock crab, one juvenile sculpin, sea scallop and one American lobster. Other fauna, which were infrequently to abundantly observed, included mysid shrimp, breadcrumb sponge, seastar, green sea urchin, crepidula sp., littorines, mottled chiton, green sea urchin and stalk jellyfish.

Interpretation of the video recorded along Transect 30 is summarized as follows:

- **0 to 60 m** – Fines dominated (90 to 100%) with lesser amounts of boulder (0 to 5%), cobble (0 to 5%) and gravel (0 to 5%)
- **60 to 70 m** – Mixed variable rock composed of bedrock (25%), boulder (25%), cobble (10%), gravel (10%) and fines (30%)
- **70 to 90 m** – Fines with variable rock, fines (40 to 50%) with bedrock (5 to 20%), boulder (20 to 35%), cobble (10 to 15%), and gravel (0 to 5%)
- **90 to 100 m** – Boulder dominated (60%) with lesser amounts of cobble (20%) and fines (20%)
- **100 to 130 m** – Mixed variable rock composed of bedrock (0 to 5%), boulder (45 to 50%), cobble (20 to 25%), gravel (10%) and fines (15 to 20%)
- **130 to 150 m** – Mixed rock dominated composed of boulder (40 to 50%), cobble (35 to 40%), gravel (10%) and fines (5 to 10%)
- **150 to 180 m** – Boulder dominated (65 to 70%) with lesser amounts of cobble (20 to 30%), gravel (0 to 5%) and fines (0 to 5%)
- **Macroflora** – Crustose coralline algae covered most available rocky substrates; algal over-canopy was present in rocky intervals and not present to uncommon in fines areas
- **Macrofauna** – Macrofauna was uncommon to abundant in the transect
- **Depth Range** – 3.7 to 14.0 metres

3.7 Spot Check Survey

Benthic habitats observed during the spot check survey in Port aux Basques Harbour were largely consistent with habitats observed during the transect survey. The spot check locations were evenly distributed in the harbour. For this report, the spot checks are grouped into four general areas in the harbour as described in the following sections. The full video interpretation of the spot check survey is provided in Appendix A.2. The four general spot check areas are illustrated in Figure 3. Representative images of species and habitats observed during the spot check survey are provided in Appendix C.

3.7.1 Spot Check Area 1: Baldwin Rock Dredge Area to Pikes Island / Pikes Island Breakwater and Shoal Point

Spot checks were completed in the general area of the Baldwin Rock dredge area, and to the north of Baldwin Rock from the outside of the Pikes Island breakwater and Pikes Island to Shoal Point. Benthic substrates generally consist of bedrock and boulders in shallower depths nearer shore (2 to 10-metres depth) and sandy fines in deeper areas (10 to 30-metres depth) away from shore. Rocky substrates were generally colonized by an abundant over-canopy of algae including *Agarum clathratum*, *Saccharina latissima*, *Alaria esculenta*, and *Laminaria digitata*, and an under-canopy of red, brown and green algae. Coralline red algae were also observed on most of the available rocky substrate in this area.

Macrofauna in this area was similar to that in the observed in the harbour, including occasional to abundant green sea urchins, littorines, limpets, mussels, seastars, brittlestars, stalked jellyfish, ctenophores, and small shrimp. Green sea urchin was very abundant in a few spot checks, such as SC-66, SC-67, and SC-68. In these areas the algal canopy appeared to have been entirely grazed green sea urchin visible around the drop camera. These areas feature an abundance of rocky substrates suitable for attachment of kelp, and may function as part of a larger sea urchin barren along the rocky shoreline outside of Port aux Basques Harbour. A sculpin was also observed from the deck of the landing craft in shallow waters at SC-63, but was not recorded on camera.

Fines-dominant habitats generally did not exhibit macroflora or macrofauna. Sand dollars (*Echinarachnius parma*) were infrequently observed on sandy substrates in deeper areas. Sand dollars were also infrequently observed on the sandy bottom in deeper waters such as those observed at SC-49 and SC-53.

3.7.2 Spot Check Area 2: West of Baldwin Rock Dredge Area to the South Turning Basin Dredge Area and Public Wharves

Spot checks were completed to the south and west of Baldwin Rock around to the South Turing Basin dredge area and the public wharves. Benthic substrates between Baldwin Rock and the public wharves on the south side of the harbour consist of variable rocky substrates or fines in shallower depths nearshore and fines on the harbour bottom in deeper water away from shore. Most of the rocky substrates that were observed featured an abundant algal over-canopy consisting of *Agarum clathratum*, *Saccharina latissima*, or *Saccharina longicuris*, and an infrequent to abundant under-canopy of various red, brown and green algae. Coralline red algae also covered most of the available rocky substrate below the algal canopy.

Macrofauna in this area included one Atlantic cod, cunner, green sea urchins, littorines, limpets, mussels, limpets, seastars, brittlestars, stalked jellyfish, anemones, breadcrumb sponges, ctenophores, and small shrimp. All of the species observed were commonly observed in other areas of the harbour. Fines-dominant habitats generally did not exhibit macroflora or macrofauna. Anthropogenic debris (garbage, cans, bottles, plastic, wood, appliances, toilets) was frequently observed on the bottom in the areas surveyed around the public wharves.

3.7.3 Spot Check Area 3: East of Vardy's Island inside of Pikes Island Breakwater to North of Money Island

Spot checks completed in this area were situated between the east side of Vardy's Island and the inside of the Pikes Island breakwater, and north along the eastern shore of the inner harbour to the small coves around Money Island. Substrates along the breakwater consisted of boulder on the breakwater itself and mixed rocky substrates and fines along the base of the breakwater. Large boulders on the soft sediment at the base of the breakwater provided evidence of breakwater slumping over time. Substrates were fines on the harbour bottom beyond the base of the breakwater. Substrate along Pikes Island generally consisted of variable rock and fines. Soft, silty-looking fines along the base of the breakwater and Pikes Island extend into the deeper water toward the middle of the harbour.

Rocky substrates in this area featured an abundant algal over-canopy primarily consisting of *Saccharina latissima* with lesser quantities of *Agarum clathratum*, and an infrequent to occasional under-canopy of various red, brown and green algae. Coralline red algae also covered most of the available rocky substrate below the algal canopy. Macrofauna was similar to that observed in the transects, including a cunner, green sea urchins, hermit crab, littorines, limpets, mussels, limpets, seastars, brittlestars, stalked jellyfish, anemones, breadcrumb sponges, ctenophores, and small shrimp. The deeper fines-dominant habitats generally did not exhibit macroflora or macrofauna.

3.7.4 Spot Check Area 4: West of Money Island and south to the Marine Atlantic Ferry Terminal

Spot checks were located to the west of Money Island and south along the western shoreline of the inner harbour to the Marine Atlantic Ferry Terminal. Substrates variably consisted of bedrock or mixed rocky substrate along the shoreline; soft, silty-looking fines on the harbour bottom in deeper water; and mixed variable habitats that transition between these two habitats. Rocky material that looked like fill or armour stone was noted along the western shore of the harbour, particularly at the Marine Atlantic terminal and wharves.

Rocky habitats were colonized by an infrequent to abundant over-canopy of kelp (*Saccharina latissima*) and an under-canopy of red, brown and green algae. Coralline red algae covered most of the available rocky substrate. Macrofauna was infrequently observed in this area. Species observed included cunner, green sea urchins, littorines, limpets, mussels, seastars, brittlestars, stalked jellyfish, anemones, ctenophores, and small shrimp. The deeper fines-dominant habitats generally did not exhibit macroflora or macrofauna. Anthropogenic debris (garbage, cans, bottles, plastic, wood) was frequently observed on the bottom in the areas surveyed around the ferry terminal.

3.8 Shoreline Survey

Seven shoreline surveys were completed in the project area. Shoreline surveys measured between 250-3,000 metres and were carried out as close to the intertidal shoreline as practicable from the vessel.

A brief summary of the predominant shoreline substrates, benthic substrates, macroflora and macrofauna observed during the shoreline survey provided below. Differences between shoreline transects are also summarized below. Shoreline survey locations are depicted in Figure 4. The full video interpretation results of the transect survey are provided in Appendix A.3. Representative images of species and habitats observed in the shoreline survey are provided in Appendix C.

3.8.1 Shoreline Survey Summary

Substrates along the shoreline above the high-water mark were composed of bedrock, infrastructure, riprap and other rocky substrates. Observed subtidal habitats consisted primarily of bedrock, boulder, mixed rocky substrates and small amounts of fines. Depths vary along the shoreline between the intertidal and subtidal habitats, general max depth was around 6 metres at all areas due to vertical visibility in the water column.

The total algal canopy in the rocky intertidal and subtidal habitats was mandated to be abundant, with dense coverage in some areas and sparse coverage in others. Species identified in the intertidal and shallow subtidal habitats consist of mixed kelps, fucoids, and red and green algae. *Fucus* sp. was observed on intertidal substrates alongside lesser amounts of *Ascophyllum nodosum*. Subtidal algae included *Agarum clathratum*, *Saccharina latissima*, *Alaria esculenta*, *Laminaria digitata* and *Saccharina longicuris*. The under-canopy consisted of mixed brown, red and green algae including *Desmarestia aculeata*, *Palmaria palmata*, *Phyllophora* sp., *Polysiphonia* sp., *Ulva lactuca*, *Dictyosiphon foeniculaceus*, and filamentous brown and green algae. Encrusting red algae was also infrequently to occasionally present on rocky substrates throughout the transect. Very small sections of *Zostera marina* were observed in two transects.

Macrofauna was infrequently to abundantly observed and included cunner, flounder, unidentified fish, small shrimp, mysid shrimp, rock crab, mussels, frilled sea anemone, urchins, littorines, lion's mane jellyfish, ctenophore, barnacles, seastars, *Crepidula* sp. and moon jellyfish.

3.8.2 Shoreline Transect 1

Shoreline Transect 1 covered approximately 1,000 metres alongside the shoreline on the south side of the navigation channel starting at the holding facility and moving through the small shallow cove to the town council office and out to the graveyard breakwater. Substrates along the shoreline above the high-water mark were mostly bedrock, with some infrastructure. Subtidal habitats consisted primarily of bedrock with small patches of cobble, gravel and fines.

3.8.3 Shoreline Transect 2

Shoreline Transect 2 covered approximately 300 metres alongside the shoreline between the south boundary of the MAI ferry terminal on Caribou Road to the northernmost finger pier of the public wharves on Marine Drive. Substrates along the shoreline above the high-water mark were a

combination of bedrock, infrastructure, and rip-rap shoreline protection. Subtidal habitats were predominantly rocky, and appeared to consist primarily of bedrock with small patches of boulder, cobble, gravel and fines.

3.8.4 Shoreline Transect 3

Shoreline Transect 3 covered approximated 320 metres alongside the shoreline along the south boundary of the MAI ferry terminal from the southwest corner of Marine Atlantic parking lot to the ferry loading area. Substrates along the shoreline above the high-water mark were a combination of infrastructure, and rip-rap shoreline protection. Subtidal habitats were predominantly rocky, and appeared to consist primarily of bedrock with small patches of boulder, cobble, gravel and fines.

3.8.5 Shoreline Transect 4

Shoreline Transect 4 covered approximated 400 metres from the eastern tip of the small peninsula alongside the shoreline below Talon Energy Services and into the cove on the east side of the Marine Atlantic Terminal. Substrates along the shoreline above the high-water mark appear to be built up shoreline with combination of infrastructure, boulder, cobble and rip-rap shoreline protection. Subtidal habitats were predominantly mixed rocky, and appeared to consist of bedrock, boulder, cobble, gravel and fines.

3.8.6 Shoreline Transect 5a

Shoreline Transect 5a covered approximated 800 metres alongside the cove in inner harbour northwest of Money Island the transect moves along both sides of the cove but does not go in as far as the highway bridge. Substrates along the shoreline above the high-water mark were often bedrock dominated or a combination of bedrock, boulder and rip-rap shoreline protection. Subtidal habitats were predominantly rocky, and appeared to consist primarily of bedrock and boulder with mixed rock. *Zostera marina* was located in the survey and was estimated at less than one square metre of coverage each.

3.8.7 Shoreline Transect 5b

Shoreline Transect 5b covered approximated 3,000 metres alongside the inner harbour shoreline starting south of Money Island and proceeding along the shoreline the northside of the small peninsula near Talon Energy Services. Substrates along the shoreline above the high-water mark were often bedrock dominated or a combination of bedrock, infrastructure, and rip-rap shoreline protection. Subtidal habitats were predominantly rocky, and appeared to consist primarily of bedrock and mixed rock with small patches of cobble, gravel and fines. Bedrock shoals dot the area. One small section of *Zostera marina* was located in the survey and was estimated at only one square metre of coverage.

3.8.8 Shoreline Transect 6

Shoreline Transect 6 covered approximated 600 metres alongside the shoreline on the west side of Pikes Island. Substrates along the shoreline above the high-water mark were a combination of bedrock, boulder, infrastructure, and rip-rap shoreline protection. Subtidal habitats were predominantly bedrock with some mixed rock with small patches of cobble, gravel and fines. One small section of *Zostera marina* was located in the survey and was estimated at 1 to 2 square metres of coverage.

3.8.9 Shoreline Transect 7

Shoreline Transect 7 covered approximated 710 metres alongside the shoreline of Vardy's Island. Substrates along the shoreline above the high-water mark were a combination of bedrock, boulder, infrastructure, and rip-rap shoreline protection. Subtidal habitats were predominantly bedrock with some mixed rock with small patches of cobble, gravel and fines.

3.9 Baited Remote Underwater Video Stations (BRUVS)

Ten BRUVS were completed in the project area. Each BRUVS was dropped in an area to would provide a wide viewing angle and allowed to stay on bottom capturing video for 23 to 30 minutes. A brief description of the observed key macrofauna are provided below. BRUVS mapping for completed survey are provided in Figure 4. The full video interpretation results of each BRUVS are provided in Appendix A.4. Representative images of species and habitats observed in the shoreline survey are provided in Appendix C.

3.9.1 BRUVS 1

BRUVS 1 was located on rocky bottom off the south tip of Vardy's Island in approximately 10 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 30 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod (*Gadus morhua*)
- Adult pollock (*Pollachius virens*)

3.9.2 BRUVS 2

BRUVS 2 was located on rocky bottom off the west side of Vardy's Island in approximately 9 metres water depth. Camera overlooks area of boulder and fines; kelp coverage is moderate and does not affect the line-of-sight of the camera. The camera was set on bottom for 30 minutes and within that time frame the following fish species were recorded:

- Adult pollock
- Sea urchin

3.9.3 BRUVS 3

BRUVS 3 was located on rocky bottom off the east tip of Vardy's Island in approximately 6.5 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 25 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod
- Cunner (*Autogolabrus adspersus*)
- Rock crab

3.9.4 BRUVS 4

BRUVS 4 was located on a slope with a rocky bottom off the west tip of Pikes Island in approximately 8.5 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 25 minutes and within that time frame the following fish species were recorded:

- American lobster
- Cunner

3.9.5 BRUVS 5

BRUVS 5 was located on rocky bottom off the south tip of Pikes Island breakwater in approximately 13 metres water depth. Camera tips slightly backwards causing field of view to aim higher than other BRUVS locations. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 25 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod
- Cunner
- Unidentified fish

3.9.6 BRUVS 6

BRUVS 6 was located on rocky bottom near the public wharfs in approximately 9 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 30 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod
- Cunner

3.9.7 BRUVS 7

BRUVS 7 was located on rocky bottom east of the holding facility in approximately 6.5 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. Camera light provides light for the field-of-view but does not illuminate the background to the same degree as other stations. The camera was set on bottom for 23 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod
- American lobster
- Cunner
- Unidentifiable fish
- Small shrimp

3.9.8 BRUVS 8

BRUVS 8 was located on rocky bottom in the Baldwin rock dredge area in approximately 10.5 metres water depth. Algal coverage on bottom was common but did not block the line-of-sight between the

camera and the bait, and therefore did not affect the performance of the baited station. The camera was set on bottom for 30 minutes and within that time frame the following fish species were recorded:

- Adult Pollock
- Cunner

3.9.9 BRUVS 9

BRUVS 9 was located on a fines-dominated bottom midway between Vardy's Island and Money Island in approximately 16 metres water depth. No algal coverage on bottom sediment plum when camera reached bottom effects visibility temporality and did not affect the performance of the baited station. The camera was set on bottom for 30 minutes and within that time frame no fish species were recorded.

3.9.10 BRUVS 10

BRUVS 10 was located on a rock and fines bottom northwest of Money Island in approximately 7 metres water depth. Algal coverage on bottom was abundant but did not block the line-of-sight between the camera and the bait, and therefore did not affect the performance of the baited station. Water is slightly turbid and reduces visibility. The camera was set on bottom for 30 minutes and within that time frame the following fish species were recorded:

- Juvenile Atlantic cod
- American lobster

4.1 Habitat in Port aux Basques Harbour

Four habitat types were observed in Port aux Basques Harbour at the time of the assessment, including the proposed dredge areas in the navigation channel and turning basin. These four general habitats include:

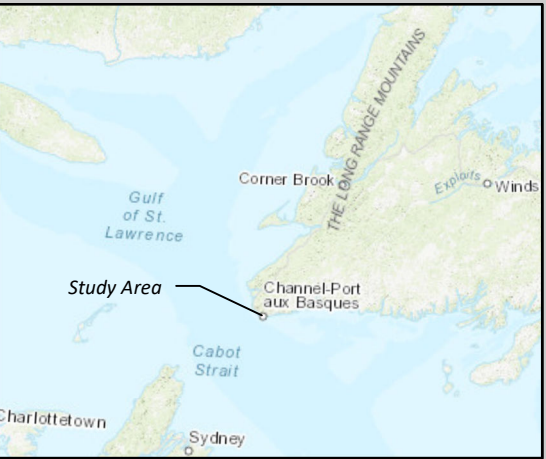
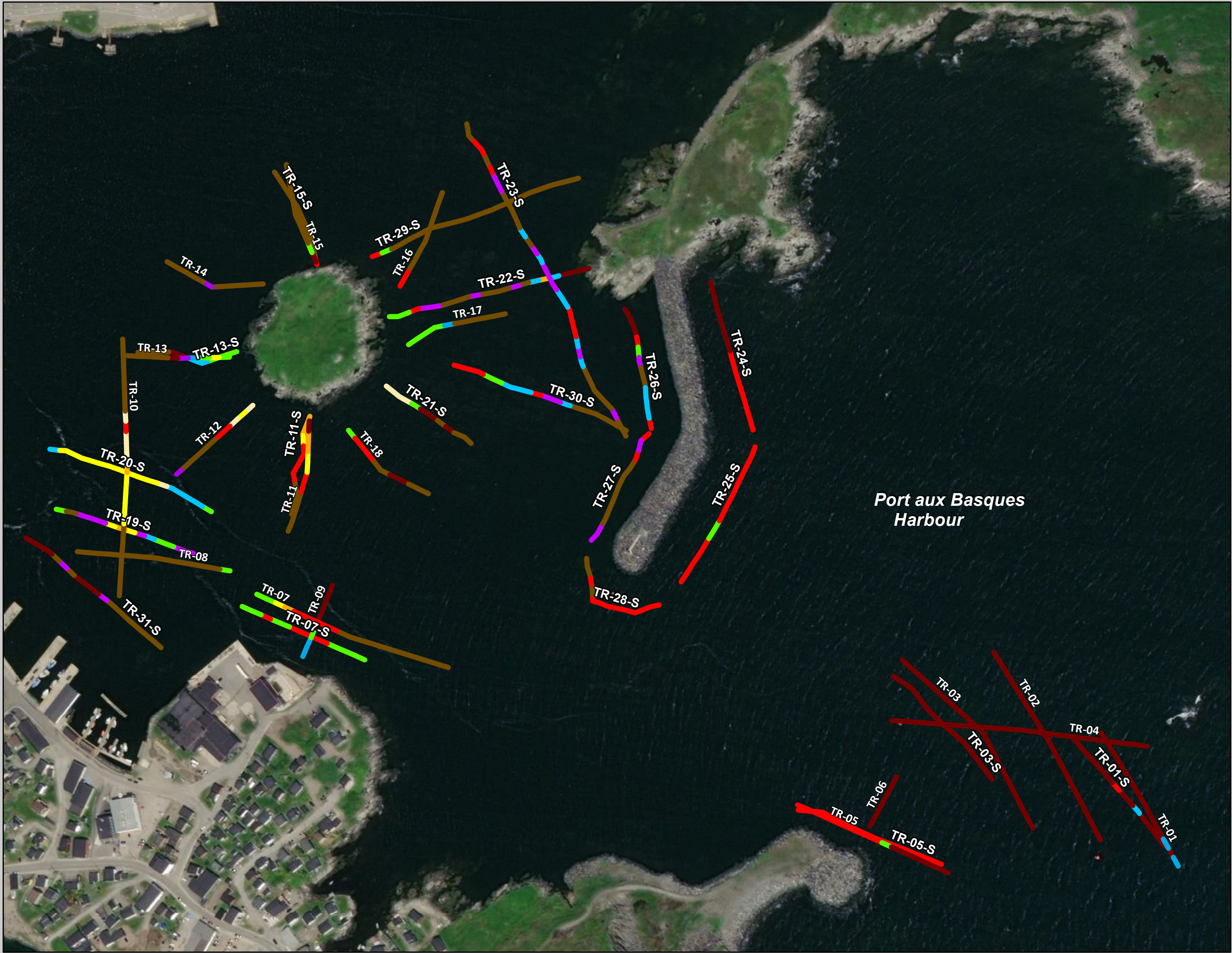
- **Rocky intertidal habitat** composed of bedrock with abundant algal coverage
- **Rocky subtidal habitat** composed of bedrock, boulder, cobble and gravel with occasional to abundant algal coverage
- **Fines-dominant subtidal habitat** composed of fines sediment with limited to occasional algal coverage
- **Fines mixed with variable rock** composed of fines and rock with occasional to abundant algal coverage

Substrate throughout each transect and spot check in the area was recorded and is presented in Figures 5-6. Throughout Port aux Basques Harbour nine different substrate classification types were identified. Five of these classification types are dominated by one substrate: bedrock, boulder, cobble, gravel, and fines dominate. Four of the substrate classification types were composed of mixed substrates, mixed rock and cobble and gravel dominated, mixed variable rock and fines with variable rock.

The habitat types most frequently observed in the harbour were fines and bedrock dominated. Large bedrock shelves cover the bottom in some areas including the edge of Vardy's Island and in the outer harbour. Deep sections and the harbour bottom were usually fines dominated. Locations observed near the shorelines consisted of more mixed substrate.

4.1.1 Shoreline Survey Summary

Shoreline surveys yield fairly consistent results throughout the seven surveys. With a combination of bedrock, boulder, infrastructure, and rip-rap shoreline protection above the high-water line. No large areas composed of gravel or fines were observed in the surveys. Many shoreline sections have been altered in the past. infrastructure throughout the surveys was observed to have algae cover from a variety of small algae species. *Fucus vesiculosus* was observed on rocky intertidal substrates alongside lesser amounts of *Ascophyllum nodosum* throughout the surveys.



Legend

Substrate Classifications

- Bedrock Dominant
- Boulder Dominant
- Cobble Dominant
- Gravel Dominant
- Cobble and Gravel Dominant
- Rocky Dominant - Mixed
- Mixed Variable Rock
- Fines with Variable Rock
- Fines Dominant

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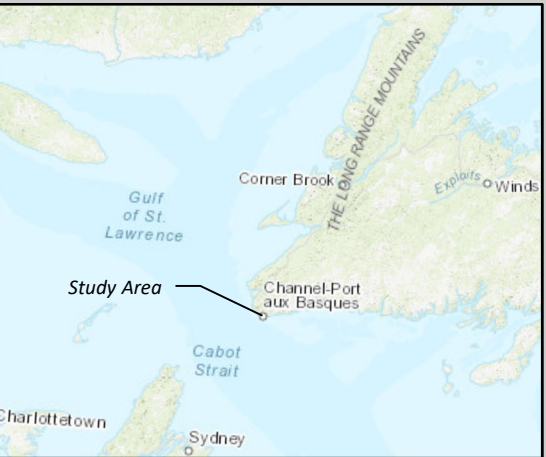
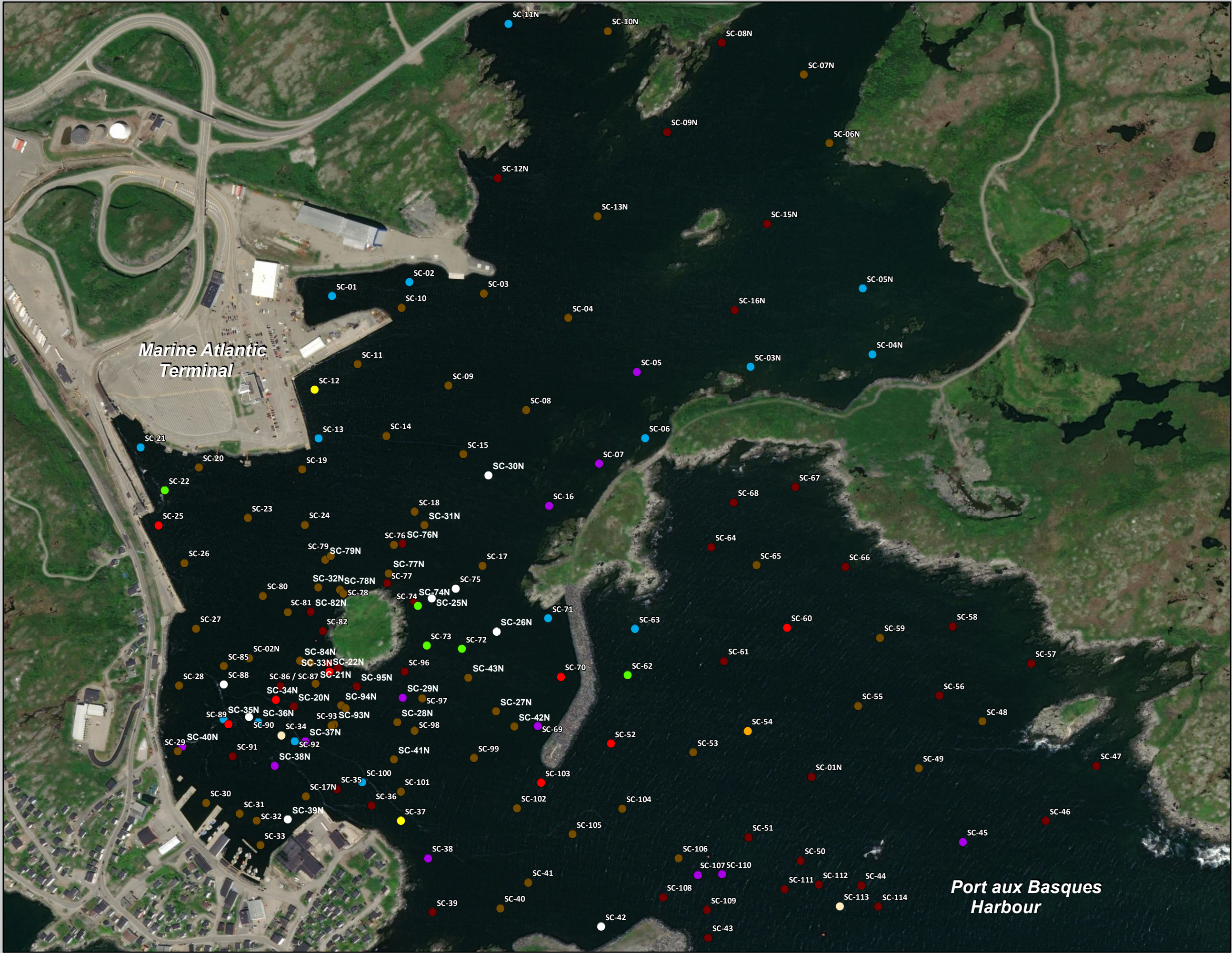
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Navigation Improvements Project
Port aux Basques, Newfoundland and Labrador

Figure 5: Transect Substrate Classification

Drawn by: NH	Date: 2020-09-24
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:3,500

Notes:
Transect substrate classification.

Coordinate System: NAD 1983 UTM Zone 21N
Units: Meter
0 0.05 0.1 0.15 0.2 km



Legend

- Bedrock Dominant
- Boulder Dominant
- Cobble Dominant
- Gravel Dominant
- Cobble and Gravel Dominant
- Rocky Dominant - Mixed
- Mixed Variable Rock
- Fines with Variable Rock
- Fines Dominant
- Substrate Not Visible (Presumed Rock)

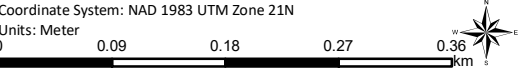


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Figure 6: Spot Check Substrate Classification

Drawn by: NH	Date: 2020-09-24
Checked:	CBCL Project #: 202479.05
Approved:	Scale @ 11" x 17" : 1:6,000

Notes:
Spot check substrate classification.



4.1.2 Flora in Port aux Basques Harbour

Extensive beds of brown algae were observed in the harbour. Total bottom coverage of the algal over-canopy was fairly consistent through the survey and covered a substantial percentage of the rocky bottom, generally between 60 and 100% through most transect intervals and spot checks with predominantly rocky bottom. Nearly all of the available rocky substrates observed in the inner and outer harbour were colonized by an abundant algal over-canopy of brown algae including *Alaria esculenta*, *Agarum clathratum*, *Laminaria digitata*, *Saccharina latissima* and *Saccharina longicuris*. The algal under-canopy was occasional to abundant and consisted of red, brown and green algae including *Polysiphonia* sp., *Desmarestia* sp. and *Ulva lactuca*. With lesser amounts of *Palmaria palmata*, *Chordaria flagelliformis*, *Porphyra* sp., *Chondrus crispus*, *Phyllophora* sp., *Ceramium rubrum*, *Ectocarpus* sp. / *Pylaiella* sp., *Petalonia* sp., *Corallina officinalis*, *Dictyosiphon foeniculaceus*, *Plumaria plumosa* and filamentous red and green algae. Encrusting coralline red algae grows as extensive plaques on coarse substrates and was observed in the Project Area with *Lithothamnion* sp. and *Hildenbrandia rubra*. The intertidal bedrock around Vardy's Island was also covered in an extensive canopy of *Ascophyllum nodosum* and *Fucus vesiculosus*. The species of algae observed in Port aux Basques Harbour are commonly found in shallow, coastal habitats in southern Newfoundland and Atlantic Canada.

The flora present in Port aux Basques Harbour provide habitats for foraging and shelter for a variety of species. Green sea urchin was particularly abundant in the outer harbour where the brown algal over-canopy covered the entire bottom within the visible range around the transects and spot checks. Algal coverage was generally highest in submerged rocky habitats and gradually decreased in density in areas that contained fines, or where urchins were particularly abundant. Algal coverage was much lower in areas exhibiting fines-dominant substrates or those heavily grazed by urchins. During the July survey areas that had been heavily grazed by urchins appear to be regenerating quickly and urchins were less abundant.

4.1.3 Fauna in Port aux Basques Harbour

Fauna observed during the UBHS were predominantly common inshore species found in rocky coastal environments in Atlantic Canada, including Newfoundland (Christian et al., 2010). One Atlantic wolffish, one skate, American lobsters, Atlantic cod, winter flounder, goose fish, Arctic shanny, rock gunnel, pollock, sculpin, rock crab, toad crab and an abundance of green sea urchin and mysid shrimp were observed in Port aux Basques Harbour. The most frequently observed species were sessile invertebrates which do not undertake large-scale seasonal migrations. These species include infrequent to occasional observations of seastars, brittlestars, sand dollars, blue mussels, horse mussels, sea scallop, Icelandic scallop, littorines, Northern lacuna, limpets, chitons, whelk, hermit crab, small shrimp, anemones, stalked jellyfish, fan worms, breadcrumb sponge, sea peach tunicates, lion mane jellyfish, moon jellyfish and ctenophores. Encrusting epiphytic invertebrates were also observed on brown algae in the Project Area including colonial bryozoans, colonial hydrozoans (likely *Obelia* sp.), and spirorbid tube worms (*Spirorbis* sp.). A few small unidentified pelagic finfish were also observed in the Project Area; they could not, however, be identified to species.

Atlantic wolffish, which was only observed in the winter survey, and American lobster generally overwinter in deeper waters, however those observed in the harbour at the time of the assessment may be present in these habitats throughout the year. Green sea urchin graze en masse and appeared to be

moving through the dense algae present in rocky habitats in the outer harbour, particularly around Baldwin Rock, during the winter assessment. The urchins were less abundant in the summer survey.

4.1.4 Aquatic Species at Risk

One Atlantic wolffish was observed sheltering on the south slope of Vardy's Island (Section 3.4.1). This species is listed under the federal *Species at Risk Act* as Special Concern. Atlantic wolffish typically inhabit nearshore rocky habitats at depths between 100 to 350 metres (McRuer et al., 2000), much deeper than the wolffish observed in 24 metres of water on the slope of Vardy's Island. Atlantic wolffish undertake seasonal migrations to shallow waters in the spring and reproduce in September (Keats et al., 1985); spawning has been documented in shallow waters (5 to 15 metres) in shelter rich hard substrates, such as boulders and cobbles (Templeman, 1986). It is possible the observed Atlantic wolffish migrated into Port aux Basques Harbour and found suitable habitat on the slope of the island, although the depth was shallower than what is expected in winter.

One skate was observed at 27-metres deep on the fines harbour bottom on the south side of Vardy's Island. Though the species could not be identified, thorny skate and smooth skate could occur in the area and are species at risk.

No other aquatic Species at Risk were observed during the UBHS in Port aux Basques Harbour.

4.1.5 Commercially Important Species

Adult American lobsters were observed in the harbour in mostly rocky habitat (Section 3.4.3). American lobsters generally prefer rocky habitats with abundant algal cover; the natural crevices in rocky habitats provide burrows, and algal coverage provides shelter and foraging opportunities (Christian et al., 2010; Pezzack et al., 2009). This species is commercially harvested in Port aux Basques Harbour.

Atlantic Cod and Winter flounder were observed in the surveys. Though commercially important, they are not commercial species in the Port aux Basques harbour.

No other commercially fished species were observed during the UBHS in Port aux Basques Harbour. Green sea urchin was noted in abundance in the outer harbour and occasionally in the inner harbour. This species is commercially harvested in other areas of Newfoundland and Atlantic Canada, but there is currently no known fishery for urchin in Port aux Basques Harbour.

4.2 Habitat in the Project Area

4.2.1 Baldwin Rock

Overall, the Baldwin Rock area was a largely homogenous rocky subtidal habitat which consisted of subtidal bedrock with an abundant algal canopy and infrequent to abundant invertebrate fauna. The surveyed habitats in the Baldwin Rock area were entirely subtidal and almost entirely composed of greyish-white bedrock encrusted with coralline red algae and an attached algal canopy. Bedrock substrates provide structural complexity, interstitial refuge and higher macrofloral coverage compared to mixed or fines-dominant habitat (Dustan et al., 2013; Tyrrell, 2005; Gratwicke and Speight, 2004).

The majority of transect intervals and spot checks showed a benthic substrate composed of a large bedrock outcropping with occasional fractures in the relatively smooth bedrock. Some of the fractures observed were fairly large (10- to 20-metres wide) and resulted in shelves and ledges. Rocky substrates and fines were occasionally observed in or around these fractures. Boulder, cobble and gravel were generally observed on the slopes or at the base of ledges and shelves. Fines were also observed at the base of the ledges and shelves in these fractures and appeared to consist of coarse sand and crushed shell grit. Fines were only observed in deeper water inside the navigation channel in a few intervals and spot checks.

Habitats were good in terms of faunal foraging opportunities and feature an abundance of encrusting and attached algae, and sessile and benthic invertebrates. Green sea urchin was observed in abundance in the Baldwin Rock area. Adult urchins occupy a diversity of habitats and exhibit generalist dietary tendencies; however, urchin populations tend to be highest in habitats featuring stable rocky substrates of bedrock and boulders subtidally to 10 metres with moderate exposure to wave energy and abundant brown algal coverage (Christian et al., 2010; Schaefer et al., 2004). Predominant dietary resources include perennial brown algal macrophytes such as *Saccharina* spp. and *Alaria* spp.; grazing urchins have the ability to reduce extensive coastal beds of macrophytes into barrens devoid of macroalgal organisms (Christian et al., 2010). The occasional observation of barren bedrock devoid of algae and abundant urchins suggest the outer harbour may function as part of a sea urchin barren. Additional barrens were noted in spot checks north of the Baldwin Rock area.

4.2.2 Graveyard Point

The Graveyard Point area consisted of the upper intertidal and submerged Graveyard Point breakwater, and the bedrock footing at the base of the breakwater. The transects and spot checks indicated that the habitats consisted of the rocky breakwater (boulder) slope over a bedrock footing. All of the submerged rock hosted a community of attached algae and common sessile and benthic invertebrates. Although fauna was not frequently observed in this area, the rocky substrate in the Graveyard Point area generally provides more structural complexity, interstitial refuges and higher macrofloral coverage as compared to mixed or fines-dominant habitat (Dustan et al., 2013; Tyrrell, 2005; Gratwicke and Speight, 2004).

The rocky habitat in this area, in particular the abundant interstitial space and algal cover observed on the boulder breakwater slope, could provide shelter and foraging opportunities for transient migrants that occupy these types of rocky habitats, such as American lobster, crab, sculpin, or wolffish (*Anarhichas* spp.). These species were not observed in this dredge area at the time of the assessment.

4.2.3 South Turning Basin

Habitats in the South Turning Basin area were entirely submerged and vary among rocky-dominant, fines-dominant, and fines mixed with rock habitats. Substrates were mixed in the area and most intervals contain rocky substrates and fines. It was observed that higher percentages of fines occurred in the shallow depths nearest the public wharves and in the deepest depths on the harbour bottom. Coarse rocky substrates were also observed in various compositions and percentages of bedrock, boulder, cobble and gravel. These substrates provided attachment points for the occasional to abundant algal canopy observed in this dredge area which provides cover and foraging opportunities. The mixed

rocky substrate in the South Turning Basin area generally provides more structural complexity, interstitial refuges, and higher macrofloral coverage as compared to the fines-dominant habitat (Dustan et al., 2013; Tyrrell, 2005; Gratwicke and Speight, 2004) but would not be preferable habitat for species inhabiting entirely rocky habitats.

In general, the submerged, subtidal habitats composed of fines provide cover and foraging opportunities for benthic and demersal marine species (Christian et al., 2010; Tyrrell, 2005). The fines could provide habitat for invertebrate infauna such as bivalves and polychaetes, and foraging opportunities for benthivorous species, such as Atlantic cod, flounder, crab, and American lobster. These species were not observed in this dredge area at the time of the assessment.

4.2.4 Vardy's Island

Habitat around Vardy's Island featured a range of substrate types, depths, and cover. The survey around the island included portions of the rocky intertidal habitats composed of bedrock, as near to the shoreline as possible. The intertidal bedrock generally extended outward approximately 30 metres from shore around the periphery of the island. After this point, the shoreline either dropped swiftly to the harbour bottom, or transitioned to submerged mixed or fines-dominant substrates.

Transects on the south and west sides of the island were primarily rocky from the intertidal zone to the fines-dominant harbour bottom. It was noted during the survey that the slope of the island in this area was steeply pitched downward to approximately 10 to 12-metres depth. This is likely the area previously dredged in the 1970s. While it could not be confirmed that these areas were blasted and dredged, it is assumed this area was previously altered due to its position in the turning basin, the steep slope of the island and observations of near vertical drop-offs, and presence of abundant boulder substrates not observed around the rest of the island. For example, the transect lines occasionally stretched over vertical drop-offs across 10- and 20-metre intervals with over 10-metres difference in depth between the start and end of the interval. The boulder substrates and abundant algae on this side of the island provide shelter and cover for fauna, including the observed American lobster and Atlantic wolffish.

On the north and east sides of the island the intertidal area was bedrock and transitioned subtidally to mixed rocky and fines substrates. About 50 metres out from the island the bottom transitioned entirely to fines. Subtidal habitats composed of fines provide cover and foraging opportunities for benthic and demersal marine species (Christian et al., 2010; Tyrrell, 2005). The fines could provide habitat for invertebrate infauna and foraging opportunities for benthivorous species. Although they were not present at the time of the assessment, fines-dominant substrates could provide good habitat for a range of species including Atlantic cod, flounder, crab, and American lobster. Habitat around the island was considered good as there were a diverse range of substrate types, depths, and ample cover. Structures with varying composition, form and height (boulders, cobbles, algae) provide different functionalities and microhabitats for many species, including species observed or with the potential to occur in the Project Area.

4.2.5 Pikes Island Infill

Habitat in the Pike Island Infill area featured a range of substrate types, depths, and cover. Transects moving through the area were primarily above the fines-dominant harbour bottom. Subtidal habitats

composed of fines provide cover and foraging opportunities for benthic and demersal marine species (Christian et al., 2010; Tyrrell, 2005). The fines could provide habitat for invertebrate infauna and foraging opportunities for benthivorous species, including Atlantic cod and American lobster. Rock crabs and winter flounder were observed in the fines area. During the transects near Vardy's Island or Pikes Island rocky substrate was encountered and water depth was shallower than the fines dominated areas. Fines areas provided little to no cover while the rocky substrates with abundant algae may provide shelter for fauna.

Habitat around the island was considered good as there were a diverse range of substrate types, depths, and ample cover. Structures with varying composition, form and height (boulders, cobbles, algae) provide different functionalities and microhabitats for many species, including species observed or with the potential to occur in the Project Area.

4.2.6 Pikes Island Breakwater

Habitat around Pikes Island Breakwater featured a range of substrate types, depths, and cover. Transects on the outer harbour side of the break water were dominated by large rock (boulder and bedrock). Transects on the inner harbour side have a mix of fines harbour bottom and boulders. In the inner harbour below the toe of the breakwater is fines harbour bottom.

The boulder and bedrock slope in the Pike Island Breakwater area generally provides more structural complexity, interstitial refuges and higher macrofloral coverage as compared to mixed or fines-dominant habitat (Dustan et al., 2013; Tyrrell, 2005; Gratwicke and Speight, 2004). The rocky habitat in this area, in particular the abundant interstitial space and algal cover observed on the boulder breakwater slope, could provide shelter and foraging opportunities for transient migrants that occupy these types of rocky habitats, such as American lobster, crab, sculpin, or wolffish. These species were all observed in the area with the exception of wolffish.

Habitat around the island was considered good as there were a diverse range of substrate types, depths, and ample cover. Structures with varying composition, form and height (boulders, cobbles, algae) provide different functionalities and microhabitats for many species, including species observed or with the potential to occur in the Project Area.

Four habitat types were observed in Port aux Basques Harbour, including the proposed dredge areas in the navigation channel and turning basin. These four habitats include:

- **Rocky intertidal habitat** composed of bedrock with abundant algal coverage
- **Rocky subtidal habitat** composed of bedrock, boulder, cobble and gravel with occasional to abundant algal coverage
- **Fines-dominant subtidal habitat** composed of fines sediment with limited to occasional algal coverage
- **Fines mixed with variable rock** composed of fines and rock with occasional to abundant algal coverage

Intertidal bedrock habitats extend outward from the intertidal shoreline of Vardy's Island into subtidal habitats composed of exposed bedrock, boulder, cobble, gravel and fines substrate. Subtidal rocky habitats are present in the harbour; the Baldwin Rock and the Graveyard Point dredge areas are entirely subtidal rock. The South Turning Basin dredge area, Pikes Island Breakwater and Pikes Island Infill area contains a mix of rock and fines. Habitats assessed outside of these areas are similar to these habitats; the outer harbour is exposed to weather and storms, and consequently the shallow depths were primarily exposed rock with little to no fines. Accumulated fines were only observed on the harbour bottom in deeper waters that are not subject to wind and wave action. Fines were more prevalent in the inner harbour, particularly north of Vardy's Island in the deeper waters toward the center of the inner harbour. Most of the assessed shoreline was rocky, or a mix of rock and fines. It should also be noted that substrate types described herein are based upon visual interpretation of video footage and the diver's supplementary comments and observations. The determination of substrate type is only intended for use in describing the current state of habitats in Port aux Basques Harbour and does not represent a geotechnical investigation of the Project Area.

Extensive beds of brown algae were observed in the Project Area, including intertidal and submerged bedrock habitats and submerged rocky habitats beyond the extent of the bedrock habitat. Coralline red algae, which grows as plaques on coarse substrates, was also regularly observed on rock in the Project Area. Other algal species were observed in the Project Area in low densities.

Fauna observed during the UBHS were predominantly common inshore species found in rocky coastal environments in Atlantic Canada, including Newfoundland (Christian et al., 2010). One Atlantic wolffish, one skate, American lobsters, Atlantic cod, winter flounder, goose fish, Arctic shanny, rock gunnel, pollock, sculpin, rock crab, toad crab and abundance of green sea urchin and mysid shrimp were observed in Port aux Basques Harbour. The most frequently observed species were sessile invertebrates which do not undertake large-scale seasonal migrations. These species include infrequent to occasional observations of seastars, brittlestars, sand dollars, blue mussels, horse mussels, sea scallop, Icelandic scallop, littorines, Northern lacuna, limpets, chitons, whelk, hermit crab, small shrimp, anemones,

stalked jellyfish, fan worms, breadcrumb sponge, sea peach tunicates, lion mane jellyfish, moon jellyfish and ctenophores. Encrusting epiphytic invertebrates were also observed on brown algae in the Project Area including colonial bryozoans, colonial hydrozoans (likely *Obelia* sp.), and spirorbid tube worms (*Spirorbis* sp.). A few small unidentified pelagic finfish were also observed in the Project Area; they could not, however, be identified to species. Overall, the diversity of macrofauna observed in the harbour was relatively low.

Temporal and spatial limitations of the video observations and survey methodologies may have resulted in fewer macrofauna observations. Cryptic fauna, including bivalves, polychaetes and other invertebrate species, are also difficult to observe by transect and spot check interpretation methodologies. It is possible that additional fauna may have been present in the bedrock and rocky habitats, but were not observed due to the structural complexity and abundant cover provided by the surveyed habitats in the Project Area. It is also possible that completion of the survey in winter may have affected the diversity and abundance of flora and fauna observed during the survey. Seasonal migrants and annual algal species may not have been present in the harbour at the time of the assessment.

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UBHS Video Interpretation Tables

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
100 - 110	3:58c - 5:45c	34	10.36	0.0	Boulders, cobbles and gravel over bedrock	4:07c	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (10%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Lithothamnion sp. - A Laminaria digitata - O Polysiphonia sp. - C Hildenbrandia rubra - U Coralline red algae - A	Green sea urchin - O Littorines - O Blue mussels - U Tortoiseshell limpets - U Small shrimp - U	Agarum canopy covers nearly the entire bottom.
110 - 120	5:45c - 7:54c	42	12.80	0.05	Boulders, cobbles and gravel over bedrock	6:58c	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (10%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Lithothamnion sp. - A Polysiphonia sp. - C Coralline red algae - A	Green sea urchin - U Littorines - U Small chiton - U	Agarum canopy covers nearly the entire bottom.
		50	15.24	0.0	Boulders, cobbles and gravel over bedrock	7:29c	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)						
120 - 130	7:54c - 1:56d	58	17.68	0.0	Boulders, cobbles and gravel over bedrock	1:01d	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Mixed Variable Rock	Bedrock (45%) Boulder (5%) Cobble (10%) Gravel (0%) Fines (40%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - U Lithothamnion sp. - A Polysiphonia sp. - C Coralline red algae - A	Small shrimp - U Brittlestar - U	This interval features a small stretch of fines between two higher elevation bedrock ridges. Approximately 10 m stretch of fines between 125m and 135m. Fines located in 80-90 ft of water. Diver did not drop to bottom to examine fines due to excessive depth. No unique flora or fauna observed. Flora looked like desmarestia and laminaria, and may be wrack.
130 - 140	1:56d - 2:49d	70	21.34	0.0	Boulders, cobbles and gravel over bedrock	2:18d	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Mixed Variable Rock	Bedrock (50%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (40%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Lithothamnion sp. - A Polysiphonia sp. - A Coralline red algae - A	Small shrimp - U Frilled sea anemone - U Littorines - U	This interval features a small stretch of fines between two higher elevation bedrock ridges. Approximately 10 m stretch of fines between 125m and 135m. Fines located in 80-90 ft of water. Diver did not drop to bottom to examine fines due to excessive depth. No unique flora or fauna observed. Flora looked like desmarestia and laminaria, and may be wrack.
140 - 150	2:49d - 3:44d	63	19.20	-	-	-	N	-	Rocky (boulder and cobble over bedrock)	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Lithothamnion sp. - A Polysiphonia sp. - A Coralline red algae - A	Small shrimp - U Littorines - U	Very small patch of sandy fines or shell grit located between two bedrock ridges. Otherwise all bedrock and patches of boulder and cobble. Diver reached end of bottom time at 145 m before reaching 150 m interval therefore no depth probe at 150 m tag. Bottom appears to consist of bedrock at the 150 m tag.

Appendix A.1: Transect 1S (140 metres in Baldwin Rock dredge area) - Summer UBHS - July 27, 2020
Start wp: 1762 Diver Start: 0m @ wp1764
End wp: 1764

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10			0.0	N/A	Bedrock	N/A	N/A	N/A	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A	No observed fauna.	Diver does not go bottom due to excessive depth exceeding safety limit. Substrate and algae visible from overhead and can confirm substrate is bedrock encrusted with coralline red algae and with an algal over-canopy of Agarum.
			0.0	N/A	Bedrock	N/A	N/A	N/A	Rocky (Bedrock) with Kelp						
10 - 20	1:50a - 3:08a		0.0	N/A	Bedrock	N/A	N/A	N/A	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - U Coralline red algae - A	Seastar - U	Substrate consists of bedrock with occasional boulders and small amounts of cobble and gravel in small bedrock fractures.
		35.0	10.7	0.0	Bedrock	2:37a	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
20 - 30	3:08a - 4:59a		0.0	0.0	Bedrock / Boulder	3:40a	Y	Colourful rocky bottom consisting of bedrock and boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock and Boulder) with Kelp	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - U Coralline red algae - A	Lobster - U (1@3:17a) Crepidula sp. - O Northern lacuna - O	Substrate consists of bedrock with occasional boulders and small amounts of cobble and gravel in small bedrock fractures.
			0.0	0.0	Bedrock / Boulder	4:28a	Y	Colourful rocky bottom consisting of bedrock and boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock and Boulder) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
30 - 40	4:59a - 6:21a		0.0	0.0	Bedrock / Boulder	5:07a	Y	Colourful rocky bottom consisting of bedrock and boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock and Boulder) with Kelp	Bedrock Dominant	Bedrock (60%) Boulder (20%) Cobble (10%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - O Coralline red algae - A	Crepidula sp. - O Northern lacuna - O Ctenophores - U Seastar - U	Substrate consists of bedrock with occasional boulders and small amounts of cobble and gravel in small bedrock fractures.
			0.0	0.0	Boulders, cobbles and gravel over bedrock	5:47a	Y	Colourful mixed rocky bottom consisting of gravel and cobble over bedrock and boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock and Boulder) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae. Occasionally there are dense but small patches of Desmarestia.
40 - 50	6:21a - 0:06b	30.0	9.1	0.0	Boulders, cobbles and gravel over bedrock	6:35a	Y	Colourful mixed rocky bottom consisting of gravel and cobble over bedrock and boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock and Boulder) with Kelp	Mixed Variable Rock	Bedrock (20%) Boulder (25%) Cobble (30%) Gravel (25%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Alaria esculenta - O Polysiphonia sp. - A Desmarestia sp. - O Coralline red algae - A	No observed fauna.	Substrate in this interval is quite variable and consists of gravel and cobble, boulder and bedrock.
		29.0	8.8	0.0	Gravel and Cobble	7:30a	Y	Gravel and cobble substrate with limited algal cover surrounded by larger boulder and bedrock substrates.	Mixed rocky substrates (Gravel, Cobble, Boulder and Bedrock)						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. Alaria and Laminaria located on a bedrock ridge protruding up off the bottom. All available substrate encrusted with coralline algae. Occasionally there are dense but small patches of Desmarestia.
50 - 60	0:06b - 1:55b	28.0	8.5	0.0	Bedrock	0:13b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - A Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Horse mussels - U Seastar - U Ctenophore - U	Transect line crosses a few bedrock ridges and is suspended between two ridges along this interval. Divers ascends bedrock ridges and ends up in shallow water at the end of this interval.
			0.0	0.0	Bedrock	1:03b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Substrate is predominantly bedrock on the ridges, with occasional boulder, cobble and gravel at the base of the ridges.
60 - 70	1:55b - 3:24b	10.0	3.0	0.0	Bedrock	1:50b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - A Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Mussels - A	Thousands of tiny mussels on bedrock substrate between 60 and 70 metres. Primarily located in dense patches around the holdfasts of algae.
		10.0	3.0	0.0	Bedrock	2:44b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Substrate is predominantly bedrock on the ridges, with occasional boulder, cobble and gravel at the base of the ridges.
70 - 80	3:24b - 4:54b		0.0	0.0	Boulder	3:32b	Y	Colourful rocky bottom consisting of boulder over bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder over Bedrock) with Kelp	Boulder Dominant	Bedrock (20%) Boulder (60%) Cobble (10%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - A Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Seastar - U Sea peach tunicate - U	Substrate primarily boulder over bedrock with occasional bedrock ridges. Abundant algal coverage (Agarum) but height is less than 0.5 metres.
			0.0	0.0	Boulder	4:29b	Y	Colourful rocky bottom consisting of boulder over bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder over Bedrock) with Kelp						

Appendix A.1: Transect 1S (140 metres in Baldwin Rock dredge area) - Summer UBHS - July 27, 2020

Start wp: 1762 Diver Start: 0m @ wp1764
End wp: 1764

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
80 - 90	4:54b - 7:29b		0.0	0.0	Bedrock	5:00b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (65%) Boulder (25%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - A Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Horse mussel - O Seastar - U	Substrate primarily bedrock with occasional boulders and cobble. Abundant algal coverage (Agarum) but height is less than 0.5 metres.
			0.0	0.0	Bedrock	6:01b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
90 - 100	7:29b - 1:00c	22.0	6.7	0.0	Bedrock	7:34b	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - O Desmarestia sp. - U Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Waved whelk - U Mottled chiton - U Seastar - O Horse mussel - U	Substrate primarily bedrock with limited boulders and cobble. Occasional algal coverage (Agarum) but height is less than 0.5 metres and farily patchy. Not seeing many urchins.
			0.0	0.0	Bedrock	0:30c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
100 - 110	1:00c - 2:29c		0.0	0.0	Bedrock	1:11c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Lithothamnion sp. - O Coralline red algae - A	Horse mussel - U Brittlestars - U	Substrate primarily bedrock with occasional boulders and cobble. Occasional algal coverage (Agarum) but height is less than 0.5 metres and farily patchy.
			0.0	0.0	Bedrock	1:54c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
110 - 120	2:29c - 3:52c	23.0	7.0	0.0	Bedrock	2:35c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (85%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Seastar - U Horse mussel - U	Substrate primarily bedrock with occasional boulders and cobble. Occasional algal coverage (Agarum) but height is less than 0.5 metres and farily patchy.
			0.0	0.0	Bedrock	3:32c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
120 - 130	3:52c - 5:11c		0.0	0.0	Bedrock	3:59c	Y	Colourful rocky bottom consisting of bedrock with occasional kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Lithothamnion sp. - O Coralline red algae - A	Seastar - U	Substrate primarily bedrock with occasional boulders and cobble. Abundant algal coverage (Agarum) but height is less than 0.5 metres and farily patchy. Lion's mane jellyfish observed in watercolumn about 125 metre interval.
			0.0	0.0	Bedrock	4:46c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
130 - 140	5:11c - 6:40c		0.0	0.0	Bedrock	5:17c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Seastar - U	Substrate primarily bedrock with occasional boulder and cobble. Abundant algal coverage (Agarum) but the canopy height is less than 0.5 metres and patchy in places.
			0.0	0.0	Bedrock	6:13c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
140 - 145	6:40c - End	28.0	8.5	0.0	Bedrock	6:13c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Lithothamnion sp. - O Coralline red algae - A	Seastar - U	Substrate primarily bedrock with occasional boulder and cobble. Abundant algal coverage (Agarum) but the canopy height is less than 0.5 metres and patchy in places.

Appendix A.1: Transect 2 (200 metres in Baldwin Rock dredge area)

Start wp: 1412 Diver Start 0m @ wp1412
End wp: 1419

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:20a	18.0	5.49	0.0	Bedrock	1:24a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia aculeata - A Polysiphonia sp. - O Coralline red algae - A Hildenbrandia rubra - U	No observed fauna	Bottom primarily consists of bedrock with patches of small and large boulders and large cobbles overlaying bedrock. Sediment probe recorded at 0m mark. Subsequent recordings completed at 10, 20, 30 m, intervals.
10 - 20	2:20a - 3:33a	37.0	11.28	0.0	Bedrock	2:27a	y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia aculeata - A Polysiphonia sp. - O Coralline red algae - A Hildenbrandia rubra - U	Green sea urchin - U Blue mussel - U	Steep drop off over 10 - 20 m interval. Primarily bedrock with patches of small boulders and cobbles. Very limited gravels.
20 - 30	3:33a - 4:20a	42.0	12.80	0.0	Bedrock	3:35a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia aculeata - A Alaria esculenta - O Polysiphonia sp. - O Coralline red algae - A	No observed fauna	Transect line strung across very deep crevase 20 - 35 meter interval. Diver swims above deep section to increase bottom time on long transect (as instructed). Agarum canopy covers 80 - 90% of the bottom.
30 - 40	4:20a - 5:33a	44.0	13.41	0.0	Bedrock	5:06a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia aculeata - A Alaria esculenta - O Polysiphonia sp. - O Coralline red algae - A	Small shrimp - U Northern lacuna - O	30 - 35 m transect suspended over deep crevase. Back on bedrock at 4:30. Agarum canopy covers 80 - 90% of the bottom. Northern lacuna (snail) occasionally visible on Agarum throughout transect. Agarum canopy covers 80 - 90% of the bottom.
40 - 50	5:33a - 6:30a	45.0	13.72	0.0	Bedrock	5:49a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (75%) Boulder (0%) Cobble (0%) Gravel (25%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia aculeata - O Alaria esculenta - O Polysiphonia sp. - O Coralline red algae - A	Small shrimp - U Northern lacuna - O	Small patch of gravels 40 - 45 m. Probed gravel patch (2-5 cm to refusal). Gravel sitting in a shallow concave depression in bedrock. Must accumulate here and avoid scour or re-suspension.
		48.0	14.63	0.05	Gravel	6:05a	Y	Grey / white small gravel with reddish coloured larger gravels	Rocky with kelp (Bedrock)						
50 - 60	6:30a - 7:23a	43.0	13.11	0.0	Bedrock	7:09a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - C Coralline red algae - A	No observed fauna	Diver probed at 55 m mark on transect line.
60 - 70	7:23a - 0:25b	43.0	13.11	0.0	Bedrock	7:35a	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Ctenophore - U Stalked jellyfish - U	Diver probed at 60 and 65 m marks on transect line. Agarum canopy covers 80 - 90% of the bottom.
		43.0	13.11	0.0	Bedrock	0:02b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)						
70 - 80	0:25b - 1:28b	37.0	11.28	0.0	Bedrock	0:36b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Chiton - U	Agarum canopy covers 80 - 90% of the bottom.
80 - 90	1:28b - 2:26b	35.0	10.67	0.0	Bedrock	1:34b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	No observed fauna	Agarum canopy covers 80 - 90% of the bottom.
90 - 100	2:26b - 3:22b	34.0	10.36	0.0	Bedrock	2:31b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	No observed fauna	Agarum canopy covers 80 - 90% of the bottom.
100 - 110	3:22b - 4:18b	33.0	10.06	0.0	Bedrock	3:24b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Littorines - O	Steep drop off over 100 - 110 m interval. Agarum canopy covers 80 - 90% of the bottom. Difficult to identify gastropods on Agarum (Littorine? Lacuna?)

Appendix A.1: Transect 2 (200 metres in Baldwin Rock dredge area)
Start wp: 1412 Diver Start 0m @ wp1412
End wp: 1419

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
110 - 120	4:18b - 5:08b	37.0	11.28	0.0	Bedrock	4:24b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Ctenophore - U Toad crab - U	Agarum canopy covers 80 - 90% of the bottom.
120 - 130	5:08b - 6:07b	38.0	11.58	0.0	Bedrock	5:13b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Littorines - O	Agarum canopy covers 80 - 90% of the bottom.
130 - 140	6:07b - 6:53b	35.0	10.67	0.0	Bedrock	6:11b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Littorines - O	Agarum canopy covers 80 - 90% of the bottom.
140 - 150	6:53b - 8:00b	31.0	9.45	0.0	Bedrock	6:58b	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - C	Blue mussel - U	Agarum canopy covers 80 - 90% of the bottom.
150 - 160	8:00b - 0:57c	32.0	9.75	0.0	Bedrock	0:03c	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - C	Green sea urchin - A	Agarum canopy covers 80 - 90% of the bottom. Sharp transition at about 158 m mark at which algal canopy disappears. Abundant green sea urchins (50+) are visible in the bare patch of bedrock. All that remains of algae are holdfasts and debris. Abundant Coralline red algae and Lithothamnion cover bedrock.
160 - 170	0:57c - 1:55c	24.0	7.32	0.0	Bedrock	1:04c	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Desmarestia aculeata - U Polysiphonia sp. - U Coralline red algae - A Lithothamnion sp. - C	Green sea urchin - A Frilled sea anemone - U	Hundreds of small urchins over this 10 meter interval. Most kelp and almost all Polysiphonia have been consumed by urchins.
170 - 180	1:55c - 3:00c	26.0	7.92	0.0	Bedrock	2:00c	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - C Coralline red algae - A Lithothamnion sp. - C	Green sea urchin - O	Urchins and bare bedrock over first few meters of interval. Habitat transitions back to Agarum canopy covering 80 - 90% of the bottom and no visible urchins.
180 - 190	3:00c - 3:57c	33.0	10.06	0.0	Bedrock	3:05c	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Littorines - U	Agarum canopy covers 80 - 90% of the bottom.
190 - 200	3:57c - 5:02c	41.0	12.50	0.0	Bedrock	4:03c	Y	Grey / white bedrock covered in Coralline red algae and with attached kelp.	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A Lithothamnion sp. - O	Littorines - U	Agarum canopy covers 80 - 90% of the bottom. Small patches of gravel at end of this interval.
200 - 210	5:02c - 5:57c	46.0	14.02	0.0	Bedrock	5:07c	Y	Grey / white bedrock with shallow patch of gravel. Bedrock covered in Coralline red algae and kelp	Rocky with kelp (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Chordaria flagelliformis - O	No observed fauna	Gravell located in shallow depression between bedrock ridges. Chordaria growing in gravel in the depression. No algae located on the tops of the bedrock ridges. End of transect line became twisted and was not suitably laid out for surveying, so diver swam 10 to 20 m past the 200m end of transect to complete the full 200 m survey.

Appendix A.1: Transect 3 (200 metres in Baldwin Rock dredge area)

Start wp: 1546 Diver Start 0m @ wp1546
End wp: 1553

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 1:57a	38	11.58	0.0	Bedrock	1:31a	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Horse mussel - U Small shrimp - U Northern lacuna - U	Agarum canopy covers nearly the entire bottom. Note that bryozoans are growing epiphytically on agarum and kelp throughout the transect.
10 - 20	1:57a - 3:59a	34	10.36	0.0	Bedrock	3:03a	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Horse mussel - U Small shrimp - U Northern lacuna - C Littorines - C	Agarum canopy covers nearly the entire bottom.
20 - 30	3:59a - 5:59a	33	10.06	0.0	Bedrock	5:05a	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Small shrimp - U Northern lacuna - C Littorines - C Mottled red chiton - U	Agarum canopy covers nearly the entire bottom. 20-25m suspended in water column due to large dropoff from bedrock ridge. 25-30m on bottom.
30 - 40	5:59a - 0:14b	36	10.97	0.0	Bedrock	7:18a	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A	Northern lacuna - C Littorines - C Stalked jellyfish - O Green sea urchin - O Small shrimp - U Horse mussel - U	
40 - 50	0:14b - 2:10b	29	8.84	0.0	Bedrock	0:20b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia sp. - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - U Small shrimp - U Northern lacuna - C Littorines - C	
50 - 60	2:10b - 4:17b	25	7.62	0.0	Bedrock	2:14b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Desmarestia sp. - O Chordaria flagelliformis - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - U Small shrimp - U Northern lacuna - C Littorines - C Horse mussel - U Brittlestar - U	
60 - 70	4:17b - 6:05b	22	6.71	0.0	Bedrock	5:13b	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Desmarestia sp. - O Chordaria flagelliformis - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Littorines - C Tortoiseshell limpet - U Horse mussel - U	
70 - 80	6:05b - 0:03c	24	7.32	0.0	Bedrock	7:06b	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Desmarestia sp. - O Chordaria flagelliformis - O Laminaria digitata - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Small shrimp - U Brittlestar - U Horse mussel - U Frisled sea anemone - U Seastar - U	75-80m suspended in watercolumn between two bedrock ridges. Bedrock and boulder substrate between ridges (primarily bedrock).
80 - 90	0:03c - 2:00c	20	6.10	0.0	Bedrock	1:11c	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - U Agarum clathratum - U Desmarestia sp. - U Chordaria flagelliformis - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Small shrimp - U Horse mussel - U Littorines - O	85-90m suspended in watercolumn between two bedrock ridges. Bedrock substrate between ridges.
90 - 100	2:00c - 3:51c	20	6.10	0.0	Bedrock	2:52c	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Desmarestia sp. - U Chordaria flagelliformis - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Small shrimp - U Horse mussel - O Littorines - O Mottled red chiton - U Fan worm - U Brittlestar - U	Fan worm = <i>Myxicala infundibulum</i> . Fan worms observed with mussels in bedrock crevices.
100 - 110	3:51c - 5:35c	22	6.71	0.0	Bedrock	4:46c	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Coralline red algae - A Lithothamnion sp. - A	Green sea urchin - A Horse mussel - O Littorines - O Tortoiseshell limpets - U Brittlestar - U	
110 - 120	5:35c - 7:36c	24	7.32	0.0	Bedrock	6:35c	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia sp. - U Coralline red algae - A Lithothamnion sp. - A	Green sea urchin - A Horse mussel - U Small shrimp - U Littorines - O Northern lacuna - U Tortoiseshell limpets - U Brittlestar - U	
120 - 130	7:36c - 1:36d	36	10.97	0.0	Bedrock	0:33d	Y	Grey / white boulders and cobble covered in red Coralline red algae over bedrock with attached algae.	Rocky (boulder and cobble over bedrock)	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (4%) Gravel (1%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O	Green sea urchin - U Breadcrumb sponge - U Horse mussel - U Small shrimp - U Littorines - O Northern lacuna - U Brittlestar - U	Interval located between two bedrock ridges. Substrate between ridges consists of bedrock overlain with boulder, cobble and gravel. No penetration with probe / refusal at 0.0m.

Appendix A.1: Transect 3 (200 metres in Baldwin Rock dredge area)

Start wp: 1546 Diver Start 0m @ wp1546
End wp: 1553

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
130 - 140	1:36d - 3:27d	33	10.06	0.0	Bedrock	2:28d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Horse mussel - U Northern lacuna - O Littorines - O	Hydroids ephiphytically attached to Agarum clathratum visible in this interval near 140m tag. Have not yet seen this through this transect before now.
140 - 150	3:27d - 5:12d	35	10.67	0.0	Bedrock	4:19d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Northern lacuna - O Littorines - O	
150 - 160	5:12d - 7:12d	45	13.72	0.0	Bedrock	6:07d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (60%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (35%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - C Desmarestia sp. - U Coralline red algae - C Lithothamnion sp. - C Polysiphonia sp. - C	Northern lacuna - O Littorines - O Tortoiseshell limpet - U	Substrate transitions to fines/gravel around 155m tag. Fines look like coarse sand. Possibly some shell grit. Depth probe generally reaches 0.05m in fines/gravel with refusal and max penetration of about 0.09m.
		55	16.76	0.1	Fines and gravel over Bedrock	6:47d	Y	Fines and gravel in a small patch between bedrock ridges	Mixed substrate (fines and gravel over bedrock)						
160 - 170	7:12d - 0:51e	49	14.94	0.0	Bedrock	0:06e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Horse musel - U Northern lacuna - O Littorines - O Tortoiseshell limpet - U Small shrimp - U Stalked jellyfish - U	
170 - 180	0:51e - 2:26e	49	14.94	0.0	Bedrock	1:38e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Horse mussel - U Northern lacuna - O Littorines - O Ctenophore - U Small shrimp - U	
180 - 190	2:26e - 4:11e	54	16.46	0.0	Bedrock	3:15e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Horse mussel - U Breadcrumb sponge - U Northern lacuna - O Littorines - O Small shrimp - U	
190 - 200	4:11e - 6:16e	62	18.90	0.0	Bedrock	5:02e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Horse mussel - U Northern lacuna - O Frilled sea anemone - O Sea peach tunicate - O Littorines - O Small shrimp - U	Sea peach tunicate = <i>Halocynthia pyriformis</i> . Only observed on one bedrock ridge in a dense cluster. No observations through the rest of this transect. Very small patch of fines near 195m interval. Fines located between bedrock ridges.
200 - 210	6:16e - 7:06e	60	18.29	0.0	Bedrock	6:59e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - A	Horse mussel - U Northern lacuna - O Littorines - O Small shrimp - O	

Appendix A.1: Transect 3S (140 metres in Baldwin Rock dredge area) - Summer UBHS - July 27, 2020

Start wp: 1756 Diver Start: 0m @ wp1756

End wp: 1761

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 3:28a	40.0	12.2	0.0	Bedrock	2:31a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Lithothamnion sp. - O Coralline red algae - A	Northern lacuna - U Seastar - U Brittlestar - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		38.0	11.6	0.0	Bedrock	3:03a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
10 - 20	3:28a - 5:46a	37.0	11.3	0.0	Bedrock	4:14a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Lithothamnion sp. - O Coralline red algae - A	Sculpin - U (1@5:00a) Seastar - U Horse mussel - U Northern lacuna - O	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		35.0	10.7	0.0	Bedrock	4:39a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
20 - 30	5:46a - 7:16a	33.0	10.1	0.0	Bedrock	6:15a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (70%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - U Chordaria flagelliformis - U Lithothamnion sp. - O Coralline red algae - A	Northern lacuna - U Horse mussel - U Brittlestar - U	Substrate transitions from bedrock to a mix of coarse fines and gravel at the end of this interval.
		33.0	10.1	0.0	Bedrock	6:50a	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Agarum canopy abundant and fairly dense to the substrate transition. Limited algae in the coarse fines and gravel.
30 - 40	7:16a - 1:07b	38.0	11.6	0.09	Gravel and Coarse Fines / Shell Grit	7:50a	Y	Thin layer of colourful gravel and coarse fines / shell grit over bedrock substrate. Limited algae at the probe site.	Mixed Coarse Fines and Gravel, and Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (10%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - U Chordaria flagelliformis - U Lithothamnion sp. - O Coralline red algae - A	Seastar - U Stalked jellyfish - U Mysid shrimp - U	Substrate at the beginning of the interval is a shallow, small bed of gravel and coarse fines / shell grit over bedrock. The substrate transitions back to bedrock after 1-2 metres and remains bedrock with abundant Agarum algae to the end of the interval.
		36.0	11.0	0.0	Bedrock	0:35b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						
40 - 50	1:07b - 3:23b	30.0	9.1	0.0	Bedrock	1:59b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Lithothamnion sp. - O Coralline red algae - A	Horse mussel - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		28.0	8.5	0.0	Bedrock	2:39b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
50 - 60	3:23b - 6:05b	24.0	7.3	0.0	Bedrock	4:03b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Laminaria digitata - U Alaria esculenta - U Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Cunner - A (≈30@5:50b) Green sea urchin - U Seastar - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures. End of the interval becoming shallower and algal canopy now includes Desmarestia, Laminaria and Alaria. School of cunner starting to follow the diver.
		20.0	6.1	0.0	Bedrock	4:45b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
60 - 70	6:05b - 0:00c	18.0	5.5	0.0	Bedrock	6:24b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - O Laminaria digitata - U Alaria esculenta - O Desmarestia sp. - O Coralline red algae - A	Green sea urchin - U Mysid shrimp - U Horse mussel - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		20.0	6.1	0.0	Bedrock	7:29b	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.

Start wp: 1756 Diver Start: 0m @ wp1756
End wp: 1761

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
70 - 80	0:00c - 1:48c	23.0	7.0	0.0	Bedrock	0:37c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Alaria esculenta - U Desmarestia sp. - U Lithothamnion sp. - O Coralline red algae - A	Northern lacuna - U Ctenophore - U Seastar - U Mottled chiton - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		24.0	7.3	0.0	Bedrock	1:15c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
80 - 90	1:48c - 3:37c	27.0	8.2	0.0	Bedrock	2:00c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (80%) Boulder (15%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Alaria esculenta - U Laminaria digitata - U Desmarestia sp. - U Lithothamnion sp. - O Coralline red algae - A	Ocean pout - U (1@2:36c) Cunner - U (1@2:45) Breadcrumb sponge - U Frilled sea anemone - U	Substrate consists of bedrock with small amounts of boulders and cobble in small bedrock fractures.
		27.0	8.2	0.0	Bedrock	3:09c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is not particularly dense, but Agarum covers most available rocky substrate. All available substrate encrusted with coralline algae.
90 - 100	3:37c - 5:56c	23.0	7.0	0.0	Bedrock	4:27c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (85%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Polysiphonia sp. - A Alaria esculenta - O Laminaria digitata - U Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Lobster - U (1@4:37c) Seastar - U	Substrate remains bedrock with occasional boulder and cobble throughout the interval.
		19.0	5.8	0.0	Bedrock	5:28c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy transitions from Agarum to predominantly Alaria and Desmarestia around the 85 metre interval. Likely due to the shallow depth in this area. Diver noted a clear vertical zonalational throughtout transect (Alaria in shallower depth, Agarum in deeper depths).
100 - 110	5:56c - 0:41d	16.0	4.9	0.0	Bedrock	6:54c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - O Alaria esculenta - A Laminaria digitata - U Desmarestia sp. - O Lithothamnion sp. - O Coralline red algae - A	Green sea urchin - U Horse mussel - U	Substrate primarily bedrock with occasional boulder and cobble.
		13.0	4.0	0.0	Bedrock	0:09d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy remains primarily Alaria with patches of other algal species.
110 - 120	0:41d - 3:02d	16.0	4.9	0.0	Bedrock	1:27d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - O Alaria esculenta - A Laminaria digitata - U Desmarestia sp. - O Ulva sp. - U Chordaria flagelliformis - U Lithothamnion sp. - O Coralline red algae - A	Winter flounder - U (1@2:40d) Horse mussel - U Seastar - U	Substrate primarily bedrock with occasional boulder and cobble.
		18.0	5.5	0.0	Bedrock	2:03d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy remains primarily Alaria with patches of other algal species.
120 - 130	3:02d - 5:10d		0.0	0.0	Bedrock	3:45d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (65%) Boulder (20%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - O Alaria esculenta - A Laminaria digitata - U Desmarestia sp. - O Ulva sp. - U Chordaria flagelliformis - U Lithothamnion sp. - O Coralline red algae - A	Seastar - U	Substrate primarily bedrock with occasional patches of mixed cobble and gravel along with occasional boulders.
		21.0	6.4	0.0	Bedrock	4:47d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						Algal canopy is transitioning back to predominantly Agarum due to the increasing depth.
130 - 140	5:10d - 6:54d	27.0	8.2	0.0	Bedrock	5:26d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp	Bedrock Dominant	Bedrock (75%) Boulder (10%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Lithothamnion sp. - O Coralline red algae - A	Seastar - U	Substrate primarily bedrock with occasional patches of mixed cobble and gravel along with occasional boulders.
		30.0	9.1	0.0	Bedrock	6:28d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock) with Kelp						

Appendix A.1: Transect 4 (250 metres in Baldwin Rock dredge area)
Start wp: 1367 Diver Start 0m @ wp1367
End wp: 1373

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 1:45a	18	5.49	0.0	Bedrock	1:30a	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Laminaria digitata - A Coralline red algae - A Polysiphonia sp. - C Desmarestia aculeata - O Porophyra sp. - U	Green sea urchin - A Small shrimp - O	First 10 m of transect runs through dense algal cover (90-100%) and ends in what appears to be an urchin barren. Many green sea urchins present, and very little kelp remains attached to the bedrock. Likely consumed by urchins. Diver also swims by 10 m mark at around 1:45a (stops at 15 m mark at 2:04a)
10 - 20	1:45a - 2:53a	24	7.32	0.0	Bedrock	2:12a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - O Coralline red algae - A Desmarestia aculeata - O Lithothamnion sp. - A	Green sea urchin - A	Transect interval largely bare bedrock with little algal cover, aside from abundant Coralline red algae. Lithothamnion sp. throughout the interval (one species of Coralline red algae).
20 - 30	2:53a - 4:18a	24	7.32	0.0	Bedrock	3:09a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Coralline red algae - A Desmarestia aculeata - O Lithothamnion sp. - A	Green sea urchin - A Sea star - U (1@3:09) Brittlestars - U	Transect interval largely bare bedrock with little algal cover, aside from abundant Coralline red algae. Sea star = Asterias rubens.
30 - 40	4:18a - 5:30a	18	5.49	0.0	Bedrock	4:22a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Alaria esculenta - U Coralline red algae - A Desmarestia aculeata - O Lithothamnion sp. - A	Green sea urchin - A Tortoiseshell limpet - O	
40 - 50	5:30a - 6:42a	18	5.49	0.0	Bedrock	5:33a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Alaria esculenta - U Coralline red algae - A Desmarestia aculeata - O Lithothamnion sp. - A	Green sea urchin - A Tortoiseshell limpet - O Blue mussel - U Waved whelk - U Small shrimp - U	
50 - 60	6:42a - 7:58a	22	6.71	0.0	Bedrock	6:47a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Alaria esculenta - U Coralline red algae - A Desmarestia aculeata - O Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Littorines - O Small shrimp - U	
60 - 70	7:58a - 1:13b	26	7.92	0.0	Bedrock	0:00b	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Blue mussel - U Brittlestars - U Littorines - O Small shrimp - U	More kelp coverage in this interval (Agarum). Lots of bare patches still visible. Brittlestars = Ophiopholis aculeata
70 - 80	1:13b - 2:37b	27	8.23	0.0	Bedrock	2:00b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchin - A Brittlestars - O Littorines - O Small shrimp - U	Brittlestars waving arms are filter-feeding in water column. More kelp coverage in this interval (Agarum). Lots of bare patches still visible.
80 - 90	2:37b - 3:57b	29	8.84	0.0	Bedrock	3:17b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchins - O Stalked jellyfish - U Small shrimp - U Brittlestars - U Littorines - O	Brittlestars waving arms are filter-feeding in water column. More kelp coverage in this interval (Agarum). Fewer bare patches visible.
90 - 100	3:57b - 5:29b	30	9.14	0.0	Bedrock	4:45b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Small shrimp - U Brittlestars - O Littorines - O	
100 - 110	5:29b - 7:08b	34	10.36	0.0	Bedrock	6:21b	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Small shrimp - U Brittlestars - O Littorines - O	
110 - 120	7:08b - 1:01c	36	10.97	0.0	Bedrock with small amount of crushed shell grit	0:11c	Y	Grey / white bedrock covered in red Coralline red algae and a small amount of crushed shell grit.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - U Small shrimp - U	
120 - 130	1:01c - 2:43c	35	10.67	0.0	Bedrock	1:50c	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Small shrimp - U	

Appendix A.1: Transect 4 (250 metres in Baldwin Rock dredge area)

Start wp: 1367 Diver Start 0m @ wp1367
End wp: 1373

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
130 - 140	2:43c - 4:26c	35	10.67	0.05	Bedrock with small amount of crushed shell grit	3:37c	Y	Grey / white bedrock covered in red Coralline red algae and a small amount of crushed shell grit.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Blue mussel - U Stalked jellyfish - U Small shrimp - U	
140 - 150	4:26c - 5:58c	36	10.97	0.0	Bedrock	5:04c	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Blue mussel - U Stalked jellyfish - U Small shrimp - U	
150 - 160	5:58c - 7:40c	33	10.06	0.0	Bedrock	6:48c	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Blue mussel - U Small shrimp - U	Membranipora membranacea present on Agarum clathratum.
160 - 170	7:40c - 1:21d	30	9.14	0.0	Bedrock	0:32d	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - C	Green sea urchins - O Brittlestars - O Blue mussel - U Small shrimp - U	
170 - 180	1:21d - 3:03d	26	7.92	0.0	Bedrock	2:13d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Green sea urchins - A Brittlestars - O Blue mussel - U Small shrimp - U Tortoiseshell limpet - C	Many more urchins in this interval; much less kelp coverage. Getting back into an area cleared by the urchins.
180 - 190	3:03d - 4:41d	22	6.71	0.0	Bedrock	3:12d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U Chordaria flagelliformis - U	Green sea urchins - A Brittlestars - O Blue mussel - U Small shrimp - U Tortoiseshell limpet - C	
190 - 200	4:41d - 6:26d	15	4.57	0.0	Bedrock	4:52d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U Chordaria flagelliformis - U	Sculpin - U (1@5:34) Green sea urchins - A Brittlestars - O Blue mussel - O Small shrimp - U Tortoiseshell limpet - C	Sculpin visible on bedrock near bottom of screen to left of transect. Too well camouflaged to ID (short/longhorn)
200 - 210	6:26d - 0:09e	18	5.49	0.0	Bedrock	6:34d	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Laminaria digitata - O Laminaria longicrusis - U Alaria esculenta - U Palmaria palmata - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U Chordaria flagelliformis - U	Green sea urchins - O Brittlestars - O Blue mussel - U Small shrimp - U Tortoiseshell limpet - C	
210 - 220	0:09e - 1:30e	18	5.49	0.0	Bedrock	0:33e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - U Alaria esculenta - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U Chordaria flagelliformis - U	Green sea urchins - C Blue mussel - U Small shrimp - U	
220 - 230	1:32e - 3:29f	18	5.49	0.0	Bedrock	1:43e	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina longicuris - U Alaria esculenta - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U Chordaria flagelliformis - U	Green sea urchins - C Blue mussel - U Small shrimp - U	
230 - 240	3:29f - 5:06f	29	8.84	0.0	Bedrock	3:36f	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Alaria esculenta - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U	Green sea urchins - C Blue mussel - U Small shrimp - U	
240 - 250	5:06f - end	31	9.45	0.0	Bedrock	5:17f	Y	Grey / white bedrock covered in red Coralline red algae and with attached kelp.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina longicuris - U Alaria esculenta - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U Desmarestia sp. - U	Toad crab - U (1@6:42) Green sea urchins - C Blue mussel - U Small shrimp - U	

Appendix A.1: Transect 5 (150 metres in Graveyard Point breakwater area, south of Baldwin Rock dredge area)
Start wp: 1429 Diver Start 0m @ wp1429
End wp: 1434

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00 - 2:41a	40	12.19	0.0	Boulder	2:07a	Y	Boulder slope. All visible substrate small or large boulders. Presumably part of graveyard point breakwater	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Polysiphonia sp. - C Coralline red algae - A Palmaria palmata - U Desmarestia sp. - O	Stalked jellyfish - O Small shrimp - U Littorines - O Jingleshells and Limpets* - C Mottled chiton - U Green sea urchin - U	Interesting note: sunken navigation buoy (large!) visible at the bottom of the slope near the start of this transect (see @1:30). Kelps occasionally encrusted with colonial Membranipora membranacea. *Diver puts camera to boulder and small jingleshells and limpets are visible. Presumably most boulders also feature these sessile organisms. Mottled chiton = <i>Tonicella marmorea</i>
10 - 20	2:41a - 3:44a	34	10.36	0.0	Crushed shell over Boulder	2:44a	Y	Crushed shell grit over boulders. Very coarse substrate.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Saccharina longicruris - A Polysiphonia sp. - C Coralline red algae - A Palmaria palmata - U Desmarestia sp. - O	Blue mussel - U Northern lacuna - O Littorines - O	Diver probed crushed shell grit atop a large boulder on boulder slope. No penetration because the layer of shell grit was very thin and patchy. Mostly mussel shells. Very dense algal canopy - covers 90-100% of bottom.
20 - 30	3:44a - 4:48a	31	9.45	0.07	Crushed shell over Boulder	3:48a	Y	Crushed shell grit over boulders. Very coarse substrate.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Polysiphonia sp. - C Coralline red algae - A	Small shrimp - U (1st@3:44) Stalked jellyfish - U	Very dense algal canopy - covers 90-100% of bottom. Still seem to be on boulder slope. Diver probed crushed shell grit atop a large boulder on boulder slope. No penetration because the layer of shell grit was very thin and patchy. Mostly mussel shells.
30 - 40	4:48a - 5:48a	28	8.53	0.0	Boulder	4:55a	Y	Boulder slope.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U	Small shrimp - U Stalked jellyfish - U Jingleshells and Limpets - C	Lots of cnetophores in the water column in this interval. Very dense algal canopy - covers 90-100% of bottom.
40 - 50	5:48a - 6:50a	28	8.53	0.0	Boulder	5:56a	Y	Boulder slope.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Alaria esculenta - O Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U	Small shrimp - U Stalked jellyfish - U	Very dense algal canopy - covers 90-100% of bottom. Kelps still occasionally encrusted with colonial Membranipora membranacea.
50 - 60	6:50a - 7:37a	25	7.62	0.0	Boulder	7:18a	Y	Boulder slope.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (20%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Alaria esculenta - O Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U	Small shrimp - U Stalked jellyfish - U	Very dense algal canopy - covers 90-100% of bottom. Looks like we're getting toward the base of the boulder slope. Bottom looking older / coarser and may be bedrock. Boulders may represent toe of the slope.
60 - 70	7:37a - 1:14b	21	6.40	0.0	Boulder	7:37a	Y	Boulder slope and bedrock.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (20%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Alaria esculenta - O Laminaria digitata - O Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U Porphyra sp. - U	Small shrimp - U Stalked jellyfish - U Jingleshells and Limpets - C	Very dense algal canopy - covers 90-100% of bottom. Still looks like very large boulders over bedrock near base of slope.
70 - 80	1:14b - 2:29b	16	4.88	0.0	Boulder	1:18b	Y	Boulder slope and bedrock.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (20%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Alaria esculenta - O Laminaria digitata - O Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U Porphyra sp. - U	Blue mussel - U Breadcrumb sponge - U Small shrimp - U Stalked jellyfish - U	Very dense algal canopy - covers 90-100% of bottom. Still looks like very large boulders over bedrock near base of slope.
80 - 90	2:29b - 3:55b	19	5.79	0.0	Boulder	2:33b	Y	Boulder slope and bedrock.	Rocky with kelp (boulder slope with abundant kelp)	Boulder Dominant	Bedrock (20%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Alaria esculenta - O Laminaria digitata - O Polysiphonia sp. - C Coralline red algae - A Desmarestia sp. - U Porphyra sp. - U	Blue mussel - U Small shrimp - U Stalked jellyfish - U	Very dense algal canopy - covers 90-100% of bottom. Still looks like very large boulders over bedrock near base of slope. Crushed shell grit located in space between two large boulders.
		19	5.79	0.20	Crushed shell over Boulder	3:38b	Y	Crushed shell grit over boulders. Very coarse substrate.							
90 - 100	3:55b - 4:37b	27	8.23	0.0	Boulder	3:57b	Y	Boulder slope and bedrock.	Rocky with kelp (boulder slope with abundant kelp)	Rocky Dominant - Mixed	Bedrock (50%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Polysiphonia sp. - O Coralline red algae - A Desmarestia sp. - U	Littorines - U Small shrimp - U	Algal canopy less dense here; covers 70-90% of bottom. Looks like the bottom is bedrock by the end of the interval. Membranipora membranacea still occasionally observed on kelp.
100 - 110	4:37b - 5:15b	32	9.75	0.0	Bedrock	4:39b	Y	Bedrock	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Polysiphonia sp. - O Coralline red algae - A Desmarestia sp. - U	Blue mussel - U Littorines - U Small shrimp - U	Algal canopy less dense here; covers 70-90% of bottom. Looks like the bottom has transitioned to bedrock. Must be beyond the toe of graveyard point breakwater.
110 - 120	5:15b - 5:40b	37	11.28	0.0	Bedrock	5:40b	Y	Bedrock	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Polysiphonia sp. - O Coralline red algae - A Desmarestia sp. - U	Blue mussel - U Frilled sea anemone - U Littorines - U Small shrimp - U	Algal canopy less dense here; covers 70-90% of bottom.

Appendix A.1: Transect 5 (150 metres in Graveyard Point breakwater area, south of Baldwin Rock dredge area)
Start wp: 1429 Diver Start 0m @ wp1429
End wp: 1434

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
120 - 130	5:40b - 6:36b	32	9.75	0.0	Bedrock	5:57b	Y	Bedrock	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Coralline red algae - A Desmarestia sp. - U	Blue mussel - U Green sea urchin - U Littorines - U Small shrimp - U	Algal canopy less dense here; covers 70-90% of bottom.
130 - 140	6:36b - 7:19b	37	11.28	0.0	Bedrock	6:41b	Y	Bedrock	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Coralline red algae - A	Blue mussel - U Littorines - U	Algal canopy less dense here; covers 70-90% of bottom.
140 - 150	7:19b - 0:21c	35	10.67	0.0	Bedrock	7:24	Y	Bedrock	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Coralline red algae - A	Blue mussel - U Littorines - U	Algal canopy less dense here; covers 70-90% of bottom.
150 - end	0:21c - 055c	44	13.41	0.0	Bedrock	n/a	n/a	n/a	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Coralline red algae - A	Blue mussel - U Littorines - U	Algal canopy less dense here; covers 70-90% of bottom. Diver did not probe at 150 m interval mark, but can confirm (visually) that the bottom is bedrock.

Start wp: 1756 Diver Start: 0m @ wp1756
End wp: 1761

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 4:06a	38.0	11.6	0.0	Boulder	2:16a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Horse mussel - U Seastar - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	3:24a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.
								Arrow worms throughout water column.							
10 - 20	4:06a - 5:23a	40.0	12.2	0.0	Boulder	4:17a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Polysiphonia sp. - A Coralline red algae - A	Stalked jellyfish - U Crepidula sp. - U Seastar - U Horse mussel - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater. Several large voids or slumps in the breakwater obvious in this interval. Also looks like a very steep slope to bottom.
			0.0	0.0	Boulder	4:52a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.
20 - 30	5:23a - 6:49a	36.0	11.0	0.0	Boulder	5:35a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Polysiphonia sp. - A Coralline red algae - A	Seastar - U Horse mussel - U	Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.
			0.0	0.0	Boulder	6:31a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
30 - 40	6:49a - 7:51a		0.0	0.0	Boulder	6:58a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Desmarestia sp. - O Polysiphonia sp. - A Coralline red algae - A	Horse mussel - U Northern lacuna - U	Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.
			0.0	0.0	Boulder	7:23a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
40 - 50	7:51a - 1:29b		0.0	0.0	Boulder	8:02a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (0%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Laminaria digitata - U Desmarestia sp. - O Polysiphonia sp. - A Hildenbrandia rubra - U Coralline red algae - A	Mytilus sp. - U Horse mussel - U	Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.
			0.0	0.0	Boulder	0:41b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
50 - 60	1:29b - 4:20b		0.0	0.0	Boulder	1:37b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (0%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Laminaria digitata - U Desmarestia sp. - O Polysiphonia sp. - A Hildenbrandia rubra - U Coralline red algae - A	Hermit crab - U Crepidula sp. - U Seastar - U	Small patch of gravel and shell debris over rocky boulder bottom near 55 metres. Shell debris consists mainly of mussel shells.
			0.0	0.0	Boulder	3:01b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
60 - 70	4:20b - 0:01c	29.0	8.8	0.02	Gravel and Shell Debris	4:25b	Y	Mixed shell debris and small colourful gravel over rocky bottom with abundant kelp and encrusted with coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Saccharina longicruris - U Laminaria digitata - U Desmarestia sp. - O Polysiphonia sp. - A Coralline red algae - A	Lobster - U (1@5:57b) Cunner - U (1@5:57b) Horse mussel - U Crepidula sp. - U Breadcrumb sponge - U Seastar - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	6:54b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.

Start wp: 1756 Diver Start: 0m @ wp1756
End wp: 1761

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
70 - 80	0:01c - 2:47c	25.0	7.6	0.0	Boulder	0:12c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - O Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - O Palmaria palmata - U Hildenbrandia rubra - U Coralline red algae - A	Lobster - U (1@1:53) Horse mussel - U Seastar - U Stalked jellyfish - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	1:59c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Laminarian kelp and Agarum and covers most available substrate to a height ≤ 1.0 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
80 - 90	2:47c - 4:38c	21.0	6.4	0.0	Boulder	2:54c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - O Saccharina longicuris - O Laminaria digitata - O Desmarestia sp. - O Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - O	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
		23.0	7.0	0.0	Boulder with Shell Debris	2:54c	Y	Colourful rocky bottom with a thin layer of shell debris over boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Laminarian kelp and Agarum and covers most available substrate to a height ≤ 1.0 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
90 - 100	4:38c - 6:02c		0.0	0.0	Boulder	4:43c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Alaria esculenta - O Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Horse mussel - U Mytilus sp. - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	5:20c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Laminarian kelp and Agarum and covers most available substrate to a height ≤ 1.0 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
100 - 110	6:02c - 7:51c	30.0	9.1	0.0	Boulder with Shell Debris	6:11c	Y	Colourful rocky bottom with a thin layer of shell debris over boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Alaria esculenta - O Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	7:21c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Laminarian kelp and Agarum and covers most available substrate to a height ≤ 1.0 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
110 - 120	7:51c - 1:25d	31.0	9.4	0.0	Boulder	7:56c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - O Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - U Mytilus sp. - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.0	Boulder	0:52d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
120 - 130	1:25d - 3:10d		0.0	0.0	Boulder	1:36d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Palmaria palmata - U Polysiphonia sp. - O Coralline red algae - A	No observed fauna.	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
		29.0	8.8	0.05	Boulder with Shell Debris	6:11c	Y	Colourful rocky bottom with a thin layer of shell debris over boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres. Bryozoans and hydrozoans growing epiphytically on Saccharina.	
130 - 140	3:10d - 4:37d		0.0	0.0	Boulder	3:14d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Alaria esculenta - U Laminaria digitata - U Desmarestia sp. - U Porphyra sp. - U Polysiphonia sp. - O Hildenbrandia rubra - O Coralline red algae - A	Rock gunnel - U (1@3:28d; 1@3:37d) Horse mussel - U Mytilus sp. - U Mysid shrimp - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater.
			0.0	0.01	Boulder with Gravel and Shell Debris	6:11c	Y	Colourful rocky bottom with a thin layer of gravel and shell debris over boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp					Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.	

Start wp: 1756 Diver Start: 0m @ wp1756
End wp: 1761

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks	
140 - 150	4:37d - End		0.0	0.0	Boulder	4:41d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (95%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - O Hildenbrandia rubra - O Coralline red algae - A	Mysid shrimp - U Crepidula sp. - U Mytilus sp. - U Sea peach tunicate - U Ctenophore - U	Substrate consists of boulder and is presumably part of the submerged portion of the adjacent Graveyard Point breakwater. Algal cover predominantly composed of Agarum and covers most available substrate to a height ≤ 0.5 metres.	
			0.0	0.0	Boulder	5:36d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp							Rocky (Boulder) with Kelp
		29.0	8.8	0.0	Boulder	5:58d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp							

Appendix A.1: Transect 6 (50 metres in Graveyard Point area, south of Baldwin Rock dredge area)

Start wp: 1554 Diver Start 100m @ wp1554
End wp: 1560

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 95 m	0:00 - 0:48	-	-	-	-	-	-	-	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Filamentous red algae - O Laminaria digitata - U	Ctenophore - U (@0:40)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
95-90	0:49 - 1:19	-	-	0.0	Boulder	0:59	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Laminaria digitata - U Desmarestia aculeata - O Polysiphonia sp. - O Coralline red algae - O Saccharina longicuris - O Hildenbrandia rubra - U Lithothamnion sp. - U	No observed fauna	Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height).
90-80	1:20 - 2:24	26.0	7.9	0.0	Bedrock	1:22	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 70% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Desmarestia aculeata - O Agarum clathratum - A Polysiphonia sp. - C Saccharina longicuris - O Coralline red algae - O Lithothamnion sp. - U Hildenbrandia rubra - U Laminaria digitata - U	Mussel - U (@1:53) Northern lacuna - U (@1:53)	Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height).
80-70	2:25 - 3:26	36.0	11.0	0.0	Bedrock	2:27	Y	Colourful bottom; rocks grey colour with red crustose and Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Hildenbrandia rubra - U Coralline red algae - C Polysiphonia sp. - C Filamentous red algae - U Lithothamnion sp. - U Saccharina longicuris - U	Small shrimp - U (@2:27) Mussel - U (@2:59) Northern lacuna - U (@3:02)	Particles in water column. Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height). Small white shrimp observed in water column.
70-60	3:27 - 4:39		0.0	0	Bedrock	3:34	Y	Colourful bottom; rocks grey colour with red crustose and Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - C Polysiphonia sp. - C Filamentous red algae - O	No observed fauna	Sharp descent Particles in water column. Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height). Hydrozoan epiphytes growing on Agarum.
60-50	4:40 - 5:43	63.0	19.2	0.0	Bedrock	4:43	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - C Polysiphonia sp. - C Filamentous red algae - O Hildenbrandia rubra - U	Mussel - U (@5:17)	Sharp descent Particles in water column. Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height). Small amount of fines likely shell fragments. Hydrozoan epiphytes growing on Agarum.
50-40	5:44 - end	73.0	22.3	0.0	Bedrock	5:47	Y	Small shell debries on bedrock Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - C Polysiphonia sp. - C Filamentous red algae - O Hildenbrandia rubra - U	Northern lacuna - U (@5:54)	Transect rope is coiled. Particles in water column. Wave action. Bedrock shelves and valleys. Agarum clathratum cover most of the bottom (0.1 to 0.5 m canopy height). Small amount of fines likely shell fragments.

Appendix A.1: Transect 7 (200 metres in south corner of Turning Basin, south of Vardy's Island)

Start wp: 1442 Diver Start 0m @ wp1449
End wp: 1449

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 0 m	0:00a - 1:08a	-	-	-	-	-	-	-	Rocky with kelp (boulder and gravel)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (5%) Gravel (50%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Ascophyllum nodosum - U Saccharina latissima - O Hildenbrandia rubra - U Coralline red algae - U	No observed fauna	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
0 - 10	1:09a - 2:21a	-	-	0.0	Boulder	1:09a	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder and gravel)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (5%) Gravel (50%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - O Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U	Northern lacuna - U (@ 1:09) Stalked jellyfish - U (@ 1:32) Limpet - O (@ 1:45)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
10 - 20	2:22a - 3:28a	-	-	0.0 ≤ 0.10	Fines on Boulder	2:26a 3:03a	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder and gravel)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (5%) Gravel (50%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U	Stalked jellyfish - O (@ 2:29) Small shrimp - U (@ 2:47)	Transect moves along crest of slope. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Spirorbid worms observed on the blades of agarum and saccharina kelp.
20 - 30	3:29a - 4:26a	-	-	0.0 ≤ 0.10	Fines on rock	3:33a 4:08a	Y	Grey gravel/fines bottom on rocks. Approx. 50% algal cover (kelp) at probe site.	Rocky with kelp (boulder and gravel)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (35%) Cobble (5%) Gravel (55%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Frilled sea anemone - O (@ 3:34) Northern lacuna - U (@ 3:50) Small shrimp - U (@ 3:51) Stalked jellyfish - O (@ 3:55)	Transect moves along crest of slope. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Spirorbid worms observed on the blades of agarum and saccharina kelp.
30 - 40	4:27a - 5:36a	37.0	11.28	0.0 ≤ 0.20	Fines on rock	4:33a 5:12a	Y	Gravel whitish / grey colour Approx. 75% algal cover (kelp) at probe site.	Rocky with kelp (boulder and gravel)	Gravel Dominant	Bedrock (0%) Boulder (30%) Cobble (5%) Gravel (60%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Small shrimp - O (@ 4:47)	Transect moves along crest of slope. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Spirorbid worms observed on the blades of agarum and saccharina kelp.
40 - 50	5:37a - 6:39a	37.0	11.28	≤ 0.20 0.0	Fines on rock	5:51a 6:19a	Y	Gravel whitish / grey colour Approx. 75% algal cover (kelp) at probe site.	Rocky with kelp (boulder)	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	No observed fauna	Transect moves along crest of slope. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
50 - 60	6:40a - 7:40a	33.0	10.06	0.0	Boulder	6:41a	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (15%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Limpets - O (@7:09) Small shrimp - O (@ 7:15) Northern lacuna - U (@7:35)	Transect moves along crest of boulder slope. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.Unidentified small fish - U (@6:41)
60 - 70	7:41a - 8:03a 0:00b - 0:29b	35.0	10.67	0.0	Boulder	7:46a	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder)	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Limpets - U (@0:00b) Small shrimp - C (@ 0:07b)	Transect moves along crest of boulder slope. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
70 - 80	0:30b - 1:41b	-	-	0.0	Boulder	0:33b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder)	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Small shrimp - C (@ 1:06b) Stalked jellyfish - U (@ 1:25b) Littorines - C (@ 1:28b)	Transect moves along crest of boulder slope. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
80 - 90	1:41b - 2:47b	-	-	0.0	Fines on rock	1:44b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky with kelp (boulder)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (5%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U Desmarestia aculeata - U	Limpets - U (@2:19b) Stalked jellyfish - U (@ 2:35b)	Transect starts to move down boulder slope. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
90 - 100	2:48b - 3:32b	41.0	12.50	0.0	Fines on rock	2:52b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (15%) Cobble (10%) Gravel (5%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Small shrimp - U (@ 2:53b)	Transect moves down boulder slope to area with fines.Keeps slopeing downward to a lesser degree. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
100-110	3:33b - 4:20b	52.0	15.85	0.0	Fines on rock	3:35b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 70% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (15%) Cobble (10%) Gravel (5%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - U Filamentous red algae - U	Northern lacuna - U (@4:19)	Transect slopeing downward. Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
110-120	4:21b - 5:32b	50.0	15.24	0.0	Fines on rock	4:26b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 70% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - O Filamentous red algae - U	No observed fauna	Transect slopeing downward. Two large cables or pipes are present on the bottom. Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.

Appendix A.1: Transect 7 (200 metres in south corner of Turning Basin, south of Vardy's Island)
Start wp: 1442 Diver Start 0m @ wp1449
End wp: 1449

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
120-130	5:32b - 6:30b	-	-	≤ 0.20	Fines on rock	5:43b	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 50% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (20%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina latissima - C Hildenbrandia rubra - U Coralline red algae - U Polysiphonia sp. - O Filamentous red algae - U	No observed fauna	Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Thin layer of gravel on fines
130-140	6:31b - 7:29b	-	-	≤ 0.20 ≤ 0.30	Gravel on fines	6:37b 7:08b	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (20%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Polysiphonia sp. - O Filamentous red algae - U Agarum clathratum - U	Stalked jellyfish - U (@ 7:26b)	Algae fragments (mostly Saccharina latissima and Agarum clathratum) / garbage are present resting on the fines bottom. Thin layer of gravel on fines. Transect keeps moving deeper
140-end	7:30b - 8:03b 0:00c - 0:59c	57.0	17.37	≤ 0.20	Gravel on fines	7:39b	Y	Dull uniform bottom. Approx. 10% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (10%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Polysiphonia sp. - U Filamentous red algae - U Agarum clathratum - U Saccharina latissima - O	No observed fauna	Deeper then the diver can go. Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. Large boulders along the end of the transect interval.

Appendix A.1: Transect 7S (130 metres in south corner of Turning Basin, south of Vardy's Island) - Summer UBHS - July 27, 2020

Start wp: 1772 Diver Start: 0m @ wp1773
End wp: 1773

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 3:27a	38.0	11.6	0.28	Gravel and Shell Debris with Cobble and Boulder	2:10a	Y	Colourful bottom with mixed rocky substrates encrusted with coralline algal and a thin layer of gravel and shell debris. Abundant kelp at probe site.	Mixed Gravel and Shell Debris and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (5%) Boulder (45%) Cobble (30%) Gravel (20%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Desmarestia sp. - O Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - O Ctenophore - U Breadcrumb sponge - U Mottled chiton - U Seastar - U	Substrate in this interval is mixed and consists of pockets of gravel and shell debris over and in between rocky substrates including cobble and boulder. Some boulder could be bedrock but cannot confirm / discern boulder and bedrock due to abundant algal coverage.
		36.0	11.0	0.01	Gravel and Shell Debris with Cobble and Boulder	2:59a	Y	Colourful bottom with mixed rocky substrates encrusted with coralline algal and a thin layer of gravel and shell debris. Abundant kelp at probe site.	Mixed Gravel and Shell Debris and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval. Occasional anthropogenic debris in this interval (bottles).
10 - 20	3:27a - 6:56a	35.0	10.7	0.01	Gravel and Shell Debris with Cobble and Boulder	4:30a	Y	Colourful bottom with mixed rocky substrates encrusted with coralline algal and a thin layer of gravel and shell debris. Abundant kelp at probe site.	Mixed Gravel and Shell Debris and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (5%) Boulder (45%) Cobble (35%) Gravel (15%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Alaria esculenta - U Desmarestia sp. - O Polysiphonia sp. - O Ulva lactuca - U Hildenbrandia rubra - U Coralline red algae - A	Arctic shanny - U (1@5:06a) Sea peach tunicate - U Mytilus sp. - U Seastar - U Crepidula sp. - U Mysid shrimp - O	Substrate in this interval is mixed and consists of pockets of gravel and shell debris over and in between rocky substrates including cobble and boulder or bedrock.
		32.0	9.8	0.0	Gravel and Shell Debris with Cobble and Boulder	5:03a	Y	Colourful bottom with mixed rocky substrates encrusted with coralline algal and a thin layer of gravel and shell debris. Abundant kelp at probe site.	Mixed Gravel and Shell Debris and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval. Transect crosses metal pipe on bottom at 6:31a.
20 - 30	6:56a - 1:32b	31.0	9.4	0.02	Gravel and Shell Debris with Cobble and Boulder	5:03a	Y	Colourful bottom with mixed rocky substrates encrusted with coralline algal and a thin layer of gravel and shell debris. Abundant kelp at probe site.	Mixed Gravel and Shell Debris and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (30%) Gravel (25%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Alaria esculenta - U Desmarestia sp. - O Polysiphonia sp. - O Ulva lactuca - U Hildenbrandia rubra - U Coralline red algae - A	Lobster - U (1@1:12b) Stalked jellyfish - U Crepidula sp. - U Mysid shrimp - O Bloodstar - U	Substrate in this interval is mixed and consists of pockets of fines and gravel over and in between rocky substrates including cobble and boulder or bedrock.
		30.0	9.1	0.2	Fines and Gravel with Cobble and Boulder	0:41b	Y	Clean fines and gravel surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval. Occasional algal (Saccharina) and anthropogenic debris on bottom (bottle and metal sheet(?))
30 - 40	1:32b - 4:28b	26.0	7.9	0.0	Boulder and Cobble	2:54b	Y	Colourful rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Rocky Dominant - Mixed	Bedrock (0%) Boulder (35%) Cobble (30%) Gravel (25%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Desmarestia sp. - U Polysiphonia sp. - O Hildenbrandia rubra - U Coralline red algae - A	Mysid shrimp - O Ctenophore - U Seastar - U	Substrate in this interval is mixed and consists of pockets of fines and gravel over and in between rocky substrates including cobble and boulder.
		24.0	7.3	0.08	Fines and Gravel with Cobble and Boulder	3:59b	Y	Clean fines and gravel surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval. Occasional algal (Saccharina) and anthropogenic debris on bottom (bottles).
40 - 50	4:28b - 7:25b	23.0	7.0	0.0	Boulder and Cobble	5:33b	Y	Colourful rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (25%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Desmarestia sp. - U Ulva lactuca - U Polysiphonia sp. - O Hildenbrandia rubra - U Coralline red algae - A	Mottled chiton - U Mysid shrimp - O Crepidula sp. - U Stalked jellyfish - U	Substrate in this interval is primarily rocky substrates including boulder and a lesser quantity of cobble.
		20.0	6.1	0.0	Boulder and Cobble	6:37b	Y	Colourful rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Abundant algal coverage consisting of Saccharina throughout the interval. Saccharina encrusted with bryozoans and hydrozoans throughout this interval. Occasional algal (Saccharina) and anthropogenic debris on bottom (bottles).
50 - 60	7:25b - 2:20c	17.0	5.2	0.0	Boulder	0:17c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (15%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - U Alaria esculenta - U Desmarestia sp. - U Chordaria flagelliformis - U Ulva lactuca - U Ectocarpus sp. / Pylaiella sp. - U Polysiphonia sp. - O Hildenbrandia rubra - U Coralline red algae - A	Lobster - U (1@1:10c) Rock crab - U (1@1:10c) Mysid shrimp - O Stalked jellyfish - U Bloodstar - U	Lobster observed foraging on material in the water column (mouth appendages fanning material into mouth).
		18.0	5.5	0.0	Boulder and Cobble	1:46c	Y	Colourful rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Substrate and algae similar to previous transect interval.
60 - 70	2:20c - 5:38c	20.0	6.1	0.08	Fines and Gravel with Cobble and Boulder	3:51c	Y	Clean fines and gravel with a small amount of shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (65%) Cobble (20%) Gravel (10%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - U Polysiphonia sp. - U Hildenbrandia rubra - U Coralline red algae - A	Lobster - U (1@4:31c) Northern lacuna - U Stalked jellyfish - U Crepidula sp. - U Mysid shrimp - O	Substrate in this interval is primarily rock consisting of boulder and cobble with pockets of gravel and shell debris over and in between rocky substrates.
		19.0	5.8	0.0	Boulder and Cobble	4:53c	Y	Colourful rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval.

Appendix A.1: Transect 7S (130 metres in south corner of Turning Basin, south of Vardy's Island) - Summer UBHS - July 27, 2020

Start wp: 1772 Diver Start: 0m @ wp1773
End wp: 1773

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
70 - 80	5:38c - 0:17d	17.0	5.2	0.0	Boulder	6:42c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (20%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Palmaria palmata - U Ectocarpus sp. / Pylaiella sp. - U Ulva lactuca - U Polysiphonia sp. - U Coralline red algae - A	Crepidula sp. - U Mysid shrimp - O Limpet - U	Substrate in this interval is primarily rock consisting of boulder and cobble with pockets of gravel and shell debris over and in between rocky substrates.
		18.0	5.5	0.0	Boulder	7:48c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval. Small gaps in coverage where gravel and shell debris accumulated. Saccharina encrusted with bryozoans and hydrozoans throughout this interval.
80 - 90	0:17d - 2:56d	21.0	6.4	0.0	Boulder	1:18d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Rocky Dominant - Mixed	Bedrock (0%) Boulder (55%) Cobble (20%) Gravel (15%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - U Polysiphonia sp. - U Coralline red algae - A	Mytilus sp. - U Mysid shrimp - U	Substrate in this interval is primarily rock consisting of boulder and cobble with pockets of gravel and shell debris over and in between rocky substrates. Bottom transitioning to more fines and gravel toward the end of the interval.
		24.0	7.3	0.17	Fines and Gravel with Cobble and Boulder	2:15d	Y	Clean fines and gravel with shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval.
90 - 100	2:56d - 5:17d	25.0	7.6	0.0	Fines and Gravel with Cobble and Boulder	3:39d	Y	Clean fines and gravel with shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (45%) Cobble (25%) Gravel (20%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Alaria esculenta - U Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - U Polysiphonia sp. - U Coralline red algae - A	Mottled chiton - U Mysid shrimp - O Crepidula sp. - U	Occasional anthropogenic debris in this interval, including garbage, bottles, wood and bones (?). Bottom in the beginning of the interval is more fines and gravel then transitions to rocky substrate consisting of boulder and cobble.
		24.0	7.3	0.0	Boulder	4:40d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval.
100 - 110	5:17d - 7:49d	24.0	7.3	0.0	Boulder	6:04d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (20%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - A	Rock crab - U (2@6:48d) Mottled chiton - U Mysid shrimp - O Crepidula sp. - U	Substrate in this interval primarily composed of boulder with lesser quantities of cobble and gravel.
		27.0	8.2	0.0	Boulder	6:04d	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval.
110 - 120	7:49d - 2:03e	28.0	8.5	0.0	Fines and Gravel with Cobble and Boulder	1:27e	Y	Colourful rocky substrate consisting of cobble and small boulder with a small patch of clean fines, gravel and shell debris. Probe site surrounded by kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (45%) Cobble (25%) Gravel (20%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - A	Mottled chiton - U Mysid shrimp - O Crepidula sp. - U Stalked jellyfish - U	Substrate in this interval is primarily rock consisting of boulder and cobble with pockets of gravel and shell debris over and in between rocky substrates. Diver recorded but did not probe substrate at the 115 metre interval.
		32.0	9.8	N/A	Fines and Gravel with Cobble and Boulder	1:45e	Y	Clean fines and gravel with shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval.
120 - 130	2:03e - End	34.0	10.4	0.19	Fines and Gravel with Cobble and Boulder	2:50e	Y	Clean fines and gravel with shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (55%) Cobble (20%) Gravel (15%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - A	Ctenophore - U Stalked jellyfish - U	Substrate in this interval is primarily rock consisting of boulder and cobble with pockets of gravel and shell debris over and in between rocky substrates. Diver recorded but did not probe substrate at the 125 metre interval.
		37.0	11.3	N/A	Fines and Gravel with Cobble and Boulder	3:29e	Y	Clean fines and gravel with shell debris surrounded by colourful rocky substrate consisting of cobble and small boulder with kelp and coralline red algae.	Mixed Fines and Gravel, and Rocky (Boulder and Cobble)						Abundant algal coverage consisting of Saccharina and Agarum throughout the interval.

Appendix A.1: Transect 8 (150 metres in south corner of Turning Basin, south of Vardy's Island)

Start wp: 1536 Diver Start 0m @ wp1536
End wp: 1539

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 185 m	0:00a -2:22a	-	-	0 (based off noise)	Rock	1:58	N	-	Rocky (boulder and cobbles) with kelp, and Fines (sand and silt)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (30%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Filamentous red algae - O Coralline red algae - C Hildenbrandia rubra - U	Ctenophore - 0 (@1:02)	Particles in water column. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes. Spirorbid worms observed on agarum and saccharina blades.
185?-175	2:23a -3:55a	-	-	0 30.0	Sand	3:02 3:27	Y	Dull sandy bottom. Approx. 80% algal cover (kelp) at probe site.	Sand with mixed rock (cobbles and boulder)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (30%) Gravel (0%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina latissima - C Filamentous red algae - O Coralline red algae - C Hildenbrandia rubra - U	Stalked jellyfish - U (@ 3:46)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Small pieces of algae debris. Spirorbid worms observed on agarum and saccharina blades.
175-165	3:55a - 5:02a	-	-	0.2	Sand	4:37	Y	Dull sandy bottom. Approx. 60% algal cover (kelp) at probe site.	Sand with mixed rock (cobbles)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (35%) Gravel (5%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina latissima - C Filamentous red algae - O Coralline red algae - C Polysiphonia sp. - U	No observed fauna.	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
165-155	5:03a - 6:07a	33.0	10.1	0 0.0	Rock	5:05 5:39	Y	Colourful bottom; rocks grey colour with and Coralline red algae on rock. Approx. 90% algal cover (kelp) at probe site.	Sand with mixed rock (cobbles)	Fines Dominant	Bedrock (5%) Boulder (0%) Cobble (30%) Gravel (5%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina latissima - A Filamentous red algae - O Coralline red algae - C	Northern lacuna - O (@5:05) Green sea urchin - U (@5:39) Stalked jellyfish - U (@ 5:52)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
155-145	6:08a - 6:59a	32.0	9.8	0 0	Sand	6:12 6:36	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 90% algal cover (kelp) at probe site.	Sand with mixed rock (cobbles)	Fines Dominant	Bedrock (5%) Boulder (0%) Cobble (25%) Gravel (5%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina latissima - A Coralline red algae - O Filamentous red algae - O	No observed fauna.	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
145-135	7:00a - 8:03a 0:00b - 0:10b	31.0	9.4	0.15 0.10	Sand	7:08 7:44	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Sand with mixed rock (cobbles)	Fines Dominant	Bedrock (5%) Boulder (0%) Cobble (20%) Gravel (5%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina latissima - A Coralline red algae - O Filamentous red algae - U Hildenbrandia rubra - U	Green sea urchin - U (@7:16)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
135-125	0:11b - 1:00b	33.0	10.1	0.12 0.20	Sand	0:16b 0:35b	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 60% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C	Stalked jellyfish - U (on kelp @ 0:44b)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Spirorbid worms on blades of saccharina and agarum.
125-115	1:01b - 2:02b	33.0	10.1	0.20 0.10	Sand	1:11b 1:42b	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Coralline red algae - O Polysiphonia sp. - U Chondrus crispus -U	Green sea urchin - U (@1:35b)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
115-100	2:03b-3:32b	30.0	9.1	0.21 0.17	Sand	2:12b 2:32b	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 100% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (20%) Gravel (5%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Coralline red algae - O Polysiphonia sp. - U	Northern lacuna - U (@2:06) Stalked jellyfish - U (on kelp @ 2:34b)	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
100-90	3:33b-4:40b	-	-	0 0.10	Rock/Sand	3:37b 4:18b	Y	Sand bottom; rocks grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky (boulder and cobbles) with kelp, and Fines (sand with silt)	Mixed Variable Rock	Bedrock (0%) Boulder (30%) Cobble (20%) Gravel (5%) Fines (45%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Coralline red algae - O Polysiphonia sp. - U	No observed fauna.	Particles in water column.Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Heads towards drop off
90-80	4:41b-5:36b	47.0	14.3	0.15 0.55	Sand	4:47b 5:18b	Y	Sand bottom. Approx. 50% algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (80%)	Sand (70%) Silt (30%) Clay (0%)	Saccharina latissima - C Agarum clathratum - O Coralline red algae - O Polysiphonia sp. - U	No observed fauna.	Particles in water column. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom flatens and less cover. Algae debris on bottom.
80-70	5:37b-6:45b	53.0	16.2	0.100 0.95	Sand	5:55b 6:21b	Y	Sand bottom. Approx. 10% unattached algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	Saccharina latissima - U	No observed fauna.	Particles in water column. Bottom flatens and less cover. Algae debris on bottom.
70-60	6:46b-7:52b	55.0	16.8	0.90 0.100	Sand	6:58b 7:30b	Y	Sand bottom. Approx. 10% unattached algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (95%)	Sand (70%) Silt (30%) Clay (0%)	Saccharina latissima - U Coralline red algae - U Chondrus crispus -U	No observed fauna.	Particles in water column. Algae debris on bottom.
60-50	7:53b-8:03b 0:00c-0:53c	58.0	17.7	0.90 0.90	Sand	7:59b 0:29c	Y	Sand bottom. Approx. 10% unattached algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (95%)	Sand (70%) Silt (30%) Clay (0%)	No observed flora.	No observed fauna.	Particles in water column. Algae debris on bottom.
50-end	0:54c-1:29c	60.0	18.3	0.8	Sand	1:02c	Y	Sand bottom. Approx. 10% unattached algal cover (kelp) at probe site.	Fines (sand with silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No observed flora.	No observed fauna.	Particles in water column. Algae debris on bottom.

Appendix A.1: Transect 9 (75 metres in south corner of Turning Basin, south of Vardy's Island)

Start wp: 1540 Diver Start 0m @ wp1540
End wp: 1545

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0-10	1:00a -2:28a	8.0	2.4	0.20 0.20	Gravel/Fines	1:09 2:08	Y	Colourful bottom; rocks grey/yellow/white colour. Approx. 15% algal cover (kelp) at probe site.	Rocky (mixed gravel, cobble and bedrock) and patches of fines (sand)	Mixed Variable Rock	Bedrock (15%) Boulder (0%) Cobble (10%) Gravel (45%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Ulva lactuca - C Polysiphonia sp. - C Saccharina latissima - O Palmaria palmata - U Agarum clathratum - O Fucus sp. - U Filamentous brown algae - O	Northern lacuna - U (@2:27)	Wave action. Particles in water column. Two large pipes in frame. Small pieces of algae debries. Garabage present on bottom. Arrow worms present in watercolumn.
10-20	2:29a -4:07a	14.0	4.3	0.2	Fines and cobbles	3:47	Y	Colourful bottom; rocks grey/yellow/white colour with white encusting algae on rock. Approx. 25% algal cover (kelp) at probe site.	Rocky (cobble and gravel w bedrock and boulder) with fines (sand)	Mixed Variable Rock	Bedrock (10%) Boulder (10%) Cobble (20%) Gravel (20%) Fines (40%)	Sand (90%) Silt (10%) Clay (0%)	Ulva lactuca - C Polysiphonia sp. - C Desmarestia sp. - U Saccharina latissima - C Coralline red algae - O Agarum clathratum - U Saccharina latissima - A	Small shrimp - U (@ 3:16)	Wave action. Particles in water column. Two large pipes in frame. Small pieces of algae debries. Garabage present pn bpttpm. Algae fragmantns.
20-30	4:08a -6:04a	16.0	4.9	0 0.0	Bedrock	4:54 5:31	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 50% algal cover (kelp) at probe site.	Rocky (Bedrock and Boulder)	Rocky Dominant - Mixed	Bedrock (40%) Boulder (40%) Cobble (5%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Agarum clathratum - O Coralline red algae - C Polysiphonia sp. - O Desmarestia sp. - O Lithothamnion sp. - O Chondrus crispus - U Saccharina longicuris - U Palmaria palmata - U	Northern lacuna - C (@4:11) Frilled sea anemone - U (@ 5:27)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage
30-40	6:05a -8:03a 0:00b - 0:10b	18.0	5.5	0 0	Boulder	6:17 7:46	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 70% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Agarum clathratum - O Saccharina longicuris - O Polysiphonia sp. - O Coralline red algae - C Palmaria palmata - U Hildenbrandia rubra - U	Slipper snails - C (@6:32) Chiton - U (@7:48)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage.
40-50	0:11b - 2:23b	23.0	7.0	0.0	Bedrock	00:31b 1:55b	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 70% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - O Coralline red algae - C Hildenbrandia rubra - U Agarum clathratum - O	Frilled sea anemone - U (@ 0:17b) Slipper snails - C (@0:11b) Chiton - O (@0:25b) Northern lacuna - O (@0:40b)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage
50-60	2:24b - 4:38b	38.0	11.6	0.0	Bedrock	3:34b 4:03b	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 80% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (20%) Silt (80%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - O Coralline red algae - C Hildenbrandia rubra - U Agarum clathratum - A Chondrus crispus - U	Slipper snails - O (@ 2:39b) Northern lacuna - U (@3:24b) Stalked jellyfish - U (@ 3:40b)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage. Moving down rock face. Visabilty getting worse. Silt on bedrock.
60-70	4:39b - 6:47b	48.0	14.6	0.0	Bedrock/silt on rock	5:37b 6:28b	Y	Colourful bottom; rocks grey colour with Coralline red algae on rock. Approx. 60% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (20%) Silt (80%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Palmaria palmata - U Coralline red algae - C Polysiphonia sp. - U Hildenbrandia rubra - O Lithothamnion sp. - U	Stalked jellyfish - O (@ 5:27b) Slipper snails - U (@5:36b)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage. Moving down rock face. Visabilty getting worse. Silt on bedrock.
70-75	6:48b - 8:03b 0:00c	60.0	18.3	0 0.20	Bedrock/silt on rock	7:52b 1:37c	Y	Sand bottom; rocks grey colour with coralline and red algae on rock. Approx. 60% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (60%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - C Agarum clathratum - A Coralline red algae - C Polysiphonia sp. - O Hildenbrandia rubra - O Lithothamnion sp. - U Chondrus crispus - U	Northern lacuna - O (@6:52b) Small shrimp - U (@ 7:12b) Larger orange shrimp - U (@7:43b)	Particles in water column.Kelps cover some of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Kelp shows damage. Moving down rock face. Visabilty poor. Silt on bedrock. Mussel shells. Small egg mass on agarum blade (@0:49c).

Appendix A.1: Transect 10 (250 metres in southwest corner of Turning Basin, south of Vardy's Island)
Start wp: 1435 Diver Start 250m @ wp1435
End wp: 1441

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 245 m	0:00 - 3:05	-	-	-	-	-	-	-	Sand with rock (boulder and cobble)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (80%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Filamentous red algae - U Coralline red algae - U Hildenbrandia rubra - U	Littorines - U (@ 2:50) Northern lacuna - U (@2:56) Small shrimp - O (@3:05)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
245 - 240	3:06 - 3:50	27.0	8.2	0.0	Boulder	3:25	Y	Colourful bottom; rocks whitish / grey colour withd Coralline red algae on rock. Approx. 75% algal cover (kelp) at probe site.	Sand with rock (boulder and cobble)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (80%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - C Filamentous red algae - U Coralline red algae - U Hildenbrandia rubra - U	Small shrimp - O (@3:12) Stalked jellyfish - U (on kelp @ 3:48)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
240-230	3:51 - 5:46	30.0	9.1	≤0.2	Sand	4:44	Y	Colourful bottom; rocks whitish / grey colour with Coralline red algae on rock. Approx. 75% algal cover (kelp) at probe site.	Sand with rock (boulder and cobble)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (80%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Coralline red algae - U Hildenbrandia rubra - U Palmaria palmata - U	Small shrimp - O (@4:39) Northern lacuna - U (@4:19)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
230-220	5:47- 7:42	31.0	9.4	≤0.3	Sand	6:44	Y	Bottom not visable	Sand with rock (cobble, boulder and gravel)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (15%) Gravel (5%) Fines (75%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Coralline red algae - U Phyllophora sp. - U	Stalked jellyfish - U (on kelp @ 6:08)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Some garbage present
220-210	7:43-8:04 0:00b-1:28b	30.0	9.1	≤0.1 ≤0.3	Sand	0:33b 1:05 b	Y	Gravel whitish / grey colour uniform bottom next to rocks. Approx. 70% algal cover (kelp) at probe site.	Sand with rock (cobble, boulder and gravel)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (20%) Gravel (5%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Filamentous red algae - U Coralline red algae - U Phyllophora sp. - U Ulva lactuca - U Palmaria palmata - U	Northern lacuna - U (@0:29b) Scallop - U (@ 1:26)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
210-200	1:29b-3:07b	30.0	9.1	≤0.1	Sand	2:17b	Y	Gravel whitish / grey colour uniform bottom next to rocks. Approx. 70% algal cover (kelp) at probe site.	Sand with rock (cobble, boulder and gravel)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (10%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Coralline red algae - U Filamentous phaeophyceae - U Palmaria palmata - U	Green sea urchin - U (@2:11b) Northern lacuna - U (@2:35b)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
200-190	3:08b-5:02b	-	-	≤0.3	Large gravel on Fines	4:00b	Y	Gravel whitish / grey colour uniform bottom. Approx. 70% algal cover (kelp) at probe site.	Sand with rock (cobble, boulder and gravel)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (10%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Phyllophora sp. - U Filamentous red algae - U Filamentous phaeophyceae - U	Ctenophore - U (@3:30b) Small shrimp - O (@4:22b) Green sea urchin - O (@4:40b) Littorines - O (@4:40b)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
190-180	5:03b-6:55b	32.0	9.8	≤0.2	Large gravel on Fines	5:19b	Y	Gravel whitish / grey colour uniform bottom. Approx. 50% algal cover (kelp) at probe site.	Rocky (cobble and gravel) with fines (sand)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (45%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Palmaria palmata - U	Small shrimp - U (@5:56b) Northern lacuna - U (@6:14b) Stalked jellyfish - U (on kelp @ 6:46b)	Thin gravel layer likely coveres fines. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
180-170	6:56b-8:03b 0:00c-0:39c	30.0	9.1	≤0.2	Large gravel on Fines	7:53b	Y	Gravel whitish / grey colour uniform bottom. Approx. 100% algal cover (kelp) at probe site.	Rocky (cobble and gravel) with fines (sand)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (45%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Polysiphonia sp. - U Coralline red algae - U Palmaria palmata - U	Northern lacuna - U (@6:57b) Green sea urchin - O (@6:57b) Stalked jellyfish - U (on kelp @ 7:36b) Small shrimp - O (@@0:13c) Ctenophore - U (@0:28c) Rock crab- U (@0:39c)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
170-160	0:40c-2:26c	31.0	9.4	≤0.1	Large gravel on Fines	0:50c	Y	Gravel whitish / grey colour uniform bottom. Approx. 30% algal cover (kelp) at probe site.	Rocky (cobble and gravel) with fines (sand)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (45%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Polysiphonia sp. - U Coralline red algae - U Lithothamnion sp. - U	Northern lacuna - U (@1:09c) Stalked jellyfish - U (on kelp @ 1:38c) Small shrimp - O (@1:51c) Limpet - O (@ 1:59)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
160-150	2:27c-4:18c	32.0	9.8	0.0	Cobble Pile	2:47c	Y	Gravel whitish / grey colour uniform bottom. Approx. 80% algal cover (kelp) at probe site.	Rocky (cobble and gravel) with fines (sand)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (45%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Filamentous red algae - U Polysiphonia sp. - U Coralline red algae - U Lithothamnion sp. - U	Northern lacuna - C (@2:44c)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
150-140	4:19c-6:04c	32.0	9.8	≤0.1	Cobble Pile	5:08c	Y	Gravel whitish / grey colour with Coralline red algae. Approx. 80% algal cover (kelp) at probe site.	Rocky (cobble and gravel) with fines (sand)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (45%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - C Agarum clathratum - A Filamentous red algae - U Hildenbrandia rubra - U Palmaria palmata - U (@5:48c) Coralline red algae - U	Stalked jellyfish - U (on kelp @ 4:24c) Small shrimp - O (@4:36c)	Kelps cover most of the bottom (0.1 to 0.5 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
140-130	6:05c-7:46c	32.0	9.8	≤0.1	Large gravel on Fines	7:01c	Y	Gravel whitish / grey colour with Coralline red algae. Approx. 70% algal cover (kelp) at probe site.	Rocky (gravel) with mixed cobble, boulder and fines (sand)	Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (60%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - C Agarum clathratum - A Filamentous red algae - U Coralline red algae - U Palmaria palmata - U Filamentous red algae - U	Northern lacuna - C (@7:37c) Small shrimp - U (@7:45c)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.

Appendix A.1: Transect 10 (250 metres in southwest corner of Turning Basin, south of Vardy's Island)
Start wp: 1435 Diver Start 250m @ wp1435
End wp: 1441

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
130-120	7:47c-8:03c 0:00d-1:47d	32.0	9.8	0.0	Cobbles and large gravel	8:02c	Y	Cobble whitish / grey colour with Coralline red algae. Approx. 70% algal cover (kelp) at probe site.	Rocky (cobbles)	Cobble Dominant	Bedrock (0%) Boulder (15%) Cobble (70%) Gravel (15%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - O Hildenbrandia rubra - U Filamentous red algae - U Polysiphonia sp. - U Coralline red algae - U	Small shrimp - O (@0:22d) Toad Crab - U (@ 0:56c) Northern lacuna - C (@1:01c) Britterstar - O (@ 1:02c)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
120-110	1:48d-3:36d	33.0	10.1	0.0	Cobbles and large gravel	2:38d	Y	Cobble and gravel whitish / grey colour with Coralline red algae. Approx. 75% algal cover (kelp) at probe site.	Rocky (cobbles)	Cobble Dominant	Bedrock (0%) Boulder (20%) Cobble (60%) Gravel (20%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Filamentous red algae - O Polysiphonia sp. - U Coralline red algae - U	Northern lacuna - O (@2:19d)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
110-100	3:37d-5:37d	36.0	11.0	0.0	Cobbles	3:53d	Y	Cobble whitish / grey colour with Coralline red algae. Approx. 75% algal cover (kelp) at probe site.	Rocky (cobbles)	Cobble Dominant	Bedrock (0%) Boulder (20%) Cobble (80%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Filamentous red algae - O Polysiphonia sp. - U Coralline red algae - U Lithothamnion sp. -U	Northern lacuna - O (@4:54d)	Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. At 105m large drop off
100-90	5:38d-7:33d	43.0	13.1	0.0	Boulders	5:55d	Y	Boulder whitish / grey colour with lots of Coralline red algae. Approx. 75% algal cover (kelp) at probe site.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (20%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Hildenbrandia rubra - U Filamentous red algae - O Polysiphonia sp. - U Coralline red algae - O Lithothamnion sp. -O	Breadcrumb sponge - U (@5:46)	Boulder slope. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
90-80	7:34d-8:03d 0:00e-1:09e	56.0	17.1	0.0	Boulders	0:28e	Y	Boulder and cobbles whitish / grey colour with lots of Coralline red algae. Approx. 75% algal cover (kelp) at probe site.	Rocky (cobbles)	Cobble Dominant	Bedrock (5%) Boulder (15%) Cobble (70%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - U Lithothamnion sp. -U Hildenbrandia rubra - U Filamentous red algae - U	No observed fauna.	Boulder and cobble slope reaches bottom. Kelps cover most of the bottom (0.1 to 1 m canopy height).Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
80-end	1:10e-3:37e	57.0	17.4	N/A	N/A	N/A	N/A	Dull uniform bottom. To deep for probe	Sand with gravel	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (15%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U	No observed fauna.	Algae fragments resting on the fines and gravel bottom. Driver could not go deep enough. Area captured in spot checks.

Start wp: **1362** **Diver Start** **0m @ wp1362**

End wp: **1366**

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 1:35a	13	3.96	0.0	Bedrock	1:07a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina latissima - U Chordaria flagelliformis - U Desmarestia sp. - U Coralline red algae - O	Small shrimp - U Frisled sea anemone - U Green sea urchin - A Horse mussel - U Littorines - U Mottled red chiton - U Seastar - U	Elevation between intervals is very steeply pitched downward between 0 and 20m. As a result, the transect hangs in the watercolumn rather than laying on bottom. Diver drops to bottom to survey bottom below transect line. Lots of green sea urchins on the nearly barren bedrock slope between 0-5m interval. Urchins likely grazing on macroflora attached to this slope.
10 - 20	1:35a - 2:37a	35	10.67	0.1	Gravel and shell grit over bedrock	1:37a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)	Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (60%) Fines (30%)	Sand/Shell grit (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - U Desmarestia sp. - U Polysiphonia sp. - U Coralline red algae - O Lithothamnion sp. - U Hildenbrandia rubra - U	Small shrimp - O Horse mussel - U Sea star - U Northern lacuna - U	Transect interval between 10-20m hangs in watercolumn so diver surveys bottom below line. Bottom here composed of gravel and coarse fines/shell hash and probe meets refusal at <0.1m. Northern lacuna found on blades of laminaria and agarum. Looks like epiphytic hydroids on kelp blades throughout this interval.
		35	10.67	0.08	Gravel and shell grit over bedrock	2:18a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)						
20 - 30	2:37a - 3:31a	34	10.36	0.05	Gravel and shell grit over bedrock	2:42a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)	Gravel Dominant	Bedrock (5%) Boulder (0%) Cobble (0%) Gravel (65%) Fines (30%)	Sand/Shell grit (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - U Lithothamnion sp. - U	Small shrimp - U Mysid shrimp - U Northern lacuna - U	Transect line on bottom after 20m. Bottom here composed of gravel and coarse fines/shell hash and probe meets refusal at <0.1m.
		34	10.36	0.09	Gravel and shell grit over bedrock	3:13a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)						
30 - 40	3:31a - 4:31a	34	10.36	0.08	Gravel and shell grit over bedrock	3:39a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)	Cobble and Gravel Dominant	Bedrock (5%) Boulder (0%) Cobble (25%) Gravel (50%) Fines (20%)	Sand/Shell grit (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - O Lithothamnion sp. - U Hildenbrandia rubra - U	Small shrimp - U Northern lacuna - U Scallop - U (4:02) Brittle stars - U	Diver did not get 35m probe depth on video but did record max penetration of 0.08m. Observed a very small (~1cm wide) scallop shell at 35 m tag. Cannot tell if juvenile scallop is alive or dead. This would be good scallop bottom. Mixed cobbles and gravel present toward end of transect between 35-40m interval rather than gravels and fines.
		34	10.36	0.08	Gravel and shell grit over bedrock	4:02a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)						
40 - 50	4:31a - 5:33a	35	10.67	0.0	Cobble and gravel over bedrock	4:36a	Y	Cobble and gravel are encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (cobble and gravel) with kelp	Cobble and Gravel Dominant	Bedrock (10%) Boulder (20%) Cobble (50%) Gravel (20%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - A Lithothamnion sp. - A Hildenbrandia rubra - U	Small shrimp - U Brittle stars - O Green sea urchin - U Northern lacuna - O Stalked jellyfish - U	Bottom starts to slope steeply downward again after 45m. Kelp and agarum look to have abundant spirorbid worms growing epiphytically in this interval. No hydroids.
		40	12.19	0.0	Boulder over bedrock	5:07a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp						
50 - 60	5:33a - 6:40a	45	13.72	0.0	Boulder over bedrock	6:22a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - A Lithothamnion sp. - A	Small shrimp - U Toad crab - U (6:08) Seastar - U Northern lacuna - U	
60 - 70	6:40a - 7:56a	69	21.03	0.0	Boulder over bedrock	6:42a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - O Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - A Lithothamnion sp. - A	Atlantic wolffish - U (1@7:24) Green sea urchin - U Small shrimp - U Seastar - U Northern lacuna - U Sea peach tunicate - U (6:40) Brittlestars - U	Atlantic wolffish located in interstitial space between boulders in 79ft of water near base of Vardys Island. Sea peach tunicates located on a boulder near 60 m interval tag. Looks like this tunicate, but do not get a great look and cannot confirm ID. Northern red anemone (Urticina sp.) located in interstitial space between boulders. Bottom substrate is getting harder to identify here. Hard to tell if bottom is boulders on bedrock or just bedrock throughout this interval. Visually appears to be boulder.
		79	24.08	0.0	Boulder over bedrock	7:20a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp						
70 - 80	7:56a - 0:53b	86	26.21	0.0	Boulder over bedrock	0:06b	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks like it contains fines. Boulder is 'dirty'.	Rocky (boulder) with kelp	Fines Dominant	Bedrock (0%) Boulder (40%) Cobble (0%) Gravel (0%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U	Green sea urchin - U Sea star - U Northern red anemone - U Frisled sea anemone - U	Transect line reached the bottom of the harbour. After 75m tag the transect line is on the harbour bottom. Bottom composed of fines and shell has with gravel and lots of debris. Debris composed of wood, algae, garbage, shells. Sediment probe very easily penetrates to >1.0m depth. The bottom is likely finer fines such as silt or organic detritus. Coarse sand would present more resistance to probe. Disturbed sediment plumes into water column. Anticipate there is a lot of silt in the substrate.
		87	26.52	>1.0	Sand	0:23b	Y	Fines substrate with abundant debris. Substrate depth exceeds probe length.	Sand with debris	Fines Dominant					
80 - 90	0:53b - 1:37b	89	27.13	>1.0	Sand	0:57b	Y	Fines substrate with abundant debris. Substrate depth exceeds probe length.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Abundant algal debris composed of laminaria and agarum in this interval. Sediment probe very easily penetrates to >1.0m depth at 80m. The bottom is likely finer fines such as silt or organic detritus. Disturbed sediment plumes into water column. Anticipate there is a lot of silt in the substrate. Probe meets refusal at 0.9m at 85m tag.
		89	27.13	0.9	Sand	1:24b	Y	Fines substrate with abundant debris.	Sand with debris						

Appendix A.1: Transect 11 (100 metres on south point of Vardy's Island)
Start wp: 1362 Diver Start 0m @ wp1362
End wp: 1366

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
90 - 100	1:37b - 2:20b	90	27.43	>1.0	Sand	1:43b	Y	Fines substrate with abundant debris. Substrate depth exceeds probe length.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observerd flora.	No observed fauna.	Sediment probe very easily penetrates to >1.0m depth at 90m and 95m. The bottom is likely finer fines such as silt or organic detritus. Disturbed sediment plumes into water column. Anticipate there is a lot of silt in the substrate.
		95	28.96	>1.0	Sand	2:04b	Y	Fines substrate with abundant debris. Substrate depth exceeds probe length.	Sand with debris						
100 - 110	2:20b - 2:44b	87	26.52	>1.0	Sand	2:27b	Y	Fines substrate with abundant debris. Substrate depth exceeds probe length.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observerd flora.	No observed fauna.	Sediment probe very easily penetrates to >1.0m depth at 100m. The bottom is likely finer fines such as silt or organic detritus. Disturbed sediment plumes into water column. Anticipate there is a lot of silt in the substrate.

Start wp: 1659 **Diver Start** 0m @ wp1659
End wp: 1665

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:56a	30	9.1	0.0	Gravel and Shell Grit over Bedrock	2:00a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)	Gravel Dominant	Bedrock (5%) Boulder (5%) Cobble (5%) Gravel (65%) Fines (20%)	Shell grit (100%) Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Polysiphonia sp. - U Coralline red algae - U	Cunner - U (2@2:18a) Mysid shrimp - O Northern lacuna - O	Small amount of bryozoans on Saccharina.
		30	9.1	0.1	Gravel and Shell Grit over Bedrock	2:41a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)						Substrate mostly gravel. Some very coarse fines (shell grit) mixed in with the gravel. Occasional small patches of boulder and cobble are also visible. Bedrock visible near the beginning of the interval.
10 - 20	2:56a - 4:24a	30	9.1	0.1	Gravel and Shell Grit over Bedrock	2:57a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)	Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (70%) Fines (20%)	Shell grit (100%) Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Polysiphonia sp. - O Coralline red algae - O	Cunner - U (1@3:55a) Mysid shrimp - A Green sea urchin - U Crepidula sp. - U Northern lacuna - O	
		31	9.4	0.08	Gravel and Shell Grit over Bedrock	3:34a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)						
20 - 30	4:24a - 5:38a	33	10.1	0.0	Cobble, Gravel and Shell Grit over Bedrock	4:26a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)	Cobble and Gravel Dominant	Bedrock (5%) Boulder (0%) Cobble (35%) Gravel (50%) Fines (10%)	Shell grit (100%) Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Polysiphonia sp. - O Plumaria plumosa - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U Breadcrumb sponge - U	Bottom starting to transition to more cobble toward the end of the transect.
		34	10.4	0.0	Cobble, Gravel and Shell Grit over Bedrock	5:14a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)						
30 - 40	5:38a - 7:15a	37	11.3	0.0	Cobble, Gravel and Shell Grit over Bedrock	5:40a	Y	Gravel and very coarse fines (shell grit). Bottom looks clean without any fines.	Mixed (gravel and coarse fines)	Boulder Dominant	Bedrock (5%) Boulder (60%) Cobble (15%) Gravel (20%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Polysiphonia sp. - O Plumaria plumosa - U Coralline red algae - A	Cunner - U (1@6:50a) Green sea urchin - U Northern lacuna - U	Diver is intentionally investigating interstitial spaces between boulders on downward slope. No residents or species observed in the spaces so far.
		41	12.5	0.0	Boulder	6:12a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						
40 - 50	7:15a - 1:14b	48	14.6	0.0	Boulder	7:10a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (85%) Cobble (15%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Polysiphonia sp. - O Coralline red algae - A	Green sea urchin - U Northern lacuna - U Seastar - U Sea peach tunicate - U Halichondria sp. sponge - U	Diver is intentionally investigating interstitial spaces between boulders on downward slope. No residents or species observed in the spaces so far.
		60	18.3	0.0	Boulder	0:05b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						
50 - 60	1:14b - 2:45b	70	21.3	0.0	Boulder	2:45b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Coralline red algae - A	Northern red anemone - U Brittlestar - U Sea peach tunicate - U	
60 - 80	2:45b - 5:14b	77	23.5	0.0	Fines over Boulder	2:49b	Y	Dull fines over colourful rocky boulder substrate encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (85%) Cobble (15%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Phyllophora sp. - U Coralline red algae - A	Northern red anemone - U Brittlestar - U Sea peach tunicate - U	Transect line became snagged on rocky substrate near the base of Vardys Island. Consequently, the 60-70 metre and 70-80 metre interval cover only cover about 10 metres of bottom in total. Diver makes up for this at the end of the transect by swimming an additional 10 metre past the end of the transect line.
		87	26.5	0.0	Boulder	3:27b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						
80 - 90	5:14b - 6:34b	89	27.1	0.18	Fines and Gravel	5:21b	Y	Mixed fines (sand and silt) and gravel on the harbour bottom.	Mixed (Gravel and Fines)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (10%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Phyllophora sp. - U Coralline red algae - O	Toad crab - U (1@5:59b) Green sea urchin - U	Diver reaches the harbour bottom. Abundant algal debris consisting of Agarum and Saccharina. Substrate initially includes gravelly substrate which is no longer present by the 85 metre interval.
		88	26.8	>1.0	Fines	6:04b	Y	Dull fines with abundant algal debris at the probe site. Substrate depth exceeds probe length.	Fines (Sand and Silt)						

Appendix A.1: Transect 11S (100 metres on the south point of Vardy's Island) - Summer UBHS - July 24, 2020
Start wp: 1659 Diver Start 0m @ wp1659
End wp: 1665

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
90 - 100	6:34b - 7:33b	89	27.1	>1.0	Fines	6:44b	Y	Dull fines with abundant algal debris at the probe site. Substrate depth exceeds probe length.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Sediment probe very easily penetrates to >1.0m depth. The bottom is likely finer fines such as silt or organic detritus. Disturbed sediment plumes into water column. Anticipate there is a lot of silt in the substrate. Abundant to occasional algal debris consisting of Agarum and Saccharina.
		89	27.1	>1.0	Fines	7:36b	Y	Dull fines with occasional algal debris at the probe site. Substrate depth exceeds probe length.	Fines (Sand and Silt)						
100 - 110	7:33b - End	89	27.1	>1.0	Fines	7:36b	N	Dull fines with occasional algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (0%) Silt (0%) Clay (0%)	No observed flora.	Skate - U (1@0:00c)	Diver swims past end of transect line to make up distance that was lost where transect line became snagged on rocky substrate near the base of the island (60-80 metres).

Appendix A.1: Transect 12 (100 metres southwest corner of Vardy's Island)

Start wp: 1332 Diver Start: 0m @ wp1332
End wp: 1335

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Shoreline to 0 m	0:00a - 0:50a	-	-	-	-	-	-	-	Rocky (Bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Ascophyllum nodosum - A (intertidal) Saccharina latissima - O	Ctenophore - U	Divers incorrectly labelled this transect as T2 instead of T12. Diver swimming from SW corner of Vardys Island (0m) to navigation channel (100m). Island slope looked to have been blasted / dredged in the past based on vertical slope and broken rocky ledges. Diver swims from surface along near vertical slope to start of transect line.
0 - 10	0:50a - 1:44a	34.0	10.4	≤ 0.1 m	Gravels with small and large cobble	0:55	Y	Bottom uniform whitish / grey colour. Approx. 50% algal cover (kelp) at probe site.	Rocky (Cobble and Gravel)	Cobble Dominant	Bedrock (0%) Boulder (0%) Cobble (60%) Gravel (30%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Coralline red algae - O Hildenbrandia rubra - U	Littorines - U	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom relatively flat, slight downward slope at start of transect.
10 - 20	1:44a - 2:54a	34.0	10.4	≤ 0.1 m	Gravels with small and large cobble and small boulders	2:15	Y	Rocks whitish / grey colour with red crustose algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Cobble and Gravel)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (10%) Cobble (55%) Gravel (35%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Coralline red algae - C Hildenbrandia rubra - U	Toad crab - U (@ 2:17) Stalked jellyfish - U (@ 2:35)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
20 - 25	2:54a - 3:50a	43.0	13.1	≤ 0.1 m	Cobbles and small boulders	3:17	Y	Colourful bottom; rocks whitish / grey colour with red crustose algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Cobble and Boulder)	Cobble Dominant	Bedrock (0%) Boulder (30%) Cobble (60%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Coralline red algae - C Hildenbrandia rubra - U	Brittlestar - U (@3:09)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom changes to steep slope downward. Slope covered in large and small cobbles with some boulder and gravel.
25 - 30	3:50a - 4:15a	-	-	0.0	Cobbles and small boulders	3:59	Y	Colourful bottom; rocks whitish / grey colour with red crustose algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (30%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - O Coralline red algae - O Hildenbrandia rubra - U	No observed fauna.	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom continues steep slope downward. Slope covered in large and small cobbles and boulder.
30 - 40	4:16a - 4:49a	-	-	0.0	Boulders	4:33	Y	Colourful bottom; rocks whitish / grey colour with red crustose algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - O Hildenbrandia rubra - U	Brittlestar - U (@4:34) Frimled sea anemone - O (@ 4:37) Toad crab - U (@ 4:42)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Bottom slope downwards and reaches flat bottom. Slope covered in large and small cobbles and boulder.
40 - 50	4:50a - 5:43a	83.0	25.3	≤ 0.2 m	Fines	5:13	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (90%) Silt (10%) Clay (0%)	No observed flora.	No observed fauna.	Algae fragments (mostly Saccharina latissima and Agarum clathratum) are present resting on the fines bottom. Shallow layer of silt on top of sand.
50 - 60	5:44a - 6:13a	83.0	25.3	NA	Fines	NA (5:44)	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (90%) Silt (10%) Clay (0%)	No observed flora.	Brittlestar - U (@6:13)	Algae fragments (mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand.
60 - 70	6:14a - 7:13a	83.0	25.3	≤ 1.0 m	Fines	6:44	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Dense piles of Algae fragments (mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. Potential egg mass on algal debris.
70 - 80	7:14a - 8:03a 0:00b - 0:05b	83.0	25.3	≤ 0.5 m	Fines	7:55	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (1%) Cobble (0%) Gravel (0%) Fines (99%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Phyllophora sp. - U	Brittlestar - U (@7:14 and 7:48) Stalked jellyfish - U (@ 7:37)	Dense piles of Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. One boulder at 8:02 allowed for algae attachment
80 - 90	0:06b - 0:54b	83.0	25.3	≤ 0.3 m	Fines	0:24b	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	Phyllophora sp. - O	Brittlestar - U (@0:06b) Ctenophore - U (@ 0:45b)	Dense piles of Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand.
90 - 100	0:55b - 2:24b	74.0	22.6	≤ 0.5 m	Fines and boulders	1:18b	Y	Dull uniform bottom. No algae cover at probe site	Fines (sand) and Rock (boulder)	Fines with Variable Rock	Bedrock (0%) Boulder (40%) Cobble (10%) Gravel (5%) Fines (45%)	Sand (90%) Silt (10%) Clay (0%)	Agarum clathratum - C Phyllophora sp. - O Coralline red algae - O Hildenbrandia rubra - U	Ctenophore - U (@ 0:55b) Frimled sea anemone - C (@ 1:02b, 1:18b and 2:09b) Brittlestar - O (@1:28b)	Transitions from uniform fines area to a small slope with exposed rock allowing for algae attachment. One boulder at 1:02 allowed for algae attachment and a large colony of frilled sea anemone.

Appendix A.1: Transect 13 (100 metres on west point of Vardy's Island)

Start wp: 1479 Diver Start 0m @ wp1479
End wp: 1483

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:25a	15	4.57	0.0	Boulder over bedrock	1:19a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Rocky Dominant - Mixed	Bedrock (30%) Boulder (30%) Cobble (10%) Gravel (20%) Fines (10%)	Sand (70%) Silt (30%) Clay (0%)	Saccharina latissima - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O Phyllophora sp. - U	Green sea urchin - U Barnacles - A Small shrimp - O Northern lacuna - U Slipper snails - O Seastar - U	Slipper snails = Crepidula sp. Lots of bryozoans and spirorbid worms epiphytically attached to laminaria.
		33	10.06	0.0	Boulder over bedrock	2:02a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp						
10 - 20	2:25a - 3:46a	35	10.67	0.04	Gravel and shell grit over bedrock	2:30a	Y	Gravel and coarse fines (shell grit). Bottom looks clean without any clay or silt.	Mixed (gravel and coarse fines)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (50%) Fines (30%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - A Agarum clathratum - O Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O Phyllophora sp. - U	Small shrimp - U	
		36	10.97	0.15	Gravel and fines	3:15a	Y	Gravel and mixed fines. Bottom looks relatively clean.	Mixed (gravel and fines)						
20 - 30	3:46a - 4:40a	36	10.97	0.09	Gravel and fines	3:51a	Y	Gravel and mixed fines. Bottom looks relatively clean.	Mixed (gravel and fines)	Rocky Dominant - Mixed	Bedrock (50%) Boulder (10%) Cobble (0%) Gravel (20%) Fines (20%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - O Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Lobster - U (1@4:39) Brittlestars - U Northern red anemone - U Sea peach tunicates - U Littorines - U Small shrimp - U	Lobster observed in interstitial space between boulders just before 30m tag. Elevation in this interval is very steeply pitched downward. As a result, the transect hangs in the watercolumn rather than laying on bottom. Diver drops to bottom to survey bottom below transect line. Patches of gravels and mixed fines. Bottom otherwise looks like bedrock or boulder.
30 - 40	4:40a - 5:53a	45	13.72	0.0	Boulder over bedrock	4:50a	Y	Boulder encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Mixed Variable Rock	Bedrock (40%) Boulder (10%) Cobble (0%) Gravel (20%) Fines (30%)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - U	Small shrimp - U Stalked jellyfish - U	Bottom keeps dropping. Plateaus between ledges contain mixed gravel and fines. Ledges are composed of bedrock and boulders.
		50	15.24	0.0	Bedrock	5:29a	Y	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)						
40 - 50	5:53a - 7:18a	56	17.07	0.2	Gravel and fines	5:56a	Y	Gravel and mixed fines. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines with Variable Rock	Bedrock (20%) Boulder (0%) Cobble (0%) Gravel (30%) Fines (50%)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - O Coralline red algae - O Lithothamnion sp. - O Polysiphonia sp. - U	Toad crab - U (1@6:53) Small shrimp - U Stalked jellyfish - U Northern red anemone - U Northern lacuna - U	Bottom plateaus and contains mostly fines with gravel. Bottom transitions to bedrock toward the end of the interval.
		63	19.20	0.3	Gravel and fines	6:32a	Y	Gravel and mixed fines. Bottom looks relatively clean.	Mixed (gravel and fines)						
50 - 60	7:18a - 0:15b	70	21.34	0.0	Bedrock	-	N	Grey / white bedrock covered in red Coralline red algae.	Rocky (bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (25%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - C Coralline red algae - O Lithothamnion sp. - O Polysiphonia sp. - U Porphyra sp. - U	Frilled sea anemone - U	Elevation in this interval is very steeply pitched downward. As a result, the transect hangs in the watercolumn rather than laying on bottom. Diver did not probe the bottom in this interval. Bottom can visually be confirmed to consist of bedrock. Bottom transitions to fines at the base of the island a near the end of this interval.
60 - 70	0:15b - 1:05b	85	25.91	-	Fines	-	N	Fines substrate with abundant debris.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora	No observed fauna	Diver did not probe the bottom in this interval. Bottom can visually be confirmed to consist entirely of fines. Abundant algal debris throughout this interval.
70 - 80	1:05b - 2:29b	91	27.74	-	Fines	-	N	Fines substrate with abundant debris.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora	No observed fauna	Diver did not probe the bottom in this interval. Bottom can visually be confirmed to consist entirely of fines. Abundant algal debris throughout this interval.
80 - 90	2:29b - 3:30b	90	27.43	>1.0	Fines	2:39b	Y	Fines substrate with abundant debris.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora	No observed fauna	Occasional algal debris throughout this interval.
90 - 100	3:30b - 5:08b	90	27.43	0.5	Fines	4:43b	Y	Fines substrate with abundant debris.	Sand with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora	No observed fauna	Occasional algal debris throughout this interval.

Appendix A.1: Transect 13S (100 metres on the west point of Vardy's Island) - Summer UBHS - July 25, 2020
Start wp: 1693 Diver Start 0m @ wp1693
End wp: 1696

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 3:53a	32	9.8	0.1	Fines and Gravel	2:24a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines)	Rocky Dominant - Mixed	Bedrock (20%) Boulder (40%) Cobble (10%) Gravel (20%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Coralline red algae - A	Green sea urchin - U Stalked jellyfish - U Crepidula sp. - U Northern lacuna - U Littorines - U	Transect starts at the base of a vertical wall of rock which is likely a previously dredged part of the island. Substrate at the base of the wall is mixed gravel and fines which transitions to primarily boulder and cobble toward the end of the interval. Bedrock occasionally observed, although this could be very large boulder. Algal canopy abundant but not as dense as observed in other areas in the harbour. Some open areas and spacing between clumps of Saccharina and Agarum. Most rock encrusted with coralline algae. Cannot determine coralline species.
		34	10.4	0.0	Boulder	3:15a	Y	Colourful rocky bottom consisting primarily of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (boulder) with kelp						
10 - 20	3:53a - 5:08a	32	9.8	0.0	Boulder / Bedrock	3:54a	Y	Colourful rocky bottom consisting primarily of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (boulder / bedrock) with kelp	Rocky Dominant - Mixed	Bedrock (10%) Boulder (40%) Cobble (20%) Gravel (20%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Chordaria flagelliformis - U Desmarestia sp. - U Ulva lactuca - U Coralline red algae - A	Green sea urchin - U Crepidula sp. - U Mottled chiton - U	Mixed substrates throughout the interval ranging from bedrock to gravel and coarse fines. Predominantly rocky substrate made up of boulder and cobble, and mixed gravel and coarse fines. Abundant algae throughout interval except in patches of fines and gravel. Chordaria, Ulva and Desmarestia were observed in the gravelly fines.
		33	10.1	0.05	Fines and Gravel	4:36a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines)						
20 - 30	5:08a - 6:34a	35	10.7	0.20	Fines and Gravel	5:17a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines) with Rock (boulder)	Rocky Dominant - Mixed	Bedrock (10%) Boulder (40%) Cobble (20%) Gravel (20%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Desmarestia sp. - U Coralline red algae - A	Green sea urchin - U Seastar - U Crepidula sp. - U Mysid shrimp - O	Mixed substrates throughout the interval ranging from bedrock to gravel and coarse fines. Predominantly rocky substrate made up of boulder and cobble, and mixed gravel and coarse fines. Abundant algae throughout interval except in patches of fines and gravel.
		36	11.0	0.09	Fines and Gravel	5:59a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines) with Rock (boulder)						
30 - 40	6:34a - 0:01b	38	11.6	0.0	Boulder	6:42a	Y	Colourful rocky bottom consisting primarily of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with kelp	Mixed Variable Rock	Bedrock (20%) Boulder (30%) Cobble (20%) Gravel (20%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Coralline red algae - A	Breadcrumb sponge - U Sea peach tunicates - U Littorines - U Mysid shrimp - U Seastar - U	Transect line drops over a steep ledge between 30 and 40 metre interval. Predominantly a rocky substrate through this interval with a patch of gravel and fines at 35 metres at the base of a nearly vertical rock wall.
		48	14.6	0.08	Fines and Gravel	7:31a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines) with Rock (boulder)						
40 - 50	0:01b - 1:13b	52	15.8	0.16	Fines and Gravel	0:09b	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines) with Rock (boulder)	Mixed Variable Rock	Bedrock (45%) Boulder (20%) Cobble (10%) Gravel (15%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Phyllophora sp. - U Coralline red algae - A	Sea peach tunicate - U Crepidula sp. - U Mysid shrimp - U Ctenophore - U	Substrate along transect line varies between fines and gravel patches and rocky bedrock / boulder substrate. Abundant algae throughout the interval except in patches of fines and gravel.
		56	17.1	0.08	Fines and Gravel	0:53b	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines) with Rock (boulder)						
50 - 60	1:13b - 2:08b	55	16.8	0.0	Bedrock	1:17b	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (bedrock) with kelp	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - A Phyllophora sp. - U Polysiphonia sp. - U Coralline red algae - A	Breadcrumb sponge - U Mysid shrimp - U Seastar - U	Substrate has transitioned to primarily bedrock with occasional boulder and cobble. Abundant algae throughout the interval.
				0.0	Bedrock	1:39b	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (bedrock) with kelp						
60 - 70	2:08b - 3:13b	66	20.1	0.0	Bedrock	2:08b	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (bedrock) with kelp	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Agarum clathratum - O Phyllophora sp. - U Polysiphonia sp. - U Hildenbrandia rubra - O Coralline red algae - A	Ctenophore - U Northern red anemone - O Frilled sea anemone - O	Substrate has transitioned to primarily bedrock with abundant to occasional algae throughout the interval. Harbour bottom located just beyond the end of this interval.
		77	23.5	0.0	Bedrock	2:46b	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (bedrock) with kelp						
70 - 80	3:13b - 4:28b	88	26.8	0.0	Bedrock	2:46b	Y	Colourful rocky bottom consisting primarily of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (bedrock) with kelp	Fines Dominant	Bedrock (20%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Coralline red algae - O	Ctenophore - U Northern red anemone - U Frilled sea anemone - U Seastar - U Crepidula sp. - U	Substrate transitions to fines on harbour bottom just past the 70 metre interval. Occasional anthropogenic debris (bottles) on the harbour bottom.
		91	27.7	>1.0	Fines	3:57b	Y	Dull uniform fines on harbour bottom. No algae at probe site.	Fines with occasional debris.						
80 - 90	4:28b - 5:29b	91	27.7	>1.0	Fines	4:37b	Y	Dull uniform fines on harbour bottom. No algae at probe site.	Fines with abundant debris.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Winter flounder - U (1@4:46b) Green sea urchin - U Sand shrimp - U	Substrate all fines. Occasional algal and anthropogenic debris on bottom.

Appendix A.1: Transect 13S (100 metres on the west point of Vardy's Island) - Summer UBHS - July 25, 2020

Start wp: 1693 Diver Start 0m @ wp1693

End wp: 1696

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
90 - 100	5:29b - End	90	27.4	>1.0	Fines	4:37b	Y	Dull uniform fines on harbour bottom. Abundant algal debris at probe site.	Fines with abundant debris.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Anemones - U	Substrate all fines. Occasional algal and anthropogenic debris on bottom.
		91	27.7	>1.0	Fines	4:37b	Y	Dull uniform fines on harbour bottom. Occasional algal debris at probe site.	Fines with occasional debris.						

Appendix A.1: Transect 14 (100 metres northwest corner of Vardy's Island)

Start wp: 1475 Diver Start 0m @ wp1475
End wp: 1478

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 0 m	0:00a - 1:00a	7.0	2.1	-	Gravels with small and large cobble and small boulders	-	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 30% algal cover (kelp) at probe site.	Rocky (Boulder and Bedrock)	Mixed Variable Rock	Bedrock (30%) Boulder (50%) Cobble (10%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline red algae - U	Littorines - U (@ 0:45)	Island slope looked to have been blasted / dredged in the past based on vertical slope and broken rocky ledges. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
0 - 10	1:01a - 2:36a	24.0	7.3	≤ 0.1 m	Fines	1:04	Y	Dull uniform bottom. No algae cover at probe site	Sand with Rock (mixed)	Fines Dominant	Bedrock (20%) Boulder (5%) Cobble (10%) Gravel (5%) Fines (60%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Lithothamnion sp. - U Filamentous red algae - U Coralline red algae - U	Mussel - O (@ 1:01) Green sea urchin - U (@ 1:06) Stalked jellyfish - U (on kelp @ 1:33) Littorines - C (@ 1:42) Seastar - U (@ 2:08)	Diver descends down sheer cliff. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Algae fragments mostly Saccharina latissima and garbage are present resting on the fines bottom.
10 - 20	2:37a - 4:13a	29.0	8.8	≤ 0.4 m	Fines with Boulders	3:02	Y	Dull uniform bottom. No algae cover at probe site	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (90%)	Sand (60%) Silt (40%) Clay (0%)	Saccharina latissima - O Filamentous red algae - U Agarum clathratum - U Phyllophora sp. - U Coralline red algae - U	No observed fauna.	Algae fragments mostly Saccharina latissima and garbage are present resting on the fines bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
20 - 30	4:14a - 5:52a	32.0	9.8	≤ 0.2 m	Fines with Boulders	4:10	Y	Dull uniform bottom. No algae cover at probe site. Approx. 30% dead algal cover (kelp) at probe site.	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (15%) Gravel (0%) Fines (80%)	Sand (60%) Silt (40%) Clay (0%)	Saccharina latissima - O Agarum clathratum - C Coralline red algae - U Lithothamnion sp. - U Phyllophora sp. - U	Scallop - U (1@4:41) Stalked jellyfish - U (on kelp @ 5:06) Frimled sea scallop - O (@ 5:45)	Algae fragments mostly Saccharina latissima and garbage are present resting on the fines bottom. Small pile of cobbles. Moves across flat fines area to small shelf. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
30 - 40	5:53a - 6:27a	36.0	11.0	≤ 0.6 m	Fines with Boulders	6:13	Y	Dull uniform bottom next to boulder. No algae cover at probe site. Approx. 30% algal cover (kelp) at probe site.	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (25%) Cobble (5%) Gravel (0%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Agarum clathratum - C Lithothamnion sp. - U	Stalked jellyfish - U (on kelp @ 6:22) Small shirmp - U (@ 6:25)	Algae fragments mostly Saccharina latissima and garbage are present resting on the fines bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
40 - 50	6:28a - 7:55a	41.0	12.5	≤ 0.7 m	Fines with Boulders	7:05	Y	Gravel whitish / grey colour Approx. 30% algal cover (kelp) at probe site.	Sandwith Rock (cobble)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (30%) Gravel (0%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - C Agarum clathratum - C Coralline red algae - U Phyllophora sp. - U Hildenbrandia rubra - U Filamentous red algae - U	Scallop - U (@7:44)	Rocks resting on the silt bottom. Algae fragments mostly Saccharina latissima and garbage are present resting on the fines bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
50 - 60	7:56a - 8:03a 00:00b-0:52b	57.0	17.4	≤ 0.1 m	Fines with Boulders	8:02	Y	Gravel whitish / grey colour Approx. 60% algal cover (kelp) at probe site.	Fines (sand and silt) with Rock (cobble and boulder)	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (40%) Gravel (0%) Fines (45%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - C Agarum clathratum - C Coralline red algae - U Phyllophora sp. - O Hildenbrandia rubra - U	No observed fauna.	Rock hump between fines areas. Shallow layer of silt and sand on top of rocks. Algae fragments mostly Saccharina latissima and garbage are present resting on the bottom.
60 - 70	0:53b - 2:01	61.0	18.6	≤ 0.3 m ≤ 0.7 m	Fines with Boulders/cobbles	0:51b 1:32b	Y	Dull uniform bottom. No algae cover at probe site. Approx. 10% algal cover (kelp) at probe site.	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - O Agarum clathratum - O Phyllophora sp. - O	No observed fauna.	Algae fragments mostly Saccharina latissima and Agarum clathratum and other rotting algae are present resting on the fines bottom. Thick layer of silt on top of sand.
70 - 80	2:02b - 2:47b	62.0	18.9	≤ 0.8 m	Fines	2:03b	Y	Dull uniform bottom. No algae cover at probe site	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - U Agarum clathratum - U Phyllophora sp. - O	Brittlestar - U (@2:26)	Flat bottom. Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Thick layer of silt on top of sand.
80 - 90	2:47b - 3:35b	66.0	20.1	≤1.0	Fines	2:49b	Y	Dull uniform bottom. No algae cover at probe site	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (50%) Silt (50%) Clay (0%)	Phyllophora sp. - U	No observed fauna.	Flat bottom. Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Thick layer of silt on top of sand. Phyllophora sp. may not be attached
90 - 100	3:36b - 4:42b	68.0	20.7	≤1.0	Fines	3:36b	Y	Dull uniform bottom. No algae cover at probe site	Fines (sand and silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (50%) Silt (50%) Clay (0%)	Phyllophora sp. - U	No observed fauna.	Flat bottom. Algae fragments(mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Thick layer of silt on top of sand. Phyllophora sp. may not be attached

Appendix A.1: Transect 15 (100 metres on north point of Vardy's Island)
Start wp: 1357 Diver Start 0m @ wp1357
End wp: 1361

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Pre 0	0:00-0:41	-	-	-	-	-	-	-	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Palmaria palmata - U Fucus sp. - O Polysiphonia sp. - O Agarum clathratum - U Ulva lactuca - O	No observed fauna.	Kelps cover most of the bottom (0.1 to 1 m canopy height). Substrate can not be visual confirmed assumed to be bedrock
0-10	0:42-1:49	15.0	4.6	0.0 0.0	Rock	0:42 1:16	Y	Rock bottom not visible. Approx. 100% algal cover (kelp) at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Desmarestia sp. - U Palmaria palmata - U Ulva lactuca - U Polysiphonia sp. - U Coralline red algae - U Saccharina latissima - A	Small shrimp - C (@ 0:59) Northern lacuna - O (@1:02) Stalked jellyfish - O (on kelp @ 1:02)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Substrate can not be visual confirmed assumed to be bedrock. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval
10-20	1:50-3:20	14.0	4.3	0.0 0.20	Rock	1:57 2:52	Y	Colourful bottom; rocks grey/yellow/white colour with white encusting algae on rock. Approx. 25% algal cover (kelp) at probe site.	Rocky (bedrock and cobble) with fines (sand and silt)	Rocky Dominant - Mixed	Bedrock (50%) Boulder (5%) Cobble (20%) Gravel (0%) Fines (25%)	Sand (60%) Silt (40%) Clay (0%)	Palmaria palmata - U Desmarestia sp. - U ? Polysiphonia sp. - O Coralline red algae - U Agarum clathratum - U	Small shrimp - C (@ 1:53) Stalked jellyfish - U (on kelp @ 2:05) Slipper snails - C (@2:33)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Substrate can not be visual confirmed for some of the transect assumed to be bedrock. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Algae pieces on bottom.
20-30	3:21-5:03	25.0	7.6	0.30 0.30	Fines	3:53 4:38	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (0%) Fines (90%)	Sand (40%) Silt (60%) Clay (0%)	No observed flora.	Small shrimp- U (@ 5:01) Northern lacuna - U(@5:01)	Flat bottom large amounts of algae debris
30-40	5:04-6:56	30.0	9.1	0.20 0.15	Fines	5:16 6:20	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	Saccharina latissima - O Coralline red algae - U Agarum clathratum - U Polysiphonia sp. - U	Small shrimp- O (@ 5:06) Northern lacuna - O(@5:16) Slipper snails - O (@6:40)	Flat bottom large amounts of algae debris. Some garabge on bottom. Some rock at edge of shelf most viewed algae seen here.
40-50	6:57-8:03 0:00b-0:16b	30.0	9.1	0.0 0.30	Rock shelf then fines	7:01 7:58	Y	Dull uniform bottom.Below rocks grey colour with Coralline red algae on rock. Approx. 60% algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (30%) Gravel (0%) Fines (50%)	Sand (40%) Silt (60%) Clay (0%)	Saccharina latissima - C Coralline red algae - O Agarum clathratum - U Polysiphonia sp. - U	Green sea urchin - U (@6:58) Small shrimp- U (@ 7:06)	Proceeds over rock shelf and becomes flat again
50-60	0:17b-1:25b	-	-	≥1.0 ≥1.0	Fines	0:37b 1:06b	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous red algae - U	Northern lacuna - O(@1:03b)	Flat bottom some algae debris
60-70	1:26b-2:51b	-	-	≥1.0 ≥1.0	Fines	1:38b 2:19b	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	Saccharina latissima - U Filamentous red algae - U	No observed fauna.	Flat bottom some algae debris
70-80	2:52b-3:54b	50.0	15.2	≥1.0 ≥1.0	Fines	3:07b 3:34b	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	Saccharina latissima - U Filamentous red algae - U	No observed fauna.	Flat bottom some algae debris
80-90	3:55b-5:05b	50.0	15.2	≥1.0 ≥1.0	Fines	4:08b 4:43b	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	No observed flora.	No observed fauna.	Flat bottom some algae debris
90-100	5:06b	51.0	15.5	≥1.0 ≥1.0	Fines	5:24b 5:57b	Y	Dull uniform bottom.Lose algal cover (kelp) at probe site.	Fines (silt and sand)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (40%) Silt (60%) Clay (0%)	No observed flora.	No observed fauna.	Flat bottom some algae debris

Appendix A.1: Transect 15S (100 metres on the north point of Vardy's Island) - Summer UBHS - July 26, 2020

Start wp: 1724 Diver Start 0m @ wp1724
End wp: 1727

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:42a	5	1.5	0.0	Boulder	0:50a	Y	Colourful rocky bottom consisting primarily of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with kelp	Boulder Dominant	Bedrock (20%) Boulder (60%) Cobble (0%) Gravel (10%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Ectocarpus sp. / Pylaiella sp. - U Coralline red algae - A	Mysid shrimp - A Crepidula sp. - O	Abundant kelp through this interval. Kelp encrusted with spirorbid worms, hydrozoans and colonial bryozoans. Bottom drops and transitions to a mixed fines and gravel at the end of this interval.
		9	2.7	0.0	Boulder	1:43a	Y	Colourful rocky bottom consisting primarily of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with kelp						
10 - 20	2:42a - 5:05a	19	5.8	0.17	Fines and Gravel	2:57a	Y	Mixed gravel and coarse fines on bottom surrounded by rocky substrate.	Mixed (gravel and coarse fines)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (15%) Fines (65%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - O Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - U Coralline red algae - O	Lobster - U (1@3:38a; 1@4:45a) Mysid shrimp - A Northern lacuna - U	One large lobster observed on fines bottom at 15 metres. Another observed sheltering in algae at the 18 metre interval.
		25	7.6	0.29	Fines	4:35a	Y	Dull uniform fines surrounded by abundant algal debris.	Fines (Sand and Silt)						Substrate through this interval is primarily fines with some gravel and occasional cobble and boulder substrate. Abundant algal debris on bottom. See lobster sheltering in debris.
20 - 30	5:05a - 6:27a		0.0	0.50	Fines	5:08a	Y	Dull uniform brownish black fines surrounded by abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (5%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Coralline red algae - U	Green sea urchin - U Mysid shrimp - A Northern lacuna - U Crepidula sp. - U	Substrate primarily fines with a small amount of gravel and a couple patches of exposed rock. Cannot confirm if bedrock or boulder substrate.
		31	9.4	0.35	Fines	5:42a	Y	Dull uniform brownish black fines surrounded by abundant algal debris.	Fines (Sand and Silt)						Abundant algal debris throughout this interval.
30 - 40	6:27a - 0:03b	30	9.1	0.29	Fines	6:28a	Y	Dull uniform brownish black fines surrounded by abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (5%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Coralline red algae - U	Green sea urchin - U Mysid shrimp - A Northern lacuna - U	Substrate primarily fines with a small amount of gravel and a couple patches of exposed rock. Cannot confirm if bedrock or boulder substrate.
		32	9.8	0.15	Fines	7:17a	Y	Dull uniform brownish black fines surrounded by abundant algal debris.	Fines (Sand and Silt)						Abundant algal debris throughout this interval. Fairly large invertebrate burrow observed midway through the interval.
40 - 50	0:03b - 1:53b	35	10.7	0.50	Fines	0:03b	Y	Dull uniform brownish black fines surrounded by abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (5%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Coralline red algae - U	Winter flounder - U (1@0:51) Green sea urchin - U Sea peach tunicate - U Mysid shrimp - A	Substrate primarily fines with a few exposed rocks (bedrock or boulder). Cannot confirm if bedrock or boulder substrate.
			0.0	>1.0	Fines	1:18b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)						Occasional algal debris throughout this interval.
50 - 60	1:53b - 3:12b	42	12.8	>1.0	Fines	2:02b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Mysid shrimp - A	Substrate primarily fines with a small amount of algal debris.
		44	13.4	>1.0	Fines	2:46b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)						Location of 60 metre interval tag estimated as diver missed it. Next interval found is 65 metres. Diver therefore didn't probe at the 60 metre interval, but location is similar substrate and likely exceeds 1.0 m depth.
60 - 70	3:12b - 4:15b		0.0	N/A	Fines	3:12b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Substrate consists of fines and a small amount of algal debris.
		48	14.6	>1.0	Fines	3:54b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)						
70 - 80	4:15b - 5:29b	49	14.9	>1.0	Fines	4:16b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Winter flounder - U (1@4:45b)	Substrate consists of fines and a small amount of algal debris.
			0.0	>1.0	Fines	5:11b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)						
80 - 90	5:29b - 6:08b	49	14.9	>1.0	Fines	5:33b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Transect line snarled up. Interval shorter than 10 metres. Diver will swim the missing distance at the end of the transect line.
90 - 100	6:08b - 7:03b	51	15.5	>1.0	Fines	6:12b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Substrate consists of fines and a small amount of algal debris.
		50	15.2	>1.0	Fines	6:39b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)						
100 - 110	7:03b -	53	16.2	>1.0	Fines	6:39b	Y	Dull uniform brownish black fines surrounded by occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Winter flounder - U (1@7:27b) Northern red anemone - U	Substrate consists of fines and a small amount of algal debris. Small amount of anthropogenic debris provides substrate for anemone.

Appendix A.1: Transect 16 (100 metres on northeast corner of Vardy's Island)

Start wp: 1346 Diver Start 0m @ wp1346
End wp: 1350

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:23a	10	3.05	0.0	Boulder over bedrock	1:46a	Y	Boulder with abundant kelp and encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Saccharina longicuris - A Agarum clathratum - O Palmaria palmata - O Desmarestia sp. - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O	Stalked jellyfish - U Ctenophore - U Small shrimp - U Northern lacuna - U Slipper snails - U	Laminaria covers nearly the entire bottom through this interval. Dulse (palmaria) is growing epiphytically on the stipes of laminaria. Very dense algal canopy. Bryozoans and spirorbids are also growing on blades of laminaria. Bottom appears to consist of large and small boulders with some cobbles in interstitial spaces.
10 - 20	2:23a - 3:44a	9	2.74	0.0	Boulder over bedrock	2:47a	Y	Boulder with abundant kelp and encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Saccharina longicuris - A Agarum clathratum - O Palmaria palmata - O Ceranium rubrum - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O	Slipper snails - O Small shrimp - U Seastar - U	Laminaria covers nearly the entire bottom through this interval. Dulse (palmaria) and ceranium are growing epiphytically on the stipes of laminaria. Very dense algal canopy. Bryozoans and spirorbids are also growing on blades of laminaria. Bottom appears to consist of large and small boulders with some cobbles in interstitial spaces.
		10	3.05	0.0	Boulder over bedrock	3:19a	Y	Boulder with abundant kelp and encrusted with coralline and Lithothamnion algae. Bottom looks clean without any fines or shell grit.	Rocky (boulder) with kelp						Last two meters of this interval are steeply pitched downward over a bedrock ridge. Transect line is suspended in watercolumn as a result. Diver drops to bottom to survey below line to end of interval.
20 - 30	3:44a - 4:50a	15	4.57	0.2	Fines with small amount of gravel	4:22a	Y	Mixed coarse and soft looking fines with a small amount of gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (10%) Gravel (20%) Fines (50%)	Sand (60%) Silt (40%) Clay (0%)	Saccharina latissima - A Saccharina longicuris - A Agarum clathratum - O Palmaria palmata - O Ceranium rubrum - U Coralline red algae - A Lithothamnion sp. - A Polysiphonia sp. - O	Sea star - U Small shrimp - U Stalked jellyfish - U Northern lacuna - O	Bottom consists of mixed fines with some gravels between bedrock ledges. Interval drops down from a bedrock ridge at 20m to a patch of fines with gravel at 25m which continues to 30m. Fines composition based on visual assessment of substrate and sediment plume upon penetration.
30 - 40	4:50a - 5:33a	28	8.53	0.05	Fines with small amount of gravel	4:53a	Y	Mixed coarse and soft looking fines with a small amount of gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (20%) Fines (60%)	Sand (60%) Silt (40%) Clay (0%)	Saccharina latissima - O Saccharina longicuris - U Agarum clathratum - O Desmarestia sp. - U Coralline red algae - U	Small shrimp - O	Bottom consists of mixed fines with some gravels and occasion cobbles and partially exposed boulder/bedrock. Cobbles and boulders provide substrate for observed algae.
40 - 50	5:33a - 6:47a	30	9.14	0.15	Fines with small amount of gravel	5:35a	Y	Mixed coarse and soft looking fines with a small amount of gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (20%) Fines (70%)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - O Agarum cribrosusum - U Desmarestia sp. - O Coralline red algae - U	Small shrimp - O Slipper snail - U	Abundant algal debris throughout this interval. Occasional attached algae throughout interval.
		28	8.53	0.1	Fines with small amount of gravel	6:21a	Y	Mixed coarse and soft looking fines with a small amount of gravel. Bottom looks relatively clean.	Mixed (gravel and fines)						
50 - 60	6:47a - 7:45a	32	9.75	0.4	Fines	7:06a	Y	Fines substrate with abundant debris.	Fines with debris	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (90%)	Sand (30%) Silt (70%) Clay (0%)	Saccharina latissima - U Coralline red algae - U	Small shrimp - U	Abundant algal debris throughout this interval. Occasional attached algae on small boulder throughout interval. More of a sediment plume here so anticipate more silt in the fine substrate.
		35	10.67	0.3	Fines	7:25a	Y	Fines substrate with abundant debris.	Fines with debris						
60 - 70	7:45a - 0:35b	36	10.97	0.5	Fines	0:14b	Y	Fines substrate with abundant debris.	Fines with debris	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (90%)	Sand (30%) Silt (70%) Clay (0%)	Saccharina latissima - U Coralline red algae - U	Northern red anemone - U Small shrimp - U Stalked jellyfish - U	Abundant algal debris throughout this interval. Occasional attached algae on small boulder throughout interval.
70 - 80	0:35b - 1:58b	36	10.97	0.5	Fines	1:01b	Y	Fines substrate with abundant debris.	Fines with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (30%) Silt (70%) Clay (0%)	No observed flora.	Small shrimp - U	Abundant algal debris throughout this interval. No observations of attached flora.
		36	10.97	0.5	Fines	1:34b	Y	Fines substrate with abundant debris.	Fines with debris						
80 - 90	1:58b - 3:22b	36	10.97	>1.0	Fines	2:26b	Y	Fines substrate with abundant debris.	Fines with debris	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (20%) Silt (80%) Clay (0%)	Saccharina latissima - U Coralline red algae - U Filamentous red algae - O Filamentous green algae - O	Stalked jellyfish - U Northern lacuna - U	Abundant algal debris throughout this interval. No observations of attached flora. Filamentous red and green algae growing on algal debris. Possibly growing on bottom substrate, but substrate looks like 100% fines.
		37	11.28	0.5	Fines	3:04b	Y	Fines substrate with abundant debris.	Fines with debris						
90 - 100	3:22b - 6:21b	38	11.58	>1.0	Fines	3:28b	Y	Fines substrate with fine layer of filamentous red and green algae.	Fines with filamentous algae	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (20%) Silt (80%) Clay (0%)	Filamentous red algae - A Filamentous green algae - A	Small shrimp - U Polychaete worm tubes (unid) - A	Filamentous red and green algae growing on algal debris throughout this interval. Possibly growing on bottom substrate, but substrate looks like 100% fines. Fines are very 'pillowy' and plume when disturbed by the diver / probe. Likely contains abundant silt and organic detritus. Abundant polychaete worm tubes are present in this interval. Cannot confirm species or presence, but there is an abundance of excreted silt/sand tubes that results from polychaetes ingesting and excreting substrate while foraging.

Appendix A.1: Transect 17 (100 metres on east point of Vardy's Island)

Start wp: 1352 Diver Start 0m @ wp1351
End wp: 1356

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Pre 0	0:00a -0:52a	-	-	-	-	-	-	-	Rock on bedrock	Rocky Dominant - Mixed	Bedrock (30%) Boulder (45%) Cobble (20%) Gravel (0%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Saccharina longicruris - A Palmaria palmata - O Ulva lactuca - U Coralline red algae - C Agarum clathratum - U	Green sea urchin - C (@ 0:32) Slipper snails - C (@0:42) Northern lacuna - O (@0:45) Small shrimp - U (@ 0:51)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
0-10	0:53a -2:51a	8.0	2.4	0.0	Rock	1:56	Y	Colourful bottom; rocks grey colour with white and coralline encusting algae on rock. Approx. 40% algal cover (kelp) at probe site.	Rock on bedrock	Rocky Dominant - Mixed	Bedrock (30%) Boulder (45%) Cobble (20%) Gravel (0%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Saccharina longicruris - A Palmaria palmata - C Coralline red algae - C Polysiphonia sp. - U Desmarestia sp. - U	Slipper snails - A (@1:11) Green sea urchin - U (@ 1:11) Northern lacuna - C(@1:15) Small shrimp - O (@ 1:17)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
10-20	2:52a -4:54a	13.0	4.0	0.0 0.0	Rock	3:03 4:27	Y	Colourful bottom; rocks grey colour with white and coralline encusting algae on rock. Approx. 40% algal cover (kelp) at probe site.	Rock on bedrock	Rocky Dominant - Mixed	Bedrock (30%) Boulder (45%) Cobble (20%) Gravel (0%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Saccharina longicruris - A Palmaria palmata - C Coralline red algae - C Polysiphonia sp. - O Desmarestia sp. - O	Slipper snails - A (@2:56) Northern lacuna - A (@2:55) Small shrimp - C (@ 3:02) Chiton - U (@2:59)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
20-30	4:55a -6:59a	11.0	3.4	0.0 0.0	Rock	5:41 6:20	Y	Colourful bottom; rocks grey colour with white and coralline encusting algae on rock. Approx. 50% algal cover (kelp) at probe site.	Rock on bedrock	Rocky Dominant - Mixed	Bedrock (20%) Boulder (50%) Cobble (25%) Gravel (0%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Saccharina longicruris - A Palmaria palmata - C Coralline red algae - C Polysiphonia sp. - O Desmarestia sp. - O Hildenbrandia rubra - U Agarum clathratum - U	Slipper snails - O (@4:57) Small shrimp - O (@ 5:12) Northern lacuna - O (@5:23)	Moves over a rock shelf. Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
30-40	7:00a - 8:03a 0:00b - 0:36b	22.0	6.7	0.0 0.0	Rock	7:25 0:02b	Y	Colourful bottom; rocks grey colour with white and coralline encusting algae on rock. Approx. 40% algal cover (kelp) at probe site.	Rock on bedrock	Rocky Dominant - Mixed	Bedrock (20%) Boulder (50%) Cobble (25%) Gravel (0%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Saccharina latissima - C Palmaria palmata - O Agarum clathratum - U Polysiphonia sp. - O Desmarestia sp. - O Coralline red algae - C	Northern lacuna - A (@7:12) Small shrimp - U (@ 7:45) Stalked jellyfish - U (on kelp @ 0:22b)	Moves over a rock shelf. Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
40-50	0:37b - 2:13b	-	-	0.0 0.0	Rock	1:02b 1:44b	Y	Colourful bottom; rocks grey colour with white and coralline encusting algae on rock. Approx. 20% algal cover (kelp) at probe site.	Rock on bedrock	Mixed Variable Rock	Bedrock (20%) Boulder (25%) Cobble (25%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Polysiphonia sp. - O Palmaria palmata - O Coralline red algae - C Agarum clathratum - U	Northern lacuna - U (@0:54b) Slipper snails - O (@1:04b) Limpet - U (@1:11) Stalked jellyfish - U (on kelp @ 1:38b)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
50-60	2:14b - 3:41b	28.0	8.5	0.0 0.20	Rock	2:29b 3:17b	Y	Non visable bottom. Approx. 95% algal cover (kelp) at probe site. Sand bottom at second point	Sand	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (5%) Gravel (0%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Saccharina latissima - C Polysiphonia sp. - O Agarum clathratum - O Coralline red algae - U	Northern lacuna - A (@2:22b) Small shrimp - O (@ 2:22b) Stalked jellyfish - U (on kelp @ 3:23b)	Moves towards fines area. Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Northern lacuna numbers seem to increase at the edge of the kelp bed.
60-70	3:42b - 5:06b	-	-	0.20 0.0	Fines	4:13b 4:49b	Y	Dull uniform bottom.30% algal cover (kelp) at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Saccharina longicruris - C Agarum clathratum - O Polysiphonia sp. - U	Northern lacuna - U (@4:41b) Small shrimp - U (@ 5:05b)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
70-80	5:07b - 7:06b	34.0	10.4	0.20 0.50	Fines	5:19b 6:38b	Y	Dull uniform bottom.45% algal cover (kelp) at probe site. Second point no cover	Sand	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Saccharina longicruris - C Agarum clathratum - U Coralline red algae - U Polysiphonia sp. - U	Small shrimp- U (@ 7:05b)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
80-90	7:07b - 8:03b 0:00c - 0:37c	31.0	9.4	0.10 0.10	Fines	7:22b 0:13c	Y	Dull uniform bottom.30% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Saccharina longicruris - C Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - U Palmaria palmata - U Polysiphonia sp. - U	Northern lacuna - U (@7:44b) Small shrimp - U (@ 0:09c) Stalked jellyfish - U (on kelp @ 3:23c)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
90-100	0:38c - 3:27c	30.0	9.1	0.2	Fines	1:31c-2:00c	Y	Dull bottom.50% algal cover (kelp) at probe site.	Sand	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - A Saccharina longicruris - O Agarum clathratum - C Polysiphonia sp. - U Coralline red algae - U Desmarestia sp. - U Palmaria palmata - U	Northern lacuna - C (@0:45c) Slipper snails - O (@1:23c) Small shrimp - U (@ 1:31c) Green sea urchin - U (@ 1:58c)	Kelps cover some of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.

Appendix A.1: Transect 18 (100 metres southeast corner of Vardy's Island)

Start wp: 1336 Diver Start: 0m @ wp1336
End wp: 1345

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 0 m	0:00a - 1:12a	-	-	≤ 0.3 m	Gravels with small and large cobble and small boulders	00:51	Y	Bottom uniform multi colour gravels. No Algal cover at probe site.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina latissima - C Hildenbrandia rubra - U	Mussel - U (@ 0:22) Green sea urchin - C (@ 0:36) Littorines - U (@ 0:52)	Island slope looked to have been blasted / dredged in the past based on vertical slope and broken rocky ledges. Diver swims from surface along near vertical slope to start of transect line.
0 - 10	1:13a - 1:51a	20.0	6.1	≤ 0.1 m	Boulders with small and large cobble	1:14	Y	Rocks whitish / grey colour No algal cover (kelp) at probe site.	Rocky (Boulders and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (50%) Cobble (40%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina latissima - O Desmarestia aculeata - U Ulva lactuca - U Polysiphonia sp.- U Hildenbrandia rubra - U Coralline red algae - U	Mussel - U (2@ 1:14) Green sea urchin - C (@ 0:36) Limpet - O (@1:29)	Bottom relatively flat, slight downward slope near end of interval. Lots of cobble in long piles, possible due to dredging or previous alterations to the island area
10 - 20	1:52a - 2:54a	20.0	6.1	≤ 0.15 m	Gravel area surrounded by boulders	2:13	Y	Gravel whitish / grey colour Approx. 30% algal cover (kelp) at probe site.	Rocky (Boulders and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (60%) Cobble (40%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina latissima - O Coralline red algae - U Desmarestia aculeata - U Chondrus crispus - U Polysiphonia sp.- U Hildenbrandia rubra - U	Green sea urchin - C (@ 02:20) Limpet - O (@2:20)	Transect starts to slope towards bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
20 - 30	2:54a - 4:04a	23.0	7.0	0.0	Boulders	3:03	Y	Colourful bottom; rocks whitish / grey colour with red crustose and Coralline red algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Boulders and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - O Coralline red algae - O Hildenbrandia rubra - U Polysiphonia sp.- U	Littorines - O (@ 3:03) Brittlestar - U (@ 3:03) Limpet - U (@ 3:03) Green sea urchin - O (@ 3:16)	Transect slopes near vertical towards bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
30 - 40	4:05a - 5:32a	40.0	12.2	≤ 0.1 m	Gravel area surrounded by boulders	4:25	Y	Gravel whitish / grey colour Approx. 75% algal cover (kelp) at probe site.	Rocky (Boulders and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (75%) Cobble (20%) Gravel (0%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - C Coralline red algae - O Hildenbrandia rubra - U Lithothamnion sp.- U	Northern lacuna - U (@4:05) Stalked jellyfish - U (on kelp @ 4:52) Limpet - U (@ 5:06)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Bottom slope downwards and nearly reaches flat bottom. Slope covered in large and small cobbles and boulder.
40 - 50	5:33a - 6:58a	46.0	14.0	≤ 0.5 m	Fines area surrounded by boulders	6:45	Y	Fines Gravel whitish / grey colour uniform bottom. Approx. 30% algal cover (kelp) at probe site.	Sand with Rock (Boulder)	Fines Dominant	Bedrock (0%) Boulder (25%) Cobble (5%) Gravel (0%) Fines (70%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - C Agarum clathratum - C Coralline red algae - O Hildenbrandia rubra - U Ulva lactuca - U Phyllophora sp. - U	Small shrimp - U (@ 6:09)	Bottom slope downwards and reaches flat bottom. Slope covered in large and small cobbles and boulder.Algae fragments (mostly Saccharina latissima and Agarum clathratum) are present resting on the fines bottom. Shallow layer of silt on top of sand.
50 - 60	6:59a - 8:03a 0:00b - 0:23b	-	-	≤ 0.7 m ≤ 1.0 m	Fines	7:15 7:57	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	Ulva lactuca - U		Algae fragments mostly Saccharina latissima and Agarum clathratum and other rotting algae are present resting on the fines bottom. Shallow layer of silt on top of sand.
60 - 70	0:23b - 1:35b	-	-	≤ 0.3 m	Fines one boulder near by	0:44b	Y	Dull uniform bottom. No algae cover at probe site	Rocky (Bedrock)	Bedrock Dominant	Bedrock (80%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - C Agarum clathratum - A Chordaria flagelliformis - U Coralline red algae - O	Stalked jellyfish - O (on kelp @ 1:02b) Juvenile cod - U (1:07b) Limpet - U (@ 1:11b)	Algae fragments mostly Saccharina latissima and Agarum clathratum and other rotting algae are present resting on the fines bottom. Shallow layer of silt on top of sand. Large bedrock shelf slopes down to another flat fines area. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
70 - 80	1:36b - 2:30b	-	-	0 ≤ 0.7 m	Bedrock shelf Fines	1:42b 2:22b	Y	Colourful bottom; rock completely covered with red crustose and Coralline red algae on rock. Approx. 75% algal cover (kelp) at probe site.	Rocky (Bedrock) with Fines (Sand)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - O Agarum clathratum - A Chordaria flagelliformis - U Hildenbrandia rubra - U Coralline red algae - O	Littorines - U (@ 1:37b)	Algae fragments (mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
80 - 90	2:31b - 3:23b	56.0	17.1	≤ 0.7 m	Fines	3:05b	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Chordaria flagelliformis - U Hildenbrandia rubra - U Coralline red algae - U	Stalked jellyfish - O (on kelp @ 3:18b)	Algae fragments (mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. One large boulder at the end of the interval
90 - 100	3:24b - 4:15b	-	-	≤ 1.0 m	Fines	3:54b	Y	Dull uniform bottom. No algae cover at probe site	Sand	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U Agarum clathratum - C Phyllophora sp. - O Coralline red algae - O Hildenbrandia rubra - U	Stalked jellyfish - O (on kelp @ 4:15b)	Algae fragments (mostly Saccharina latissima and Agarum clathratum)/garbage are present resting on the fines bottom. Shallow layer of silt on top of sand. Large boulders along the end of the transect interval

Start WP: 1716 Diver Start 0m @ wp1716
End WP: 1722

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0-10	0:00-3:30	14.33		0.0*	Boulder	NA	NA	Grey boulder covered in Coralline red algae.	Boulder on fines	Fines with Variable Rock	Bedrock (0%) Boulder (40%) Cobble (10%) Gravel (0%) Fines (50 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - O Coralline red algae - C Lithothamnion sp. - O	Mottled red chiton - U (@ 1:34) Epiphytic colonial hydroids- O Colonial bryozoan- O Stalked jellyfish - U (@ 2:23)	Thin layer of slit present on everything
				0.0	Boulder	2:41	Y	Grey boulder covered in grey algae							
10-20	3:31-5:15*			0.0	Boulder	3:59	Y	Grey boulder covered in Coralline red algae.	Boulder on fines	Fines with Variable Rock	Bedrock (0%) Boulder (50%) Cobble (10%) Gravel (0%) Fines (40 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Hildenbrandia rubra - O Coralline red algae - C Lithothamnion sp. - O Phyllophora sp. - U Desmarestia aculeata - U	Epiphytic colonial hydroids- O Colonial bryozoan- O	Thin layer of slit present on everything. Small tufts of algae on rock to small to ID
				0.0	Boulder	4:51	Y	Grey boulder covered in Coralline red algae.							
20-30	5:16*-6:55	9.45		NA	NA	NA	Y	NA	Boulder and cobble	Rocky Dominant - Mixed	Bedrock (0%) Boulder (50%) Cobble (30%) Gravel (0%) Fines (20 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C	Stalked jellyfishfish - U (@ 5:21) Colonial bryozoan- O Small shirmp - U (@ 5:53)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
				0.0	Cobble	6:12	Y	Grey cobble covered in Coralline red algae. Thin dusting of grey silt							
30-40	6:56-8:03 0:00b-0:48b			0.12	Silt on rock	7:01	Y	Grey silt on top of cobble	Boulder and cobble	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (30%) Gravel (10%) Fines (20 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Palmaria palmata - U Desmarestia aculeata - U	Seasar - U (@7:14) Stalked jellyfishfish - U (@ 7:23) Colonial bryozoan- O Sea urchin - O (@ 0:05b)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom barely visbale due to kelp coverage. Some trash on bottom
				0.12	Silt on rock	7:49	Y	Grey silt on top of cobble							
40-50	0:49b-3:36b			0.09	Silt on rock	0:54b	Y	Grey silt on top of cobble and gravel	Rock on fines	Rocky Dominant - Mixed	Bedrock (0%) Boulder (25%) Cobble (25%) Gravel (20%) Fines (30 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Desmarestia aculeata - U Ulva lactuca - U	Sea scallop - O (@1:40b) Small Shrimp - U(@1:59b) Mottled red chiton - U (@ 2:10b) Frimled anemone - U (@ 2:16b) Sea star - U (@2:39b) Green sea urchin - U (@ 3:23b)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom barely visbale due to kelp coverage. Some trash on bottom. Some kelp shows damage. Fish could not be identified due to size and distance.
				0.18	Fines	2:44b	Y	Dull sandy fines.							
50-60	3:37b-4:48b			0.0	Silt on rock	3:43b	Y	Grey silt on top of cobble and gravel	Rock on fines	Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (25%) Gravel (25%) Fines (45 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Polysiphonia sp. -U Coralline red algae - O Hildenbrandia rubra - U Alaria esculenta - U	Colonial bryozoan- O Epiphytic colonial hydroids - O Stalked jellyfishfish - U (@ 4:30b)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Bottom barely visbale due to kelp coverage. Some trash on bottom. Some kelp shows damage
				0.0	Cobble	4:20b	Y	Grey cobble covered in Coralline red algae. Thin dusting of grey silt							

Start WP: 1716 **Diver Start** 0m @ wp1716
End WP: 1722

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
60-70	4:49b-7:04b			0.30	Silt on gravel	5:07b	Y	Grey silt on top of gravel	Small rock on fines	Cobble and Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (20%) Gravel (55%) Fines (20 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Desmarestia aculeata - U Polysiphonia sp. -U Palmaria palmata - U Small mat of phaeophyta - U	Sand dollar - O (@ 4:43) Sea scallop - U (@ 5:30) Sea star - U (@ 5:40) Slipper snails - O (@6:33) Small shrimp - U (@ 6:30) Colonial bryozoan- O	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Small aglae fragments on bottom. Bottle on bottom. Layer of silt on bottom
				0.0	Boulder	6:32b	Y	Grey boulder covered in Coralline red algae.							
70-80	7:05b-8:03b 0:00c-1:08c	10.06		0.0	Silt on rock	7:25b	Y	Grey silt on top of gravel and cobble	Rock on fines	Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (20%) Gravel (60%) Fines (15 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Small mat of phaeophyta - O	Colonial bryozoan- O Sea urchin - U (@0:57c)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Layer of silt on bottom
				0.10	Silt on rock	0:23c	Y	Grey silt on top of rock							
80-90	1:09c-3:05c			0.0	Silt on rock	1:19c	Y	Grey silt on top of rock covered in Coralline red algae.	Rock on fines	Gravel Dominant	Bedrock (0%) Boulder (10%) Cobble (25%) Gravel (50%) Fines (15 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Small mat of phaeophyta - O	Colonial bryozoan- O Cunner - U (@ 1:30c) Frisled sea anemone - O (@ 2:42c) Stalked jellyfishfish - U (@ 2:56c)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Layer of silt on bottom. Heavy kelp coverage
				0.10	Silt on rock	2:28c	Y	Grey silt on top of rock covered in Coralline red algae.							
90-100	3:06c-6:01c	9.75		0.10	Silt on rock	3:19c	Y	Grey silt on top of rock covered in Coralline red algae.	Rock on fines	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (25%) Gravel (15%) Fines (45 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U	Sea scallop - U (@ 3:49c)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Layer of silt on bottom. Sea scallop seen is very large. Garabage and algae debries on bottom. Algae debris appear attached in some cases but are not
				0.20	Fines	5:03c	Y	Dull sandy fines.							
100-110	6:02c-7:54c			0.10	Fines	6:13c	Y	Dull sandy fines small gravel.	Rock on fines	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (25%) Gravel (15%) Fines (45 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Small mat of phaeophyta - U	Green sea urchin - U (@ 7:04c) Stalked jellyfishfish - U (@ 7:05c) Colonial bryozoan - O	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Garabage and algae debries on bottom. Algae debris appear attached in some cases but are not. Fine slit cover
				0.10	Silt on rock	7:13c	Y	Grey silt on top of gravel							
110-120	7:55c-8:03c 0:00d-2:06d			0.10	Silt on rock	0:08d	Y	Grey silt on top of rock	Rock on fines	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (25%) Gravel (15%) Fines (45 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Lithothamnion sp. - U Small mat of phaeophyta - O Desmarestia aculeata - C Palmaria palmata - U Ulva lactuca - O Polysiphonia sp. -U	Colonial bryozoan- O Sea star - U (0:02d) Sea scallop - U (@ 1:25d)	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Layer of silt on bottom. Algae debries on bottom. Fine slit cover. Sea scallop seen is very large.
				0.10	Silt on rock	1:12d	Y	Grey silt on top of rock							
120-130	2:07d-3:58d			0.30	Fines	2:24d	Y	Dull grey silt	Fines	Fines Dominant	Bedrock (0%) Boulder (15%) Cobble (10%) Gravel (10%) Fines (65 %)	Sand (40%) Silt (60%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Coralline red algae - O Lithothamnion sp. - U Small mat of phaeophyta - O Palmaria palmata - U	Colonial bryozoan- U	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Large amounts of algae debries on bottom hard to tell what is attached. Fine slit cover.
				0.40	Fines	3:31d	Y	Dull grey silt							

Appendix A.1: Transect 19 (140 metres in South Turning Basin area) - Summer UBHS - July 26, 2020
Start WP: 1716 Diver Start 0m @ wp1716
End WP: 1722

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
130-140	3:59d-6:31d			0.10	Silt on rock	4:41d	Y	Grey silt on top of rock	Rock on fines	Rocky Dominant - Mixed	Bedrock (0%) Boulder (30%) Cobble (25%) Gravel (10%) Fines (35 %)	Sand (40%) Silt (60%) Clay (0%)	Agarum clathratum - O Saccharina latissima - A Coralline red algae - O Small mat of phaeophyta - O Hildenbrandia rubra - U	Colonial bryozoan- C Sea star - U (@5:12d) Mottled red chiton - U (@ 6:10) Epiphytic colonial hydroids - U	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Large amounts of algae debries on bottom hard to tell what is attached. Fine slit cover.Subnstrate covered in kelp hard to determine make up
		7.62		0.0	Boulder	5:30d	Y	Grey boulder covered in Coralline red algae.							
140-end	6:32d-end			0.0	Bedrock		Y	Bedrock covered in Coralline red algae.	Rock on fines	Rocky Dominant - Mixed	Bedrock (0%) Boulder (50%) Cobble (40%) Gravel (0%) Fines (10%)	Sand (40%) Silt (60%) Clay (0%)	Saccharina latissima - A Coralline red algae - O Polysiphonia sp. -U Alaria esculenta - U Agarum clathratum - U	Colonial bryozoan- A Sea star - U (@6:36d) Stalked jellyfishfish - U (@ 6:58d) Epiphytic colonial hydroids - U	Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Substrate not seen other then rock

Start WP: 1702 Diver Start 0m @ wp1702
End WP: 1709

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0-10	0:00-3:04			0.00	Cobble	2:01	Y	Grey cobble covered in Coralline red algae.	Rock	Rocky Dominant - Mixed	Bedrock (10%) Boulder (40%) Cobble (40%) Gravel (10%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - O Lithothamnion sp. - U Palmaria palmata - U	Epiphytic colonial hydroids- O Colonial bryozoan - A Cunner - U (@ 2:24)	Kelps cover all of the bottom (0.1 to 1 m canopy height). Some kelp is damaged. Exposed bedrock and boulder appear to be the same due to kelp coverage
				0.00	Bedrock	2:44	Y	Grey bedrock covered in Coralline red algae.							
10-20	3:05-4:33			0.00	Bedrock	3:09	Y	Grey bedrock covered in Coralline red algae.	Rock	Rocky Dominant - Mixed	Bedrock (15%) Boulder (30%) Cobble (45%) Gravel (10%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - O Desmarestia aculeata - U	Colonial bryozoan - A Epiphytic colonial hydroids- O Seastar - U (@ 4:24)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval
				0.00	Cobble	4:08	Y	Grey cobble covered in Coralline red algae.							
20-30	4:34-5:48			0.00	Cobble	4:38	Y	Grey cobble covered in Coralline red algae.	Rock	Rocky Dominant - Mixed	Bedrock (25%) Boulder (20%) Cobble (35%) Gravel (10%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Lithothamnion sp. - O Polysiphonia sp. - O Coralline red algae - C	Sea Urchin - U (@4:40) Cunner - U (@ 5:02) Colonial bryozoan - O	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Sea urchin was uncovered by driver moving a rock.
				0.0	Boulder	5:22	Y	Grey boulder covered in Coralline red algae.							
30-40	5:49- 7:40			0.00	Cobble	6:00	Y	Grey cobble covered in Coralline red algae.	Rock	Cobble and Gravel Dominant	Bedrock (5%) Boulder (20%) Cobble (45%) Gravel (30%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Lithothamnion sp. - O Polysiphonia sp. - O Desmarestia aculeata - U Filamentous Rhodophyta - U Coralline red algae - C	Colonial bryozoan - A	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval
				0.00	Gravel	7:01	Y	Grey gravel some cobble with Coralline red algae							
40-50	7:41-8:03 0:00b-1:35b	8.84		0.08	Gravel	7:50	Y	Grey gravel some cobble with Coralline red algae	Rock	Cobble and Gravel Dominant	Bedrock (5%) Boulder (10%) Cobble (55%) Gravel (30%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Lithothamnion sp. - O Polysiphonia sp. - O Desmarestia aculeata - U Filamentous Rhodophyta - O Coralline red algae - C Palmaria palmata - U Lithothamnion sp. - U Petalonia sp. - U Semi trans kelp - U Layer of brown dead looking aglae - O	Colonial bryozoan - A Stalked jellyfish - U (@ 1:07b)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
				0.0	Bedrock	1:02b	Y	Grey bedrock covered in Coralline red algae.							
50-60	1:36b-3:21b			0.0	Gravel	1:41b	Y	Grey gravel some cobble with Coralline red algae	Rock	Cobble Dominant	Bedrock (0 %) Boulder (5%) Cobble (65%) Gravel (30%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - O Brown filamentous algae - A Coralline red algae - C Polysiphonia sp. - U	Colonial bryozoan - O Rock gunnel - U (@ 3:09)	Layer of unhealthy/ dead aglae and brown filamentous algae
				0.0	Gravel	2:23b	Y	Grey gravel some cobble with Coralline red algae							

Start WP: 1702 Diver Start 0m @ wp1702
End WP: 1709

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
60-70	3:22b-4:26b			0.0	Gravel	3:24b	Y	Grey gravel some cobble with Coralline red algae	Rock	Cobble Dominant	Bedrock (0 %) Boulder (5%) Cobble (65%) Gravel (30%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - U Brown filamentous algae - A Coralline red algae - C Lithothamnion sp. - U Polysiphonia sp. - U	No observations	Layer of unhealthy/ dead aglae and brown filamentous algae. Less Saccharina latissima present Agarum clathratum remains as heavy cover.
				0.04	Cobble	3:55b	Y	Grey cobble covered in Coralline red algae.							
70-80	4:27b- 5:38b			0.0	Gravel	4:30b	Y	Grey gravel some cobble with Coralline red algae	Rock	Cobble and Gravel Dominant	Bedrock (5 %) Boulder (5%) Cobble (50%) Gravel (40%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - U Coralline red algae - C Polysiphonia sp. - U Hildenbrandia rubra - U	Colonial bryozoan - U	Kelps cover most of the bottom (0.1 to 1 m canopy height)
				0.0	Boulder	5:12b	Y	Boulder with grey gravel some cobble with Coralline red algae							
80-90	5:39b-7:33b			0.0	Cobble	5:42b	Y	Grey cobble covered in Coralline red algae.	Rock	Cobble and Gravel Dominant	Bedrock (5 %) Boulder (15%) Cobble (40%) Gravel (40%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - U Coralline red algae - C Polysiphonia sp. - U Lithothamnion sp. - U	Mussel - U (@ 5:46) Seastar - U (@ 6:34) Colonial bryozoan - U	Kelps cover most of the bottom (0.1 to 1 m canopy height)
				0.10	Cobble	6:55b	Y	Grey cobble covered in Coralline red algae.							
90-100	7:34b-8:03b 0:00c-1:21c			0.0	Cobble	7:39b	Y	Grey cobble covered in Coralline red algae.	Rock	Cobble and Gravel Dominant	Bedrock (5 %) Boulder (10%) Cobble (30%) Gravel (50%) Fines (5 %)	Sand (90%) Silt (10%) Clay (0%)	Agarum clathratum - A Saccharina latissima - C Coralline red algae - C Polysiphonia sp. - U	Colonial bryozoan - O Sea urchin - U (@ 0:41)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Growth on kelp strand may be attachment site.
				0.10	Cobble	0:56c	Y	Grey cobble covered in Coralline red algae.							
100-110	1:22c-2:55c			0.20	Gravel	1:26c	Y	Grey gravel some cobble with Coralline red algae	Rock	Cobble and Gravel Dominant	Bedrock (5 %) Boulder (10%) Cobble (35%) Gravel (45%) Fines (5 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - U Hildenbrandia rubra - U Palmaria palmata - U	Colonial bryozoan - U Atlantic Sea raven - U (@1:37c) Sea star - U (@ 2:50c)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Growth on kelp strand may be attachment site.
				0.10	Cobble	2:25c	Y	Grey cobble covered in Coralline red algae.							
110-120	2:56c-4:36c			0	Cobble	2:59c	Y	Grey cobble covered in Coralline red algae.	Rock	Cobble and Gravel Dominant	Bedrock (5 %) Boulder (10%) Cobble (25%) Gravel (45%) Fines (15 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - U Small mat of phaeophyta - U	Colonial bryozoan - U Small white shrimp - U (@3:52c) Cunner - U (@4:14c)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval
				0.10	Cobble	3:53c	Y	Grey cobble covered in Coralline red algae.							
120-130	4:37c-5:55c			0	Cobble	4:41c	Y	Grey cobble covered in Coralline red algae.	Rock	Cobble and Gravel Dominant	Bedrock (0 %) Boulder (0%) Cobble (25%) Gravel (55%) Fines (20 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Desmarestia aculeata - U Filamentous Rhodophyta - U	Cunner - U (@4:44c) Colonial bryozoan - O Sea star - U (@ 5:08c)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Cunner seen may be a repeat from the last interval. Substrate not visible through part of interval.
				0	Cobble	5:14c	Y	Grey cobble covered in Coralline red algae.							

Start WP: 1702 **Diver Start** 0m @ wp1702
End WP: 1709

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
130-140	5:56c-7:36c			0.15	Cobble	6:00c	Y	Grey cobble covered in Coralline red algae some silt around cobble.	Rock	Cobble and Gravel Dominant	Bedrock (0 %) Boulder (0%) Cobble (25%) Gravel (55%) Fines (20 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - U Lithothamnion sp. - U Palmaria palmata - U Small mat of phaeophyta - U Filamentous Rhodophyta - U Ulva lactuca - U	Colonial bryozoan - U Stalked jellyfish - U (@ 7:28c)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Layer on silt on some kelp.Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
				0.15	Cobble	6:55c	Y	Grey cobble covered in Coralline red algae some silt around cobble.							
140-150	7:37c-8:03c 0:00d-1:27d			0.15	Cobble	7:50c	Y	Grey cobble covered in Coralline red algae some silt around cobble.	Rock	Cobble and Gravel Dominant	Bedrock (0 %) Boulder (5%) Cobble (25%) Gravel (50%) Fines (20 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Small mat of phaeophyta - U Coralline red algae - C Palmaria palmata - U Polysiphonia sp. - U Filamentous Rhodophyta - U Lithothamnion sp. - U Small mat of phaeophyta - U	Sea urchin - U (@ 7:40c) Colonial bryozoan - O Epiphytic colonial hydroids- U Stalked jellyfish - O (@ 0:36d) Mottled red chiton - U (@ 0:56) Sea star - U (@ 1:13d)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
				0.0	Boulder	0:59d	Y	Grey boulder with Coralline red algae							
150-160	1:28d-3:53d			0.30	Cobble	1:50d	Y	Grey cobble covered in Coralline red algae some silt around cobble.	Rock	Cobble and Gravel Dominant	Bedrock (0 %) Boulder (5%) Cobble (20%) Gravel (55%) Fines (20 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Small mat of phaeophyta - U Coralline red algae - C Desmarestia aculeata - U Small mat of phaeophyta - O	Sea urchin - U (@ 1:39d) Stalked jellyfish - U (@ 2:13d) Jonah crab - U (@ 2:19d) Rock gunnel - U (@ 2:41d)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Some kelp seems damaged. Large amount of trash on the bottom including cans, gloves, bottles and plastic. Algae fragmants on bottom. Likely an area were debries collects. Diver leaves transect area slightly to investigate trash on bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval
		9.75		0.10	Gravel	3:17d		Grey gravel some cobble							
160-170	3:54d-5:57d			0.10	Fines	4:00d	Y	Dull fines next to boulder	Rock	Mixed Variable Rock	Bedrock (0 %) Boulder (15%) Cobble (20%) Gravel (30%) Fines (35 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - C Saccharina latissima - A Coralline red algae - C Polysiphonia sp. - U Filamentous Rhodophyta - C Small mat of phaeophyta - O Lithothamnion sp. - U Desmarestia aculeata - U	Colonial bryozoan - C Epiphytic colonial hydroids- O Sea star - U (@ 4:54d)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Some kelp seems damage.
				0.0	Cobble	5:10d		Grey cobble covered in Coralline red algae some silt around cobble.							
170-end	5:58d-6:42d	8.84		0.0	Cobble	6:07d	Y	Grey cobble covered in Coralline red algae some silt around cobble.	Rock	Mixed Variable Rock	Bedrock (0 %) Boulder (15%) Cobble (20%) Gravel (30%) Fines (35 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - U Polysiphonia sp. - U Filamentous Rhodophyta - O Desmarestia aculeata - U	Stalked jellyfish - U (@ 6:11d)	Kelps cover most of the bottom (0.1 to 1 m canopy height). Some kelp seems damage. Substrate values are maintain from the last interval as the driver does not move enough to get new values.

Start wp: 1591 (then 1584) Diver Start: 0m @ wp1590
End wp: 1590

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:07a	12.0	3.7	0.0	Large and Small Cobble	1:32a	Y	Colourful rocky bottom consisting of cobble substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Cobbles)	Cobble Dominant	Bedrock (0%) Boulder (0%) Cobble (100%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - C Coralline red algae - A	Green sea urchin - U Mysid shrimp - A	Filamentous algae, hydroids and bryozoans attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be large and small cobbles. Mysid shrimp observed on or above kelp. Emphasize abundance (Hundreds/1000+ in a 10 meter interval)
10 - 20	2:07a - 3:24a	15.0	4.6	0.0	Large and Small Cobble and Small Boulder	3:02a	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Boulder and Cobbles)	Cobble Dominant	Bedrock (0%) Boulder (30%) Cobble (70%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - C Desmarestia sp. - U Ulva lactuca - U Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - A	Filamentous algae attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be large and small cobbles and small boulders
20 - 30	3:24a - 4:55a	17.0	5.2	0.0	Large and Small Cobble and Small Boulder	3:35a	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Boulder and Cobbles)	Cobble Dominant	Bedrock (0%) Boulder (30%) Cobble (70%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - C Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Lobster - U (1@4:34) Mysid shrimp - A	Filamentous algae and hydroids attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be large and small cobbles and small boulders
		17.0	5.2	0.0	Large and Small Cobble and Small Boulder	4:11a	Y								
30 - 40	4:55a - 6:09a	20.0	6.1	0.0	Large and Small Cobble and Small Boulder	5:01a	Y	Colourful rocky bottom consisting of boulder and cobble or bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Boulder and Cobbles)	Rocky Dominant - Mixed	Bedrock (40%) Boulder (20%) Cobble (40%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Green sea urchin - U Mysid shrimp - A	Filamentous algae and hydroids attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to transition from large and small cobbles and small boulders to bedrock.
		22.0	6.7	0.0	Bedrock	5:43a	Y		Rocky (Bedrock)						
40 - 50	6:09a - 7:22a	28.0	8.5	0.0	Bedrock	6:12a	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Desmarestia sp. - U Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - O	Filamentous algae and hydroids attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to consist primarily of bedrock.
50 - 60	7:22a - 0:23b	28.0	8.5	0.0	Bedrock	7:25a	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (60%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - O	Filamentous algae and hydroids attached to Saccharina. Abundant kelp (Saccharina and Agarum) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to consist primarily of bedrock. Bottom transitions to fines at the end of the interval.
60 - 70	0:23b - 1:43b	45.0	13.7	0.2	Fines	0:29b	Y	Dull uniform fines bottom. No algae cover at probe site.	Fines (Sand and silt)	Fines Dominant	Bedrock (30%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - O Polysiphonia sp. - O Coralline red algae - O	Seastar - U Sculpin - U (1@1:29) Mysid shrimp - U	Bottom transitions from fines to bedrock near the end of this interval. Occasional algal debris present on bottom.
		45.0	13.7	0.35	Fines	1:10b	Y	Dull uniform fines bottom. No algae cover at probe site.	Fines (Sand and silt)						Observed a very small organism at 1:04 under a Saccharina holdfast. May be a small cephalopod but cannot confirm due to it's small size and quick movement out of frame. Good view of sculpin. Looks like a longhorn but cannot confirm.
70 - 80	1:43b - 3:02b	35.0	10.7	0.0	Bedrock	1:52b	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - O Coralline red algae - A	No observed fauna.	Bottom transitions back to fines at the end of this interval. Bedrock observed in this interval is a narrow ridge which rises up out of the fines substrate but is only about 10 metres wide.
80 - 90	3:02b - 4:21b	45.0	13.7	0.26	Fines	3:33b	Y	Dull uniform fines bottom. No algae cover at probe site.	Fines (Sand and silt)	Fines Dominant	Bedrock (40%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - O Polysiphonia sp. - O Coralline red algae - C	Mysid shrimp - O	Bottom transitions from fines to a narrow bedrock ridge at the end of this interval.
		35.0	10.7	0.0	Bedrock	3:59b	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)						

Appendix A.1: Transect 22 (200 metres in mass infill area near Pikes Island / Pikes Island Breakwater) - Summer UBHS - July 25, 2020

Start wp: 1678 Diver Start: 0m @ wp1685
End wp: 1685

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 3:29a	5.0	1.5	0.0	Bedrock	2:58a	Y	Colourful bedrock substrate with abundant algae and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (95%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - U Fucus sp. - O Chordaria flagelliformis - O Dictyosiphon foeniculaceus - O Spongomorpha sp. - O Coralline red algae - A	Mysid shrimp - A Littorines - A Horse mussels - U Northern lacuna - O	Diver starts transect in very shallow water. Substrate looks like bedrock with a few small patches of cobble in bedrock fractures. Abundant algal coverage throughout this interval. Algae is dense but canopy height is relatively low (0.1 - 0.3 metres).
		5.0	1.5	0.0	Bedrock	3:10a	Y	Colourful bedrock substrate with abundant algae and encrusted with red coralline algae.	Rocky (Bedrock)						
10 - 20	3:29a - 4:28a		0.0	0.0	Bedrock / Boulder	3:35a	Y	Colourful bedrock substrate with abundant algae and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Fucus sp. - U Chordaria flagelliformis - U Dictyosiphon foeniculaceus - U Ulva lactuna - U Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - A Littorines - O Horse mussels - U Northern lacuna - U Crepidula sp. - U	Diver in very shallow water. Substrate looks like bedrock with a few small patches of cobble in bedrock fractures. Abundant algal coverage throughout this interval. Algae is dense but canopy height is relatively low (0.1 - 0.3 metres). Abunant hydroids on Saccharina.
			0.0	0.0	Bedrock	3:54a	Y	Colourful bedrock substrate with abundant algae and encrusted with red coralline algae.	Rocky (Bedrock)						
20 - 30	4:28a - 6:05a	16.0	4.9	0.0	Bedrock	4:39a	Y	Colourful bedrock substrate with abundant algae and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (15%) Fines (15%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Fucus sp. - U Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - A Littorines - O Horse mussels - U Crepidula sp. - U	Substrate transitioning to mixed rocky bottom near the end of this interval.
		18.0	5.5	0.1	Gravel and Fines over Bedrock	5:38a	Y	Mixed gravel and fines surrounded by colourful bedrock substrate.	Mixed (Gravel and Fines) and Rocky (Bedrock)						
30 - 40	6:05a - 7:10a		0.0	N/A	Gravel and Fines over Bedrock	6:08a	N	Mixed gravel and fines surrounded by bedrock substrate with abundant algae and encrusted with red coralline algae.	Mixed (Gravel and Fines) and Rocky (Bedrock)	Mixed Variable Rock	Bedrock (25%) Boulder (5%) Cobble (5%) Gravel (45%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Coralline red algae - C	Mysid shrimp - O Littorines - O	Substrate primarily rocky and appears to contain a large amount of gravel under the algal canopy.
			0.0	0.12	Gravel	6:39a	Y	Grey / black gravel substrate.	Rocky (Gravel)						
40 - 50	7:10a - 0:31b	26.0	7.9	0.19	Gravel	7:22a	Y	Grey / black gravel substrate.	Rocky (Gravel)	Gravel Dominant	Bedrock (0%) Boulder (5%) Cobble (10%) Gravel (65%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Coralline red algae - O	Mysid shrimp - O Littorines - O	Substrate primarily rocky and appears to primarily consist of gravel under the algal canopy.
		28.0	8.5	0.05	Gravel	0:09b	Y	Grey / black gravel substrate.	Rocky (Gravel)						
50 - 60	0:31b - 1:51b		0.0	0.0	Cobble and Gravel	0:43b	Y	Small patch of cobbles surrounded by mixed gravel and fines.	Mixed (Gravel and Fines)	Mixed Variable Rock	Bedrock (0%) Boulder (10%) Cobble (15%) Gravel (45%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Coralline red algae - C	Mysid shrimp - A Stalked jellyfish - U Littorines - U Crepidula sp. - U	Mixed substrates on bottom consisting of gravel and fines with lesser amounts of cobble and boulder. Abundant algae attached to rocky substrate.
			0.0	0.1	Mixed Gravel and Fines	1:31b	Y	Mixed gravel and fines on bottom surrounded by larger substrates including cobble and boulder.	Mixed (Gravel and Fines) and Rocky (Cobble and Boulder)						
60 - 70	1:51b - 3:05b		0.0	0.0	Cobble and Boulder	1:58b	Y	Colourful rocky substrate with abundant algae and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (10%) Gravel (20%) Fines (65%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - U Phyllophora sp. - U Coralline red algae - O	Mysid shrimp - O Crepidula sp. - U	Substrate transitioning to fines with mixed rocky substrate including gravel and cobble with occasional boulders.
			0.0	0.31	Mixed Fines and Gravel	2:36b	Y	Dull fines with a small amount of gravel.	Mixed (Fines and Gravel)						
70 - 80	3:05b - 4:18b		0.0	0.18	Mixed Fines and Gravel	3:28b	Y	Mixed gravel and fines on bottom surrounded by larger substrates including cobble and boulder.	Mixed (Fines and Gravel)	Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (15%) Gravel (35%) Fines (45%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - O Sand shrimp - U	Substrate in the first half of interval is a mixed gravel and fines, and transitions to boulder or bedrock (cannot tell which) almost buried in fines and gravel. Algal debris present throughout this interval, alongside attached algae.
		28.0	8.5	0.0	Boulder or Bedrock	3:55b	Y	Colourful rocky substrate with occasional algae and encrusted with red coralline algae.	Mixed (Fines and Gravel)						
80 - 90	4:18b - 5:23b	29.0	8.8	0.1	Mixed Fines and Gravel	4:24b	Y	Mixed gravel and fines on bottom surrounded by larger substrates including cobble and boulder.	Mixed (Fines and Gravel)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (25%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - A	Substrate throughout this interval looks like a mix of gravel and fines where the bottom is visible. Algal debris present throughout this interval, alongside lesser amount of algae attached to cobble and boulder substrate. Estimate a thin layer of fines and gravel over rocky substrate due to divers inability to drive sediment probe into bottom.
			0.0	0.05	Mixed Fines and Gravel	5:05b	Y	Mixed Fines and Gravel surrounded by abundant algal debris.	Mixed (Fines and Gravel)						
90 - 100	5:23b - 6:18b		0.0	0.01	Thin layer of fines over rocky substrate.	5:26b	Y	Fines overlaying a rocky substrate at the probe site. Diver cannot insert probe into what looks like fines.	Mixed (Fines and Rocky substrates)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (20%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - A Crepidula sp. - U	Substrate throughout this interval looks like fines where the bottom is visible. Estimate a thin layer of fines over rocky substrate due to divers inability to drive sediment probe into bottom. Algal debris present throughout this interval, alongside lesser amount of algae attached to cobble and boulder substrate.
			0.0	0.0	Boulder	5:48b	Y	Boulder encrusted with coralline red algae and occasional kelp on bottom surrounded by fines.	Mixed (Fines and Rocky substrates)						

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Start wp: 1678 Diver Start: 0m @ wp1685
End wp: 1685

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
100 - 110	6:18b - 7:14b	31.0	9.4	0.2	Fines	6:21b	Y	Dull grey fines with abundant algal debris and patches of surrounding cobble / boulder.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (10%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Coralline red algae - O	No observed fauna.	
			0.0	0.2	Fines	6:55b	Y	Dull grey fines with abundant algal debris.	Fines (Sand and Silt)						
110 - 120	7:14b - 0:43c		0.0	0.0	Thin layer of fines over rocky substrate.	7:17b	Y	Fines overlaying a rocky substrate at the probe site. Diver cannot insert probe into what looks like fines.	Mixed (Fines and Rocky substrates)	Fines with Variable Rock	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Coralline red algae - O	Mysid shrimp - O	Substrate throughout interval appears to primarily consist of fines. Where probed, bottom was either a thin layer of fines over rock, or just rock. Substrate may be a thin veneer of fines over rocky substrate but cannot confirm. Algal canopy looks to consist of a mix of debris and algae attached to rocky substrate.
		29.0	8.8	0.0	Boulder / Bedrock	0:05c	Y	Boulder or bedrock encrusted with coralline red algae and occasional kelp on bottom surrounded by fines.	Mixed (Fines and Rocky substrates)						
120 - 130	0:43c - 2:05c		0.0	0.28	Fines	0:50c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - O	Substrate in this interval consists primarily of fines with a few patches of exposed rocky substrate and attached algae. Algal coverage throughout interval, but most of it looked like debris.
			0.0	0.27	Fines	1:36c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)						
130 - 140	2:05c - 3:14c		0.0	0.39	Fines	2:08c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (10%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Desmarestia sp. - O Coralline red algae - U	Crepidula sp. - U	Substrate in this interval consists primarily of fines with a few patches of exposed rocky substrate and attached algae. Algal coverage throughout interval, but most of it looked like debris.
			0.0	0.18	Fines	2:53c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)						
140 - 150	3:14c - 5:03c		0.0	0.25	Fines	3:38c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Desmarestia sp. - O Coralline red algae - U	Green sea urchin - U Mysid shrimp - A Crepidula sp. - U	Substrate in this interval consists primarily of fines with a few patches of exposed rocky substrate and attached algae. Algal coverage throughout interval, but most of it looked like debris. Polychaete or bivalve burrows present in a small area at the end of the interval.
		33.0	10.1	0.15	Fines	4:24c	Y	Dull grey fines with occasional algal debris.	Fines (Sand and Silt)						
150 - 160	5:03c - 6:23c		0.0	0.21	Fines	5:09c	Y	Dull grey fines with abundant algal debris.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (20%) Gravel (10%) Fines (55%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - O Polysiphonia sp. - U Hildenbrandia rubra - U Coralline red algae - O	Littorines - U Crepidula sp. - U	Mixed substrates on bottom consisting of gravel and fines with lesser amounts of cobble and boulder. Occasional algae attached to rocky substrate. Small amount of anthropogenic debris in this interval.
			0.0	0.0	Boulder / Cobble	5:59c	Y	Boulder or cobble encrusted with coralline red algae and occasional kelp on bottom surrounded by fines.	Mixed (Fines and Rocky substrates)						
160 - 170	6:23c - 7:57c	30.0	9.1	0.30	Fines	6:34c	Y	Dull grey fines with abundant algal debris.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (10%) Cobble (35%) Gravel (5%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - O	Rock crab - U (1@7:07) Littorines - U Crepidula sp. - U	Substrate in the interval is primarily fines and transitions to primarily rocky in the latter half of the interval. Abundant algae in the latter half of the interval.
			0.0	0.0	Thin layer of fines over rocky substrate.	7:25c	Y	Fines overlaying a rocky substrate at the probe site. Diver cannot insert probe into what looks like fines.	Mixed (Fines and Rocky substrates)						
170 - 180	7:57c - 1:03d		0.0	0.0	Boulder	8:02c	Y	Boulder substrate partially covered in dull grey fines. Boulder has attached kelp and is partly encrusted with coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (60%) Cobble (10%) Gravel (10%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - O	Cunner - U (1@0:24) Arctic shanny - U (1@0:27) Mysid shrimp - O Crepidula sp. - U	Depth decreases in this interval and percentage of fines substrate continues to decrease through the interval. This continues the trend of the last few intervals. The end of the interval then transitions to a patch of fines. Algal canopy becomes denser and more algae is attached and alive. Not as much debris. Attached algae has dusting of fines, and an abundance of epiphytic growth including hydroids and bryozoans.
		24.0	7.3	0.0	Boulder	0:35d	Y	Boulder encrusted with coralline red algae and occasional kelp.	Rocky (Boulder)						
180 - 190	1:03d - 3:20d	22.0	6.7	0.2	Mixed Fines and Gravel	1:15d	Y	Mixed gravel and fines on bottom surrounded by larger substrates including cobble and boulder.	Mixed (Fines and Gravel)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (45%) Cobble (35%) Gravel (10%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Ectocarpus sp. - U Coralline red algae - O	Mysid shrimp - O Crepidula sp. - U	Diver picks up large black cable at the 185 metre interval. Likely power supply for lighting on Vardys Island. Bottom becoming more of a boulder / cobble substrate through the interval.
		18.0	5.5	0.0	Boulder and Cobble	2:32d	Y	Boulder and cobble encrusted with coralline red algae and abundant kelp.	Rocky (Boulder and Cobble)						
190 - 200			0.0	0.0	Boulder	3:22d	Y	Boulder and cobble encrusted with coralline red algae and abundant kelp.	Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (45%) Cobble (40%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Ectocarpus sp. - U Coralline red algae - O	Green sea urchin - U Mysid shrimp - A Stalked jellyfish - U	
		9.0	2.7	0.11	Fines	5:26d	Y	Dull grey fines with abundant algal debris surrounded by cobble / boulder substrate and kelp.	Rocky (Boulder and Cobble)						

Appendix A.1: Transect 23 (345 metres in mass infill area near Pikes Island / Pikes Island Breakwater) - Summer UBHS - July 24, 2020

Start wp: 1638 Diver Start: 0m @ wp1652
End wp: 1652

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:08a	46.0	14.0	0.18	Fines	1:09a	Y	Dull uniform fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Cunner - U (1@1:28a)	Abundant algal debris in this interval consisting primarily of Saccharina, however nothing looks attached and there are no apparent rocky substrates.
		46.0	14.0	0.20	Fines	1:40a	Y	Dull uniform fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)			
10 - 20	2:08a - 3:35a	43.0	13.1	0.20	Fines	2:12a	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Coralline red algae - U	Crepidula sp. - U	Rocky substrate (small boulders) occurs near the end of this interval. Occasional epiphytic hydroids on kelp. Crepidula attached to rocky substrate.
		38.0	11.6	0.33	Fines	2:47a	Y	Dull uniform fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)			
20 - 30	3:35a - 4:39a		0.0	0.17	Fines	3:40a	Y	Dull fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Coralline red algae - O	Mysid shrimp - U Crepidula sp. - U	Mixed fines substrate with occasional small boulders and attached kelp and coralline algae. Algal cover consists of mixed attached kelp and unattached kelp and desmarestia.
			0.0	0.0	Boulder	4:20a	Y	Rocky boulder substrate with kelp and encrusted with red coralline algae. Surrounding substrate consists of fines.	Rocky (Boulder)		Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)			
30 - 40	4:39a - 5:53a		0.0	0.28	Fines	4:46a	Y	Dull fines bottom with occasional boulder and algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Coralline red algae - U	Mysid shrimp - U	Predominantly fines substrate with occasional small boulders and attached kelp. There are also patches of Agarum and Saccharina algal debris.
		45.0	13.7	0.40	Fines	5:15a	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)			
40 - 50	5:53a - 7:15a	45.0	13.7	0.45	Fines	5:58a	Y	Dull uniform fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - U Desmarestia sp. - U Coralline red algae - U	Mysid shrimp - U	Bottom looks to be primarily fines with occasionally exposed rocky substrate. Rocky substrate looks like boulder or possibly bedrock. Agarum, Saccharina and coralline algae attached to exposed rock.
			0.0	0.58	Fines	6:35a	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)			
50 - 60	7:15a - 0:58b	35.0	10.7	0.40	Fines	7:22a	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Coralline red algae - U	Mysid shrimp - O	Small amount of anthropogenic debris in this interval (glass bottles). Abundant to occasional algal debris throughout interval. Most appears to be debris. Some attached to a small amount of rocky substrate protruding from the fines bottom.
		35.0	10.7	0.37	Fines	0:00b	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)			
60 - 70	0:58b - 2:35b		0.0	0.71	Fines	1:06b	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Desmarestia sp. - U Coralline red algae - U	Mysid shrimp - U	Abundant to occasional algal debris throughout interval. Most appears to be debris. Some attached to a small amount of rocky substrate protruding from the fines bottom.
			0.0	0.70	Fines	1:58b	Y	Dull uniform fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)		Bedrock (0%) Boulder (10%) Cobble (15%) Gravel (10%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)			
70 - 80	2:35b - 4:04b	32.0	9.8	0.1	Mixed Fines and Gravel	2:50b	Y	Mixed fines and gravel bottom with abundant algal debris at probe site.	Mixed (Gravel and Fines)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (15%) Gravel (10%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - O	Bottom looks to be transitioning to a coarser substrate at the end of this interval. Fines mixed with gravel becoming cobble and boulder substrate with abundant algal coverage.
		31.0	9.4	0.01	Boulder / Cobble	3:42b	Y	Thin skim of fines over an exposed boulder / large piece of cobble.	Rocky (Boulder / Cobble)		Bedrock (0%) Boulder (30%) Cobble (15%) Gravel (20%) Fines (35%)	Sand (80%) Silt (20%) Clay (0%)			
80 - 90	4:04b - 5:22b	30.0	9.1	0.0	Boulder	4:11b	Y	Rocky boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Mixed Variable Rock	Bedrock (0%) Boulder (30%) Cobble (15%) Gravel (20%) Fines (35%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Desmarestia sp. - U Coralline red algae - A	Mysid shrimp - U Seastar - U	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of fines and rock.
			0.0	0.05	Boulder	4:48b	Y	Thin skim of fines and gravel over an exposed boulder / large piece of cobble.	Rocky (Boulder)		Bedrock (0%) Boulder (20%) Cobble (10%) Gravel (15%) Fines (55%)	Sand (80%) Silt (20%) Clay (0%)			
90 - 100	5:22b - 6:40b		0.0	0.1	Mixed Fines and Gravel	5:31b	Y	Mixed fines and gravel bottom with abundant algal debris at probe site.	Mixed (Gravel and Fines)	Fines with Variable Rock	Bedrock (0%) Boulder (20%) Cobble (10%) Gravel (15%) Fines (55%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Desmarestia sp. - U Coralline red algae - A	No observed fauna.	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of fines and rock.
			0.0	0.05	Mixed Fines and Gravel	6:06b	Y	Mixed fines and gravel bottom with abundant algal debris at probe site.	Mixed (Gravel and Fines)		Bedrock (0%) Boulder (20%) Cobble (10%) Gravel (15%) Fines (55%)	Sand (80%) Silt (20%) Clay (0%)			

Start wp: 1638 Diver Start: 0m @ wp1652
End wp: 1652

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
100 - 110	6:40b - 7:43b		0.0	0.05	Mixed Fines and Gravel	6:49b	Y	Mixed fines and gravel bottom with abundant algal debris at probe site. Boulder substrate with kelp surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)	Mixed Variable Rock	Bedrock (0%) Boulder (40%) Cobble (15%) Gravel (20%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Desmarestia sp. - U Ectocarpus sp. - U Coralline red algae - A	Mysid shrimp - U Littorine - U	Bottom transitional throughout the interval. Patches of fines, but predominantly rocky with abundant algal coverage.
			0.0	0.0	Boulder and Cobble	7:19b	Y	Colourful rocky boulder and cobble substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						
110 - 120	7:43b - 1:12c		0.0	0.0	Boulder	7:53b	Y	Colourful rocky boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (10%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - O	Bottom primarily rocky substrate that looks like boulder. Diver substrate probe at 115 metre was taken in a patch of fines between boulders.
			0.0	0.68	Fines	0:27c	Y	Dull fines bottom between large boulders at probe site.	Fines (Sand and Silt) and Rocky (Boulder)						
120 - 130	1:12c - 2:41c	29.0	8.8	0.0	Boulder	1:21c	Y	Colourful rocky boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (10%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Coralline red algae - A	Rock crab - U (1@1:17c; 1@2:20c) Crepidula sp. - U Breadcrumb sponge - O	Bottom primarily rocky substrate that looks like boulder. Occasional patches of fines between boulders.
		29.0	8.8	0.0	Boulder	1:53c	Y	Colourful rocky boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)						
130 - 140	2:41c - 4:17c		0.0	0.0	Boulder and Cobble	2:45c	Y	Colourful rocky boulder and cobble substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (15%) Gravel (0%) Fines (15%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Desmarestia sp. - U Polysiphonia sp. - U Coralline red algae - A	Rock crab - U (1@3:08c) Mysid shrimp - O Breadcrumb sponge - U Seastar - U	
			0.0	0.1	Fines	3:37c	Y	Dull fines bottom between large boulders at probe site.	Fines (Sand and Silt) and Rocky (Boulder)						
140 - 150	4:17c - 5:43c	27.0	8.2	0.1	Mixed Fines and Gravel	4:31c	Y	Mixed fines and gravel bottom at the probe site. Boulder substrate with kelp surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)	Mixed Variable Rock	Bedrock (0%) Boulder (35%) Cobble (25%) Gravel (15%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Polysiphonia sp. - U Coralline red algae - A	Littorines - U Mysid shrimp - O Crepidula sp. - U	
		27.0	8.2	0.1	Mixed Fines and Gravel	5:09c	Y	Mixed fines and gravel bottom at the probe site. Boulder substrate with kelp surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)						
150 - 160	5:43c - 7:12c		0.0	0.0	Boulder and Cobble	5:55c	Y	Colourful rocky boulder and cobble substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Mixed Variable Rock	Bedrock (0%) Boulder (35%) Cobble (25%) Gravel (25%) Fines (15%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Polysiphonia sp. - U Ectocarpus sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	Abundant hydroids and occasional bryozoans on Saccharina. Substrate primarily consists of rocky substrate with occasional small patches of fines.
			0.0	0.11	Mixed Fines and Gravel	6:43c	Y	Mixed fines and gravel bottom at the probe site. Boulder and cobble substrate with kelp surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)						
160 - 170	7:12c - 1:07d		0.0	0.17	Mixed Fines and Gravel	7:18c	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel, Cobble and Fines	Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (20%) Gravel (30%) Fines (45%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Coralline red algae - A	Sea scallop - U (1@7:52c; 1@1:03d) Mysid shrimp - C Littorines - U	Sea scallop about the size of a large adult male hand (divers hand).
			0.0	0.1	Mixed Fines and Gravel	0:29d	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel, Cobble and Fines						Abundant hydroids and occasional bryozoans on Saccharina. Substrate primarily consists of mixed gravel and fines with occasional cobble and a few boulders.
170 - 180	1:07d - 2:43d		0.0	0.19	Mixed Fines and Gravel	1:18d	Y	Mixed fines and gravel bottom at the probe site.	Mixed (Gravel and Fines)	Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (15%) Gravel (40%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Desmarestia sp. - O Coralline red algae - A	Mysid shrimp - O	Abundant hydroids and occasional bryozoans on Saccharina. Substrate primarily consists of mixed gravel and fines with occasional cobble and a few boulders.
			0.0	0.05	Mixed Fines and Gravel	2:14d	Y	Mixed fines and gravel bottom at the probe site.	Mixed (Gravel and Fines)						Algal canopy dense and reaches to a height of of 0.1 to 1m (average ~ 0.5m). It looks like a mix of algal debris and attached, but difficult to discern between the two types.
180 - 190	2:43d - 4:10d		0.0	0.11	Mixed Fines and Gravel	2:48d	Y	Mixed fines and gravel bottom at the probe site.	Mixed (Gravel and Fines)	Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (20%) Gravel (35%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Desmarestia sp. - O Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of mixed cobble, gravel and fines with a few boulders.
			0.0	0.15	Mixed Fines and Gravel	3:41d	Y	Mixed fines and gravel bottom at the probe site.	Mixed (Gravel and Fines)						Algal canopy dense and reaches to a height of of 0.1 to 1m (average ~ 0.5m). It looks like a mix of algal debris and attached, but difficult to discern between the two types.

Appendix A.1: Transect 23 (345 metres in mass infill area near Pikes Island / Pikes Island Breakwater) - Summer UBHS - July 24, 2020

Start wp: 1638 Diver Start: 0m @ wp1652
End wp: 1652

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
190 - 200	4:10d - 5:16d	28.0	8.5	0.09	Mixed Fines and Gravel	4:15d	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)	Cobble and Gravel Dominant	Bedrock (0%) Boulder (10%) Cobble (30%) Gravel (35%) Fines (25%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Desmarestia sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of mixed cobble, gravel and fines with a few boulders.
		28.0	8.5	0.0	Cobble	4:52d	Y	Cobble substrate with kelp at the probe site. Mixed fines and gravel surrounding probe site.	Mixed Gravel and Fines, and Rocky (Boulder and Cobble)						Algal canopy dense and reaches to a height of of 0.1 to 1m (average ~ 0.5m). It looks like a mix of algal debris and attached, but difficult to discern between the two types.
200 - 210	5:16d - 6:29d		0.0	0.06	Mixed Fines and Gravel	5:23d	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel, Cobble and Fines	Fines with Variable Rock	Bedrock (0%) Boulder (10%) Cobble (15%) Gravel (35%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Desmarestia sp. - U Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - A Crepidula sp. - U	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of mixed cobble, gravel and fines with a few boulders. One patch of fines and algal debris without rocky substrate.
			0.0	0.17	Fines	6:02d	Y	Dull uniform fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)						
210 - 220	6:29d - 7:28d		0.0	0.0	Cobble and Boulder	6:38d	Y	Colourful rocky boulder and cobble substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (10%) Gravel (25%) Fines (60%)	Sand (90%) Silt (10%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - C Desmarestia sp. - O Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - O	Abundant hydroids and occasional bryozoans on Saccharina. Mixed substrate consisting of mixed cobble, gravel and fines with a few boulders.
			0.0	0.1	Mixed Fines and Gravel	7:06d	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel, Cobble and Fines						Algal canopy dense and reaches to a height of of 0.1 to 1m (average ~ 0.5m). It looks like a mix of algal debris and attached, but difficult to discern between the two types.
220 - 230	7:28d - 0:41e		0.0	0.18	Fines	7:34d	Y	Dull fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Mixed Variable Rock	Bedrock (0%) Boulder (15%) Cobble (20%) Gravel (35%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Saccharina longicruris - O Desmarestia sp. - O Ectocarpus sp. - U Polysiphonia sp. - U Coralline red algae - O	Winter flounder - U (1@7:48d) Sand shrimp - U	Sand shrimp = <i>Crangon septemspinosa</i>
			0.0	0.0	Cobble and Boulder	0:04d	Y	Rocky boulder and cobble substrate with occasional kelp and red coralline algae.	Rocky (Boulder and Cobble)						Algal canopy patchy and looks like a mix of attached algae and algal debris.
230 - 240	0:41e - 2:00e	31.0	9.4	0.0	Cobble and Boulder	0:52d	Y	Rocky boulder and cobble substrate with occasional kelp and red coralline algae.	Rocky (Boulder and Cobble)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (15%) Gravel (20%) Fines (60%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Desmarestia sp. - O Ectocarpus sp. - U Polysiphonia sp. - U Coralline red algae - O	Mysid shrimp - O	Bottom transitions to entirely fines with algal debris just after the 235 metre interval. Interval 230 to 235 mixed bottom with fines, gravel, cobble and a few boulders.
		31.0	9.4	0.08	Mixed Fines and Gravel	1:39d	Y	Mixed fines and gravel bottom at the probe site. Cobble substrate with kelp surrounding probe site.	Mixed Gravel, Cobble and Fines						
240 - 250	2:00e - 3:07e		0.0	0.49	Fines	2:08e	Y	Dull fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Bottom in this interval is entirely fines with occasional algal debris.
			0.0	0.19	Fines	2:47e	Y	Dull fines bottom with occasional algal debris at probe site.	Fines (Sand and Silt)						
250 - 260	3:07e - 4:08e		0.0	0.40	Fines	3:14e	Y	Dull fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Desmarestia sp. - U Coralline red algae - U	Mysid shrimp - A Northern lacuna - U	Bottom primarily consists of fines with a few patches of cobble and gravel with attached algae. Most of the observed algae is debris on bottom.
			0.0	0.35	Fines	3:47e	Y	Dull fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)						
260 - 270	4:08e - 5:10e	27.0	8.2	0.42	Fines	4:13e	Y	Dull fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (15%) Cobble (5%) Gravel (10%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Phyllophora sp. - U Coralline red algae - U	Arctic shanny - U (2@4:38e) Green sea urchin - U Mysid shrimp - A	Arctic shanny = <i>Stichaeus punctatus punctatus</i> . Two observed in the same location; one large shanny in foreground and one smaller of what looks like the same species in shelter of algal debris in background.
		27.0	8.2	0.09	Mixed Fines and Gravel	4:54e	Y	Mixed fines and gravel bottom at the probe site. Boulder substrate with kelp surrounding probe site.	Mixed Gravel and Fines						Substrate in the first half of the interval is fines then transitions to fines and gravel over boulder substrate. Abundant algal debris and occasional attached algae.
270 - 280	5:10e - 6:02e	27.0	8.2	0.35	Fines	5:15e	Y	Dull fines bottom with abundant algal debris at probe site.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (50%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - O Crepidula sp. - U	Sediment probe at the 275 metre tag is located on a bedrock protrusion on bottom.
		25.0	7.6	0.0	Bedrock	5:46e	Y	Colourful bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						Abundant hydroids and occasional bryozoans on Saccharina.
280 - 290	6:02e - 7:04e	30.0	9.1	0.39	Fines	6:06e	Y	Dull fines bottom obscured by abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (30%) Cobble (15%) Gravel (5%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Desmarestia sp. - U Coralline red algae - O	Mysid shrimp - A Brittlestars - U Crepidula sp. - U	Abundant algal debris over fines bottom consists primarily of Saccharina and Desmarestia in this interval. Bottom transitions to boulder in the last few metres of the interval.
			0.0	0.49	Fines	6:36e	Y	Dull fines bottom obscured by abundant algal debris at the probe site.	Fines (Sand and Silt)						
290 - 300	7:04e - 0:01f		0.0	0.0	Boulder	7:08e	Y	Rocky boulder and cobble substrate with occasional kelp and red coralline algae.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (10%) Gravel (10%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - O Desmarestia sp. - U Polysiphonia sp. - U Coralline red algae - O	Mysid shrimp - A Breadcrumb sponge - U Crepidula sp. - A	Bottom is primarily boulder substrate through this interval. There may be some bedrock rather than boulder, but cannot confirm due to attached algae and abundant algal debris.
			0.0	0.0	Boulder	7:45e	Y	Rocky boulder and cobble substrate with occasional kelp and red coralline algae.	Rocky (Boulder and Cobble)						Bottom transitions to fines at the end of this interval.

Appendix A.1: Transect 23 (345 metres in mass infill area near Pikes Island / Pikes Island Breakwater) - Summer UBHS - July 24, 2020
Start wp: 1638 Diver Start: 0m @ wp1652
End wp: 1652

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
300 - 310	0:01f - 1:13f	25.0	7.6	0.4	Fines	0:06f	Y	Dull fines bottom with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (30%) Cobble (0%) Gravel (0%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Desmarestia sp. - U Coralline red algae - U	Northern lacuna - U Sand shrimp - U Crepidula sp. - U	Abundant algal debris over fines bottom consists primarily of Saccharina and Desmarestia in this interval. Bottom transitions to boulder in the last few metres of the interval.
			0.0	0.32	Fines	0:43f	Y	Dull fines bottom with abundant algal debris at the probe site.	Fines (Sand and Silt)						
310 - 320	1:13f - 2:11f		0.0	0.0	Boulder	1:18f	Y	Rocky boulder substrate with occasional kelp and red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (60%) Cobble (10%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Polysiphonia sp. - A Desmarestia sp. - U Ectocarpus sp. - U Coralline red algae - A	Mysid shrimp - A Crepidula sp. - A Littorines - U	Abundant algae and occasional algal debris on rocky bottom. Occasional patches of fines substrates.
			0.0	0.0	Boulder	1:47f	Y	Rocky boulder substrate with occasional kelp and red coralline algae.	Rocky (Boulder)						
320 - 330	2:11f - 2:51f		0.0	0.0	Boulder	2:13f	Y	Rocky boulder substrate with abundant kelp and red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (10%) Gravel (0%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - O Saccharina longicruris - A Polysiphonia sp. - A Ectocarpus sp. - U Coralline red algae - A	Green sea urchin - U Mysid shrimp - A Crepidula sp. - O	Abundant algae and occasional algal debris on rocky bottom. Occasional small patches of fines substrates.
			0.0	0.0	Boulder	2:38f	Y	Rocky boulder substrate with abundant kelp and red coralline algae.	Rocky (Boulder)						Bottom substrate looks like a pile of boulders. May be bedrock underneath, but piled up boulder sized substrate is visible.
330 - 340	2:51f - 3:39f		0.0	0.21	Fines	2:47f	Y	Dull fines bottom with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Desmarestia sp. - U Coralline red algae - U	Mysid shrimp - O	Abundant algal debris over fines bottom consists primarily of Saccharina and Desmarestia in this interval. Bottom transitions to boulder in the last few metres of the interval.
			0.0	0.35	Fines	3:24f	Y	Dull fines bottom with abundant algal debris at the probe site.	Fines (Sand and Silt)						
340 - 350	3:39f - End	31.0	9.4	0.0	Boulder	3:41f	Y	Rocky boulder substrate with abundant kelp and red coralline algae.	Rocky (Boulder)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Saccharina longicruris - U Desmarestia sp. - U Phyllophora sp. - U Coralline red algae - U	Mysid shrimp - O Crepidula sp. - U	Transect starts with a small rocky patch and transitions / ends in a patch of fines. Algae observed on rocky substrate toward the start of this transect.
		31.0	9.4	0.1	Fines	4:07f	Y	Thin skim of fines over an exposed boulder / large piece of cobble.	Fines (Sand and Silt)						
		31.0	9.4	0.1	Fines	4:32f	Y	Dull fines bottom with occasional algal debris at the probe site.	Fines (Sand and Silt)						

Start wp: 1653 Diver Start: 0m @ wp1653
End wp: 1658

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:50a	29.0	8.8	0.0	Boulder	0:50a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (20%) Boulder (70%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Laminaria digitata - O Desmarestia sp. - U Polysiphonia sp. - A Phyllophora sp. - U Lithothamnion sp. - U Coralline red algae - A	Cunner - U (1@0:37a; 2@1:54a) Mottled chiton - U Crepidula sp. - O Blue mussel - U Barnacles - U	Abundant kelp over rocky bottom through entire interval. Bottom elevation varies in this interval and substrate appears to consist of boulder, and boulder over bedrock. Diver swims up and over several rocky mounds (with abundant kelp) in this interval. Algal canopy averages or exceeds 1-2 metres.
		31.0	9.4	0.0	Boulder / Bedrock	1:58a	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)						Kelp relatively 'clean' looking without much ephiphytic growth. No fines observed in this interval.
10 - 20	2:50a - 4:56a	36.0	11.0	0.0	Boulder	3:06a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (10%) Boulder (70%) Cobble (15%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - A Laminaria digitata - O Desmarestia sp. - U Polysiphonia sp. - O Phyllophora sp. - U Hildenbrandia rubra - U Coralline red algae - A	Lobster - U (1@4:13a) Mysid shrimp - A	Abundant kelp over rocky bottom through entire interval. Bottom elevation varies in this interval and substrate appears to consist of boulder, and boulder over bedrock. Diver swims up and over several rocky mounds (with abundant kelp) in this interval. Algal canopy averages or exceeds 1-2 metres.
		36.0	11.0	0.0	Boulder	4:23a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						Kelp relatively 'clean' looking without much ephiphytic growth. No fines observed in this interval.
20 - 30	4:56a - 6:24a	31.0	9.4	0.0	Boulder	5:26a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (10%) Boulder (80%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Polysiphonia sp. - A Coralline red algae - A	Cunner - O (7@5:49a) Mysid shrimp - O	Abundant kelp over rocky bottom through entire interval. Bottom elevation varies in this interval and substrate appears to consist of boulder, and boulder over bedrock. Diver swims up and over several rocky mounds (with abundant kelp) in this interval. Algal canopy averages or exceeds 1-2 metres in height.
30 - 40	6:24a - 0:29b	24.0	7.3	0.0	Boulder	6:49a	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (15%) Boulder (70%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Polysiphonia sp. - A Desmarestia sp. - U Plumaria plumosa - U Coralline red algae - A	Lobster - U (1@7:01a; 1@7:41a) Blue mussels - U Mysid shrimp - O Littorines - U	Abundant kelp over rocky bottom through entire interval. Bottom elevation varies in this interval and substrate appears to consist of boulder, and boulder over bedrock. Diver swims up and over several rocky mounds (with abundant kelp) in this interval. Algal canopy averages or exceeds 1-2 metres.
		23.0	7.0	0.0	Boulder	0:01b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						Kelp relatively 'clean' looking without much ephiphytic growth. No fines observed in this interval.
40 - 50	0:29b - 2:55b	23.0	7.0	0.0	Boulder / Bedrock	1:16b	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)	Boulder Dominant	Bedrock (30%) Boulder (60%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Polysiphonia sp. - A Plumaria plumosa - U Hildenbrandia rubra - U Coralline red algae - A	Blue mussels - U Mysid shrimp - O Littorines - U Seastar - U	Abundant kelp over rocky bottom through entire interval. Bottom elevation varies in this interval and substrate appears to consist of boulder, and boulder over bedrock. Diver swims up and over several rocky mounds (with abundant kelp) in this interval. Algal canopy averages or exceeds 1-2 metres.
		21.0	6.4	0.0	Boulder / Bedrock	2:25b	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)						
50 - 60	2:55b - 5:03b	21.0	6.4	0.0	Boulder	3:42b	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)	Boulder Dominant	Bedrock (30%) Boulder (60%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Polysiphonia sp. - A Phyllophora sp. - O Desmarestia sp. - U Plumaria plumosa - U Coralline red algae - A	Green sea urchin - O Northern lacuna - U	Green sea urchin on the rocky bottom under Agarum and Saccharina.
		22.0	6.7	0.0	Boulder	4:25b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						Abundant kelp over rocky bottom through the entire interval. Algal canopy dense but shorter than previous intervals. Algal canopy averages 0.5-1 metres.
60 - 70	5:03b - 7:39b	20.0	6.1	0.0	Boulder	5:54b	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (30%) Boulder (60%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Petalonia sp. - O Polysiphonia sp. - A Phyllophora sp. - O Desmarestia sp. - U Coralline red algae - A	Green sea urchin - U Northern lacuna - U Blue mussels - U	Green sea urchin on the rocky bottom under Agarum and Saccharina.
		24.0	7.3	0.0	Boulder	6:46b	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)						Abundant kelp over rocky bottom through the entire interval. Algal canopy dense but shorter than previous intervals. Algal canopy averages 0.5-1 metres.
70 - 80	7:39b - 2:38c	26.0	7.9	0.05	Patch of gravel and shell grit on boulder substrate	0:29c	Y	Small patch of gravel and shell grit in a small depression on colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (30%) Boulder (60%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Petalonia sp. - O Polysiphonia sp. - A Phyllophora sp. - O Desmarestia sp. - O Ulva lactuca - U Coralline red algae - A	Green sea urchin - O Mysid shrimp - U Blue mussels - U Horse mussels - U Crepidula sp. - U	
		24.0	7.3	0.0	Boulder	1:53c	Y	Colourful rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						

Start wp: 1653 Diver Start: 0m @ wp1653
End wp: 1658

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
80 - 90	2:38c - 4:52c	20.0	6.1	0.0	Boulder / Bedrock	2:39c	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Laminaria digitata - O Alaria esculenta - U Petalonia sp. - U Polysiphonia sp. - A Phyllophora sp. - O Desmarestia sp. - O Ulva lactuca - U Coralline red algae - A	Winter flounder - U (1@3:36c) Cunner - U (2@3:41c) Green sea urchin - O Mysid shrimp - U Blue mussels - U Mottled chiton - U Northern lacuna - U Crepidula sp. - U	Abundant kelp over rocky bottom through the entire interval. Algal canopy dense but shorter than previous intervals. Algal canopy averages 0.5-1 metres. Substrate looks like bedrock here based on large, unbroken and continuous rock, rather than fractured rock observed earlier in the transect. Bottom also has a few large mounds the diver swims over / around.
		24.0	7.3	0.0	Bedrock	4:16c	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						
90 - 100	4:52c - 7:30c	24.0	7.3	0.0	Boulder / Bedrock	5:35c	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)	Bedrock Dominant	Bedrock (60%) Boulder (25%) Cobble (10%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - A Polysiphonia sp. - A Alaria esculenta - U Petalonia sp. - U Desmarestia sp. - U Ulva lactuca - U Hildenbrandia rubra - U Coralline red algae - A	Cunner - U (1@5:09c) Green sea urchin - U Northern lacuna - U Crepidula sp. - O	Abundant kelp over rocky bottom through the entire interval. Algal canopy dense but shorter than previous intervals. Algal canopy averages 0.5-1 metres. Substrate looks like bedrock here based on large, unbroken and continuous rock, rather than fractured rock observed earlier in the transect. Bottom also has a few large mounds the diver swims over / around.
		22.0	6.7	0.0	Boulder / Bedrock	6:41c	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Bedrock)						
100 - 110	7:30c - 2:11d	19.0	5.8	0.0	Bedrock	0:14d	Y	Colourful rocky bottom consisting of bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (75%) Boulder (5%) Cobble (15%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - O Polysiphonia sp. - A Alaria esculenta - U Petalonia sp. - U Desmarestia sp. - U Ulva lactuca - O Hildenbrandia rubra - U Coralline red algae - A	Rock crab - U (1@1:30d) Green sea urchin - U Northern lacuna - U Littorines - U Blue mussels - U Horse mussels - U	
		15.0	4.6	0.0	Bedrock	1:43d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						
110 - 120	2:11d - 4:27d	15.0	4.6	0.0	Bedrock	2:43d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - O Laminaria digitata - U Polysiphonia sp. - A Alaria esculenta - O Petalonia sp. - U Dictyosiphon sp. - U Porphyra sp. - U Ulva lactuca - O Coralline red algae - A	Limpets - O Littorines - U	Shallow water in this interval. Much less algal coverage here. Substrate appears to consist entirely of bedrock.
		11.0	3.4	0.0	Bedrock	3:52d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						
120 - 130	4:27d - 6:47d	12.0	3.7	0.0	Bedrock	4:48d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Laminaria digitata - U Polysiphonia sp. - A Alaria esculenta - O Petalonia sp. - U Dictyosiphon sp. - U Chordaria flagelliformis - U Porphyra sp. - U Ulva lactuca - O Corallina officinalis - O Coralline red algae - A	Winter flounder - U (1@5:19d; 1@6:11d; 1@6:16d) Arctic shanny - U (1@5:21) Green sea urchin - U Limpets - O Littorines - U Horse mussels - U	
		12.0	3.7	0.0	Bedrock	5:22d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						
130 - 140	6:47d - 1:04e	13.0	4.0	0.0	Bedrock	7:20d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - U Laminaria digitata - U Polysiphonia sp. - A Alaria esculenta - U Petalonia sp. - U Dictyosiphon foeniculaceus - U Chordaria flagelliformis - U Porphyra sp. - U Ulva lactuca - U Coralline red algae - A	Arctic shanny - U (1@0:41e) Green sea urchin - U Blue mussels - U Horse mussels - U	Bottom nearly entirely bedrock; a few small patches of cobble and gravel are present in fractures in the bedrock.
		10.0	3.0	0.0	Bedrock	0:44d	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						
140 - 150	1:04e - End	6.0	1.8	0.0	Bedrock	1:10e	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - O Laminaria digitata - O Dictyosiphon foeniculaceus - A Polysiphonia sp. - O Ulva lactuca - U Coralline red algae - A	Cunner - U (1@2:54) Green sea urchin - A Limpets - O Blue mussels - O	Transect ends in very shallow water over bedrock with abundant Dictyosiphon and lesser amounts of kelp. Bedrock covered in coralline algae.
		3.0	0.9	0.0	Bedrock	2:15e	Y	Colourful rocky bottom consisting of boulder and bedrock with abundant kelp and encrusted with red coralline algae.	Rocky (Bedrock)						

Start wp: 1796 Diver Start: 0m @ wp1800
End wp: 1800

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 1:57a	65.0	19.8	N/A	Boulder	N/A	N	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Ctenophore - U	Diver did not drop to 0 metre interval due to depths exceeding safety limit. Diver swam above line and landed on bottom at the 10 metre interval. According to their observations and video recorded above bottom the substrate appeared to consist of boulder with Agarum and was encrusted with coralline algae. This habitat was also noted in the succeeding transect interval.
		51.0	15.5	N/A	Boulder	N/A	N	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
10 - 20	1:57a - 3:06a	48.0	14.6	0.0	Boulder	2:06a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - O Polysiphonia sp. - A Plumaria sp. - U Coralline red algae - A	Sculpin - U (1@2:11a) Rock gunnel - U (1@2:06)	Arrow worm observed in water column.
		47.0	14.3	0.0	Boulder	2:40a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						Substrate consists of large boulders with abundant algae. Nearly all surfaces encrusted with coralline algae.
20 - 30	3:06a - 4:52a		0.0	0.0	Boulder	3:16a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - O Polysiphonia sp. - A Coralline red algae - A	Rock gunnel - U (1@4:13a) Cunner - O (≈5@4:26a) Seastar - U	Substrate consists of large and small boulders with abundant algae. Nearly all surfaces encrusted with coralline algae.
			0.0	0.0	Boulder	4:13a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
30 - 40	4:52a - 6:28a		0.0	0.0	Boulder	5:01a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - O Laminaria digitata - U Alaria esculenta - U Hildenbrandia rubra - U Polysiphonia sp. - A Coralline red algae - A	Cunner - O (≈6@5:22a) Green sea urchin - U Stalked jellyfish - U Horse mussel - O Limpet - U	Substrate consists of large and small boulders with abundant algae. Nearly all surfaces encrusted with coralline algae.
		35.0	10.7	0.0	Boulder	5:57a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
40 - 50	6:28a - 0:40b		0.0	0.0	Boulder	6:44a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Ulva lactuca - U Petalonia sp. - U Polysiphonia sp. - A Coralline red algae - A	Cunner - A (≈50@7:57a) Winter flounder - U (1@0:20b) Green sea urchin - U Ctenophore - U Horse mussel - O	Substrate consists of large and small boulders with abundant algae. Nearly all surfaces encrusted with coralline algae.
			0.0	0.0	Boulder	7:37a	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
50 - 60	0:40b - 2:33b	12.0	3.7	0.0	Boulder and Cobble	0:45b	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Rocky Dominant - Mixed	Bedrock (0%) Boulder (55%) Cobble (35%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia sp. - O Dictyosiphon foeniculaceus - U Coralline red algae - A	Green sea urchin - U Mottled chiton - U Horse mussel - O Ctenophore - U Moon jellyfish - U	Substrate transitions here to more of a mixed rocky substrate in shallower water. Substrate contains more cobble and small boulder rather than the large boulder observed earlier in the transect.
			0.0	0.0	Boulder and Cobble	1:47b	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
60 - 70	2:33b - 4:12b		0.0	0.0	Boulder and Cobble	2:39b	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Rocky Dominant - Mixed	Bedrock (0%) Boulder (55%) Cobble (35%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Desmarestia sp. - O Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	Brittlestar - U	Substrate remains more of a mixed rocky substrate consisting of boulder and cobble. Substrate begins to transition back to predominantly boulder near the end of the interval.
			0.0	0.0	Boulder and Cobble	2:39b	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						

Start wp: 1796 Diver Start: 0m @ wp1800
End wp: 1800

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
70 - 80	4:12b - 5:46b		0.0	0.0	Boulder	4:15b	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (25%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Alaria esculenta - U Desmarestia sp. - O Laminaria digitata - U Coralline red algae - A	Seastar - U Horse mussel - U	Substrate remains a mixed rocky substrate predominantly consisting of boulder and cobble with gravel.
			0.0	0.0	Boulder	5:12b	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
80 - 90	5:46b - 7:15b		0.0	0.0	Boulder and Cobble	5:53b	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (25%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Seastar - U Horse mussel - U Ctenophore - U	Substrate remains a mixed rocky substrate predominantly consisting of boulder and cobble with gravel.
		36.0	11.0	0.0	Boulder	6:41b	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
90 - 100	7:15b - 0:25c		0.0	0.0	Boulder	7:18b	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (25%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - U Alaria esculenta - U Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - U Ctenophore - U Stalked jellyfish - U	Substrate remains a mixed rocky substrate predominantly consisting of boulder and cobble with gravel.
			0.0	0.0	Boulder	0:11c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
100 - 110	0:25c - 1:35c		0.0	0.0	Boulder and Cobble	0:11c	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (25%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - U Alaria esculenta - U Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - U Stalked jellyfish - U	Substrate remains a mixed rocky substrate predominantly consisting of boulder and cobble with gravel. Dozens of cunner following the diver along this transect.
			0.0	0.0	Boulder and Cobble	1:01c	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble) with Kelp						
110 - 120	1:35c - 2:51c		0.0	0.0	Boulder	1:38c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Coralline red algae - A	Northern lacuna - U Breadcrumb sponge - U Horse mussels - U	Substrate remains a mixed rocky substrate predominantly consisting of boulder and cobble with gravel. Dozens of cunner following the diver along this transect.
			0.0	0.0	Boulder	2:23c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						
120 - 130	2:51c - 3:51c		0.0	0.0	Boulder	2:58c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - U Alaria esculenta - U Desmarestia sp. - U Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Green sea urchin - U Northern lacuna - U Breadcrumb sponge - U Horse mussels - U	Substrate primarily mixed rocky substrate predominantly composed of boulder with a lesser percentage of cobble.
130 - 140	3:51c - 5:43c		0.0	0.0	Boulder	3:56c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (5%) Boulder (75%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - O Laminaria digitata - O Alaria esculenta - U Desmarestia sp. - O Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Seastar - U Horse mussels - U	Substrate primarily mixed rocky substrate predominantly composed of boulder with a lesser percentage of cobble.
		9.0	2.7	0.0	Boulder	5:06c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp						

Start wp: 1796 Diver Start: 0m @ wp1800
End wp: 1800

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks	
140 - 150			0.0	0.0	Boulder	5:51c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp	Boulder Dominant	Bedrock (10%) Boulder (75%) Cobble (15%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - O Saccharina longicuris - O Laminaria digitata - O Alaria esculenta - U Desmarestia sp. - O Ulva lactuca - U Hildenbrandia rubra - O Polysiphonia sp. - O Coralline red algae - A	Green sea urchin - U Moon jellyfish - U Cunner - U (1@6:50)	Substrate remains primarily boulder in this interval but can see what look like occasional bedrock protrusions as well as smaller cobble substrate.	
			0.0	0.0	Boulder	6:41c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp							
		12.0	3.7	0.0	Boulder and Bedrock	7:15c	Y	Colourful rocky substrate consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder) with Kelp							

Start wp: 1600 Diver Start: 0m at wp1600
End wp: 1592

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 0 m	0:00a - 1:52a	6.0	1.8	N/A	Bedrock	N/A	N/A	N/A	N/A	N/A	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Ulva lactuca - A Chondrus crispus - U Chaetomorpha sp. - U Coralline red algae - A Various small Rhodophyta - U Various small Phaeophyta - U	Mysid shrimp - A	Diver swam around the intertidal and subtidal area between shoreline and the 0 metre interval of the transect. Mysid shrimp are very abundant in this area (Hundreds/1000+ in a 10 meter interval).
0 - 10	1:52a - 3:20a	8.0	2.4	0.0	Bedrock	2:02a	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Saccharina latissima - C Polysiphonia sp. - O Coralline red algae - A	Mysid shrimp - A	Filamentous algae and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be bedrock.
10 - 20	3:20a - 5:06a	13.0	4.0	0.0	Bedrock	3:25a	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Saccharina latissima - C Polysiphonia sp. - O Ectocarpus sp. - U Fucus sp. - U Coralline red algae - A	Mysid shrimp - A	Filamentous algae and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be bedrock.
20 - 30	5:06a - 6:49a	10.0	3.0	0.0	Bedrock	5:17a	Y	Colourful rocky bottom consisting of bedrock substrate with abundant kelp and encrusted with red coralline algae. Bottom looks clean without any fines.	Rocky (Bedrock)	Bedrock Dominant	Bedrock (70%) Boulder (10%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Saccharina latissima - C Polysiphonia sp. - O Ectocarpus sp. - U Ulva lactuca - U Fucus sp. - U Coralline red algae - A	Mysid shrimp - A	Filamentous algae and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) cover the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be bedrock.
30 - 40	6:49a - 0:07b	15.0	4.6	0.0	Large Cobble and Small Boulder	6:52a	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Small skim of fines present but no significant accumulation.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (65%) Cobble (30%) Gravel (0%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Palmaria palmata - U Desmarestia sp. - U Coralline red algae - A	Lobster - U (1@7:33) Sand dollars - U Mysid shrimp - A	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers the entire bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be primarily boulder and cobble with occasional thin patches of fines.
		17.0	5.2	0.17	Fines	7:49a	Y	Small patch of uniform sandy fines located on the bottom between boulder and cobble substrates.	Fines (Sandy)						
40 - 50	0:07b - 1:32b	20.0	6.1	0.0	Large and Small Cobble and Small Boulder	0:16b	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Small skim of fines present but no significant accumulation.	Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (55%) Cobble (40%) Gravel (0%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Ectocarpus sp. - U Desmarestia sp. - U Coralline red algae - A	Mysid shrimp - A Crepidula sp. - A	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers most of the bottom in this interval. Approximate average canopy height 0.5 m. Algal coverage largely prevents good views of bottom substrates. Where visible, substrates appears to be primarily boulder and cobble with occasional thin patches of fines.
		20.0	6.1	0.0	Large and Small Cobble and Small Boulder	1:06b	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						
50 - 60	1:32b - 2:50b	20.0	6.1	0.0	Large and Small Cobble and Small Boulder	1:42b	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Small skim of fines present but no significant accumulation.	Rocky (Boulder and Cobble)	Fines with Variable Rock	Bedrock (0%) Boulder (15%) Cobble (20%) Gravel (20%) Fines (45%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Chorda sp. - O Agarum clathratum - O Coralline red algae - O	Mysid shrimp - U Littorines - U	Filamentous algae, bryozoans and hydrozoans attached to Saccharina to around the midway point of this interval. Approximate average canopy height 0.5 m. Bottom transitions to a patch of mixed fines and gravel midway through the interval. Algal coverage relatively low on this part of the transect. Chorda sp. observed in the mixture of fines and gravel. Saccharina present but may be debris, or is attached to occasional larger cobble or boulder substrate.
		21.0	6.4	0.15	Fines and Gravel	2:23b	Y	Mixed coarse looking fines with a moderate amount of whitish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)						
60 - 70	2:50b - 3:56b	24.0	7.3	0.12	Fines and Gravel	2:59b	Y	Mixed coarse looking fines with a moderate amount of whitish/pinkish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (25%) Fines (70%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - U Coralline red algae - U	Lobster - U (1@3:24) Mysid shrimp - A	Lobster visible under large Saccharina blade. Saccharina blades are quite large (>1-2 metre long blades) and lay flat on the bottom. Bottom primarily mixed fines and gravel, but large blades of Saccharina likely attached to larger cobble or boulder substrate. Possible that Saccharina is debris but cannot confirm.
		26.0	7.9	0.3	Fines and Gravel	3:32b	Y	Mixed coarse looking fines with a moderate amount of whitish/pinkish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)						

Appendix A.1: Transect 26 (120 metres on inside of Pikes Island Breakwater) - Summer UBHS - July 23, 2020
Start wp: 1600 Diver Start: 0m at wp1600
End wp: 1592

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
70 - 80	3:56b - 5:15b	24.0	7.3	0.1	Fines and Gravel	4:03b	Y	Mixed coarse looking fines with a small amount of whitish/pinkish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (25%) Fines (70%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - C Desmarestia sp. - O Agarum clathratum - U Coralline red algae - U	Mysid shrimp - A Crepidula sp. - O Breadcrumb sponge - U	Saccharina blades are quite large (>1-2 metre long blades) and lay flat on the bottom. Desmarestia located in patches of fines and gravel.
		24.0	7.3	0.37	Fines and Gravel	4:49b	Y	Mixed coarse looking fines with a small amount of whitish/pinkish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)						Bottom primarily mixed fines and gravel, but large blades of Saccharina likely attached to larger cobble or boulder substrate. Possible that Saccharina is debris but cannot confirm.
80 - 90	5:15b - 6:41b	22.0	6.7	0.1	Fines and Gravel	5:23b	Y	Mixed coarse looking fines with a small amount of whitish/pinkish gravel. Bottom looks relatively clean.	Mixed (gravel and fines)	Mixed Variable Rock	Bedrock (0%) Boulder (25%) Cobble (40%) Gravel (10%) Fines (25%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - C Desmarestia sp. - U Agarum clathratum - U Ectocarpus sp. - U Coralline red algae - O	Mysid shrimp - A	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers the entire bottom in this interval. Approximate average canopy height 0.5 m.
		20.0	6.1	0.0	Large and Small Cobble and Small Boulder	6:07b	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be mixed and transitions from fines and gravel to primarily cobble and boulder in the latter half of the interval.
90 - 100	6:41b - 0:23c	24.0	7.3	0.0	Large and Small Cobble and Small Boulder	6:45b	Y	Colourful rocky bottom consisting of boulder and cobble substrate with abundant kelp and encrusted with red coralline algae. Small skim of fines present but no significant accumulation.	Rocky (Boulder and Cobble)	Mixed Variable Rock	Bedrock (0%) Boulder (40%) Cobble (45%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - C Desmarestia sp. - U Agarum clathratum - O Ulva lactuca - U Ectocarpus sp. - U Coralline red algae - A	Rock crab - U (1@7:12) Mysid shrimp - A Crepidula sp. - O Breadcrumb sponge - U	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers the entire bottom in this interval. Approximate average canopy height 0.5 m.
		20.0	6.1	0.05	Fines and Gravel	7:47b	Y	Small patch of mixed coarse looking fines with a small amount of whitish/pinkish gravel accumulated on cobble and boulder substrates.	Mixed (gravel and fines)						Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be primarily boulder and cobble in this interval with small patches of mixed fines and gravel.
100 - 110	0:23c - 1:24c	25.0	7.6	0.0	Boulder	1:02c	Y	Colourful rocky bottom consisting of boulder substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Mixed Variable Rock	Bedrock (0%) Boulder (55%) Cobble (35%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Ectocarpus sp. - U Coralline red algae - A	Mysid shrimp - A Crepidula sp. - O	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers the entire bottom in this interval. Approximate average canopy height 0.5 m.
110 - 120	1:24c - End	27.0	8.2	0.0	Boulder	2:18c	Y	Colourful rocky bottom consisting of boulder substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (20%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Coralline red algae - A	Mysid shrimp - A Crepidula sp. - O Breadcrumb sponge - U	Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Abundant kelp (Saccharina) covers the entire bottom in this interval. Approximate average canopy height 0.5 m.
		26.0	7.9	0.0	Boulder	2:56c	Y	Colourful rocky bottom consisting of boulder substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						Algal coverage prevents good views of bottom substrate. Where visible, substrate appears to be primarily boulder with occasional cobbles.

Start wp: 1601 Diver Start: 120m at wp1612
End wp: 1612

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 120 m	0:00a - 1:41a	58.0	17.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	N/A	Lion's mane jellyfish - U	Diver starting at the 120 metre interval due to the arrangement and deployment of the transect line. Descends from surface and arrives on bottom at 120 metre interval.
120 - 110	1:41a - 3:06a	58.0	17.7	0.0	Boulder	2:30a	Y	Colourful rocky bottom consisting of boulder substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - A Coralline red algae - A	No observed fauna.	Transect line laying on the Pikes Island Breakwater approximately 3-4 metres above the harbour bottom (harbour bottom = fines). Filamentous algae, bryozoans and hydrozoans attached to Saccharina. Approximate average canopy height 0.5 m.
110 - 100	3:06a - 4:25a	64.0	19.5	0.28	Fines	3:43a	Y	Dull uniform fines bottom. No algal cover at probe site.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (60%) Cobble (0%) Gravel (0%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - C Polysiphonia sp. - U Coralline red algae - C	Juvenile cod - U (2@3:20) Crepidula sp. - O Breadcrumb sponge - U	Two small fish observed on the bottom of the breakwater over boulder with kelp. Cannot confirm I.D. due to small size but visually looks like a cod. Divers also observed cunner on the breakwater, but these don't look like cunner. Transect line located at base of breakwater. The line primarily rests on the boulder substrate on the toe of slope, but diver measured sediment probe depth on fines on the harbour bottom at 105 metres.
100 - 90	4:25a - 5:42a	67.0	20.4	0.50	Fines	4:37a	Y	Dull uniform fines bottom. No algal cover at probe site.	Fines (Sand and Silt)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - C Polysiphonia sp. - U Coralline red algae - C	No observed fauna.	Transect line located at the base of the breakwater. The line alternates between the toe of slope (boulder) and the harbour bottom (fines). Diver measures sediment probe depth at 100 metre (fines) and 95 metre (boulder).
		65.0	19.8	0.0	Boulder	5:16a	Y	Colourful rocky bottom consisting of boulder substrate with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder)						
90 - 80	5:42a - 6:46a	60.0	18.3	0.18	Fines	5:48a	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (25%) Cobble (0%) Gravel (0%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - O	No observed fauna.	Transect line located at the base of the breakwater. The line alternates between the toe of slope (boulder) and the harbour bottom (fines). Diver measures sediment probe depth at 90 metre (fines) and 85 metre (boulder). End of the transect line leaves the toe of slope and lays entirely on the harbour bottom.
		58.0	17.7	0.18	Fines	6:28a	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)						
80 - 70	6:46a - 0:21b	55.0	16.8	0.9	Fines	6:54a	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (10%) Gravel (0%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Small sculpin - U (1@7:54)	Small sculpin hiding under a blade of Agarum debris. Diver overturns blade and sculpin is startled out of it's shelter.
		55.0	16.8	0.1	Fines	7:57a	Y	Dull uniform fines bottom with occasional algal debris. Small amount of cobble scattered around the probe site with attached kelp.	Fines (Sand and Silt)						
70 - 60	0:21b - 1:40b	55.0	16.8	0.11	Fines	0:27b	Y	Dull uniform fines bottom with occasional algal debris. Small amount of cobble scattered around the probe site with attached kelp.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Sea scallop - U (1@0:28b)	Moderate amount of algal debris on bottom. Also looks like some attached to a small amount of cobble and boulder substrate.
		52.0	15.8	0.19	Fines	1:17b	Y	Dull uniform fines bottom with occasional algal debris. Small amount of cobble scattered around the probe site with attached kelp.	Fines (Sand and Silt)						
60 - 50	1:40b - 2:44b	51.0	15.5	0.19	Fines	1:46b	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Moderate amount of algal debris on bottom. Debris primarily consistst of Saccharina.
		50.0	15.2	0.17	Fines	2:24b	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)						
50 - 40	2:44b - 4:28b	50.0	15.2	0.11	Fines	2:48b	Y	Dull uniform fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Moderate amount of algal debris on bottom. Debris primarily consistst of Saccharina. Diver encounters a pile of old wooden debris at the end of this interval. Wooden debris appears to be old circular columnar wharf piles (or similar) encrusted with coralline algae and provides substrate for algal attachment. Wooden debris piled up, may have been dumped or otherwise accumulated in the area.
		49.0	14.9	0.30	Fines	3:49b	Y	Dull fines bottom with occasional algal and wooden debris.	Fines (Sand and Silt)						
40 - 30	4:28b - 5:39b	45.0	13.7	0.16	Fines	4:34b	Y	Dull fines bottom with abundant algal and wooden debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Desmarestia sp. - U Coralline red algae - U	No observed fauna.	Abundant algal debris on bottom. Debris primarily consistst of Saccharina. Portions of boulders occasionally exposed on the fines bottom with attached algae including Saccharina and Coralline red algae. Desmarestia looks to be attached to substrates beneath the harbour bottom. There is likely rocky substrate beneath the fines. This is supported by the shallow depth of the sediment probes. More wooden wharf piles (or similar) observed in this area, but not as abundant or piled up as in previous interval.
		47.0	14.3	0.15	Fines	5:12b	Y	Dull fines bottom with abundant algal and wooden debris.	Fines (Sand and Silt)						
30 - 20	5:39b - 7:17b	43.0	13.1	0.20	Fines	5:45b	Y	Dull fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (30%) Cobble (5%) Gravel (0%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - O Desmarestia sp. - U Coralline red algae - U	Goosefish - U (1@7:09)	Goosefish = <i>Lophius americanus</i> . Super cool fish! Transect interval contains more exposed boulder and cobble, as well as occasional wooden debris, all of which provides substrate for algae. Bottom still predominantly fines but appears to be transitioning to a harder substrate in this area.
		42.0	12.8	0.20	Fines	6:46b	Y	Dull fines bottom with abundant algal and wooden debris.	Fines (Sand and Silt)						

Appendix A.1: Transect 27 (120 metres on inside of Pikes Island Breakwater) - Summer UBHS - July 23, 2020
Start wp: 1601 Diver Start: 120m at wp1612
End wp: 1612

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
20 - 10	7:17b - 0:50c	38.0	11.6	0.16	Fines	7:32b	Y	Dull fines bottom with occasional algal debris.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (0%) Boulder (30%) Cobble (10%) Gravel (10%) Fines (50%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - O Coralline red algae - U	Juvenile winter flounder - U(1@7:21) Mysid shrimp - O	Winter flounder = <i>Pseudopleuronectes americanus</i> . Super cool fish! Bottom continuing to transition to rocky substrate with algae. Sediment probes on fines (20 m) and mixed fines and gravel (15 m). Bottom around the probe sites contain rockier substrates, attached algae, and algal debris.
		36.0	11.0	0.20	Fines and Gravel	0:17c	Y	Mixed gravel and fines bottom with occasional algal debris.	Mixed (gravel and fines)						
10 - 0	0:50c - End	30.0	9.1	0.1	Fines and Gravel	1:11c	Y	Mixed boulder, cobble, gravel and fines bottom. Sediment probe on gravel / fines on harbour bottom.	Mixed (rocky substrate and fines)	Fines with Variable Rock	Bedrock (0%) Boulder (35%) Cobble (10%) Gravel (15%) Fines (40%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Desmarestia sp. - O Polysiphonia sp. - U Coralline red algae - U	Breadcrumb sponge - U	Bottom continuing to transition to rocky substrate with algae. Bottom around the probe sites contain rockier substrates, attached algae, and algal debris.
		30.0	9.1	0.19	Fines and Gravel	2:08c	Y	Mixed gravel and fines bottom with occasional algal debris.	Mixed (gravel and fines)						
		30.0	9.1	0.28	Fines and Gravel	2:46c	Y	Mixed gravel and fines bottom with occasional algal debris.	Mixed (gravel and fines)						

Start wp: 1613 Diver Start: 0m at wp1613
End wp: 1623

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
Before Start 0 m	0:00a - 2:30a	73.0	22.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	N/A	N/A	Diver descends transect line and straightens out the end of the line for the first 2:30 of the video.
0 - 10	2:30a - 3:42a	73.0	22.3	>1.0	Fines	2:52a	Y	Dull uniform fines bottom. No algal cover at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	No observed fauna.	Occasional algal and anthropogenic (bottles) debris.
10 - 20	3:42a - 4:55a	76.0	23.2	0.9	Fines	3:55a	Y	Dull uniform fines bottom. No algal cover at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (30%) Cobble (0%) Gravel (0%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Sea scallop - U (1@4:38)	Transect line jumps up onto boulder substrate on the toe of the breakwater slope in the latter half of this transect interval. Boulder provides substrate for occasional kelp and is encrusted with coralline algae. Bottom is otherwise fines on the harbour bottom.
		73.0	22.3	0.0	Boulder	4:21a	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (0%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Coralline red algae - A	No observed fauna.	
20 - 30	4:55a - 6:05a	73.0	22.3	0.0	Boulder	4:55a	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (80%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Coralline red algae - A	No observed fauna.	Transect line mostly stays on boulder substrate on the toe of the breakwater slope in this transect interval. Boulder provides substrate for occasional kelp and is encrusted with coralline algae. Bottom is otherwise fines on the harbour bottom. Occasional anthropogenic debris on harbour bottom (bottles).
		72.0	21.9	0.0	Boulder	5:47a	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Winter flounder - U (1@6:42)	Occasional algal and anthropogenic debris on harbour bottom (bottles).
30 - 40	6:05a - 7:25a	77.0	23.5	>1.0	Fines	6:15a	Y	Dull uniform fines bottom. No algal cover at probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.		Occasional algal and anthropogenic debris on harbour bottom (bottles).
40 - 50	7:25a - 0:56b	79.0	24.1	>1.0	Fines	7:48a	Y	Dull uniform fines bottom. No algal cover at probe site. Substrate around the probe site primarily boulder with kelp and coralline algae.	Fines (Sand and Silt)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Phyllophora sp. - U Desmarestia sp. - U Coralline red algae - A	Breadcrumb sponge - U	Diver probes harbour bottom below boulder substrate. Transect line lays primarily on the breakwater in the interval, but probes completed at the 40 and 45 metre tags, which were on the harbour bottom.
		80.0	24.4	0.92	Fines	0:37b	Y	Dull uniform fines bottom. No algal cover at probe site. Substrate around the probe site primarily boulder with kelp and coralline algae.	Fines (Sand and Silt)		Bedrock (0%) Boulder (90%) Cobble (0%) Gravel (0%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Phyllophora sp. - U Desmarestia sp. - U Coralline red algae - A	Cunner - U (1@0:58) Breadcrumb sponge - U Sea peach tunicates - U	
50 - 60	0:56b - 2:08b	77.0	23.5	0.0	Boulder	1:01b	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (90%) Cobble (0%) Gravel (0%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - C Polysiphonia sp. - O Phyllophora sp. - U Desmarestia sp. - U Coralline red algae - A	Cunner - U (1@0:58) Breadcrumb sponge - U Sea peach tunicates - U	
		72.0	21.9	0.0	Boulder	1:38b	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Phyllophora sp. - U Coralline red algae - A	Blood star - U Breadcrumb sponge - U	Diver ends at the 70 metre interval after running out of bottom time. Remainder of transect (70-110 metres) completed the following morning.
60 - 70	2:08b - End	70.0	21.3	0.0	Boulder	2:03b	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - O Phyllophora sp. - U Coralline red algae - A	Blood star - U Breadcrumb sponge - U	Blood star = <i>Henricia sanguinolenta</i> Diver ends at the 70 metre interval after running out of bottom time. Remainder of transect (70-110 metres) completed the following morning.
		66.0	20.1	0.0	Boulder	2:34b	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - O Polysiphonia sp. - C Coralline red algae - A	Cunner - U (1@3:25)	Diver restarting by descending the breakwater slope to the transect line. Diver swims through small school of cunner on descent to transect line. Transect line lays entirely on the breakwater slope. Abundant kelp and coralline red algae on boulder substrate. Diver stops at 75 metre interval but does not perform sediment probe; video clearly shows that the substrate is impenetratable rock.
70 - 80	2:46c - 4:27c	66.0	20.1	0.0	Boulder	2:49c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicruris - O Polysiphonia sp. - C Coralline red algae - A	Cunner - U (1@3:25)	Diver restarting by descending the breakwater slope to the transect line. Diver swims through small school of cunner on descent to transect line. Transect line lays entirely on the breakwater slope. Abundant kelp and coralline red algae on boulder substrate. Diver stops at 75 metre interval but does not perform sediment probe; video clearly shows that the substrate is impenetratable rock.
		64.0	19.5	0.0	Boulder	N/A	N	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)						

Appendix A.1: Transect 28 (110 metres on the tip of Pikes Island Breakwater) - Summer UBHS - July 23/24, 2020

Start wp: 1613 Diver Start: 0m at wp1613

End wp: 1623

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
80 - 90	4:27c - 7:07c	59.0	18.0	0.0	Boulder	4:43c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - C Desmarestia sp. - U Polysiphonia sp. - A Coralline red algae - A	Seastar - U Northern lacuna - U	Northern lacuna on blade of Agarum.
		57.0	17.4	0.0	Boulder	6:21c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)						
90 - 100	7:07c - 1:13d	50.0	15.2	0.0	Boulder	7:27c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - A Desmarestia sp. - U Polysiphonia sp. - A Plumaria plumosa - U Coralline red algae - A	Cunner - U (1@8:00)	Agarum starting to have occasional to abundant (patchy) epiphytic hydroids.
		52.0	15.8	0.0	Boulder	0:31d	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)						
100 - 110	1:13d - End	51.0	15.5	0.0	Boulder	1:29d	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina longicuris - A Polysiphonia sp. - A Plumaria plumosa - U Coralline red algae - A	Juvenile ocean pout - U (1@5:45) Possible cod - U (1@6:09) Frilled sea anemone - U Breadcrumb sponge - U	Ocean pout = <i>Zoarces americanus</i> A cod-like fish can be seen in the interstitial space between boulders at the very end of the transect, but the diver doesn't notice and therefore doesn't investigate. Can only see the anterior half of the fish, but what is visible suggests a cod or similar species.
		57.0	17.4	0.0	Boulder	2:23d	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)						

Appendix A.1: Transect 29 (215 metres between Vardy's Island and the Mass Infill Area) - Summer UBHS - July 25, 2020

Start wp: 1669 Diver Start: 0m @ wp1669

End wp: 1677

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 3:06a	8.0	2.4	0.1	Fines and Gravel	1:24a	Y	Fines mixed with gravel and shell debris. Abundant algal coverage.	Rocky (Boulder) with Fines and Gravel	Boulder Dominant	Bedrock (0%) Boulder (60%) Cobble (10%) Gravel (15%) Fines (15%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - U Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	Stalked jellyfish - U Mysid shrimp - A	Abundant algal coverage in this interval. Canopy height between 0.5 and 1.0 metres. Algae primarily consists of Saccharina.
		6.0	1.8	0.0	Boulder and Cobble	2:37a	Y	Colourful rocky substrate consisting of boulder and cobble with abundant kelp and encrusted with coralline algae.	Rocky (Boulder) with Fines and Gravel						Substrate is not visible for most of the interval but where visible the substrate was predominantly boulder with patches of fines and gravel.
10 - 20	3:06a - 5:52a	6.0	1.8	0.25	Fines and Gravel	4:15a	Y	Fines mixed with gravel and shell debris surrounded by rocky substrate.	Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (45%) Cobble (25%) Gravel (15%) Fines (15%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Agarum clathratum - O Ectocarpus sp. / Pylaiella sp. - O Polysiphonia sp. - O Coralline red algae - A	Rock crab - U (2@3:10a) Littorines - U Seastar - U Crepidula sp. - U	Abundant algal coverage in this interval. Canopy height between 0.5 and 1.0 metres. Algae primarily consists of Saccharina.
		12.0	3.7	0.0	Boulder and Cobble	5:14a	Y	Colourful rocky substrate consisting of boulder and cobble with kelp and encrusted with coralline algae.	Rocky (Boulder and Cobble)						Substrate is not visible for most of the interval but where visible the substrate was predominantly boulder and cobble with intermittent patches of fines and gravel.
20 - 30	5:52a - 8:00a	21.0	6.4	0.12	Fines and Gravel	6:34a	Y	Fines mixed with gravel and shell debris and algal debris. Rocky substrate surrounding probe site.	Mixed Fines and Gravel	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (10%) Gravel (20%) Fines (65%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - O Agarum clathratum - O Ectocarpus sp. / Pylaiella sp. - O Polysiphonia sp. - O Desmarestia sp. - U Ulva lactuca - U Coralline red algae - O	Winter flounder - U (1@7:44a) Mysid shrimp - O Seastar - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Sediment depth is not great, therefore there may be underlaying hard substrate. There is not a lot of rocky substrate visible through this interval.
		26.0	7.9	0.12	Fines with Gravel	7:30a	Y	Fines mixed with some gravel and shell debris and algal debris.	Fines (Sand and Silt)						
30 - 40	8:00a - 2:10b	26.0	7.9	0.18	Fines	0:37b	Y	Fines mixed with a small amount of gravel and shell debris with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Ectocarpus sp. / Pylaiella sp. - O Polysiphonia sp. - O Desmarestia sp. - U Coralline red algae - U	Rock crab - U (1@1:05b) Mysid shrimp - A Sand shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders here and there provide limited substrate for algal attachment. Sediment depth is not great, therefore there may be underlaying hard substrate.
		26.0	7.9	0.2	Fines	1:18b	Y	Fines mixed with a small amount of gravel and shell debris with abundant algal debris.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval.
40 - 50	2:10b - 4:40b	26.0	7.9	0.4	Fines	3:01b	Y	Greyish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (80%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Desmarestia sp. - U Coralline red algae - U	Mysid shrimp - A Littorines - U Sand shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders here and there provide limited substrate for algal attachment.
		27.0	8.2	0.33	Fines	4:03b	Y	Fines mixed with a small amount of gravel with abundant algal debris.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval.
50 - 60	4:40b - 7:25b	27.0	8.2	0.28	Fines	5:42b	Y	Dull brownish fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (5%) Gravel (10%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Desmarestia sp. - O Polysiphonia sp. - U Coralline red algae - U	Mysid shrimp - A Littorines - U Crepidula sp. - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders near the end of the interval provide limited substrate for algal attachment.
		28.0	8.5	0.29	Fines	6:49b	Y	Dull brownish fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval.
60 - 70	7:25b - 1:35c	31.0	9.4	0.34	Fines	0:07c	Y	Greyish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Desmarestia sp. - U Polysiphonia sp. - U Coralline red algae - U	Fringed sea anemone - U Crepidula sp. - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders near the end of the interval provide limited substrate for algal attachment.
		32.0	9.8	0.65	Fines	0:46c	Y	Greyish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
70 - 80	1:35c - 3:47c	33.0	10.1	0.33	Fines	2:28c	Y	Greyish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Mysid shrimp - O	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble provides limited substrate for algal attachment.
		34.0	10.4	0.3	Fines	3:09c	Y	Greyish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
80 - 90	3:47c - 6:28c	35.0	10.7	0.37	Fines	3:45c	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Winter flounder - U (1@4:18c) Lobster - U (4:24c) Littorines - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble provides limited substrate for algal attachment.
		35.0	10.7	0.41	Fines	5:50c	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
90 - 100	6:28c - 0:54d	35.0	10.7	0.3	Fines	7:11c	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Rock crab - U (1@6:46c) Mysid shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble provides limited substrate for algal attachment.
		35.0	10.7	0.5	Fines	0:16d	Y	Brownish black fines with occasional algal debris at the probe site.	Fines (Sand and Silt)						Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).

Appendix A.1: Transect 29 (215 metres between Vardy's Island and the Mass Infill Area) - Summer UBHS - July 25, 2020

Start wp: 1669 Diver Start: 0m @ wp1669
End wp: 1677

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
100 - 110	0:54d - 3:00d	35.0	10.7	0.4	Fines	1:35d	Y	Brownish black fines with occasional algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Littorines - U Mysid shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders provide limited substrate for algal attachment. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
		33.0	10.1	0.29	Fines	2:28d	Y	Brownish black fines with occasional algal debris at the probe site.	Fines (Sand and Silt)						
110 - 120	3:00d - 5:32d	34.0	10.4	0.18	Fines	3:51d	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Rock crab - U (1@5:07d) Mysid shrimp - O Crepidula sp. - U Frilled sea anemone - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders provide limited substrate for algal attachment. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
		33.0	10.1	0.12	Fines	4:37d	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
120 - 130	5:32d - 7:19d	32.0	9.8	0.18	Fines	6:06d	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (10%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Rock crab - U (1@6:11; 1@6:56d) Sand shrimp - U Mysid shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders provide limited substrate for algal attachment. Small patch of exposed bedrock or sunken boulder at 125 metre probe site. After leaving probe site bottom quickly transitions back to fines. Rock crabs spotted sheltering under Agarum blade / Agarum debris.
		31.0	9.4	0.0	Bedrock / Boulder	6:55d	Y	Rocky substrate and veneer of fines. Rock consists of exposed bedrock or boulder with limited kelp and encrusted with coralline algae.	Fines (Sand and Silt)						
130 - 140	7:19d - 1:41e	31.0	9.4	0.19	Fines	0:08e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Coralline red algae - U	Northern lacuna - U	Fines represent the predominant substrate type through this interval, however rocky substrate is present, and at the 125 metre interval the probe doesn't penetrate very deep into the layer of fines. There may be rocky substrate beneath a thin layer of fines here.
		29.0	8.8	0.11	Fines	1:19e	Y	Brownish black fines with abundant algal debris at the probe site. Thin layer of fines over submerged rocky substrate.	Fines (Sand and Silt)						
140 - 150	1:41e - 4:05e	29.0	8.8	0.55	Fines	2:19e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Northern lacuna - U Mysid shrimp - U	Bottom substrate appears to be mostly fines with some gravel and shell debris. Cobble and small boulders provide limited substrate for algal attachment. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
		28.0	8.5	0.61	Fines	3:27e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
150 - 160	4:05e - 6:30e	27.0	8.2	0.37	Fines	4:49e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicuris - U Agarum clathratum - U Polysiphonia sp. - U Coralline red algae - U	Mysid shrimp - O	Bottom substrate appears to be mostly fines. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus). See before and after photos where diver removes algal debris at 155 metre probe site.
		25.0	7.6	0.48	Fines	5:48e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
160 - 170	6:30e - 0:30f	25.0	7.6	0.29	Fines	7:19e	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Coralline red algae - U	Mysid shrimp - O	Bottom substrate appears to be mostly fines with a small amount of cobble providing limited substrate for algal attachment. Occasional empty invertebrate burrows in this interval. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations. Some algal debris has been on bottom for a while if in that state of decomposition (whitish = bacterial colony fed by organic detritus).
		25.0	7.6	0.11	Fines	0:01f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
170 - 180	0:30f - 2:51f	23.0	7.0	0.36	Fines	1:17f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	Filamentous green algae - U	Mysid shrimp - O	Small thin mats of filamentous green algae occasionally present over fines bottom and abundant algal debris. Occasional empty invertebrate burrows in this interval.
		22.0	6.7	0.49	Fines	2:15f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
180 - 190	2:51f - 5:10f	21.0	6.4	0.45	Fines	3:37f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Rock crab - U (1@4:57f) Mysid shrimp - A	Small thin mats of filamentous green algae occasionally present over fines bottom and abundant algal debris. Occasional empty invertebrate burrows in this interval.
		22.0	6.7	0.63	Fines	4:26f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
190 - 200	5:10f - 7:12f		0.0	0.41	Fines	5:55f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Rock crab - U (1@5:29) Green sea urchin - U Mysid shrimp - O	Small depression in bottom at 5:32f likely an excavation / foraging location of a crab or lobster. Abundant algal debris present throughout this interval. Whitish decomposing sludge on sediment below decomposing algae in a few locations.
			0.0	0.62	Fines	6:42f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						

Appendix A.1: Transect 29 (215 metres between Vardy's Island and the Mass Infill Area) - Summer UBHS - July 25, 2020

Start wp: 1669 Diver Start: 0m @ wp1669
End wp: 1677

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
200 - 210	7:12f - 1:20g		0.0	0.57	Fines	7:59f	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed flora.	Juvenile flounder - U (1@0:23g) Sand shrimp - U	Abundant algal debris in this interval. Occasional polychaete excreta observed in coiled sand tubes on bottom in this interval.
		17.0	5.2	0.58	Fines	0:44g	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)						
210 - 215	1:20g - 2:57g	16.0	4.9	0.60	Fines	2:19g	Y	Brownish black fines with abundant algal debris at the probe site.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	No observed flora.	Mysid shrimp - O	Abundant algal debris in this interval. Occasional polychaete excreta observed in coiled sand tubes on bottom in this interval.

Appendix A.1: Transect 30 (180 metres between Vardy's Island dredge area and mass infill area - Summer UBHS - July 25, 2020

Start wp: 1686 Diver Start: 0m @ wp1692
End wp: 1692

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0 - 10	0:00a - 2:25a	45.0	13.7	0.23	Fines	1:18a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Coralline red algae - U	No observed fauna.	Attached algal coverage sparse due to a lack of hard substrate for attachment, but there is an abundance of algal debris on bottom. Algal debris consists of Saccharina and Agarum.
			0.0	0.2	Fines	1:55a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)			
10 - 20	2:25a - 4:01a		0.0	0.19	Fines	2:33a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (85%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Coralline red algae - U	No observed fauna.	Attached algal coverage sparse due to a lack of hard substrate for attachment, but there is an abundance of algal debris on bottom. Algal debris consists of Saccharina and Agarum.
			0.0	0.55	Fines	3:27a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)			
20 - 30	4:01a - 5:25a	46.0	14.0	N/A	Fines	N/A	N	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	No observed algae.	Mysid shrimp - U	Diver did not probe sediment at 20 metre interval, but did pick up a handful of sediment to display sediment plume to camera. Sediment must contain a fair amount of silt to plume and remain suspended in the water column. Abundant algal debris throughout interval consists of Saccharina.
			0.0	0.16	Fines	4:52a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)			
30 - 40	5:25a - 7:10a		0.0	0.43	Fines	5:32a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No observed algae.	Juvenile sculpin - U (1@6:10a) Mysid shrimp - O	Juvenile sculpin observed sheltering on the blade of Saccharina algal debris. Abundant algal debris throughout interval consists of Saccharina.
			0.0	0.39	Fines	6:35a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)			
40 - 50	7:10a - 5:27b		0.0	0.50	Fines	7:19a	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	No observed algae.	Sea scallop - U (1@7:38a; 1@0:03b) Mysid shrimp - O	Diver finds palm-sized scallop under algal debris at 40 metre interval. Diver leaves sediment probe behind at 40 metre probe site and swims to 45 metre probe site. Diver realized he left it behind and goes back to retrieve it and return to 45 metres. Diver forgets to probe at 45 metres on return, but substrate remains silty fines.
			0.0	N/A	Fines	N/A	N	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)			
50 - 60	5:27b - 6:35b		0.0	0.42	Fines	5:40b	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - U Agarum clathratum - U Coralline red algae - U	Mysid shrimp - O Crepidula sp. - U	Diver probes sediment at 50 metres. Upon pulling probe out sediment clings to the end of the probe. Looks to be quite dark, black colour (anoxic?) and 'sticky' (possible clay / organics?). Similar description for sediment probed between 0-50 metres. Bottom abruptly transitions to rocky substrate at the end of this interval. Abundant algal debris on bottom consists of Agarum, Saccharina and Desmarestia. Small amount of cobble / gravel provides substrate for algal attachment.
			0.0	0.59	Fines	6:15b	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)		Bedrock (25%) Boulder (25%) Cobble (10%) Gravel (10%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)			
60 - 70	6:35b - 7:27b		0.0	0.08	Fines	6:39b	Y	Dull fines on the harbour bottom with abundant algal debris surrounded by rocky substrate.	Fines (Sand and Silt)	Mixed Variable Rock	Bedrock (25%) Boulder (25%) Cobble (10%) Gravel (10%) Fines (30%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - C Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	Substrate transitions to primarily mixed rocky substrate at the beginning of this interval with patches of fines. Rocky substrate contains either boulder or bedrock sticking up out of the fines on harbour bottom, but cannot determine which due to attached algae.
			0.0	0.0	Boulder / Bedrock	7:10b	Y	Colourful rocky bottom consisting of boulder or bedrock substrate encrusted with red coralline algae.	Rocky (Boulder / Bedrock)		Bedrock (20%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)			
70 - 80	7:27b - 0:24c		0.0	0.0	Boulder / Bedrock	7:31b	Y	Colourful rocky bottom consisting of boulder or bedrock substrate encrusted with red coralline algae.	Rocky (Boulder / Bedrock)	Fines with Variable Rock	Bedrock (20%) Boulder (20%) Cobble (10%) Gravel (0%) Fines (50%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - O Agarum clathratum - O Polysiphonia sp. - U Coralline red algae - O	Mysid shrimp - O Breadcrumb sponge - U Crepidula sp. - U	Substrate in this interval is patchy and inconsistent. Bottom switches between rocky substate and fines. Rocky substrate contains either boulder or bedrock sticking up out of the fines on harbour bottom, but cannot determine which due to attached algae. Attached algal consists of Saccharina and Agarum. Algal debris also present throughout the interval.
			0.0	0.0	Boulder / Bedrock	8:02b	Y	Colourful rocky bottom consisting of boulder or bedrock substrate encrusted with red coralline algae.	Rocky (Boulder / Bedrock)		Bedrock (5%) Boulder (35%) Cobble (15%) Gravel (5%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)			
80 - 90	0:24c - 1:34c		0.0	0.47	Fines	0:40c	Y	Dull uniform fines on the harbour bottom with abundant algal debris.	Fines (Sand and Silt)	Fines with Variable Rock	Bedrock (5%) Boulder (35%) Cobble (15%) Gravel (5%) Fines (40%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - C Agarum clathratum - C Polysiphonia sp. - U Coralline red algae - C	Seastar - U Mysid shrimp - O	Substrate in this interval is patchy and inconsistent. Bottom switches between rocky substate and fines. Rocky substrate looks like boulder with some bedrock or very large submerged boulders sticking up out of the fines on harbour bottom. Attached algal consists of Saccharina and Agarum. Algal debris also present throughout the interval.
			0.0	0.0	Boulder	1:14c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (0%) Boulder (60%) Cobble (20%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)			
90 - 100	1:34c - 3:12c		0.0	0.0	Boulder	1:39c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Boulder Dominant	Bedrock (0%) Boulder (60%) Cobble (20%) Gravel (0%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Phyllophora sp. - U Coralline red algae - A	Lobster - U (1@2:56c) Rock crab - U (1@1:58c) Mysid shrimp - O Breadcrumb sponge - U	Substrate in this interval primarily consists of rocky substrate (boulder and cobble) with patches of fines. Abundant algal canopy consisting of Saccharina and Agarum.
			0.0	0.0	Boulder	2:23c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)		Bedrock (5%) Boulder (45%) Cobble (20%) Gravel (10%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)			
100 - 110	3:12c - 4:28c		0.0	0.0	Boulder	3:17c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Mixed Variable Rock	Bedrock (5%) Boulder (45%) Cobble (20%) Gravel (10%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Phyllophora sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U Breadcrumb sponge - U	Substrate in this interval primarily consists of mixed rocky substrate (boulder and cobble) with patches of fines. Abundant algal canopy consisting of Saccharina and Agarum. Diver stopped to probe at 105 metre interval but did not record on camera.

Start wp: 1686 Diver Start: 0m @ wp1692
End wp: 1692

Transect Intervals (m)	Video Tag	Water Depth (ft)	Water Depth (m)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
110 - 120	4:28c - 5:40c		0.0	0.0	Boulder	4:39c	Y	Colourful rocky bottom consisting of boulder substrate with kelp and encrusted with red coralline algae.	Rocky (Boulder)	Mixed Variable Rock	Bedrock (0%) Boulder (50%) Cobble (20%) Gravel (10%) Fines (20%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U Stalked jellyfish - U Breadcrumb sponge - U	
			0.0	0.07	Fines and Gravel	5:10c	Y	Mixed bottom (Fines and Gravel) surrounded by larger rocky substrate with attached kelp and encrusted with red coralline algae.	Mixed Fines and Rocky (Gravel, Cobble and Boulder)						
120 - 130	5:40c - 7:05c		0.0	0.1	Fines and Boulder	5:47c	Y	Dull grey fines on bottom surrounded by boulders encrusted with red coralline algae.	Mixed Rocky (Boulder and Cobble) and Fines	Mixed Variable Rock	Bedrock (0%) Boulder (50%) Cobble (25%) Gravel (10%) Fines (15%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Coralline red algae - A	Mysid shrimp - O	Substrate in this interval is primarily rocky but the bottom substrate is periodically covered in a thin layer of fines and there are occasional small patches of accumulated fines.
			0.0	0.02	Fines and Boulder	6:37c	Y	Rocky bottom consisting of boulder and cobble with a thin layer of dull grey fines.	Rocky (Boulder and Cobble)						
130 - 140	7:05c - 0:59d	27.0	8.2	0.08	Fines and Cobble	7:12c	Y	Rocky bottom consisting of boulder and cobble with a thin layer of dull grey fines.	Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (40%) Cobble (40%) Gravel (10%) Fines (10%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - A Polysiphonia sp. - U Desmarestia sp. - U Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	
			0.0	0.0	Boulder	0:24d	Y	Rocky bottom consisting of boulder and cobble with kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						
140 - 150	0:59d - 2:46d		0.0	0.0	Boulder and Cobble	1:02d	Y	Rocky bottom consisting of boulder and cobble with kelp and encrusted with red coralline algae with a thin layer of fines.	Rocky (Boulder and Cobble)	Rocky Dominant - Mixed	Bedrock (0%) Boulder (50%) Cobble (35%) Gravel (10%) Fines (5%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Phyllophora sp. - U Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	No observed fauna.	Diver probes sediment at 145 metre interval but camera doesn't capture substrate. Diver then turns and shows better image of dirty boulder / cobble substrate. Abundant alga coverage throughout this interval consisting mainly of Saccharina and Agarum.
			0.0	0.0	Boulder	1:02d	Y	Rocky bottom consisting of boulder and cobble with kelp and encrusted with red coralline algae with a thin layer of fines.	Rocky (Boulder and Cobble)						
150 - 160	2:46d - 4:16d	22.0	6.7	0.0	Boulder	2:55d	Y	Rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (30%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Desmarestia sp. - U Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U	Abundant algal coverage throughout this interval consisting mainly of Saccharina and Agarum. Where visible, the bottom substrate appears to be mainly boulder with a lesser amount of cobble.
			0.0	0.0	Boulder	3:50d	Y	Rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						
160 - 170	4:16d - 5:37d		0.0	0.0	Boulder	4:20d	Y	Rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (65%) Cobble (25%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	Mysid shrimp - O Crepidula sp. - U Breadcrumb sponge - U	Abundant algal coverage throughout this interval consisting mainly of Saccharina and Agarum. Where visible, the bottom substrate appears to be mainly boulder with a lesser amount of cobble. Infrequent small patches of fines and gravel in sheltered locations between boulders.
			0.0	0.0	Boulder and Cobble	5:10d	Y	Rocky bottom consisting of boulder and cobble with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						
170 - 180	5:37d - 6:58d		0.0	0.0	Boulder	5:45d	Y	Rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (20%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicruris - A Agarum clathratum - O Polysiphonia sp. - U Phyllophora sp. - U Ectocarpus sp. / Pylaiella sp. - O Coralline red algae - A	Green sea urchin - U Mysid shrimp - A Crepidula sp. - U Mottled chiton - U	Abundant algal coverage throughout this interval consisting mainly of Saccharina and Agarum. Where visible, the bottom substrate appears to be mainly boulder with a lesser amount of cobble. Infrequent small patches of fines and gravel in sheltered locations between boulders.
		12.0	3.7	0.0	Boulder	6:21d	Y	Rocky bottom consisting of boulder with abundant kelp and encrusted with red coralline algae.	Rocky (Boulder and Cobble)						

Start WP: 1710 Diver Start 0m @ wp1710
End WP: 1715

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (ft)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0-10	0:00-3:01	8.53	28.00	0.10	Fines	2:00	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100 %)	Sand (20%) Silt (80%) Clay (0%)	Small mat of filamentous phaeophyta - U	Small shrimp - U (@2:16)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Some garbage on bottom.
		9.45	31.00	0.40	Fines	2:38	Y	Dull grey fines							
10-20	3:02-5:31	9.75	32.00	0.35	Fines	4:07	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100 %)	Sand (20%) Silt (80%) Clay (0%)	Palmaria palmata - U Polysiphonia sp. - U Ulva lactuca - U Desmarestia aculeata - O Saccharina latissima - U	No fauna observed	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Some garbage on bottom. Lobster crusher claw on bottom.
		10.36	34.00	>1.0	Fines	4:40	Y	Dull grey fines							
20-30	5:32-7:54	10.36	34.00	>1.0	Fines	6:28	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100 %)	Sand (20%) Silt (80%) Clay (0%)	Filamentous Rhodophyta - U Desmarestia aculeata - O Large mats of filamentous phaeophyta - C	Colonial bryozoan - U	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Some garbage on bottom.Large mats of brown algae may not be alive.
		10.36	34.00	>1.0	Fines	7:20	Y	Dull grey fines							
30-40	7:55-8:03 0:00b-2:22b	10.67	35.00	>1.0	Fines	0:41b	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100 %)	Sand (20%) Silt (80%) Clay (0%)	Large mats of filamentous phaeophyta - C	Cunner - U (@1:52b)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Algae debris plentiful. Some garbage on bottom
		10.67	35.00	0.70	Fines	1:38b	Y	Dull grey fines							
40-50	2:23b-4:40b	10.67	35.00	>1.0	Fines	3:10b	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100 %)	Sand (20%) Silt (80%) Clay (0%)	Large mats of brown algae - C	Cunner - U (@2:53b) Shrimp - U (@ 4:32)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Algae debris plentiful. Some garbage on bottom. Cunner seen is likely one from last interval appears to be following diver. Layer of silt on kelp
		10.67	35.00	>1.0	Fines	4:06b	Y	Dull grey fines							
50-60	4:41b-7:15b	10.36	34.00	>1.0	Fines	5:45b	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (80%)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - O Saccharina latissima - O Coralline red algae - U Small mat of filamentous phaeophyta - U	Cunner - U (@4:55b)(@5:33b) Juvenile cod - O (5@ 5:02b)(1 @5:24B) Winter flounder - U (@ 5:09)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Algae debris plentiful. Some garbage on bottom. Cunner seen is likely one from last interval appears to be following diver. Layer of silt on kelp. Interval encounters first hard substrate of transect.
		10.06	33.00	0.60	Fines	6:46	Y	Dull grey fines							
60-70	7:16b- 1:41c	8.23	27.00	0.30	Fines	7:43b	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (0%) Boulder (30%) Cobble (0%) Gravel (0%) Fines (70%)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - C Saccharina latissima - C Coralline red algae - U Small mat of filamentous phaeophyta - U Lithothamnion sp. - U Polysiphonia sp. - U Ulva lactuca - U	American lobster - U (@1:14c) Slipper snails - O (7:29b) Fried sea anemone - O (@ 7:35b) Rock crab - U(@ 1:04c)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Algae debris plentiful. Some garbage on bottom. Moves over the rock area and back into fines. Layer of slit on kelp.
		7.92	26.00	0.20	Fines	0:55c	Y	Dull grey fines							
70-80	1:42c-4:49c	7.92	26.00	>1.0	Fines	2:49c	Y	Dull grey fines	Fines and Bedrock	Bedrock Dominant	Bedrock (60%) Boulder (0%) Cobble (10%) Gravel (10%) Fines (20%)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Small mat of filamentous phaeophyta -C Hildenbrandia rubra - U Desmarestia aculeata - U Palmaria palmata - O	American lobster - U (@3:53c) Slipper snails - C (3:01c) Yellow sponge - U (@3:01c) Colonial bryozoan - U Barnacle - U (1@ 4:03c)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Transitions to bedrock. Some garbage on bottom. Many particles suspended in water column. Lobster seen but is the same one from last interval.Kelps cover some of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.
		7.01	23.00	0.0	Bedrock	3:42c	Y	Fines trans in to bedrock							

Start WP: 1710 Diver Start 0m @ wp1710
End WP: 1715

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (ft)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
80-90	4:50c-7:24c			0.0	Bedrock	5:06c	Y	Dusting of fines on bedrock	Bedrock	Bedrock Dominant	Bedrock (75%) Boulder (0%) Cobble (10%) Gravel (5%) Fines (10 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Palmaria palmata - O Hildenbrandia rubra - U Polysiphonia sp. - U	Cunner - U (@5:11c) Colonial bryozoan - O American lobster - U (@6:26c) Slipper snails - O (6:26c)	Kelps cover some of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Algae debris on bottom. Silt on kelp.
		5.49	18.00	0.0	Bedrock	6:22c	Y	Bedrock with CA							
90-100	7:25c-2:23d	5.49	18.00	0.0	Bedrock	0:22d	Y	Bedrock with CA	Bedrock	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (10%) Gravel (10%) Fines (10 %)	Sand (20%) Silt (80%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Palmaria palmata - C Desmarestia aculeata - U Polysiphonia sp. - U Ulva lactuca - U Filamentous phaeophyta - U Small mat of filamentous phaeophyta - U	Stalk jelly - U (@ 7:54c) Colonial bryozoan - O Slipper snails - C (@0:05d) Sea star - U (@0:05d)	Kelps cover some of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Algae debris on bottom. Silt on kelp. Eel like fish could not be identified
		5.49	18	0.0	Bedrock	1:20d	Y	Rubble on bedrock							
100-110	2:24d-5:08d	5.79	19	0.0	Bedrock	2:49d	Y	Bedrock with CA	Bedrock	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (5%) Gravel (10%) Fines (15 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - O Palmaria palmata - C Small mat of filamentous phaeophyta - C Lithothamnion sp. - U Alaria esculenta - U	Stalked jellyfish - U (@ 2:25d) Slipper snails - C (@2:47d) Colonial bryozoan - O Cunner - U (@ 3:04d) Epiphytic colonial hydroids- U	Kelps cover some of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Silt on kelp.
		5.79	19	0.0	Bedrock	4:08d	Y	Bedrock with CA							
110-120	5:09d-1:40e	6.10	20	0.30	Fines	5:57d	Y	Fines area likely on bedrock	fines	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (20%) Gravel (10%) Fines (70%)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Small mat of filamentous phaeophyta - C Palmaria palmata - U Polysiphonia sp. - U Ulva lactuca - U Coralline red algae - O	Cunner- U (@5:40d) Slipper snails - C (@1:19e)	Kelps cover some of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed. Silt on kelp. Video E starts with some overlap of video D.
		6.71	22	0.50	Fines	0:57e	Y	Fines area likely on bedrock							
120-130	1:41e-4:50e	5.79	19	0.0	Bedrock	2:31e	Y	Bedrock with CA	Fines and Bedrock	Fines with Variable Rock	Bedrock (40%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (40 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Palmaria palmata - C Polysiphonia sp. - U Small mat of filamentous phaeophyta - O Ulva lactuca - U Coralline red algae - O	Slipper snails - C (@1:19e) Colonial bryozoan - O Cunner- U (@3:39e) American lobster- U (2@4:26)	Kelps cover most of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval. Silt on kelp
		6.71	22	0.30	Fines	4:06e	Y	Dull grey fines							
130-140	4:51e-7:14e	6.71	22	0.25	Fines	5:26e	Y	Dull grey fines	Fines	Fines Dominant	Bedrock (10%) Boulder (20%) Cobble (5%) Gravel (5%) Fines (60%)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - C Saccharina latissima - C Ulva lactuca - U Desmarestia aculeata - U Palmaria palmata - O Coralline red algae - U Small mat of filamentous phaeophyta - O	Colonial bryozoan - O Slipper snails - O (@5:53e)	Agarum clathratum , Saccharina latissima and filamentous algae are present on bottom but attachment cannot be confirmed.
		5.18	17	0.30	Fines	6:31e	Y	Dull grey fines							
140-150	7:15e-8:03e 0:00f-2:34f	3.96	13	0.0	Bedrock	7:40e	Y	Bedrock with CA	Bedrock	Bedrock Dominant	Bedrock (80%) Boulder (0%) Cobble (10%) Gravel (0%) Fines (10 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - C Saccharina latissima - A Desmarestia aculeata - U Palmaria palmata - O Coralline red algae - U Polysiphonia sp. - U Filamentous phaeophyta - O Petalonia sp. - U	Colonial bryozoan - O Slipper snails - O (@7:41e) Barnacle - U (@ 7:41e) Epiphytic colonial hydroids- U	Kelps cover most of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.Silt on kelp.
		3.05	10	0.0	Bedrock	1:32f	Y	Boulder on bedrock							

Appendix A.1: Transect 31 (parallel to public wharf area) - Summer UBHS - July 26, 2020

Start WP: 1710 Diver Start 0m @ wp1710

End WP: 1715

Transect Intervals (m)	Video Tag	Water Depth (m)	Water Depth (ft)	Sediment Probe Depth (m)	Sediment Probe Substrate	Sediment Probe Time	Sediment Probe Photo (Y/N)	Sediment Probe Notes	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
150-160	2:35f-5:53f	2.74	9	0.0	Bedrock	3:07f	Y	Dull grey bedrock	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (5 %)	Sand (50%) Silt (50%) Clay (0%)	Agarum clathratum - U Saccharina latissima - A Palmaria palmata - O Coralline red algae - O Polysiphonia sp. - U Filamentous phaeophyta - O Small mat of filamentous phaeophyta - U Ulva lactuca - U Filamentous Rhodophyta - U	Colonial bryozoan - O Chiton - U (@ 4:08f) Slipper snails - U (@4:08f) American lobster- U (@4:08f)	Kelps cover most of the bedrock bottom (0.1 to 1 m canopy height). Membranipora membranacea (coffin box bryozoan) observed on kelp stipes throughout interval.Silt on kelp. 4:43f transect rope pile reached camera gets covered in kelp. Assuming diver is laying out rope. Camera is uncovered at 5:52f
		1.83	6	0.0	Bedrock	4:04f		Bedrock with CA							
160-170-end	5:54f-6:56f-end	1.83	6	0.0	Bedrock	6:14f	Y	Dull grey bedrock	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (5%) Gravel (0%) Fines (5 %)	Sand (50%) Silt (50%) Clay (0%)	Saccharina latissima - A Coralline red algae - U Polysiphonia sp. - U Ulva lactuca - U Filamentous phaeophyta - C Desmarestia aculeata - O	Sea urchin - C (6:24f) Mussels - O (6:24f)	Area of heavy kelp coverage ends
		1.83	6	0.0	Bedrock	6:38f		Dull grey bedrock							

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-103	25-Feb	1375	50	15.24	Rocky (boulder) with kelp	Boulder with abundant kelp and encrusted with coralline algae.	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Coralline red algae - A	Small shrimp - U	Spot check located at the tip of the Pikes Island breakwater. Drop camera lands on the slope of the breakwater onto large boulders. Abundant hydroids on agarum blades.
SC-52	25-Feb	1376	30.7	9.36	Rocky (boulder) with kelp	Boulder with abundant kelp and encrusted with coralline algae.	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Ascophyllum nososum - O Membranoptera sp. - U Desmarestia sp. - U Coralline red algae - A	Small shrimp - U Littorines - A Northern lacuna - A	Spot check located on the outside slope of Pikes Island breakwater. Drop camera lands onto large boulders. Kelp occasionally encrusted with bryozoans.
SC-62	25-Feb	1377	20	6.10	Rocky (boulder on bedrock) with kelp	Boulders and bedrock with abundant kelp and encrusted with coralline algae.	Rocky Dominant - Mixed	Bedrock (50%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Laminaria digitata - U Desmarestia sp. - U Polysiphonia sp. - A Coralline red algae - A	Small shrimp - U Littorines - A Northern lacuna - A	Spot check located between the base of the outside slope of Pikes Island breakwater and Pikes Island. Substrate is a mix of large boulder and bedrock but it is difficult to distinguish due to dense algal canopy. Estimate somewhere around half boulder and half bedrock. May be more bedrock but big bumps on bottom are assumed boulder. Kelp occasionally encrusted with bryozoans.
SC-63	25-Feb	1378	18	5.49	Rocky (bedrock and gravel/cobble) with kelp	Bedrock and cobble/gravel with abundant kelp and encrusted with coralline algae.	Mixed Variable Rock	Bedrock (50%) Boulder (0%) Cobble (10%) Gravel (40%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Chordaria flagelliformis - U Lithothamnion glaciale - A	Green sea urchin - U Tortoiseshell limpet - U Mussels - U Sea star - U	Spot check located to the south of Pikes Island. Really excellent bottom here. Gravel and cobble field at the base of a bedrock slope between bedrock ridges. Gravel and cobble encrusted with lithothamnium glaciale. Many mussel shells mixed into the gravel bottom. Mussel shells look like Mytilis but cannot confirm. CBCL observed one sculpin (no sp. ID) on bottom from boat.
SC-64	25-Feb	1379	33.2	10.12	Rocky (bedrock) with kelp	Bedrock with grazed kelp and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Lithothamnion glaciale - A Coralline red algae - A	Green sea urchin - A Brittlestars - U Littorines - A Small shrimp - U	Spot check located to the east of Pikes Island. Kelps are all Agarum and very small/short specimens. These are either new growth or are being grazed by urchins. The area does have abunant urchins present.
SC-68	25-Feb	1380	15.5	4.72	Rocky (bedrock)	Bedrock and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Coralline red algae - A	Green sea urchins - A Waved whelk - U Mussels - O	Spot check located in very shallow water along shoreline east of Pikes Island. Bottom substrate is all bedrock and appears to have been nearly completely grazed by abundant urchins. Hundreds of urchin visible in the area. One waved whelk (Buccinum undatum) observed on bedrock. Hard to make out mussels but they look like horse mussels from afar.
SC-67	25-Feb	1381	12.5	3.81	Rocky (bedrock)	Bedrock and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Coralline red algae - A	Green sea urchins - A Mussels - U	Spot check located in very shallow water along shoreline east of Pikes Island. Bottom substrate is all bedrock and appears to have been nearly completely grazed by abundant urchins. Hundreds of urchin visible in the area.
SC-66	25-Feb	1382	13.5	4.11	Rocky (bedrock)	Bedrock and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - U Coralline red algae - A	Green sea urchins - A Mussels - U	Spot check located in very shallow water along shoreline east of Pikes Island. Bottom substrate is all bedrock and appears to have been nearly completely grazed by abundant urchins. Hundreds of urchin visible in the area. Assessment of this spot check was completed by visual inspection from the deck of the boat
SC-59	25-Feb	1383	62.7	19.11	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (100%) Silt (0%) Clay (0%)	No flora observed.	Sand dollar - O	Spot check located in deeper water between Pikes Island and Snooks Island to north of Baldwin rocks. No plume upon impact of drop camera = coarse fines. One large sand dollar and occasional small sand dollars (Echinarachnius parma). Small amount of algal debris present. Small amount of shell debris (mussel shells).
SC-58	25-Feb	1384	35.5	10.82	Rocky (boulder on bedrock) with kelp	Boulders and bedrock with abundant kelp and encrusted with coralline algae.	Bedrock Dominant	Bedrock (80%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Alaria esculenta - U Desmarestia sp. - U Polysiphonia sp. - A Lithothamnion glaciale - A Coralline red algae - A	Green sea urchin - U Stalked jellyfish - U	Spot check located between Pikes Island and Snooks Island to north of Baldwin rocks. Substrate is primarily bedrock with occasional large boulders throughout the area.
SC-57	25-Feb	1385	10	3.05	Rocky (bedrock)	Bedrock and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Laminaria sp. - O Coralline red algae - A	Small shrimp - U Green sea urchin - U	Spot check located near Snooks Island to north of Baldwin rocks. Laminaria sp. has been grazed by urchins. Only the stipes and very small specimens remain in the area.

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-48	25-Feb	1386	66	20.12	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (100%) Silt (0%) Clay (0%)	Laminaria sp. - U	Ctenophore - U	Spot check located near Snooks Island to the northeast of Baldwin rocks. Algal debris is abundant in this area. Fines bottom is all coarse sand. Really cool distribution of algal debris in very neat rows along the bottom. Small number of boulders visible with attach laminaria sp.
SC-47	25-Feb	1387	8	2.44	Rocky (bedrock)	Bedrock and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Laminaria digitata - U Alaria esculenta - U Polysiphonia sp. - U Coralline red algae - A	Green sea urchin - A Brittlestars - U Littorines - A Small shrimp - U	Spot check located near Snooks Island to the northeast of Baldwin rocks.
SC-46	25-Feb	1388	47.9	14.60	Mixed variable (bedrock, cobble and fines)	Bedrock with pockets of fines and limited cobbles and small boulders.	Bedrock Dominant	Bedrock (80%) Boulder (1%) Cobble (1%) Gravel (0%) Fines (18%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Northern lacuna - A Small shrimp - U Brittlestar - U	Spot check located east of east Baldwin rock and south of Snooks Island. Bottom substrate is primarily bedrock but there are patches of sand and occasional cobble at the base of the bedrock.
SC-45	25-Feb	1389	62.3	18.99	Rocky (bedrock) and Fines (sand)	Bedrock with abundant kelp and coralline algae. Sand at base of bedrock slope.	Fines with Variable Rock	Bedrock (50%) Boulder (0%) Cobble (0%) Gravel (1%) Fines (49%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Small shrimp - U	Spot check located east of east Baldwin rock and south of Snooks Island. Abundant algae on the bedrock, but no attached algae on the fine substrate. Fines substrate mostly clean, coarse sand with some shell debris and a small amount of algal debris. Very small amount of gravel provides very limited substrate for filamentous algae on the fines substrate.
SC-49	25-Feb	1390	60.5	18.44	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (100%) Silt (0%) Clay (0%)	Chordaria or desmarestia - U (cannot confirm ID)	Sand dollars - A Ctenophore - U	Spot check located between Baldwin rock and Snooks Island. Sand dollars cover the bottom throughout the area. Potential scallops in area, but cannot confirm. Algal tufts and cleared sand suggest the algae could be attached to a scallop shell.
SC-56	25-Feb	1391	51.2	15.61	Rocky (boulder) with kelp	Boulder with abundant kelp and encrusted with coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Brittlestar - U Stalked jellyfish - U	Spot check located west of Snooks Island.
SC-55	25-Feb	1392	54.8	16.70	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (100%) Silt (0%) Clay (0%)	No flora observed.	Sand dollars - O Ctenophores - U	Spot check located midway between Pikes and Snooks Island, north of Baldwin rock. Occasional algal debris present in this interval. Looks like red and green algal debris.
SC-60	25-Feb	1393	58.4	17.80	Rocky (boulder and gravel) with kelp	Boulder or bedrock (looks like boulder) covered in kelp and coralline algae with occasional patches of mixed small gravel and fines.	Boulder Dominant	Bedrock (0%) Boulder (70%) Cobble (0%) Gravel (20%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Desmarestia sp. - U Coralline red algae - A	Small shrimp - U	Spot check located midway between Pikes and Snooks Island, north of Baldwin Rock. Fines appear quite coarse. No sediment plume from impact of camera on bottom. Possible arrow worms (Chaetognatha) present in water column.
SC-65	25-Feb	1394	55	16.76	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (100%) Silt (0%) Clay (0%)	No flora observed.	Small shrimp - U	Spot check located west of Snooks Island, northwest of Baldwin Rock. Occasional algal debris present is mostly Aragrum.
SC-61	25-Feb	1395	44.5	13.56	Rocky (bedrock) with kelp	Bedrock with abundant kelp and coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Laminaria digitata - U Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Northern lacuna - A	Spot check located east of Pikes Island and north of Baldwin Rock.
SC-54	25-Feb	1396	57	17.37	Rocky (boulder and gravel) with kelp	Primarily gravel substrate with occasional boulders (possibly bedrock) covered in kelp and coralline algae. Gravel mixed with infrequent patches of coarse fines.	Gravel Dominant	Bedrock (0%) Boulder (20%) Cobble (10%) Gravel (60%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Northern lacuna - A	Spot check located east of Pikes Island and north of Baldwin Rock. Mixed substrate through area. Primarily looks like gravel with some fines. Boulder and cobble also visible throughout. Boulder may be bedrock, but hard to tell due to kelp.
SC-1N	25-Feb	1397	43	13.11	Rocky (bedrock) with kelp	Bedrock with abundant kelp and coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Agarum clathratum - A Polysiphonia sp. - A Coralline red algae - A	Brittlestars - O Northern lacuna - A Small shrimp - U	Spot check located north of Baldwin Rock.
SC-53	25-Feb	1398	63.7	19.42	Fines (sand)	Clean, coarse looking sand. Ripples visible on surface of sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (100%) Silt (0%) Clay (0%)	No flora observed.	Sand dollars - U	Spot check located east of Pikes Island Breakwater and north of Baldwin Rock. Occasional algal debris.

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-104	27-Feb	1484	85	25.91	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (90%) Silt (10%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between Pikes Island Breakwater and Baldwin Rock. Sediment plumes on impact but not a large plume. Substrate is mostly sandy but contains some silt. No flora or fauna at this SC.
SC-105	27-Feb	1485	112	34.14	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (90%) Silt (10%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located south of Pikes Island Breakwater in navigation channel. Sediment plumes on impact but not a large plume. Substrate is mostly sandy but contains some silt. No flora or fauna at this SC.
SC-102	27-Feb	1486	97	29.57	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (90%) Silt (10%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located south of Pikes Island Breakwater in navigation channel. Sediment plumes on impact but not a large plume. Substrate is mostly sandy but contains some silt. No flora or fauna at this SC. Occasional algal debris. Small drag marks in sediment suggest gastropods or hermit crabs present in the area but not observed.
SC-99	27-Feb	1487	75	22.86	Fines (sand and silt) with infrequent boulders and kelp	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand. A few solitary boulders provide substrate for alga.	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Agarum clathratum - U Laminaria sp. - U Polysiphonia sp. - U Coralline red algae - U	Hermit crab - U	Spot check located between the tip of the Pikes Island Breakwater and Vardys Island. Bottom here is primarily fines with more silt than those fines substrates observed outside of the breakwater. A few solitary boulders provide substrate for algal attachment throughout the area. The camera drops onto one of these boulders.
SC-69	27-Feb	1488	60	18.29	Rocky (boulder) with kelp and Fines (sand and silt)	Boulder habitat on Pikes Island breakwater with kelp and coralline algae, and the fines on the harbour bottom. Fines are softer and more pillowy. Substrate looks to contain some silty material in addition to sand	Fines with Variable Rock	Bedrock (0%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (50%)	Sand (80%) Silt (0%) Clay (0%)	Agarum clathratum - A Saccharina latissima - A Polysiphonia sp. - U Coralline red algae - A	No fauna observed.	Spot check located along the inside of Pikes Island Breakwater. The drop camera lands right on the edge of the transitional habitat between the base of the breakwater and the harbour bottom. Half of the area is fines substrate on the harbour bottom, and half is boulder on breakwater slope.
SC-70	27-Feb	1489	28.5	8.69	Rocky (boulder) with kelp	Boulder habitat on Pikes Island breakwater with kelp and coralline algae.	Boulder Dominant	Bedrock (0%) Boulder (100%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline red algae - A	Small shrimp - U Ctenophore - U Littorines - U Breadcrumb sponge - U	Spot check located along the inside of Pikes Island Breakwater. Kelp bed very dense and older looking. Kelp is covered in epiphytes including spirorbids, hydroids and bryozoans.
SC-71	27-Feb	1490	14	4.27	Mixed variable substrates including Rocky (boulder and gravel) and Fines (sand)	Boulder habitat on Pikes Island breakwater with kelp and coralline algae, and mixed gravels and coarse looking fines on the harbour bottom.	Mixed Variable Rock	Bedrock (5%) Boulder (25%) Cobble (20%) Gravel (25%) Fines (25%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline red algae - A Polysiphonia sp. - O	Ctenophore - U Small shrimp - U	Spot check located at the inside juncture between Pikes Island and Pikes Island breakwater. Kelp is covered in epiphytes including spirorbids, hydroids and bryozoans. Bottom substrates vary in the small area covered by this spot check. Boulders and bedrock on the breakwater, with mixed cobbles, gravels and fines on the harbour bottom
SC-17	27-Feb	1491	35.7	10.88	Fines (sand and silt) and limited Rocky (cobble) with kelp	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand. A few solitary cobbles provide substrate for algae	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (0%) Fines (90%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U Coralline red algae - U Polysiphonia sp. - U Filamentous brown algae - O	Northern lacuna - O	Spot check located between Vardys Island and Pikes Island. Quite a bit of algal debris here with infrequent attached kelp. Coralline red algae on cobbles. Filamentous algal turf located on some fines substrate. Looks brown but cannot confirm due to low light (Ectocarpus and/or Pilayella species).
SC-16	27-Feb	1492	13	3.96	Mixed variable substrates including Rocky (boulder and gravel) and Fines (sand)	Boulder habitat on Pikes Island with kelp and coralline algae. Fines located on the harbour bottom. Rocky habitat located close to Pikes Island.	Fines with Variable Rock	Bedrock (0%) Boulder (30%) Cobble (15%) Gravel (5%) Fines (50%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Ulva sp. - U Palmaria palmata - U Polysiphonia sp. - U Coralline red algae - A	Northern lacuna - O Ctenophore - U	Spot check located along the west shoreline of Pikes Island. Kelp is covered in epiphytes including spirorbids, hydroids and bryozoans.
SC-7	27-Feb	1493	16	4.88	Mixed variable substrates including Rocky (bedrock, boulder and gravel) and Fines (sand)	Bedrock and boulder habitat on Pikes Island with kelp and coralline algae. Fines located on the harbour bottom. Rocky habitat located close to Pikes Island.	Fines with Variable Rock	Bedrock (40%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (40%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Palmaria palmata - U Polysiphonia sp. - U Coralline red algae - A	Littorines - U Northern lacuna - O	Spot check located along the west shoreline of Pikes Island. Mixed variable substrates including bedrock and boulder with abundant kelps, and fines that look to consist mainly of sand.

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-6	27-Feb	1494	11	3.35	Mixed variable substrates including Rocky (bedrock, boulder cobble and gravel) and Fines (sand)	Bedrock and boulder habitat on Pikes Island with kelp and coralline algae. Fines located on the harbour bottom. Rocky habitat located close to Pikes Island.	Mixed Variable Rock	Bedrock (50%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (30%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - C Filamentous brown algae - O Coralline red algae - C	Horse mussels - U Littorines - A Ctenophore - U	Spot check located along the west shoreline of Pikes Island. Occasional algal debris in this area. Infrequent anthropogenic debris (metal, garbage) also observed here. Bottom is quite variable, though mostly bedrock or fines. Occasional boulders present and infrequent patches of cobbles and gravels. Littorines cover the fines substrate bottom. Laminaria is quite small and relatively new looking growth. Small turf algae (Ectocarpus and/or Pilayella species) present occasionally throughout the area.
SC-5	27-Feb	1495	25	7.62	Mixed variable substrates including Rocky (bedrock, boulder and cobble) and Fines (sand)	Bedrock and boulder habitat with kelp and coralline algae. Fines located on the harbour bottom.	Fines with Variable Rock	Bedrock (20%) Boulder (10%) Cobble (20%) Gravel (0%) Fines (50%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - C Coralline red algae - C	Littorines - A	Spot check located near the access road to Pikes Island on the east side of sheltered inner harbour. Littorines cover the fines substrate bottom.
SC-3N	27-Feb	1496	7.5	2.29	Mixed variable substrates including Rocky (bedrock and gravel) and fines (sand)	Bedrock habitat with kelp and coralline algae. Fines and gravels located on the harbour bottom.	Mixed Variable Rock	Bedrock (40%) Boulder (0%) Cobble (0%) Gravel (30%) Fines (30%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - C Coralline red algae - U	Littorines - A Mussels - U Frimled sea anemone - U	Spot check located near the access road to Pikes Island on the east side of sheltered inner harbour. Bottom substrates are patchy and consist of bedrock with kelp or fines mixed with gravel. Littorines cover the fines/gravel bottom.
SC-4N	27-Feb	1497	12	3.66	Rocky (bedrock, boulder and cobble) with kelp	Bedrock and boulder habitat along Pikes Island access road with kelp and coralline algae.	Mixed Variable Rock	Bedrock (50%) Boulder (30%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - C Coralline red algae - U	Littorines - A Frimled sea anemone - U Mussels - U	Spot check located near the access road to Pikes Island on the east side of sheltered inner harbour. Bottom substrates are all rocky, but vary between either bedrock, boulder or cobbles.
SC-5N	27-Feb	1498	19	5.79	Rocky (bedrock, boulder and cobble) with kelp and small patch of fines.	Bedrock and boulder habitat along Pikes Island access road with kelp and coralline algae. Fines located on harbour bottom.	Mixed Variable Rock	Bedrock (25%) Boulder (40%) Cobble (15%) Gravel (0%) Fines (20%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline red algae - O	Littorines - A Northern lacuna - A	Spot check located near the access road to Pikes Island on the east side of sheltered inner harbour. Bottom substrates are mostly rocky and vary between either bedrock, boulder or cobbles. Fines look like sand but cannot confirm. Camera does not go close enough to confirm type.
SC-6N	27-Feb	1499	14	4.27	Mixed variable substrates including Rocky (bedrock, boulder and gravel) and Fines (sand)	Bedrock and boulder habitat along the north shoreline with kelp and coralline algae. Fines and gravel located on the harbour bottom	Fines Dominant	Bedrock (10%) Boulder (10%) Cobble (0%) Gravel (20%) Fines (60%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - O Coralline red algae - O Filamentous brown algae - O	Littorines - A Northern lacuna - U	Spot check located near north shoreline of inner harbour north of Money Island. Fines and gravel are mixed together on the harbour bottom. The boulder and bedrock provide substrate for laminaria and coralline algae.Filamentous algal turf located on some fines substrate. Looks brown but cannot confirm due to low light (Ectocarpus and/or Pilayella species).
SC-7N	27-Feb	1500	40	12.19	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No flora observed.	Ctenophore - U Hermit crab - U	Spot check located near north shoreline of inner harbour north of Money Island. Bottom substrate entirely fines. Fines plume upon impact, therefore assume a high percentage of silt. Lots of trials on the bottom suggesting hermit crab. One possible hermit crab observed on the bottom but can confirm.
SC-8N	27-Feb	1501	12	3.66	Mixed variable substrates including Rocky (bedrock, boulder and gravel) and Fines (sand)	Bedrock and boulder habitat along the north shoreline with kelp and coralline algae. Fines and gravel located on the harbour bottom.	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (10%) Fines (20%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - U Coralline red algae - U Filamentous brown algae - U Ascophyllum nodosum - U	Littorines - A Mussels - U	Spot check located along north shoreline of inner harbour north of Money Island. Bedrock with occasional boulder and cobble. Patches of fines and gravel over the bedrock substrate.
SC-9N	27-Feb	1502	35.2	10.73	Rocky (bedrock with some boulder and cobble) with kelp and small patch of fines.	Bedrockhabitat with kelp and coralline algae. Fines located in patches on bedrock ledges.	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline red algae - A	Small shrimp - U Frimled sea anemone - U Northern lacuna - O Tortoiseshell limpet - U	Spot check located along north shoreline of inner harbour northwest of Money Island.
SC-10N	27-Feb	1503	13	3.96	Fines (sand and silt) with small patch of rocky (bedrock?) bottom.	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (5%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - U	No fauna observed.	Spot check located along north shoreline of inner harbour northwest of Money Island. Lots of hermit crab tracks in the area but no observation of hermit crab. Occasional algal debris observed but nothing attached to the bottom. Very small amount of bedrock or boulder observed with observed kelp.
SC-11N	27-Feb	1504	16.5	5.03	Mixed variable substrates including Rocky (bedrock, boulder and gravel) and Fines (sand).	Bedrock and boulder habitat along the northwest shoreline with kelp and coralline algae. Fines and gravel located on the harbour bottom.	Mixed Variable Rock	Bedrock (40%) Boulder (20%) Cobble (0%) Gravel (5%) Fines (35%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Coralline red algae - O	Littorines - U Northern lacuna - U	Spot check located along north shoreline of inner harbour northwest of Money Island. Hard to tell if bottom is bedrock or boulder. Either way it is hard bottom with abundant attached kelp. Fines located on harbour bottom and is mixed with a small amount of gravel.
SC-12N	27-Feb	1505	12	3.66	Mixed variable substrates including Rocky (bedrock and boulder) and Fines (sand).	Bedrock and occasional boulder habitat along the northwest shoreline with kelp and coralline algae. Fines located on the harbour bottom between bedrock ledges.	Bedrock Dominant	Bedrock (60%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Coralline red algae - O Fucus sp. - U	Littorines - U Northern lacuna - U	Spot check located along northwest shoreline of inner harbour west of Money Island. Bottom substrate looks like bedrock with attached kelp except where fines have accumulated on the bottom.

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-13N	27-Feb	1506	58	17.68	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (5%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (95%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U Coralline red algae - U	Northern red anemone - U	Spot check located west shoreline of inner harbour west of Money Island. Bottom substrate is entirely fines except for a small protrusion of bedrock.
SC-15N	27-Feb	1507	17.5	5.33	Rocky (bedrock) with kelp and Fines (sand and silt)	Bedrock habitat east of Money Island with kelp and coralline algae and the fines on the harbour bottom. Fines looks to contain some silty material in addition to sand.	Bedrock Dominant	Bedrock (70%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Coralline red algae - A	Ctenophore - U	Spot check located on east side of Money Island. Bottom appears to consist of bedrock covered in kelp surroneded by fines. Spot check mostly covers area of kelp and bedrock. Algal coverage very dense and covers nearly all visible substrate.
SC-16N	27-Feb	1508	28	8.53	Rocky (bedrock and boulder) with kelp and Fines (sand and silt)	Bedrock and boulder habitat south of Money Island with kelp and coralline algae and the fines on the harbour bottom. Fines looks to contain some silty material in addition to sand.	Bedrock Dominant	Bedrock (60%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Coralline red algae - A	Brittlestars - U Green sea urchin - U Northern lacuna - U	Spot check located south of Money Island, halfway to the Pikes Island Breakwater access road. Bottom is largely obscured by kelp but where visible it is mostly bedrock and some boulder. Fines easily discernible due to a lack of algal coverage.
SC-4	27-Feb	1509	41	12.50	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located midway between Pikes Island breakwater access road and MAI maintenance wharf to the south of Money Island. Substrate entirely fines with infrequent algal debris. Mostly just empty bottom. Some hermit crab/gastropod tracks but no species observed.
SC-3	27-Feb	1510	47.4	14.45	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located on west side of sheltered harbour at the MAI maintenance facility. Substrate entirely fines with occasional algal debris.
SC-2	27-Feb	1511	9.6	2.93	Mixed variable substrates including Rocky (bedrock, boulder and gravel) and Fines (sand).	Bedrock and boulder habitat along the northwest shoreline with kelp and coralline algae. Fines and gravel located on the harbour bottom.	Mixed Variable Rock	Bedrock (50%) Boulder (25%) Cobble (0%) Gravel (5%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - O Filamentous brown algae - O Coralline red algae - A	Northern lacuna - O	Spot check located on west side of sheltered harbour at the MAI maintenance facility. Substrate looks like mixed hard and soft substrates. Very shallow, bottom mostly covered in Laminaria.
SC-1	27-Feb	1512	18.4	5.61	Rocky (bedrock and boulder) with kelp and a small patch of Fines (sand)	Bedrock and/or boulder habitat with kelp and coralline algae. Fines in small patch on the harbour bottom surrounded by rocky habitat with kelp.	Mixed Variable Rock	Bedrock (40%) Boulder (50%) Cobble (0%) Gravel (0%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - U Filamentous brown algae - U	Ctenophore - U	Spot check located on west side of sheltered harbour at the MAI maintenance facility. Cannot discern substrate type beyond rocky. Either bedrock or boulder but algal canopy too dense. No substrate observed aside from small patch of fines. Assume even approximately even split of boulder and bedrock.
SC-10	27-Feb	1513	28	8.53	Rocky (boulder) with kelp and coralline algae, and Fines (sand)	Rocky habitat composed of boulder and cobble with kelp and coralline algae. Fines on the harbour bottom are mainly sand with some silt.	Fines Dominant	Bedrock (0%) Boulder (30%) Cobble (10%) Gravel (0%) Fines (60%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - U Filamentous brown algae - U Coralline red algae - O	No fauna observed.	Spot check located on west side of sheltered harbour at the MAI maintenance facility. Bottom is more fines than rocky. Where rocky habitat is present, the substrate is covered in laminaria and coralline algae.
SC-11	27-Feb	1514	44	13.41	Mixed variable bottom with rocky (boulder and cobble) with kelp and coralline algae, and Fines (sand).	Rocky habitat composed of cobble and small boulders with kelp and coralline algae. Fines on the harbour bottom are mainly sand with some silt.	Fines Dominant	Bedrock (0%) Boulder (10%) Cobble (20%) Gravel (0%) Fines (70%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina latissima - C Polysiphonia sp. - U Coralline red algae - O	Frilled sea anemone - U Northern lacuna - U	Spot check located along west side of harbour at the MAI maintenance ferry, alongside the ferry dock. Lots of junk on the bottom around here. Metal bits, bricks/concrete and woody debris. Kelp attached to lots of the debris. Most likely stuff that falls off the wharf / ferry when undergoing maintenance.
SC-12	27-Feb	1515	46	14.02	Rocky (boulder, cobble, and gravel) with kelp and coralline algae	Rocky habitat composed of small boulders, cobble and gravel with kelp and coralline algae.	Cobble and Gravel Dominant	Bedrock (0%) Boulder (20%) Cobble (50%) Gravel (30%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - U Agarum clathratum - U Coralline red algae - A	Northern lacuna - U	Spot check located along west side of harbour at the MAI maintenance ferry, alongside the ferry dock. Very clean looking bottom compared to the previous spotcheck. Still some metallic debris. No fines here. Algal coverage here pretty sparse except for coralline algae.
SC-13	27-Feb	1516	40	12.19	Rocky (bedrock, boulder, cobble, and gravel) with kelp and coralline algae	Rocky habitat composed of bedrock, small boulders, cobble and gravel with kelp and coralline algae.	Mixed Variable Rock	Bedrock (20%) Boulder (30%) Cobble (40%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - A Coralline red algae - A	Northern lacuna - U	Spot check located along west side of harbour at the MAI maintenance ferry, alongside the ferry dock. Bottom mixed rocky substrates. Estimated composition.
SC-14	27-Feb	1517	63	19.20	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater. No flora or fauna observed. Bottom is all fines with infrequent algal and anthropogenic debris (cans).

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-9	27-Feb	1518	63	19.20	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater. Fairly frequent algal debris present on the bottom. Infrequent anthropogenic debris as well (plastic, wood, etc.). Occasional small burrows on the bottom may be bivalves or polychaetes, but nothing observed.
SC-8	27-Feb	1519	36.6	11.16	Fines (sand and silt) with one small boulder and kelp	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (950%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U Coralline red algae - U	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater. Infrequent algal debris and anthropogenic debris (cans) on the harbour bottom.
SC-15	27-Feb	1520	48	14.63	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater.
SC-18	27-Feb	1521	50	15.24	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater. Infrequent algal debris and anthropogenic debris (rubber gloves, cans) on the harbour bottom.
SC-76	27-Feb	1522	40	12.19	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between MAI maintenance area and access road to Pikes Island breakwater. Bigger sediment plume here. Assume larger percentage of silty material. Occasional algal debris on the harbour bottom.
SC-24	27-Feb	1523	67	20.42	Fines (sand and silt), and small cobbles and gravel with kelp	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand. Infrequent small cobble provide attachment for kelp.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (10%) Gravel (15%) Fines (75%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U	Northern lacuna - U	Spot check located between Vardys Island and MAI ferry terminal. Bottom is primarily fines with some gravel and cobble providing limited attachment points for laminaria. Occasional observations of anthropogenic debris (bottles and garbage).
SC-79	27-Feb	1524	56	17.07	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between northwest Vardys Island and MAI ferry terminal. Infrequent algal debris and anthropogenic debris (cans).
SC-80	27-Feb	1525	78.5	23.93	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No flora observed.	Brittlestar - U Northern lacuna - U	Spot check located between east Vardys Island and MAI ferry terminal. Occasional algal debris and anthropogenic debris (bottles and cans). Lacuna observed on algal debris. Brittlestars tiny and only visible when camera is submerged in bottom upon impact.
SC-81	27-Feb	1526	72	21.95	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (70%) Silt (30%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between east Vardys Island and MAI ferry terminal. Occasional algal debris and anthropogenic debris (bottles and cans).
SC-84	27-Feb	1527	78	23.77	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	Brittlestar - U	Spot check located off the southwest corner of Vardys Island. Looks like Vardys Island slope could be visible in background of spot check but too far away to confirm. Assume this area is just beyond the rocky base of the island.
SC-86 / SC-87	27-Feb	1528	57	17.37	Rocky (bedrock / boulder) with abundant kelp and coralline algae.	Bedrock/boulder with abundant kelp and coralline algae.	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - O Coralline red algae - A	No fauna observed.	Spot check located off the southwest corner of Vardys Island. Note that the boat drifts to SC-87 location, therefore this video represents both spot check locations. Hard to distinguish between bedrock and boulder due to dense algal canopy. Looks like its bedrock but difficult to confirm.
SC-91	27-Feb	1529	33.1	10.09	Rocky (bedrock / boulder) with abundant kelp and coralline algae, and patches of Fines (sand).	Bedrock/boulder with abundant kelp and coralline algae. Small patches of fines are present in the area.	Bedrock Dominant	Bedrock (80%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (20%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - O Coralline red algae - A	Northern lacuna - O	Spot check located near public wharves on southwest corner of harbour. Hard to distinguish between bedrock or boulder due to dense algal canopy. Assume bedrock.
SC-92	27-Feb	1530	31.6	9.63	Rocky (bedrock, boulder and cobble) with abundant kelp and coralline algae.	Boulders and some cobbles over bedrock with abundant kelp and coralline algae.	Mixed Variable Rock	Bedrock (30%) Boulder (50%) Cobble (20%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Polysiphonia sp. - O Coralline red algae - A	No fauna observed.	Spot check located between southwest corner of Vardys Island and the public wharves. Bottom substrate estimated based on a few views of the substrate. Dense algal canopy obscures bottom. Looks to be mostly small boulders over bedrock with some cobbles.

Appendix A.2: Spot Check Survey

Spot Check ID	Date	Waypoint Number	Depth (ft)	Depth (m)	Habitat Type	Habitat Notes	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
SC-93	27-Feb	1531	85	25.91	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between southwest corner of Vardys Island and the public wharves. Bottom substrate entirely fines with abundant algal debris and infrequent anthropogenic debris (bottles).
SC-94	27-Feb	1532	82	24.99	Rocky (bedrock and boulder) with kelp and coralline algae. Fines (sand and silt) beyond the base of Vardys Island.	Bedrock and boulder at the base of Vardys Island. Fines located beyond the band of bedrock and boulder. Softer, more pillowy looking fines likely contain silty material in addition to fines.	Fines Dominant	Bedrock (15%) Boulder (15%) Cobble (0%) Gravel (0%) Fines (70%)	Sand (80%) Silt (20%) Clay (0%)	Saccharina latissima - U Coralline red algae - U	Frilled sea anemone - U Northern lacuna - U	Spotcheck located south of Vardys Island. Spot check lands just beyond the base of Vardys Island. Rocky substrate and attached algae visible at the beginning of the spot check. Substrate completey transitions to fines beyond the base of the island.
SC-98	27-Feb	1533	84.7	25.82	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between southeast corner of Vardys Island and Pikes Island breakwater. Bottom substrate entirely fines with infrequent anthropogenic debris (garbage).
SC-97	27-Feb	1534	50	15.24	Fines (sand and silt)	Softer, more pillowy looking fines. Substrate looks to contain some silty material in addition to sand.	Fines Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (100%)	Sand (80%) Silt (20%) Clay (0%)	No flora observed.	No fauna observed.	Spot check located between southeast corner of Vardys Island and Pikes Island breakwater. Bottom substrate looks to consist entirely of fines, however abundant algal debris is present. Possible that some debris is attached to bottom, but it doesn't look like this is the case.
SC-96	27-Feb	1535	17	5.18	Rocky (boulder on bedrock) with kelp	Boulders and bedrock with abundant kelp and encrusted with coralline algae.	Bedrock Dominant	Bedrock (60%) Boulder (30%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Agarum clathratum - U Coralline red algae - A	Green sea urchin - A Ctenophore - U	Spot check located off the southeast corner of Vardys Island. Urchins located on bedrock and look to be grazing on laminaria and agarum. Bare bedrock and boulders with stipes are located throughout spot check area.

Appendix A.3: Shoreline Transect 1 (1000 metres on south side of Navigation Channel) - Summer UBHS - July 26, 2020

Start wp: wp1736 Start depth: 9 ft
End wp: wp1748 End depth: 11 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00a - 1:30a	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Fucus sp. - O Ascophyllum nodosum - U Ulva lactuca - U Filamentous green algae - A Laminaria digitata - O Polysiphonia sp. - O Coralline red algae - A	Littorines - O Seastar - U	Algal coverage over nearly entire rocky bottom. Canopy height does not exceed 0.5 m and generally looks low (0.1 - 0.2 m). Filamentous green algae may be Cladophora or Enteromorpha but cannot id to genus or species. Interval primarily exposed shoreline south of the Lobster holding facility. No buildup on shoreline. Houses and Lobster holding facility along shoreline. Drainage pipes from houses visible.
1:31a - 3:00a	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Fucus sp. - O Ascophyllum nodosum - U Ulva lactuca - U Filamentous green algae - A Laminaria digitata - O Polysiphonia sp. - O Coralline red algae - A	No observed fauna.	Algal coverage over nearly entire rocky bottom. Canopy height does not exceed 0.5 m and generally looks low (0.1 - 0.2 m). Filamentous algae covers majority of bottom in this interval. Depth of the bedrock substrate varies through interval but bottom is visible for the entire interval. Interval ends on the north side of the small cove with houses.
3:00a - 4:30a	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - U Fucus sp. - U Ascophyllum nodosum - U Filamentous green algae - A Coralline red algae - A	Ctenophore - U	Bedrock substrate in this interval with abundant filamentous green algae over the entire bottom and only a few small areas with other kelp. Coralline algae on bottom under filamantous algae. A few shoals and reefs in the area pushed the boat a little ways out from intertidal shoreline. Boat returned into shallow water after passing them.
4:30a - 6:00a	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Cobble, Gravel) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (3%) Gravel (2%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - U Agarum clathratum - U Fucus sp. - U Laminaria digitata - U Petaloniasp. - U Polysiphonia sp. - U Filamentous green algae - C Coralline red algae - A	Ctenophore - U Lion's mane jellyfish - U Littorines - A	Littorines all over the bottom in this interval. Very abundant. Small amount of anthropogenic debris on bottom near end of this interval. Bottom generally bedrock with infrequent and small amounts of boulder, cobble and gravel at the end of the interval. Algal coverage patchy and varies in composition. At beginning of interval algal coverage is dense and consists of filamentous green algae. Algae then transitions to patchy kelps. Coralline red algae abundant throughout.
6:00a - 8:03a	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Cobble, Gravel) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - C Alaria esculenta - O Laminaria digitata - O Ulva lactuca - U Coralline red algae - C	Littorines - A Ctenophore - U	Bottom primarily bedrock with patches of boulder, cobble and gravel at the beginning of the interval which transitions to entirely bedrock. Algal coverage patchy throughout the interval. Occasional anthropogenic debris throughout this interval.
0:00b - 1:30b	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Cobble, Gravel) with Algae	Bedrock Dominant	Bedrock (65%) Boulder (5%) Cobble (5%) Gravel (25%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - C Agarum clathratum - U Alaria esculenta - U Laminaria digitata - U Coralline red algae - A	Littorines - A	Bottom primarily bedrock with occasional patches of gravel over bedrock and infrequent boulder and cobble substrates. Lots of garbages on bottom including ropes, metal, cans and bottles, plastics and various unidentifiable refuse. Algal coverage patchy and not very dense except for a few patches of bedrock covered in Fucus and Coralline algae.
1:30b - 3:00b	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Cobble, Gravel, Fines) with Algae	Bedrock Dominant	Bedrock (60%) Boulder (5%) Cobble (5%) Gravel (20%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Zostera marina - U (@2:37b) Fucus sp. - O Ulva lactuca - U Agarum clathratum - U Alaria esculenta - U Laminaria digitata - U Coralline red algae - O	Littorines - A	Small patch of eelgrass (<i>Zostera marina</i>) toward the end of the interval in mixed fines and gravel bottom in the most sheltered inner part of the small cove. Area of eelgrass estimated as a few square meters (max). Some parts of the intertidal shoreline consist of boulder and are likely part of infills.

Appendix A.3: Shoreline Transect 1 (1000 metres on south side of Navigation Channel) - Summer UBHS - July 26, 2020

Start wp: wp1736 Start depth: 9 ft
End wp: wp1748 End depth: 11 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
3:00b - 4:30b	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Gravel and Fines)	Fines with Variable Rock	Bedrock (5%) Boulder (5%) Cobble (0%) Gravel (40%) Fines (50%)	Sand (100%) Silt (0%) Clay (0%)	Zostera marina - U Coralline red algae - U	Littorines - O Seastar - U	Small patch of eelgrass (<i>Zostera marina</i>) at the start of the interval in mixed fines and gravel bottom in the most sheltered inner part of the small cove. Same patch as previous interval. Area of eelgrass estimated as a few square meters (max). Most of this interval is spent looking at and for more eelgrass and not travelling extensively by boat. Occasional algal debris on bottom (Saccharina) around patches of eelgrass.
4:30b - 6:00b	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Cobble, Gravel and Fines)	Mixed Variable Rock	Bedrock (40%) Boulder (0%) Cobble (5%) Gravel (30%) Fines (25%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - O Laminaria digitata - U Alaria esculenta - O Coralline red algae - A	Littorines - A	Intertidal area is primarily bedrock and subtidal habitats are mixed with patches of gravel and fines with a small amount of cobble, and bedrock. Mixed gravel and fines were present toward the beginning of the interval and midway substrate transitions to primarily bedrock.
6:00b - 8:03b	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - O Alaria esculenta - O Agarum clathratum - U Polysiphonia sp. - U Filamentous green algae - O Coralline red algae - A	Littorines - A	Bottom has transitioned back to primarily bedrock with occasional small patches of gravel and fines. Algal coverage remains lower with occasional patches of dense coverage. Bare bedrock visible throughout with abundant coralline red algae.
0:00c - 1:30c	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Fucus sp. - O Alaria esculenta - O Agarum clathratum - U Polysiphonia sp. - U Filamentous green algae - O Coralline red algae - A	Littorines - A Lion's mane jellyfish - U	Bottom entirely bedrock intertidally and subtidally near the actual graveyard on Graveyard Point. Bottom algal cover patchy and occasionally dense. Bare bedrock is visible throughout and is encrusted with abundant coralline red algae. The shoreline here is getting steeper and the subtidal shoreline is dropping out to deeper depths.
1:30c - 3:00c	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Fucus sp. - O Alaria esculenta - O Chordaria flagelliformis - U Agarum clathratum - U Palmaria palmata - U Ulva lactuca - U Polysiphonia sp. - U Filamentous green algae - U Coralline red algae - A	Cunner - U (1@2:44c) Littorines - O	Bottom entirely bedrock with abundant algal coverage throughout the observed area. Saccharina is the predominant algae along with a variety of other species in smaller patches.
3:00c - 4:30c	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Alaria esculenta - U Ulva lactuca - U Coralline red algae - A	Ctenophore - U	Rocky substrate completely covered in Saccharina. Substrate may be bedrock or boulder but abundant algal coverage prevents confirmation of substrate composition. Assumed predominantly boulder over bedrock due to location and composition observed during diver transects in this area.
4:30c - 6:00c	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Fucus sp. - O Alaria esculenta - A Laminaria digitata - U Palmaria palmata - U Polysiphonia sp. - U Filamentous green algae - U Coralline red algae - A	Moon jellyfish - U Littorines - O	Rocky substrate completely covered in Saccharina. Substrate may be bedrock or boulder but abundant algal coverage prevents confirmation of substrate composition. Assumed predominantly boulder over bedrock due to location and composition observed during diver transects in this area.
6:00c - 8:03c	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Alaria esculenta - A Polysiphonia sp. - U Coralline red algae - A	Littorines - O	Rocky substrate completely covered in Saccharina. Substrate may be bedrock or boulder but abundant algal coverage prevents confirmation of substrate composition. Assumed predominantly boulder over bedrock due to location and composition observed during diver transects in this area.

Appendix A.3: Shoreline Transect 1 (1000 metres on south side of Navigation Channel) - Summer UBHS - July 26, 2020

Start wp: wp1736 Start depth: 9 ft
End wp: wp1748 End depth: 11 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00d - 1:30d	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Alaria esculenta - O Laminaria digitata - U Polysiphonia sp. - U Coralline red algae - A	Ctenophore - U Lion's mane jellyfish - U	Rocky substrate completely covered in Saccharina. Substrate may be bedrock or boulder but abundant algal coverage prevents confirmation of substrate composition. Assumed predominantly boulder over bedrock due to location and composition observed during diver transects in this area.
1:30d - 3:00d	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Alaria esculenta - O Laminaria digitata - U Ulva lactuca - U Palmaria palmata - U Polysiphonia sp. - U Coralline red algae - A	Ctenophore - U Lion's mane jellyfish - U	Rocky substrate completely covered in Saccharina. Substrate may be bedrock or boulder but abundant algal coverage prevents confirmation of substrate composition. Assumed predominantly boulder over bedrock due to location and composition observed during diver transects in this area.
3:00d - 4:30d	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Coralline red algae - A	Lion's mane jellyfish - U	Most of this interval is spent going around a line and buoy strung out from shoreline. This part of the transect on the Graveyard Point shoreline therefore substrate presumed boulder.
4:30d - 6:00d	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Fucus sp. - O Saccharina longicuris - U Palmaria palmata - U Coralline red algae - O	Lion's mane jellyfish - U Ctenophore - U	Rocky substrate covered in Fucus and Alaria in the upper intertidal zone. This part of the transect on the Graveyard Point shoreline therefore substrate presumed boulder.
6:00d - 7:16d	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Boulder Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - A Laminaria digitata - O Saccharina longicuris - U Palmaria palmata - U Coralline red algae - O	Lion's mane jellyfish - U Ctenophore - U	Rocky substrate primarily covered in Alaria and Laminaria. This part of the transect on the Graveyard Point shoreline therefore substrate presumed boulder.

Appendix A.3: Shoreline Transect 2 (300 metres West of South Turning Basin) - Summer UBHS - July 26, 2020

Start wp: wp1728 Start depth: 17ft
End wp: wp1735 End depth: 10 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00-1:30	Bedrock	Bedrock Dominant	Bedrock (75%) Boulder (5%) Cobble (0%) Gravel (15%) Fines (5 %)	Sand (80%) Silt (20%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - C Ulva lactuca - C Fucus sp. - C Dark green mat algae - O Palmaria palmata - C Dictyosiphon foeniculaceus - C Alaria esculenta - O Phyllophora sp. - U	Sea urchin - C Epiphytic colonial hydroids- U Cunner - U	Strips of bedrock coming down from shoreline. Some boulder has come from the shoreline "wall". Gravel is present at start but quickly moves to bedrock only area. Small fish in algae
1:31-3:00	Bedrock	Bedrock Dominant	Bedrock (75%) Boulder (5%) Cobble (0%) Gravel (10%) Fines (10 %)	Sand (20%) Silt (80%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - C Ulva lactuca - C Fucus sp. - C Alaria esculenta - O Dictyosiphon foeniculaceus - C Saccharina latissima - C Phyllophora sp. - O	Small jellyfish - U Cunner - U	Strips of bedrock coming down from shoreline. Some boulder has come from the shoreline "wall". Camera moves over a valley in the bedrock and the bottom visibility to the bottom is poor. Little fines section at end of video. Camera moves in to shore and back out over about the same path.
0:00b-1:30b	Bedrock	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Ulva lactuca - C Alaria esculenta - A Phyllophora sp. - O laminaria digitata - O Fucus sp. - C Coralline algae - U	Littorina sp. -O	Strips of bedrock coming down from shoreline. Some boulder has come from the shoreline "wall" Some damaged kelp can not be identified. Heavy algae coverage. Most kelp shows some damage strong wave action likely the cause.
1:31b-3:00b	Bedrock	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (5%) Gravel (5%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Alaria esculenta - O Fucus sp. - C Laminaria digitata - U Coralline algae - U	Cunner - U	Strips of bedrock coming down from shoreline. Starts at 1:47 camera backs up over area already evaluated
3:01-4:30b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - U Laminaria digitata - U	Ctenophore - U Small jellyfish - U	Strips of bedrock coming down from shoreline. Area dominated by filamentous phaeophyta near 100% coverage.
4:31b-6:00b	Fines	Bedrock Dominant	Bedrock (70%) Boulder (5%) Cobble (5%) Gravel (20%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - U Agarum clathratum - U Alaria esculenta - O Laminaria digitata - U Fucus sp. - U	Ctenophore - U Littorina sp. - A Small jellyfish - U	Strips of bedrock coming down from shoreline. Area dominated by filamentous phaeophyta near 100% coverage then transistions to an area of low algae coverage. Some garbage on bottom such as old springs.
6:01b- 7:30b	Fines	Bedrock Dominant	Bedrock (60%) Boulder (5%) Cobble (5%) Gravel (30%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - C Agarum clathratum - O Coralline algae - O Fucus sp. - A Alaria esculenta - O Laminaria digitata - U Saccharina latissima - U Ulva lactuca - U	Littorina sp. - O	Strips of bedrock coming down from shoreline. Gravel area present between bedrock strips. Some garbage on bottom such as old buckets.
7:30b-8:03b	Fines	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (5%) Gravel (5%) Fines (0 %)	Sand (0%) Silt (0%) Clay (0%)	Alaria esculenta - U Laminaria digitata - U Coralline algae - O Filamentous phaeophyta - O Agarum clathratum - U	Littorina sp. - O	Strips of bedrock coming down from shoreline.

Appendix A.3: Shoreline Transect 3 (320 metres South of the Marine Atlantic parking lot and loading area) - Summer UBHS - July 26, 2020

Start wp: wp1749 Start depth: 33ft
End wp: wp1755 End depth: 26 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00-1:30	Bedrock	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A Fucus sp. - C Palmaria palmata - C Ulva lactuca - O	Ctenophore - O	Video shows wharf side and not substrate. Heavy algae cover makes substrate not visible assumed to be bedrock.
1:31-3:00	Bedrock	Bedrock Dominant	Bedrock (70%) Boulder (5%) Cobble (0%) Gravel (15%) Fines (10 %)	Sand (90%) Silt (10%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - C Palmaria palmata - C Agarum clathratum - U	Cunner - U	Drop-off slope with gravel and some fines. Hard attachment substrate is likely under a thin layer of small substrate.
3:01-4:30	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - O Palmaria palmata - O Fucus sp. - O Coralline algae - U Filamentous phaeophyta - O Ascophyllum nodosum - U	Barnacles - C Ctenophore - U Cunner - U	Camera pans over deep area where bottom is not visible. Shows concrete side and wooden planks. Poor visibiltly in water column. Hard substrate towards end of interval. Area seen is bedrock, soft substrate is possible at base on concrete wall.
4:31-6:00	Bedrock	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Palmaria palmata - O Ulva lactuca - U Fucus sp. - C Dark green mat algae - U Ascophyllum nodosum - U Alaria esculenta - O Coralline algae - U	Ctenophore - U Barnacles - A Colonial bryozoan - O	Sloping bank some rock rubble likely from shore. Moves towards concrete pillar. Small mussels may be attached to wood on concrete pillar but can not be confirmed. Base of pillar is not visible. Algae on pillar ia damaged. Hard substrate towards end of interval. Area seen is bedrock, soft substrate is possible at base on concrete wall.
6:01- 7:30	Bedrock	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - O Fucus sp. - A Palmaria palmata - O Saccharina latissima - O Ulva lactuca - U Alaria esculenta - O	Barnacles - O	Metal grate in the water (part of a slipway). Rock shelf coming off the shore. Another pillar in the water.
7:30b-8:03b	Fines	Bedrock Dominant	Bedrock (85%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - O Saccharina latissima - A Ulva lactuca - O Palmaria palmata - O Fucus sp. - C	Barnacles - O Colonial bryozoan - U	Poor visibility in water column. Moves to wooden structure
0:00b- 1:30b	Fines	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - O Saccharina latissima - A Coralline algae - C Ulva lactuca - O Palmaria palmata - O Fucus sp. - C Laminaria digitata - U Ascophyllum nodosum - U Alaria esculenta - U	Cunner - U Barnacles - O Littorina sp. - O Colonial bryozoan - U	Starts at wooden structure. Bottom is not visible. Moves to bedrock shelf coming off the shore then to another wooden structure.
1:30b- 2:03b	Fines	Bedrock Dominant	Bedrock (85%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A	Colonial bryozoan - O Small jellyfish - U	Bottom not visisble at start drop off rock face visible. Very poor visibility in water column. Algae on shore line hard to make out possibly due to rain run off

Appendix A.3: Shoreline Transect 4 (400 metres East of the Marine Atlantic parking lot) - Summer UBHS - July 27, 2020

Start wp: wp1774 Start depth: 10.5 ft
End wp: wp1780 End depth: 16 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00-1:30		Rocky Dominant - Mixed	Bedrock (0%) Boulder (50%) Cobble (40%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Fucus sp. - C Saccharina latissima - C	Small jellyfish - O Barnacles - O Littorina sp. - O	Built up boulder shoreline. Steep rock slope. Poor visibility in water column. Substrate is hard to view likely bedrock is present but covered in filamentous algae.
1:31-3:00			Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - A Palmaria palmata - O Ulva lactuca - O	Small jellyfish - U Barnacles - O	Bottom not visible through most of interval moves along side of wharf, wooden walls and plastic bumpers. No substrate observed.
3:01-4:30		Mixed Variable Rock	Bedrock (10%) Boulder (20%) Cobble (25%) Gravel (25%) Fines (10%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - C	Small jellyfish - U	Boulder and cobble built up shoreline with wooden wharf wall. Steep rock slope. Poor visibility and heavy algae cover maybe hiding bedrock and boulders.
4:31-6:00		Mixed Variable Rock	Bedrock (15%) Boulder (15%) Cobble (25%) Gravel (25%) Fines (10%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - A	Small jellyfish - U Littorina sp. - U	Steep, slope gravel and fines may be on top of hard substrate. Built up shoreline comprised of boulders and cobbles.
6:01- 7:30		Mixed Variable Rock	Bedrock (25%) Boulder (25%) Cobble (25%) Gravel (15%) Fines (10%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - A Coralline algae - O	Littorina sp. - U Small jellyfish - U Barnacles - U	Very steep slope. Poor visibility in water column. Built up shoreline comprised of boulders and cobbles. Camera backs up slightly along its path.
7:30-8:03		Cobble and Gravel Dominant	Bedrock (0%) Boulder (25%) Cobble (40%) Gravel (25%) Fines (10%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - O Coralline algae - O	Barnacles - O	Very steep slope. Poor visibility in water column. Built up shoreline comprised of boulders and cobbles. Camera backs up slightly along its path.
0:00b- 1:30b		Mixed Variable Rock	Bedrock (10%) Boulder (5%) Cobble (30%) Gravel (25%) Fines (30%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - O Coralline algae - O	Barnacles - C Small jellyfish - U	Built up shoreline comprised of boulders and cobbles. Layer of silt present throughtout this area. Drain pipe present. Poor visibility in water column.
1:30b- 3:00b		Mixed Variable Rock	Bedrock (10%) Boulder (5%) Cobble (20%) Gravel (30%) Fines (35%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - A Fucus sp. - C Green filamentous algae - A	Small jellyfish - O Barnacles - U	Built up shoreline comprised of boulders, cobbles and some concrete pieces. Bottom not visible at start of interval.Near end of interval green slime algar is coating all algae. Steep slope of various substrate types.
3:01b- 4:30b		Fines with Variable Rock	Bedrock (0%) Boulder (10%) Cobble (10%) Gravel (40%) Fines (40%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - O Saccharina latissima - O Fucus sp. - U	Small jellyfish - O	Built up shoreline comprised of boulders, cobbles and concrete pieces. Concrete slipway. Very poor visibility. Gravel and fines slope
4:31b- 5:10b		Fines with Variable Rock	Bedrock (0%) Boulder (5%) Cobble (5%) Gravel (50%) Fines (40%)	Sand (40%) Silt (60%) Clay (0%)	Filamentous phaeophyta - O Saccharina latissima - O Fucus sp. - O	No fanua	Concrete reinfored shoreline. Gravel and fines slope.

Appendix A.3: Shoreline Transect 5a (800 metres north of Money Island along inner harbour shoreline) - Summer UBHS - July 28, 2020

Start wp: 1823 Start depth: 7 ft
End wp: 1848 End depth: 15 ft

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00a - 1:30a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Intertidal shoreline at starting location is all bedrock except for steep rubble / riprap slope along the Highway. Entire interval out of the water positioning the boat. Boat positioning was difficult this day due to high winds.
1:31a - 3:00a	Partial	Rocky Intertidal (Boulder and Bedrock) and Subtidal (Boulder and Bedrock) with Algae	Boulder Dominant	Bedrock (80%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Coralline red algae - O	Lion's mane jellyfish - U	Substrate estimated mostly boulder. Substrate difficult to observe due to abundant algal coverage, high turbidity in the water column and deep water in this area. Intertidal slope is primarily boulder along highway. Presume this is also the submerged substrate.
3:00a - 4:30a	Partial	Rocky Intertidal (Boulder and Bedrock) and Subtidal (Boulder and Bedrock) with Algae	Boulder Dominant	Bedrock (75%) Boulder (25%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Coralline red algae - O	Lion's mane jellyfish - U Littorines - O	Substrate estimated mostly boulder. Substrate difficult to observe due to abundant algal coverage, high turbidity in the water column and deep water in this area. Intertidal slope is primarily boulder along highway. Presume this is also the submerged substrate.
4:30a - 6:00a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (60%) Boulder (20%) Cobble (0%) Gravel (10%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicruris - A Ascophyllum nodosum - U Filamentous brown algae - U Coralline red algae - O	Lion's mane jellyfish - U Mussels - U Frimled sea anemone - U Littorines - A	Intertidal substrate consists of bedrock with Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder and small patches of gravel and fines. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae.
6:00a - 8:03a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Zostera marina - U (@6.06a; @6.50a) Fucus sp. - U Ascophyllum nodosum - U Saccharina longicruris - O Filamentous brown algae - U Coralline red algae - O	Littorines - A Lion's mane jellyfish - U Mussels - A	Two small patches of eelgrass observed in patch of fines and gravel over bedrock substrate. Each eelgrass patch has an area <1 m sq. Bottom substrate primarily bedrock with a few small patches of fines and gravel, and occasional boulders. Anthropogenic debris (bottles, garbage) scattered around the area.
0:00b - 1:30b	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Ascophyllum nodosum - U Saccharina longicruris - O Polysiphonia sp. - U Coralline red algae - O	Lion's mane jellyfish - O Mussels - O Littorines - A	Bottom substrate primarily bedrock with a few small patches of fines and gravel, and occasional boulders. Anthropogenic debris (bottles, garbage) scattered around the area.
1:30b - 3:00b	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Ascophyllum nodosum - U Saccharina longicruris - O Coralline red algae - O	Lion's mane jellyfish - U	Bottom only partially visible through this interval. Where visible, the bottom is bedrock with a few boulders and occasional algal coverage.
3:00b - 4:30b	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Polysiphonia sp. - U Coralline red algae - O	Lion's mane jellyfish - U Littorines - A	Boat doesn't enter into the small cove during this part of ST5. Small cove completed the next day (ST5b). Instead the boat crosses the mouth to the small cove. Bottom substrate throughout the area was shallow bedrock with a few boulders and abundant algal coverage.
4:30b - 6:00b	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Polysiphonia sp. - U Coralline red algae - O	Littorines - A Lion's mane jellyfish - U Mussels - O	Bottom only partially visible through this interval. Where visible, the bottom is bedrock with a few boulders and occasional algal coverage.

Appendix A.3: Shoreline Transect 5a (800 metres north of Money Island along inner harbour shoreline) - Summer UBHS - July 28, 2020

Start wp: 1823 Start depth: 7 ft
End wp: 1848 End depth: 15 ft

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
6:00b - 8:03b	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Coralline red algae - O	Littorines - A Lion's mane jellyfish - O Mussels - U	Bottom only partially visible through this interval. Where visible, the bottom is bedrock with a few boulders and occasional algal coverage.
0:00c - 1:30c	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Laminaria sp. - U Fucus sp. - U Filamentous brown algae - U Coralline red algae - O	Littorines - O	Boat has now completely crossed the mouth of the small cove and is back to the shoreline survey to the west of the small cove. Bottom only partially visible through this interval. Where visible, the bottom is bedrock with a few boulders and occasional algal coverage.
1:30c - 3:00c	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder and Cobble) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (10%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - A Fucus sp. - U Polysiphonia sp. - U Coralline red algae - O	Lion's mane jellyfish - U Littorines - A Mussels - O	Bottom mostly bedrock with occasional boulders scattered throughout and abundant algal coverage.
3:00c - 4:30c	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicruris - O Fucus sp. - U Polysiphonia sp. - U Coralline red algae - O	Littorines - A Seastar - U Lion's mane jellyfish - U	Bottom substrate primarily bedrock with a few small patches of fines and gravel, and occasional boulders.
4:30c - 6:00c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Cobble and Gravel) with Algae	Mixed Variable Rock	Bedrock (40%) Boulder (20%) Cobble (20%) Gravel (20%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - O Saccharina longicruris - U Filamentous green algae - U Coralline red algae - O	Littorines - A Mussels - O Lion's mane jellyfish - U	Bottom substrate is a mix of bedrock in deeper water with accumulated cobble and gravel substrate in shallow water immediately below the bedrock intertidal shoreline.
6:00c - 8:03c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Cobble and Gravel) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - C Saccharina longicruris - O Filamentous green algae - U Coralline red algae - O	Littorines - A Mussels - O Lion's mane jellyfish - U	Bottom substrate is a mix of bedrock in deeper water with accumulated cobble and gravel substrate in shallow water immediately below the bedrock intertidal shoreline.
0:00d - 1:43d	All	Rocky Intertidal (Boulder, Cobble and Gravel) and Subtidal (Bedrock, Boulder, Cobble and Gravel)	Mixed Variable Rock	Bedrock (30%) Boulder (20%) Cobble (25%) Gravel (25%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - C Ascophyllum nodosum - U Saccharina longicruris - U Filamentous green algae - U Coralline red algae - U	Littorines - A Mussels - O	Intertidal and submerged bottom substrate are mostly fill material used on the MAI / large blue shed property to extend the land out past natural shoreline. Submerged natural substrate is bedrock overtopped with rubble composed of boulder, cobble and gravel.

Appendix A.3: Shoreline Transect 5b (3000 metres along sheltered inner harbour shoreline) - Summer UBHS - July 27, 2020

Start wp: 1823 Start depth: 7
End wp: 1848 End depth: 15

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00a - 1:30a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (75%) Boulder (20%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - O Ascophyllum nodosum - U Saccharina longicruris - U Coralline red algae - U	Littorines - A Blue mussels - O Frimled sea anemone - U	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder and occasional cobbles. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae. Occasional algal debris located in this area.
1:31a - 3:00a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (0%) Gravel (10%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - O Ascophyllum nodosum - U Saccharina longicruris - C Coralline red algae - O	Littorines - A Mysid shrimp - A Blue mussels - O Frimled sea anemone - U Seastar - U	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder and small patches of gravel and fines. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae. Occasional algal debris located in this area.
3:00a - 4:30a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (0%) Gravel (10%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - U Chorda filum - U Saccharina longicruris - O Filamentous brown algae - U Coralline red algae - U	Littorines - A Blue mussels - U	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder and small patches of gravel and fines. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae. Occasional algal and anthropogenic debris (bottles) located in this area.
4:30a - 6:00a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Fines with Variable Rock	Bedrock (15%) Boulder (15%) Cobble (0%) Gravel (30%) Fines (40%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - U Chorda filum - U Saccharina longicruris - U Coralline red algae - U	Littorines - A	Boat hits bottom about midway through interval. Bottom very shallow. Mostly fines and gravel in this interval but boat strikes a large boulder. Boat moves out to slightly deeper water to avoid striking bottom again. Bottom primarily fines and gravel with limited algae (Chorda filum). Occasional boulder and bedrock substrate has kelp and coralline algae. Bottom mostly flat and shallow.
6:00a - 8:03a	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (15%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Chorda filum - U Saccharina longicruris - U Coralline red algae - U	Littorines - A	Boat hit boat on bottom and spends most of this interval repositioning. Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae. Occasional algal and anthropogenic debris (bottles) located in this area.
0:00b - 1:30b	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Fines with Variable Rock	Bedrock (15%) Boulder (15%) Cobble (0%) Gravel (30%) Fines (40%)	Sand (0%) Silt (0%) Clay (0%)	Chorda filum - U Saccharina longicruris - U Coralline red algae - U	Littorines - U	Bottom drops out in part of this interval. Cannot see bottom but can see Chorda filum reaching up. Presumably mixed gravel and fines bottom. Can confirm bottom mixed gravel and fines in shallower area toward end of the interval.
1:30b - 3:00b	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - U Saccharina longicruris - U Coralline red algae - U	Littorines - U Blue mussels - U Mysid shrimp - A Lion's mane jellyfish - U	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with boulder and small patches of gravel and fines. Algal coverage lower in this area. Lots of rocky habitat available for attachment without attached macroalgae or coralline algae. Occasional algal debris in this area.
3:00b - 4:30b	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - U Ulva sp. - U Dictyosiphon foeniculaceus - U Coralline red algae - U	Littorines - A Mysid shrimp - A Blue mussels - U	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are rocky and consist primarily of bedrock with occasional boulders and small patches of gravel and fines.
4:30b - 6:00b	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (65%) Boulder (5%) Cobble (0%) Gravel (10%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Chorda filum - O Saccharina longicruris - U Polysiphonia sp. - U Coralline red algae - U	Littorines - A Frimled sea anemone - U Mysid shrimp - A	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are primarily rocky and consist of bedrock with occasional boulders and a patch of gravel and fines in deeper water between bedrock ridges.

Appendix A.3: Shoreline Transect 5b (3000 metres along sheltered inner harbour shoreline) - Summer UBHS - July 27, 2020

Start wp: 1823 Start depth: 7
End wp: 1848 End depth: 15

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
6:00b - 8:03b	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (45%) Boulder (10%) Cobble (10%) Gravel (20%) Fines (15%)	Sand (100%) Silt (0%) Clay (0%)	Chorda filum - O Saccharina longicuris - U Polysiphonia sp. - U Coralline red algae - U	Littorines - O	Intertidal substrate consists of bedrock with Fucus and Ascophyllum. Submerged habitats in this section are primarily rocky and consist of bedrock and occasional boulders and cobble with patches of gravel and fines in deeper water between bedrock ridges. Chorda filum located in both fines and gravel and primarily bedrock and boulder substrates.
0:00c - 1:30c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (75%) Boulder (0%) Cobble (0%) Gravel (15%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Ascophyllum nodosum - U Saccharina longicuris - U Chorda filum - U Coralline red algae - U	Blue mussels - O Frilled sea anemone - U	Bottom covered in abundant mussel shells in this area. Bottom mostly bedrock except for a patches of gravel and fines with mussel shells toward the end of this interval.
1:30c - 3:00c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (0%) Gravel (10%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - U Chorda filum - U Filamentous brown algae - U Coralline red algae - U	Littorines - O Blue mussels - U	Bottom covered in abundant mussel shells in this area. Submerged habitat mostly bedrock except for a few small patches of gravel and fines with mussel shells.
3:00c - 4:30c	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (40%) Boulder (20%) Cobble (10%) Gravel (20%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Saccharina longicuris - U Chorda filum - U Filamentous brown algae - U Coralline red algae - U	Littorines - O Frilled sea anemone - U	Submerged habitat variable in this interval but consists mainly of rocky substrates over bedrock, or exposed bedrock. Depths vary as well, and views of bottom are obscured by turbid water in places. Where visible deeper substrates appear rocky with some patches of gravel and fines. Algal coverage fairly low throughout this section.
4:30c - 6:00c	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (5%) Cobble (0%) Gravel (10%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Chorda filum - U Filamentous brown algae - U Coralline red algae - U	Littorines - U Frilled sea anemone - U	Submerged habitat variable in this interval but consists mainly of rocky substrates over bedrock, or exposed bedrock. Depths vary as well, and views of bottom are obscured by turbid water in places. Where visible deeper substrates appear rocky with some patches of gravel and fines. Algal coverage fairly low throughout this section.
6:00c - 8:03c	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Chorda filum - U Ulva sp. - U Saccharina longicuris - U Filamentous brown algae - U Coralline red algae - U	Littorines - U Frilled sea anemone - U Lion's mane jellyfish - U	Submerged habitat variable in this interval but consists mainly of rocky substrates over bedrock, or exposed bedrock. Depths vary as well, and views of bottom are obscured by turbid water in places. Where visible deeper substrates appear rocky with some patches of gravel and fines. Algal coverage fairly low throughout this section.
0:00d - 1:30d	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder and Cobble) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (10%) Cobble (10%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Ascophyllum nodosum - U Fucus sp. - U Chorda filum - U Dictyosiphon foeniculaceus - U Filamentous brown algae - U Coralline red algae - U	Lobster - U (1@0:54d) Littorines - A Mussels - O Frilled sea anemone - U	Lobster observed in a small bedrock fracture with Saccharina cover. Mussels obscured and cannot ID to genus or species. Intertidal and subtidal habitats primarily bedrock in this section. Occasional cobble also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section.
1:30d - 3:00d	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (80%) Boulder (20%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Saccharina longicuris - C Chorda filum - U Dictyosiphon foeniculaceus - U Filamentous brown algae - U Coralline red algae - U	Littorines - O Mussels - U Frilled sea anemone - U Lion'd mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder and cobble also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section.
3:00d - 4:30d	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (5%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Saccharina longicuris - C Dictyosiphon foeniculaceus - U Filamentous brown algae - U Coralline red algae - U	Littorines - O Mussels - U Frilled sea anemone - U Lion's mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder and cobble also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Depths vary and views of bottom are occasionally obscured by turbid water. Where visible deeper substrates appear rocky with small patches of gravel and fines.
4:30d - 6:00d	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (15%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Saccharina longicuris - C Dictyosiphon foeniculaceus - U Filamentous brown algae - U Coralline red algae - U	Rock crab - U (1@5:10d) Littorines - O Blue mussels - U Lion's mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Depths vary and views of bottom are occasionally obscured by turbid water. Where visible deeper substrates appear rocky.

Appendix A.3: Shoreline Transect 5b (3000 metres along sheltered inner harbour shoreline) - Summer UBHS - July 27, 2020

Start wp: 1823 Start depth: 7
End wp: 1848 End depth: 15

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
6:00d - 8:03d	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (15%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Saccharina longicuris - O Filamentous brown algae - U Coralline red algae - U	Littorines - O Blue mussels - U Lion's mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Depths vary and views of bottom are occasionally obscured by turbid water. Where visible deeper substrates appear rocky.
0:00e - 1:30e	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (15%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Fucus sp. - U Saccharina longicuris - O Filamentous brown algae - U Coralline red algae - U	Littorines - O Mussels - U Frimled sea anemone - U Lion's mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Depths vary and views of bottom are occasionally obscured by turbid water. Where visible deeper substrates appear rocky.
1:30e - 3:00e	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (5%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Filamentous green algae - U Saccharina longicuris - O Coralline red algae - U	Rock crab - U (1@2:25e) Littorines - A Lion's mane jellyfish - U	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder and cobble also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Depths vary and views of bottom are occasionally obscured by turbid water. Where visible deeper substrates appear rocky with small patches of gravel and fines.
3:00e - 4:30e	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (65%) Boulder (15%) Cobble (5%) Gravel (10%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - O Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Mysid shrimp - A Littorines - O	Intertidal and subtidal habitats primarily bedrock in this section. Occasional boulder and cobble also noted on submerged bedrock. Fairly steep bank on bedrock shoreline. Algal coverage fairly low throughout this section. Deeper substrates appear rocky with small patches of gravel and fines.
4:30e - 6:00e	All	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (30%) Boulder (20%) Cobble (10%) Gravel (20%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Zostera marina - U (@5.47e) Fucus sp. - O Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Lion's mane jellyfish - U Littorines - O	One very small (<1 m sq) patch of eelgrass noted in mixed fines and gravel substrate in this section of the shoreline transect. Bottom here transitioning to more mixed fines and gravel overtop rocky substrate composed of bedrock, boulder and cobble.
6:00e - 8:03e	All	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (20%) Boulder (10%) Cobble (5%) Gravel (35%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Zostera marina - U (@7.18e) Ascophyllum nodosum - U Chorda filum - U Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Lion's mane jellyfish - U Littorines - A	One very small (<1 m sq) patch of eelgrass noted in mixed fines and gravel substrate in this section of the shoreline transect. Intertidal substrate composed of bedrock with abundant Ascophyllum nodosum. Submerged habitat patchy and composed of mixed fines and gravel overtop rocky substrate composed of bedrock, boulder and cobble.
0:00f - 1:30f	All	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (40%) Boulder (25%) Cobble (5%) Gravel (10%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Ascophyllum nodosum - U Chorda filum - U Saccharina longicuris - U Coralline red algae - U	No observed fauna.	Small watercourse flowing down into the harbour visible at 0:57f. Intertidal substrate composed of bedrock with abundant Ascophyllum nodosum. Submerged habitat patchy and composed of mixed fines and gravel overtop rocky substrate composed of bedrock, boulder and cobble. Lower visibility in this area due to turbid water.
1:30f - 3:00f	All	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (45%) Boulder (20%) Cobble (5%) Gravel (10%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Chorda filum - U Saccharina longicuris - U Coralline red algae - U	Littorines - U Mussels - U	Intertidal substrate composed of bedrock with abundant Ascophyllum nodosum. Submerged habitat patchy and composed of mixed fines and gravel overtop rocky substrate composed of bedrock, boulder and cobble. Lower visibility in this area due to turbid water.
3:00f - 4:30f	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Fucus sp. - O Coralline red algae - O	Littorines - O Mussels - U Lion's mane jellyfish - U Mysid shrimp - O	Intertidal and subtidal habitat all bedrock in this section. Occasional algal cover throughout. Bottom drops off steeply at the end of this interval.
4:30f - 6:00f	Partial	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (55%) Boulder (25%) Cobble (5%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - O Coralline red algae - U	No observed fauna.	Bottom not visible from 4:30f to 5:30f. Once bottom becomes visible the substrate appears to be mixed rocky substrates (primarily bedrock and boulder) and fines.

Appendix A.3: Shoreline Transect 5b (3000 metres along sheltered inner harbour shoreline) - Summer UBHS - July 27, 2020

Start wp: 1823 Start depth: 7
End wp: 1848 End depth: 15

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
6:00f - 8:03f	Partial	Rocky Intertidal (Bedrock) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (55%) Boulder (25%) Cobble (5%) Gravel (5%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - O Coralline red algae - U	Lobster - U (1@6:35f)	Bottom not visible for most of this interval. Where visible the bottom is mixed rocky substrate (bedrock and boulder) and fines.
0:00g - 1:30g	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - U Chorda filum - U Coralline red algae - U	Rock crab - U (1@0:33g) Littorines - A	Intertidal and subtidal habitats primarily bedrock in this section. Occasional and patchily distributed cobble, gravel and fines also noted on submerged bedrock. Algal coverage fairly low throughout this section.
1:30g - 3:00g	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - U Coralline red algae - U	Littorines - O	Boat skips previously assessed portion of shoreline between 2:12g and 4:10g. 1:30g - 2:12g too deep to see bottom along steep shoreline. Where visible, bottom appears to consist of bedrock.
4:10g - 6:00g	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (95%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - A Fucus sp. - O Polysiphonia sp. - O Coralline red algae - O	Mysid shrimp - A Littorines - U	Starting again at small cove northwest of Money Island (tug boat cove). Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of fines observed in bedrock fractures.
6:00g - 8:03g	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Fucus sp. - O Polysiphonia sp. - O Coralline red algae - O	Littorines - A Lion's mane jellyfish - U	Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of fines observed in bedrock fractures. A few places too deep to see bottom but looks like bedrock.
0:00h - 1:30h	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Coralline red algae - O	Littorines - U Lion's mane jellyfish - U	Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of fines observed in bedrock fractures. A few places too deep to see bottom but looks like bedrock.
1:30h - 3:00h	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Littorines - A Mysid shrimp - U Lion's mane jellyfish - O	Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of fines observed in bedrock fractures. A few places too deep to see bottom but looks like bedrock.
3:00h - 4:30h	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Littorines - U Mysid shrimp - U Lion's mane jellyfish - O	Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of boulder, cobble and fines observed on top of bedrock. A few places too deep to see bottom but looks like bedrock.
4:30h - 6:00h	Partial	Rocky Intertidal (Bedrock and Boulder) and Mixed Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (45%) Boulder (20%) Cobble (5%) Gravel (10%) Fines (20%)	Sand (90%) Silt (10%) Clay (0%)	Chorda filum - U Saccharina longicuris - U Coralline red algae - U	Littorines - O	Intertidal substrate composed of bedrock with abundant Ascophyllum nodosum. Submerged habitat patchy and composed of mixed fines and gravel overtop rocky substrate composed of bedrock, boulder and cobble. Lower visibility in this area due to turbid water. Part of bottom not visible due to excessive depth and turbidity.

Appendix A.3: Shoreline Transect 5b (3000 metres along sheltered inner harbour shoreline) - Summer UBHS - July 27, 2020

Start wp: 1823 Start depth: 7
End wp: 1848 End depth: 15

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
6:00h - 8:03h	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock) with Algae	Bedrock Dominant	Bedrock (100%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (5%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Coralline red algae - O	Littorines - A Seastar - U Lion's mane jellyfish - U	Intertidal islands / shoals dot entrance to cove and consist of exposed bedrock with Ascophyllum. Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of fines observed in bedrock fractures. A few places too deep to see bottom but looks like bedrock.
0:00i - 1:30i	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock) with Algae	Mixed Variable Rock	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Chorda filum - U	No observed fauna.	Bottom is not visible for most of this interval therefore no estimated percentage for substrate composition. Intertidal shoreline is boulder, cobble, gravel and fines. Submerged substrate looks like bedrock where visible but for most of this interval the bottom is not visible due to excessive depth and turbidity.
1:30i - 3:00i	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock) with Algae	Mixed Variable Rock	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Chorda filum - U	No observed fauna.	Bottom is not visible for most of this interval therefore no estimated percentage for substrate composition. Intertidal shoreline is boulder, cobble, gravel and fines. Submerged substrate looks like bedrock where visible but for most of this interval the bottom is not visible due to excessive depth and turbidity.
3:00i - 4:30i	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock) with Algae	Mixed Variable Rock	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Chorda filum - U	Littorines - U	Bottom is not visible for most of this interval therefore no estimated percentage for substrate composition. Intertidal shoreline is boulder, cobble, gravel and fines. Submerged substrate looks like bedrock where visible but for most of this interval the bottom is not visible due to excessive depth and turbidity.
4:30i - 6:00i	Partial	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (85%) Boulder (5%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - O	Littorines - U Mysid shrimp - U	Occasional algal debris but most observed algae is attached and growing on bedrock substrate. Substrate almost entirely bedrock except for a few small patches of boulder, cobble and fines observed on top of bedrock. Quite a few places too deep to view the bottom but looks like bedrock.
6:00i - 8:03i	Partial	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock) with Algae	Mixed Variable Rock	Bedrock (0%) Boulder (0%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - O Chorda filum - U	Littorines - U	Bottom is not visible for most of this interval therefore no estimated percentage for substrate composition. Intertidal shoreline is boulder, cobble, gravel and fines. Submerged substrate looks like bedrock where visible but for most of this interval the bottom is not visible due to excessive depth and turbidity.

Appendix A.3: Shoreline Transect 6 (600 metres on west side of Pikes Island) - Summer UBHS - July 28, 2020

Start wp: 1813 Start depth: 14 ft
End wp: 1822 End depth: 6 ft

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00a - 1:30a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (10%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Fucus sp. - O Ulva lactuca - O Coralline red algae - A	No observed fauna.	Bottom covered entirely in algae. Intertidal substrate is boulder on small section of Pikes Island breakwater, and bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval.
1:31a - 3:00a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Fucus sp. - O Ulva lactuca - U Coralline red algae - A	Littorines - U Lion's mane jellyfish - U	Bottom covered entirely in algae. Intertidal and subtidal substrate is bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval.
3:00a - 4:30a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock and Boulder) with Algae	Bedrock Dominant	Bedrock (95%) Boulder (5%) Cobble (0%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina longicuris - A Fucus sp. - C Filamentous green algae - O Ulva lactuca - U Coralline red algae - A	Littorines - O Mysid shrimp - A	Bottom covered entirely in algae. Intertidal and subtidal substrate is bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval. Hundreds of Mysid shrimp present in this section of the shoreline transect.
4:30a - 6:00a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Cobble, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (65%) Boulder (5%) Cobble (5%) Gravel (15%) Fines (10%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - A Chorda filum - U Saccharina longicuris - C Desmarestia sp. - U Filamentous green algae - U Coralline red algae - C	Mysid shrimp - A Littorines - O	Bottom covered entirely in algae. Intertidal substrate is bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval. Patch of mixed gravel and fines on bottom midway through interval at old piled crib wharf. Hundreds of Mysid shrimp present in this section of the shoreline transect.
6:00a - 8:03a	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (90%) Boulder (0%) Cobble (0%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - A Agarum clathratum - U Desmarestia sp. - U Dictyosiphon foeniculaceus - U Polysiphonia sp. - U Coralline red algae - A	Littorines - A Mysid shrimp - A Mussels - U	Bottom covered entirely in algae. Intertidal substrate is bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval. Hundreds of mysid shrimp and littorines present in this section of the shoreline transect.
0:00b - 1:30b	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Cobble Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (75%) Boulder (10%) Cobble (5%) Gravel (5%) Fines (5%)	Sand (100%) Silt (0%) Clay (0%)	Fucus sp. - A Desmarestia sp. - U Dictyosiphon foeniculaceus - U Polysiphonia sp. - U Coralline red algae - A	Littorines - A Mysid shrimp - A Mussels - U	Bottom covered entirely in algae. Intertidal substrate is bedrock on Pikes Island. Abundant algae throughout the entire interval. Occasional algal debris throughout interval. Bottom consists mainly of bedrock with occasional boulders and a few patches of mixed cobble, gravel and fines over bedrock. Hundreds of mysid shrimp and littorines present in this section of the shoreline transect.
1:30b - 3:00b	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (5%) Gravel (5%) Fines (5%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - A Saccharina longicuris - C Laminaria sp. - U Coralline red algae - O	Littorines - A Mussels - U	Bottom occaisionally covered in dense algae. Intertidal substrate is bedrock and placed boulders along the west of Pikes Island. Occasional algal debris on bottom. Bottom mainly consists of bedrock with a few patches of gravel and fines. Hundreds of littorines present through this section of the shoreline transect.
3:00b - 4:30b	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (30%) Boulder (5%) Cobble (10%) Gravel (25%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - O Saccharina longicuris - O Laminaria sp. - U Coralline red algae - O	Lobster - U (1@3:52b) Small fish - U (1@3:09b) Littorines - A Mysid shrimp - A Crepidula sp. - U Seastar - U Small polychaete burrow - U	Small unidentified fish at 3:09b. Bottom occasionally covered in dense algae. Intertidal substrate is bedrock and placed boulders along the west of Pikes Island. Occasional algal debris on bottom. Bottom mainly consists of bedrock with a few patches of gravel and fines.

Appendix A.3: Shoreline Transect 6 (600 metres on west side of Pikes Island) - Summer UBHS - July 28, 2020

Start wp: 1813 Start depth: 14 ft
End wp: 1822 End depth: 6 ft

Video Tag	Bottom Visible	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
4:30b - 6:00b	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (30%) Boulder (5%) Cobble (10%) Gravel (25%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - O Saccharina longicuris - O Laminaria sp. - U Coralline red algae - O	Lobster - U (1@4:44b; 1@4:59b) Mysid shrimp - A Littorines - A	Bottom occasionally covered in dense algae. Intertidal substrate is bedrock and placed boulders along the west of Pikes Island. Abundant algal debris on bottom. Bottom mainly consists of bedrock with a few patches of gravel and fines.
6:00b - 8:03b	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Mixed Variable Rock	Bedrock (30%) Boulder (5%) Cobble (10%) Gravel (25%) Fines (30%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - O Saccharina longicuris - O Filamentous green algae - U Coralline red algae - O	Mysid shrimp - A Littorines - A	Bottom occasionally covered in dense algae. Intertidal substrate is bedrock and placed boulders along the west of Pikes Island. Abundant algal debris on bottom. Bottom mainly consists of bedrock with a few patches of gravel and fines.
0:00c - 1:30c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Bedrock Dominant	Bedrock (65%) Boulder (5%) Cobble (5%) Gravel (10%) Fines (15%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - O Saccharina longicuris - O Chorda filum - U Filamentous green algae - U Filamentous brown algae - U Coralline red algae - O	Mysid shrimp - A Littorines - A Blue mussels - U	Bottom occasionally covered in dense algae. Intertidal substrate is bedrock and placed boulders along the west of Pikes Island. Abundant algal debris on bottom. Bottom mainly consists of bedrock with a few patches of gravel and fines. Occasional anthropogenic debris (bottles) on bottom.
1:30c - 3:00c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Fines with Variable Rock	Bedrock (20%) Boulder (0%) Cobble (0%) Gravel (40%) Fines (40%)	Sand (90%) Silt (10%) Clay (0%)	Zostera marina - U (@2:26c) Fucus sp. - O Chorda filum - U Saccharina longicuris - U Coralline red algae - U	Lobster - U (2@2:26c) Rock crab - U (1@3:00c) Mysid shrimp - A	Lobster and rock crab both located in the small patch of eelgrass. Bottom mainly consists of gravels and fines in this area with occasional observations of bedrock. Small patch of eelgrass (1-2 m sq.) was observed along shoreline. Two lobster and one rock crab were observed sheltering in the eelgrass.
3:00c - 4:30c	All	Rocky Intertidal (Bedrock and Boulder) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Fines with Variable Rock	Bedrock (20%) Boulder (0%) Cobble (0%) Gravel (40%) Fines (40%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Chorda filum - U Saccharina longicuris - O Coralline red algae - U	Littorines - O Mysid shrimp - A	Bottom mainly consists of fines with gravel and bedrock toward the end of the interval. Most of the time in this interval was spent looking at the eelgrass patch and searching for more in the area. No more was observed here. Interval ends at bedrock.
4:30c - 6:00c	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Gravel and Fines) with Algae	Fines with Variable Rock	Bedrock (30%) Boulder (0%) Cobble (10%) Gravel (35%) Fines (25%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Ascophyllum nodosum - U Saccharina longicuris - O Polysiphonia sp. - U Coralline red algae - U	Littorines - A Mysid shrimp - A Frilled sea anemone - U	Fucus and Ascophyllum located in the upper intertidal. Saccharina located subtidally. Upper intertidal zone is bedrock with Fucus and Ascophyllum. Lower intertidal and subtidal habitats are bedrock and mixed gravels and fines with algal debris.
6:00c - 8:03c	All	Rocky Intertidal (Bedrock) and Subtidal (Bedrock, Boulder, Gravel and Fines) with Algae	Rocky Dominant - Mixed	Bedrock (50%) Boulder (20%) Cobble (5%) Gravel (15%) Fines (10%)	Sand (90%) Silt (10%) Clay (0%)	Fucus sp. - U Saccharina longicuris - O Filamentous green algae - U Filamentous brown algae - U Polysiphonia sp. - O Coralline red algae - O	Littorines - A Frilled sea anemone - U Seastar - U Lion's mane jellyfish - U	Mixed bottom here. Upper intertidal is predominantly bedrock with some boulder substrate. Subtidal habitats are mixed bedrock and boulder with patches of gravel and fines.

Appendix A.3: Shoreline Transect 7 (710 metres on west side of Pikes Island) - Summer UBHS - July 28, 2020

Start wp: 1801 Start depth: 30 ft
End wp: 1812 End depth: 32 ft

Video Tag	Interval Habitat Type	Habitat Classification for Mapping	Visual Substrate Composition	If Fines Present, Estimated Composition	Observed Flora	Observed Fauna	Interpretation Remarks
0:00-1:30	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Coralline algae - C Filamentous phaeophyta - A Ulva lactuca - U Saccharina latissima - U Desmarestia aculeata - U		Bedrock shoreline with concrete pillar. Poor visibility in water column. Fucus Sp. on exposed bedrock and concrete pillar.
1:31-3:00	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Coralline algae - C Filamentous phaeophyta - A Alaria esculenta - U Ulva lactuca - U Saccharina latissima - A Agarum clathratum - U	Colonial bryozoan - C Mysis shrimp - A	Bedrock shoreline Poor visibility in water column. Fucus Sp. on exposed bedrock. Saccharina latissima in the area appears damaged. Large cloud of mysis shrimp
3:01-4:30	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Ulva lactuca - C Coralline algae - C Filamentous phaeophyta - O	Colonial bryozoan - C Mysis shrimp - A	Bedrock shoreline. Large cloud of mysis shrimp. Fucus Sp. on exposed bedrock.
4:31-6:00	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline algae - C Filamentous phaeophyta - O Dark green mat algae - U Ascophyllum nodosum - U	Mysis shrimp - A Colonial bryozoan - C Littorina sp. - U	Bedrock shoreline. Large cloud of mysis shrimp. Bed rock shelf drops off. Small gravel section likely on bedrock.
6:01- 7:30	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline algae - C Filamentous phaeophyta - C Dark green mat algae - U Fucus Sp. - U Ulva lactuca - U	Mysis shrimp - A Colonial bryozoan - C Littorina sp. - U	Bedrock shoreline. Large cloud of mysis shrimp. Fucus Sp. and Ascophyllum nodosum on exposed bedrock
7:30-8:03	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Coralline algae - U Filamentous phaeophyta - A Agarum clathratum - O	Mysis shrimp - A Colonial bryozoan - C Littorina sp. - U	Bedrock shoreline. Large cloud of mysis shrimp.
0:00b- 1:30b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A	Mysis shrimp - A Colonial bryozoan - U	Steep bedrock drop off. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes. Kelp covers near 100% of the bottom.Large cloud of mysis shrimp.
1:30b- 3:00b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A	Mysis shrimp - A Colonial bryozoan - O Epiphytic colonial hydroids- U	Bedrock shoreline. Very poor visibility. Kelp covers near 100% of the bottom. Large cloud of mysis shrimp. Fucus Sp. and Ascophyllum nodosum on exposed bedrock. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes.
3:01b- 4:30b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A Coralline algae - U Laminaria digitata - U	Mysis shrimp - A Colonial bryozoan - A Littorina sp. - U	Bedrock shoreline. Kelp covers near 100% of the bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes.
4:31b- 6:00b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A Laminaria digitata - U Ulva lactuca - O Coralline algae - U	Small jellyfish - U Colonial bryozoan - A Mysis shrimp - A	Bedrock shoreline. Kelp covers near 100% of the bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes.
6:00b- 7:30b	Bedrock	Bedrock Dominant	Bedrock (90%) Boulder (5%) Cobble (5%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Saccharina latissima - A Filamentous phaeophyta - A Ulva lactuca - O Dark green mat algae - U Agarum clathratum - O Coralline algae - O Desmarestia aculeata - U Fucus Sp. - U Phyllophora sp. - U	Colonial bryozoan - U Cunner - U	Bedrock shoreline. Kelp covers near 100% of the bottom. Membranipora membranacea (coffin box bryozoan) observed on kelp stipes. Fucus Sp. and Ascophyllum nodosum on exposed bedrock. Likely more Agarum clathratum but its covered by Saccharina latissima.
7:30b-8:03b	Bedrock	Bedrock Dominant	Bedrock (70%) Boulder (10%) Cobble (10%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - C Agarum clathratum - U Saccharina latissima - O	Sea urchin - U Flounder - U	Bedrock shoreline. Cobble and boulder in the area appears to be bedrock fragments. Some gravel between bedrock strips. Less aglae cover in this area.
0:00c-1:30c	Bedrock	Bedrock Dominant	Bedrock (70%) Boulder (15%) Cobble (10%) Gravel (10%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Coralline algae - A Ulva lactuca - U Saccharina latissima - A Fucus Sp. - U Alaria esculenta - O Phyllophora sp. - U	Cunner - U	Bedrock shoreline. Fucus Sp. and Ascophyllum nodosum on exposed bedrock. Cobble and boulder in the area appears to be bedrock fragments
1:31c-2:33c	Bedrock	Bedrock Dominant	Bedrock (75%) Boulder (15%) Cobble (15%) Gravel (0%) Fines (0%)	Sand (0%) Silt (0%) Clay (0%)	Filamentous phaeophyta - A Saccharina latissima - O Coralline algae - O	Fish - U (1:36c) Small jellyfish - U	Bedrock shoreline. Cobble and boulder in the area appears to be bedrock fragments. Fucus Sp. and Ascophyllum nodosum on exposed bedrock. Concrete pillar from start is visible.

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 1 - Deployed off south tip of Vardys Island - Summer UBHS - July 25, 2020

Data collected for BRUVS01 from video footage taken between 1600 - 1631h

Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Species			
					Juvenile cod	Atlantic Pollock	Jellyfish	No observations
25-Jul-20	1600h	1631h	32	0:00 - 2:00			1	
25-Jul-20	1600h	1631h	32	2:00 - 4:00				X
25-Jul-20	1600h	1631h	32	4:00 - 6:00	2			
25-Jul-20	1600h	1631h	32	6:00 - 8:03		1*		
25-Jul-20	1600h	1631h	32	0:00b - 2:00b				X
25-Jul-20	1600h	1631h	32	2:00b - 4:00b	4			
25-Jul-20	1600h	1631h	32	4:00b - 6:00b	3			
25-Jul-20	1600h	1631h	32	6:00b - 8:03b				X
25-Jul-20	1600h	1631h	32	0:00c - 2:00c				X
25-Jul-20	1600h	1631h	32	2:00c - 4:00c				X
25-Jul-20	1600h	1631h	32	4:00c - 6:00c				X
25-Jul-20	1600h	1631h	32	6:00c - 8:03c				X
25-Jul-20	1600h	1631h	32	0:00d - 2:00d	1			
25-Jul-20	1600h	1631h	32	2:00d - 4:00d	3			
25-Jul-20	1600h	1631h	32	4:00d - 6:00d				X
25-Jul-20	1600h	1631h	32	6:00d - 7:47d	1			

Camera reaches bottom at 0:37. Near 100% kelp coverage by *Agarum clathratum* and *Saccharina latissima*. Substrate not observed but heavy algae cover suggests rocky substrate. White spots on kelp. Copepods and other planktonic inverts are visible in the water column. Leaves bottom at 7:09. Cobble pile under camera. *confirm

Habitat notes

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 2 - Deployed off west side of Vardys Island - Summer UBHS - July 25, 2020

Data collected for BRUVS02 from video footage taken between 1522 - 1552h

Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Species	
					Atlantic Pollock	No observations
25-Jul-20	1522h	1552h	29	0:00 - 2:00		X
25-Jul-20	1522h	1552h	29	2:00 - 4:00		X
25-Jul-20	1522h	1552h	29	4:00 - 6:00		X
25-Jul-20	1522h	1552h	29	6:00 - 8:03		X
25-Jul-20	1522h	1552h	29	0:00b - 2:00b		X
25-Jul-20	1522h	1552h	29	2:00b - 4:00b		X
25-Jul-20	1522h	1552h	29	4:00b- 6:00b		X
25-Jul-20	1522h	1552h	29	6:00b- 8:03b		X
25-Jul-20	1522h	1552h	29	0:00c - 2:00c		X
25-Jul-20	1522h	1552h	29	2:00c - 4:00c		X
25-Jul-20	1522h	1552h	29	4:00c - 6:00c		X
25-Jul-20	1522h	1552h	29	6:00c - 8:03c		X
25-Jul-20	1522h	1552h	29	0:00d - 2:00d	1*	
25-Jul-20	1522h	1552h	29	2:00d - 4:00d		X
25-Jul-20	1522h	1552h	29	4:00d - 6:00d		X
25-Jul-20	1522h	1552h	29	6:00d - 8:03d		X

Habitat notes Camera reaches bottom at 0:27. Saccharina latissima present on bottom. Camera overlooks fines area with boulders. . Copepods and other planktonic inverts are visible in the water column. One sea urchin on a piece of kelp. *confirm. Camera leaves bottom at 6:16d.

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 3 - Deployed of east tip of Vardys Island - Summer UBHS - July 24, 2020

Data collected for BRUVS03 from video footage taken between 1638 - 1705h

					Species				
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Juvenile cod	Cunner	Jellyfish	Rock Crab	No observations
24-Jul-20	1638h	1705h	21.5	0:00 - 2:00			1		X
24-Jul-20	1638h	1705h	21.5	2:00 - 4:00	1				
24-Jul-20	1638h	1705h	21.5	4:00 - 6:00	1	1			
24-Jul-20	1638h	1705h	21.5	6:00 - 8:03					X
24-Jul-20	1638h	1705h	21.5	0:00b - 2:00b					X
24-Jul-20	1638h	1705h	21.5	2:00b - 4:00b		1			
24-Jul-20	1638h	1705h	21.5	4:00b - 6:00b	1				
24-Jul-20	1638h	1705h	21.5	6:00b - 8:03b		1			
24-Jul-20	1638h	1705h	21.5	0:00c - 2:00c		1			
24-Jul-20	1638h	1705h	21.5	2:00c - 4:00c			1	1	
24-Jul-20	1638h	1705h	21.5	4:00c - 6:00c	2				
24-Jul-20	1638h	1705h	21.5	6:00c - 8:03c	2				
24-Jul-20	1638h	1705h	21.5	0:00d - 2:00d					X
24-Jul-20	1638h	1705h	21.5	2:00d - 4:00d					X

Carmera reaches bottom at 1:04. One jellyfish seen on way down. Substrate not observed but heavy algae cover suggests rocky substrate. Near 100% coverage by Agarum clathratum and Saccharina latissima small amount of Palmaria palmata is present. Impact of setup on the bottom causes cloud of small debris. Copepods and other planktonic inverts are visible in the water column. 2:03d Camera leaves bottom. Shows bedrock under camera.

Juvenile cod and cunner leave frame and return likely same fish.

Habitat notes

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 4 - Deployed off the west tip of Pikes Island - Summer UBHS - July 24, 2020

Data collected for BRUVS04 from video footage taken between 1602 - 1630h

Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Species		
					American lobster	Cunner	No observations
24-Jul-20	1602h	1630h	28.5	0:00 - 2:00			X
24-Jul-20	1602h	1630h	28.5	2:00 - 4:00			X
24-Jul-20	1602h	1630h	28.5	4:00 - 6:00			X
24-Jul-20	1602h	1630h	28.5	6:00 - 8:03			X
24-Jul-20	1602h	1630h	28.5	0:00b - 2:00b			X
24-Jul-20	1602h	1630h	28.5	2:00b - 4:00b			X
24-Jul-20	1602h	1630h	28.5	4:00b - 6:00b			X
24-Jul-20	1602h	1630h	28.5	6:00b - 8:03b			X
24-Jul-20	1602h	1630h	28.5	0:00c - 2:00c	1		
24-Jul-20	1602h	1630h	28.5	2:00c - 4:00c			X
24-Jul-20	1602h	1630h	28.5	4:00c - 6:00c		1	
24-Jul-20	1602h	1630h	28.5	6:00c - 8:03c			X
24-Jul-20	1602h	1630h	28.5	0:00d - 2:00d			X
24-Jul-20	1602h	1630h	28.5	2:00d - 4:00d			X
24-Jul-20	1602h	1630h	28.5	4:00d - 4:28d			X

Habitat notes

Camera reaches bottom at 0:37. Rocky slope, near 100% kelp coverage by *Agarum clathratum* and *Saccharina latissima*. Substrate is likely bedrock or boulder. Coralline algae is present on exposed rock. Copepods and other planktonic inverts are visible in the water column. Lots of particles in water column. Same lobster is visible in different intervals. Camera shifts at 3:34d showing gravel and fines area. leaves bottom at 3:50d

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 5 - Deployed off the south tip of Pikes Island breakwater - Summer UBHS - July 25, 2020

Data collected for BRUVS05b from video footage taken between 1724 - 1749h					Species			
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Adult cod	Cunner	Unidentified fish	No observations
25-Jul-20	1724h	1749h	42	0:00 - 2:00				X
25-Jul-20	1724h	1749h	42	2:00 - 4:00				X
25-Jul-20	1724h	1749h	42	4:00 - 6:00	1			
25-Jul-20	1724h	1749h	42	6:00 - 8:03	1			
25-Jul-20	1724h	1749h	42	0:00b - 2:00b				X
25-Jul-20	1724h	1749h	42	2:00b - 4:00b				X
25-Jul-20	1724h	1749h	42	4:00b- 6:00b				X
25-Jul-20	1724h	1749h	42	6:00b- 8:03b				X
25-Jul-20	1724h	1749h	42	0:00c - 2:00c				X
25-Jul-20	1724h	1749h	42	2:00c - 4:00c				X
25-Jul-20	1724h	1749h	42	4:00c - 6:00c			5	
25-Jul-20	1724h	1749h	42	6:00c - 8:03c		1	1	
25-Jul-20	1724h	1749h	42	0:00d - 2:00d			1	

Habitat notes

Carmera reaches bottom at 0:58. Camera tips slightly backwards. Rocky slope, near 100% kelp coverage by Agarum clathratum and Saccharina latissima. Substrate is likely bedrock or boulder. Coralline algae is present on exposed rock. Copepods and other planktonic inverts are visible in the water column.Unidentified fish in background. Video ends at 1:38d

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 6 - Deployed near the public wharfs - Summer UBHS - July 25, 2020

Data collected for BRUVS06 from video footage taken between 1646 - 1716h

Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Species			
					Rock crab	Juvenile cod	Cunner	No observations
25-Jul-20	1645h	1716h	30	0:00 - 2:00	2	1		
25-Jul-20	1645h	1716h	30	2:00 - 4:00		3	1	
25-Jul-20	1645h	1716h	30	4:00 - 6:00				X
25-Jul-20	1645h	1716h	30	6:00 - 8:03		1		
25-Jul-20	1645h	1716h	30	0:00b - 2:00b				X
25-Jul-20	1645h	1716h	30	2:00b - 4:00b				X
25-Jul-20	1645h	1716h	30	4:00b - 6:00b				X
25-Jul-20	1645h	1716h	30	6:00b - 8:03b				X
25-Jul-20	1645h	1716h	30	0:00c - 2:00c		1		
25-Jul-20	1645h	1716h	30	2:00c - 4:00c		10		
25-Jul-20	1645h	1716h	30	4:00c - 6:00c		9		
25-Jul-20	1645h	1716h	30	6:00c - 8:03c		17		
25-Jul-20	1645h	1716h	30	0:00d - 2:00d		4		
25-Jul-20	1645h	1716h	30	2:00d - 4:00d		6		
25-Jul-20	1645h	1716h	30	4:00d - 6:00d		7		
25-Jul-20	1645h	1716h	30	6:00d - 8:03d				X

Habitat notes Carmera reaches bottom at 0:43. Rocky shelf, heavy kelp coverage by Agarum clathratum and Saccharina latissima. Some substrate is observed gravel, cobbles and boulder/bedrock. Coralline algae is present on exposed rock. Copepods and other planktonic inverts are visible in the water column. Rock crab observed during drop. Cod school comes in and out frame likely recounts. Fish present all dart left at 5:28d. Video ends at 6:48d

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 7 - Deployed east of the holding facility - Summer UBHS - July 29, 2020

Data collected for BRUVS07 from video footage taken between 0503 - 0526h					Species					
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Cunner	Juvenile cod	Small white fish	Small shrimp	Lobster	No observations
29-Jul-20	0503h	0526h	22	0:00 - 2:00						X
29-Jul-20	0503h	0526h	22	2:00 - 4:00		1	>10	>20		
29-Jul-20	0503h	0526h	22	4:00 - 6:00		2	3	>20		
29-Jul-20	0503h	0526h	22	6:00 - 8:03		2	1	>20	1	
29-Jul-20	0503h	0526h	22	0:00b - 2:00b				>20		
29-Jul-20	0503h	0526h	22	2:00b - 4:00b				>20		
29-Jul-20	0503h	0526h	22	4:00b - 6:00b				>20		
29-Jul-20	0503h	0526h	22	6:00b - 8:03b	1	3		>20		
29-Jul-20	0503h	0526h	22	0:00c - 2:00c		1		>20	1	
29-Jul-20	0503h	0526h	22	2:00c - 4:00c		3		>20	1	
29-Jul-20	0503h	0526h	22	4:00c - 6:00c		3		>20		

Habitat notes

Carmera reaches bottom at 0:37. Rocky slope, near 100% kelp coverage by *Saccharina latissima*. Substrate is likely bedrock. Very high amount of copepods, small bioluminescent invertebrates, Chaetognathids and other planktonic inverts are visible in the water column. White spots on kelp. Lots of particles in water column.
Camera leaves bottom at 5:51c. Bedrock under camera

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 8 - Deployed in Baldwin Rock dredge area - Summer UBHS - July 27, 2020

Data collected for BRUVS 8 from video footage taken between 1617h and 1647h					Species Observations		
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Cunner	Pollock	No Observations
27-Jul-20	1617h	1647h	35	0:00a - 2:00a			X
				2:00a - 4:00a			X
				4:00a - 6:00a			X
				6:00a - 8:03a			X
				0:00b - 2:00b			X
				2:00b - 4:00b			X
				4:00b - 6:00b			X
				6:00b - 8:03b			X
				0:00c - 2:00c	2		
				2:00c - 4:00c	1		
				4:00c - 6:00c			X
				6:00c - 8:03c		1	
				0:00d - 2:00d			X
				2:00d - 4:00d			X
				4:00d - 6:00d			X
				6:00d - 7:05d			X

BRUVS Deployment Camera on bottom at 0:47a. Camera off bottom at 6:34d.

Habitat Notes BRUVS deployed on bedrock and boulder bottom with common Agarum clathratum. Excellent visibility on bottom. One moon jellyfish observed on descent to bottom.

Observer Note Small school of fish swims by at 6:13d in background of video. Too indistinct to ID them to genus or species.

Bait Fresh Atlantic cod and sardines in oil

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 9 - Deployed midway between Vardys Island and Money Island - Summer UBHS - July 29, 2020

Data collected for BRUVS 9 from video footage taken between 0618h - 0648h					Species Observations	
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Flounder	No Observations
29-Jul-20	0618h	0648h	54	0:00a - 2:00a		X
				2:00a - 4:00a		X
				4:00a - 6:00a		X
				6:00a - 8:03a		X
				0:00b - 2:00b		X
				2:00b - 4:00b		X
				4:00b - 6:00b		X
				6:00b - 8:03b		X
				0:00c - 2:00c		X
				2:00c - 4:00c		X
				4:00c - 6:00c		X
				6:00c - 8:03c		X
				0:00d - 2:00d		X
				2:00d - 4:00d		X
				4:00d - 6:00d		X
				6:00d - 7:21d	1*	

poor vis

BRUVS Deployment Camera on bottom at 0:43a. Camera off bottom at 6:37d.

Habitat Notes BRUVS deployed on fines bottom in deep water located midway between Vardys Island and Money Island. Fines sediment plumes upon impact of camera. Low ambient light due to early deployment time. Fair visibility with dive light. Small out-of-focus invertebrates moving through water column (ctenophores? copepods?).

Observer Note BRUVS 9 deployment coincided with arrival of MAI ferry. Noise of the ferry from location of BRUVS 9 is LOUD. Listen to videos with audio on.
Flounder observed on bottom as BRUVS was hauled to surface. Cannot confirm ID.

Bait Fresh Atlantic cod and sardines in oil

Appendix A.4: Baited Remote Underwater Video Station (BRUVS) 10 - Deployed northeast of Money Island - Summer UBHS - July 27, 2020

Data collected for BRUVS 10 from video footage taken between 1658h - 1728h

Data collected for BRUVS 10 from video footage taken between 1658h - 1728h					Species Observations		
Date	Deployment Time	Retrieval Time	Depth (ft)	Video Time	Lobster	Juvenile Atlantic cod	No Observations
27-Jul-20	1658h	1728h	24	0:00a - 2:00a			X
				2:00a - 4:00a			X
				4:00a - 6:00a			X
				6:00a - 8:03a			X
				0:00b - 2:00b			X
				2:00b - 4:00b		1	
				4:00b - 6:00b			X
				6:00b - 8:03b			X
				0:00c - 2:00c			X
				2:00c - 4:00c			X
				4:00c - 6:00c			X
				6:00c - 8:03c			X
				0:00d - 2:00d			X
				2:00d - 4:00d			X
				4:00d - 6:00d			X
				6:00d - 6:43d	1		

BRUVS Deployment Camera on bottom at 0:23a. Camera off bottom at 6:23d.

Habitat notes One lion's mane jellyfish in watercolumn on descent to bottom. Mixed fines and rocky bottom with abundant *Saccharina longicuris*. *Saccharina* attached to bottom, but fines must be present due to sediment cloud shortly after camera lands on bottom. Poor-fair visibility in slightly turbid water. Mysid shrimp occasionally pass camera. Small out-of-focus invertebrates moving through water column (ctenophores? copepods?).

Bait Fresh Atlantic cod and sardines in oil

UBHS Coordinates

Appendix B.1 Geospatial coordinates for the surveyed transect start and end points in Port aux Basques Harbour, NL (Datum: UTM Zone 21T)

Transect Number	Survey Period	Approximate Length (m)	Surveyed Start Point		Surveyed End Point	
			Easting	Northing	Easting	Northing
1	2	3	4	5	6	7
2	Winter	200	340108.646	5271083.973	340005.014	5271266.478
3	Winter	200	339915.996	5271258.688	340042.696	5271095.476
	Summer	130	339906.9903	5271243.142	340002.9558	5271142.808
4	Winter	250	340153.853	5271174.894	339905.215	5271200.022
5	Winter	150	339813.998	5271118.02	339960.445	5271051.833
	Summer	140	339953.8205	5271060.022	339814.6807	5271112.812
6	Winter	50	339910.168	5271145.189	339884.496	5271097.366
7	Winter	170	339474.387	5271251.546	339288.002	5271322.884
	Summer	120	339393.1861	5271259.042	339273.937	5271310.808
8	Winter	150	339118.473	5271363.781	339252.2962	5271347.154
9	Winter	75	339332.9173	5271262.259	339361.6814	5271331.515
10	Winter	200	339157.638	5271570.955	339154.4532	5271321.282
11	Winter	100	339338.999	5271491.305	339318.781	5271384.249
	Summer	90	339339.6476	5271495.736	339322.0412	5271400.787
12	Winter	100	339284.345	5271506.521	339210.223	5271439.395
13	Winter	100	339261.486	5271553.288	339161.568	5271554.916
	Summer	90	339268.6114	339172.4197	5271558.75	5271558.175
14	Winter	100	339294.49	5271624.548	339200.955	5271646.027
15	Winter	100	339345.859	5271645.81	339316.822	5271740.815
	Summer	90	339346.6474	5271643.348	339305.4258	5271733.313
16	Winter	100	339427.557	5271622.462	339468.526	5271713.284
17	Winter	100	339435.866	5271565.599	339529.577	5271595.378
18	Winter	100	339377.372	5271482.295	339454.91	5271420.523
19	Summer	130	339226.1124	5271362.848	339092.9644	5271405.351
20	Summer	160	339243.9245	5271402.95	339086.7357	5271463.701
21	Summer	90	339414.0575	5271525.161	339496.4449	5271469.419
22	Summer	190	339610.9175	5271639.609	339417.1344	5271592.646
23	Summer	0	339647.0702	5271476.713	339492.3342	5271780.231
24	Summer	140	339770.7261	5271482.446	339729.3773	5271626.581
24	Summer	140	339700.7471	5271334.996	339772.8179	5271466.195
26	Summer	110	339645.8766	5271600.305	339671.7322	5271483.935
27	Summer	110	339613.2747	5271375.213	339669.6939	5271479.058
28	Summer	100	339608.9568	5271357.76	339679.474	5271312.356
29	Summer	200	339400.5918	5271651.094	339600.7585	5271727.228
30	Summer	170	339647.2889	5271481.934	339479.8015	5271545.705
31	Summer	160	339195.1292	5271270.837	339063.388	5271377.455

Appendix B.2 Geospatial coordinates for the benthic spot check locations in Port aux Basques Harbour, NL (Datum: UTM Zone 21T)

Spot Check Location	Survey Period	Easting	Northing		Spot Check	Survey Period	Easting	Northing		Spot Check	Survey Period	Easting	Northing
SC-01	Winter	339286.482	5272130.904		SC-02	Winter	339415.353	5272154.491		SC-03	Winter	339539.283	5272135.288
SC-04	Winter	339680.075	5272094.382		SC-05	Winter	339794.622	5272004.71		SC-06	Winter	339808.29	5271894.121
SC-07	Winter	339731.719	5271851.516		SC-08	Winter	339610.24	5271940.935		SC-09	Winter	339480.429	5271981.763
SC-10	Winter	339402.43	5272111.473		SC-11	Winter	339328.889	5272017.742		SC-12	Winter	339257.2	5271974.897
SC-13	Winter	339264.073	5271893.855		SC-14	Winter	339377.065	5271898.083		SC-15	Winter	339505.2	5271867.419
SC-16	Winter	339648.001	5271781.638		SC-17	Winter	339537.41	5271681.472		SC-18	Winter	339424.069	5271771.338
SC-19	Winter	339236.751	5271841.78		SC-20	Winter	339064.372	5271845.31		SC-21	Winter	338967.385	5271878.459
SC-22	Winter	339007.493	5271807.509		SC-23	Winter	339145.877	5271760.985		SC-24	Winter	339241.362	5271749.678
SC-25	Winter	338997.138	5271748.628		SC-26	Winter	339040.491	5271686.152		SC-27	Winter	339059.817	5271576.517
SC-28	Winter	339031.159	5271481.551		SC-29	Winter	339029.414	5271371.941		SC-30	Winter	339076.72	5271286.224
SC-31	Winter	339132.592	5271268.223		SC-32	Winter	339160.787	5271256.324		SC-33	Winter	339166.967	5271215.672
SC-34	Winter	339202.176	5271398.206		SC-35	Winter	339294.39	5271308.918		SC-36	Winter	339352.491	5271281.627
SC-38	Winter	339446.475	5271193.627		SC-38	Winter	339446.475	5271193.627		SC-39	Winter	339453.943	5271104.005
SC-40	Winter	339567.012	5271110.459		SC-41	Winter	339613.788	5271152.992		SC-42	Winter	339735.138	5271080.149
SC-43	Winter	339913.526	5271061.684		SC-44	Winter	340168.552	5271148.446		SC-45	Winter	340338.287	5271220.87
SC-46	Winter	340476.224	5271256.245		SC-47	Winter	340560.913	5271348.017		SC-48	Winter	340370.734	5271422.058
SC-49	Winter	340264.449	5271344.226		SC-50	Winter	340067.402	5271189.586		SC-51	Winter	339980.421	5271228.672
SC-52	Winter	339751.112	5271384.994		SC-53	Winter	339888.505	5271370.323		SC-54	Winter	339979.42	5271406.198
SC-55	Winter	340163.656	5271447.746		SC-56	Winter	340299.054	5271464.724		SC-57	Winter	340452.31	5271518.362
SC-58	Winter	340321.032	5271580.341		SC-59	Winter	340199.87	5271560.971		SC-60	Winter	340045.166	5271578.112
SC-61	Winter	339939.862	5271522.39		SC-62	Winter	339779.15	5271498.886		SC-63	Winter	339791.285	5271576.292
SC-64	Winter	339918.73	5271712.145		SC-65	Winter	339993.997	5271682.499		SC-66	Winter	340141.872	5271679.891
SC-67	Winter	340058.528	5271812.964		SC-68	Winter	339955.923	5271786.862		SC-69	Winter	339629.549	5271414.247
SC-70	Winter	339667.998	5271496.156		SC-71	Winter	339646.529	5271593.948		SC-72	Winter	339502.752	5271543.184
SC-73	Winter	339444.186	5271548.021		SC-74	Winter	339429.769	5271614.813		SC-75	Winter	339492.786	5271643.218
						Summer	339423.4174	5271621.883					
SC-76	Winter	339389.372	5271716.463		SC-77	Winter	339378.207	5271652.6		SC-78	Winter	339305.257	5271635.146
	Summer	339403.6488	5271718.406			Summer	339380.9133	5271668.874			Summer	339299.3351	5271641.426
SC-79	Winter	339284.557	5271697.774		SC-80	Winter	339170.895	5271631.175		SC-81	Winter	339212.523	5271604.336
	Summer	339275.4345	5271691.686										
SC-82	Winter	339270.88	5271572.811		SC-84	Winter	339250.225	5271519.664		SC-85	Winter	339106.18	5271513.959
	Summer	339250.7574	5271604.506			Summer	339233.2293	5271522.801					
SC-86	Winter	339200.701	5271481.213		SC-87	Winter	339200.701	5271481.213		SC-88	Winter	339106.023	5271483.712
SC-89	Winter	339113.539	5271417.888		SC-90	Winter	339147.951	5271429.507		SC-91	Winter	339120.848	5271363.636
SC-92	Winter	339224.187	5271388.591		SC-93	Winter	339285.2	5271415.159		SC-94	Winter	339309.028	5271444.197
						Summer	339289.9272	5271417.364			Summer	339301.3997	5271448.633
SC-95	Winter	339296.336	5271510.719		SC-96	Winter	339407.478	5271504.879		SC-97	Winter	339436.957	5271460.36
	Summer	339327.5511	5271480.054										
SC-98	Winter	339423.8815	5271406.336		SC-99	Winter	339523.183	5271361.231		SC-100	Winter	339336.786	5271320.762
SC-101	Winter	339401.0012	5271305.093		SC-102	Winter	339594.709	5271277.521		SC-103	Winter	339634.93	5271319.789
SC-104	Winter	339770.0357	5271276.596		SC-105	Winter	339687.136	5271234.054		SC-106	Winter	339864.178	5271194.16
SC-107	Winter	339895.9881	5271165.817		SC-108	Winter	339837.995	5271128.594		SC-109	Winter	339911.401	5271107.673
SC-110	Winter	339937.0345	5271166.915		SC-111	Winter	340041.119	5271142.262		SC-112	Winter	340097.69	5271149.609
SC-113	Winter	340132.8345	5271113.836		SC-114	Winter	340197.01	5271113.079		SC-01N	Winter	340085.685	5271329.438
SC-02N	Winter	339148.166	5271527.37		SC-03N	Winter	339984.183	5272013.298		SC-04N	Winter	340187.393	5272033.974
SC-05N	Winter	340171.218	5272143.963		SC-06N	Winter	340115.625	5272386.043		SC-07N	Winter	340073.236	5272500.31
SC-08N	Winter	339936.177	5272553.561		SC-09N	Winter	339844.957	5272404.591		SC-10N	Winter	339746.498	5272572.894
SC-11N	Winter	339580.394	5272584.912		SC-12N	Winter	339562.635	5272327.715		SC-13N	Winter	340011.561	5272251.547
SC-15N	Winter	340011.561	5272251.547		SC-16N	Winter	339957.431	5272107.897		SC-17N	Winter	339242.823	5271297.437
SC-20N	Summer	339223.0009	5271446.567		SC-21N	Summer	339259.0463	5271484.722		SC-22N	Summer	339280.1517	5271518.728
SC-25N	Summer	339452.7559	5271626.97		SC-26N	Summer	339560.5806	5271571.733		SC-27N	Summer	339559.8613	5271438.851
SC-28N	Summer	339395.3028	5271420.691		SC-29N	Summer	339404.1741	5271461.373		SC-30N	Summer	339547.0537	5271832.348
SC-31N	Summer	339440.5484	5271749.42		SC-32N	Summer	339263.6241	5271645.412		SC-33N	Summer	339282.3288	5271504.877
SC-34N	Summer	339192.9114	5271457.962		SC-35N	Summer	339105.7048	5271425.778		SC-36N	Summer	339163.3632	5271420.741
SC-37N	Summer	339241.7216	5271388.553		SC-38N	Summer	339190.7814	5271347.917		SC-39N	Summer	339212.7747	5271258.45
SC-40N	Summer	339036.9509	5271380.519		SC-41N	Summer	339389.5319	5271358.68		SC-42N	Summer	339590.3216	5271413.546
SC-43N	Summer	339513.689	5271494.838										

Appendix B.3 Geospatial coordinates for the proposed BRUV locations in Port aux Basques Harbour, NL (Datum: UTM Zone 21T)

BRUV	Easting	Northing
BRUVS 1	339355.762	5271467.485
BRUVS 2	339259.263	5271600.634
BRUVS 3	339454.3295	5271579.967
BRUVS 4	339579.7599	5271631.14
BRUVS 5	339639.2004	5271333.319
BRUVS 6	339170.796	5271405.379
BRUVS 7	339328.6174	5271293.193
BRUVS 8	339962.3309	5271169.361
BRUVS 9	339610.8637	5272021.126
BRUVS 10	339996.0356	5272345.045

Appendix B.4 Geospatial coordinates for the shoreline transect locations in Port aux Basques Harbour, NL (Datum: UTM Zone 21T)

Shoreline Transect Number	Survey Period	Approximate Length (m)	Surveyed Start Point		Surveyed End Point	
			Easting	Northing	Easting	Northing
1	2	3	4	5	6	7
ST1	Summer	838.63599	339369.0198	5271247.808	339858.8309	5271084.315
ST2	Summer	251.747293	339036.2263	5271594.295	339016.7886	5271358.944
ST3	Summer	317.862011	339254.8214	5271863.97	338962.1403	5271911.969
ST4	Summer	396.461535	339553.0854	5272155.595	339285.2551	5272094.571
ST5	Summer	897.095785	340104.8704	5272682.613	339565.3304	5272184.952
ST5	Summer	1396.538069	339925.2155	5272008.799	340104.8704	5272682.613
ST5	Summer	634.98055	339790.8545	5272377.105	339665.5026	5272390.948
ST6	Summer	611.984848	339669.0652	5271586.99	339922.1326	5272008.884
ST7	Summer	507.960103	339312.1551	5271503.055	339315.1202	5271501.416

Site Photos

Appendix C: Photo Log



Photo 1: Bedrock encrusted with coralline red algae observed in Transect 1 in the Baldwin Rock dredge area. Abundant Green sea urchins (*Strongylocentrotus droebachiensis*) and occasional limpets are visible throughout the image.



Photo 2: Abundant *Saccharina longicuris* and *Laminaria digitata* attached to bedrock Transect 1.

Appendix C: Photo Log

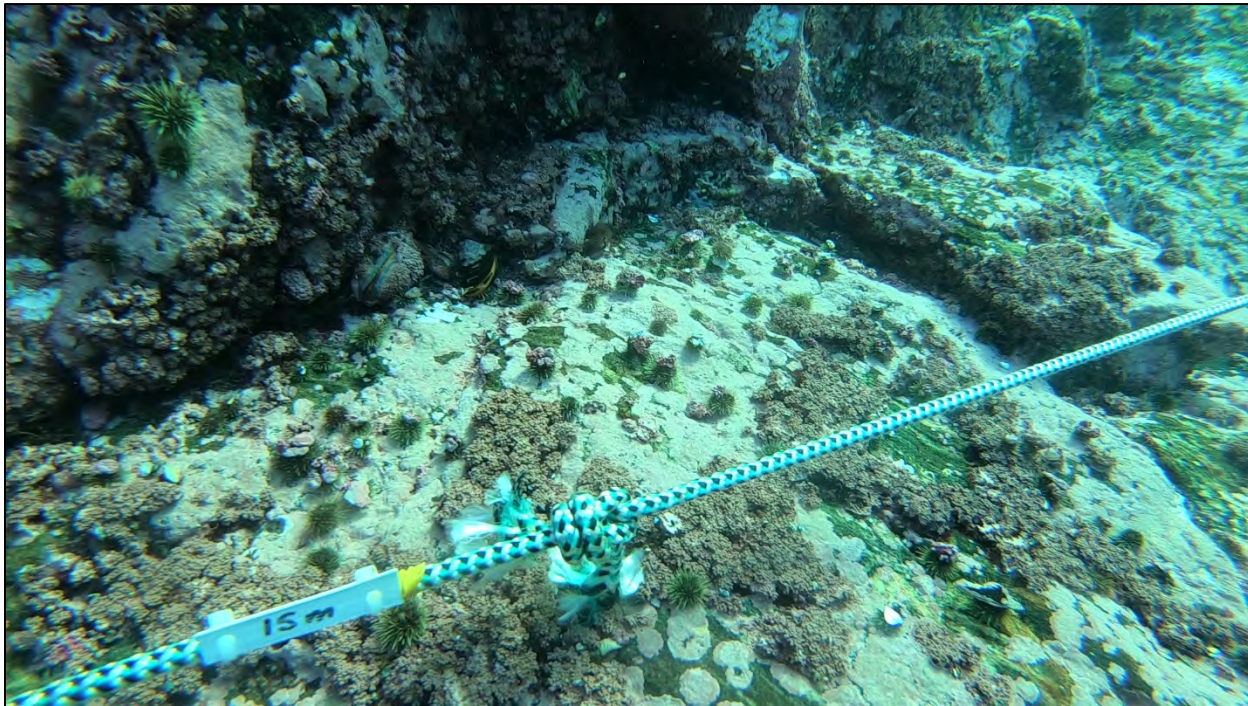


Photo 3: Abundant green sea urchin and encrusting coralline algae (likely *Lithothamnion* sp.) on bedrock in Transect 1. Horse mussels (*Modiolus modiolus*) encrusted with coralline algae are visible in the small bedrock fracture near the top of the image.



Photo 4: Abundant *Alaria esculenta* observed attached to bedrock in Transect 1.

Appendix C: Photo Log

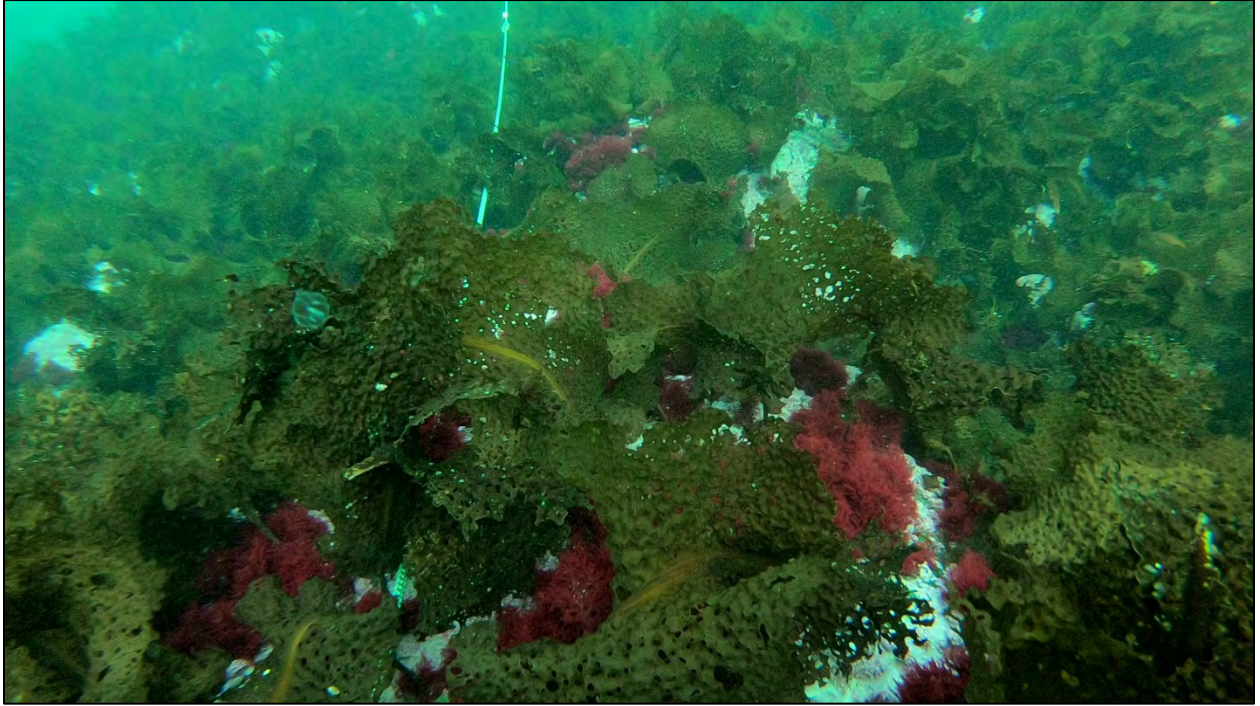


Photo 5: Abundant *Agarum clathratum* and *Polysiphonia* sp. observed on bedrock in Transect 2 in the Baldwin Rock dredge area. A ctenophore can be seen in the foreground of the image.

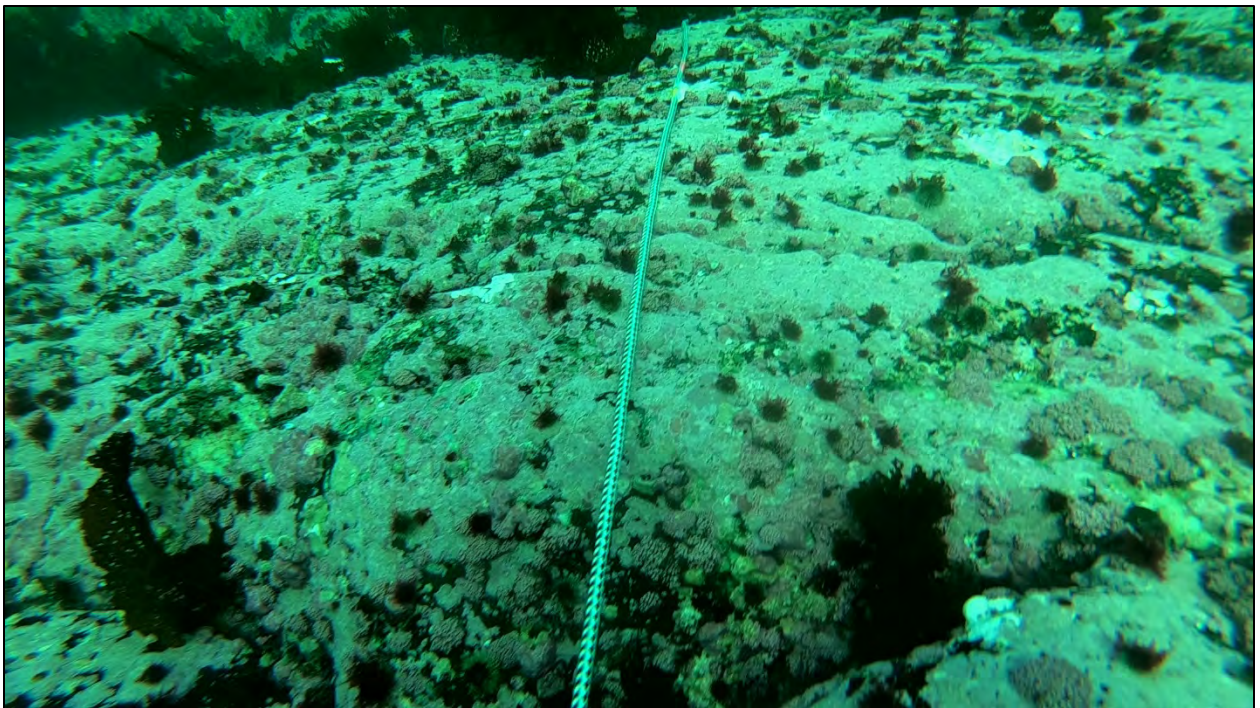


Photo 6: *Agarum clathratum* previously observed on bedrock in Transect 2 has been almost entirely grazed by abundant green sea urchin in this portion Baldwin Rock dredge area.

Appendix C: Photo Log

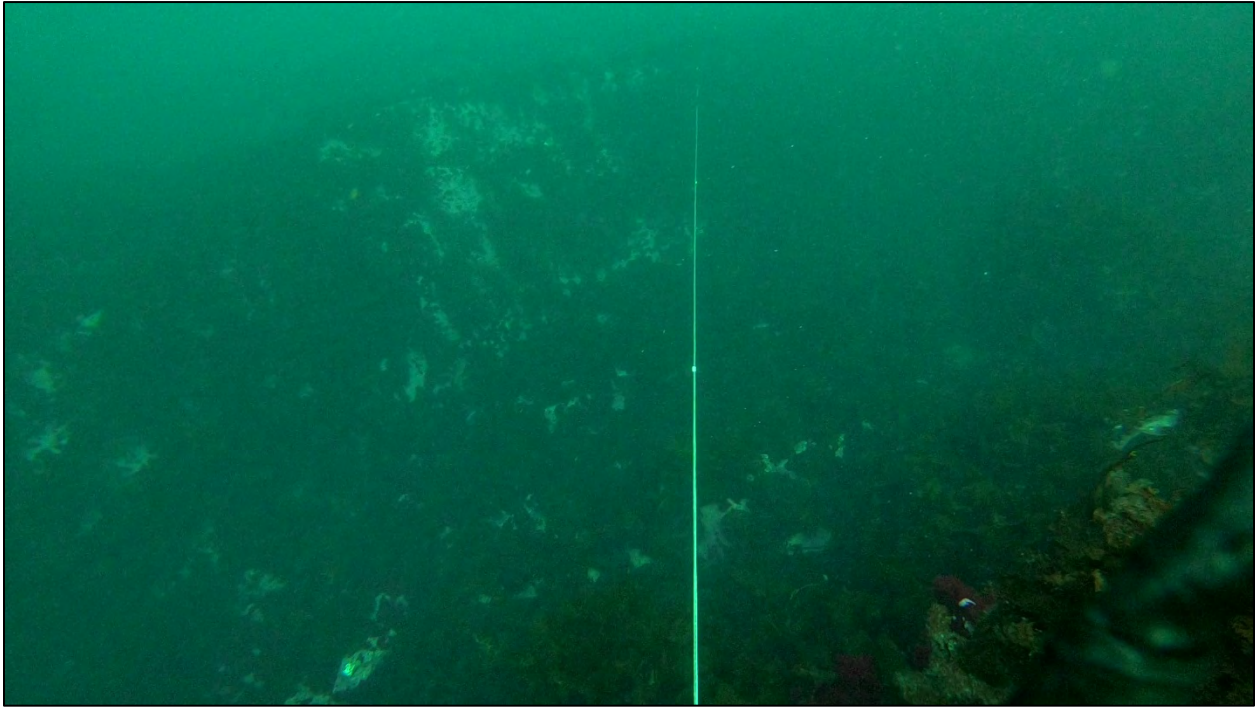


Photo 7: A large fracture in the otherwise continuous bedrock in Transect 2 resulted in the transect line being suspended in the water column between two bedrock ridges.



Photo 8: *Agarum clathratum*, encrusting red algae, and a small encrusting breadcrumb sponge on bedrock substrate in Transect 3 in the Baldwin Rock dredge area.

Appendix C: Photo Log

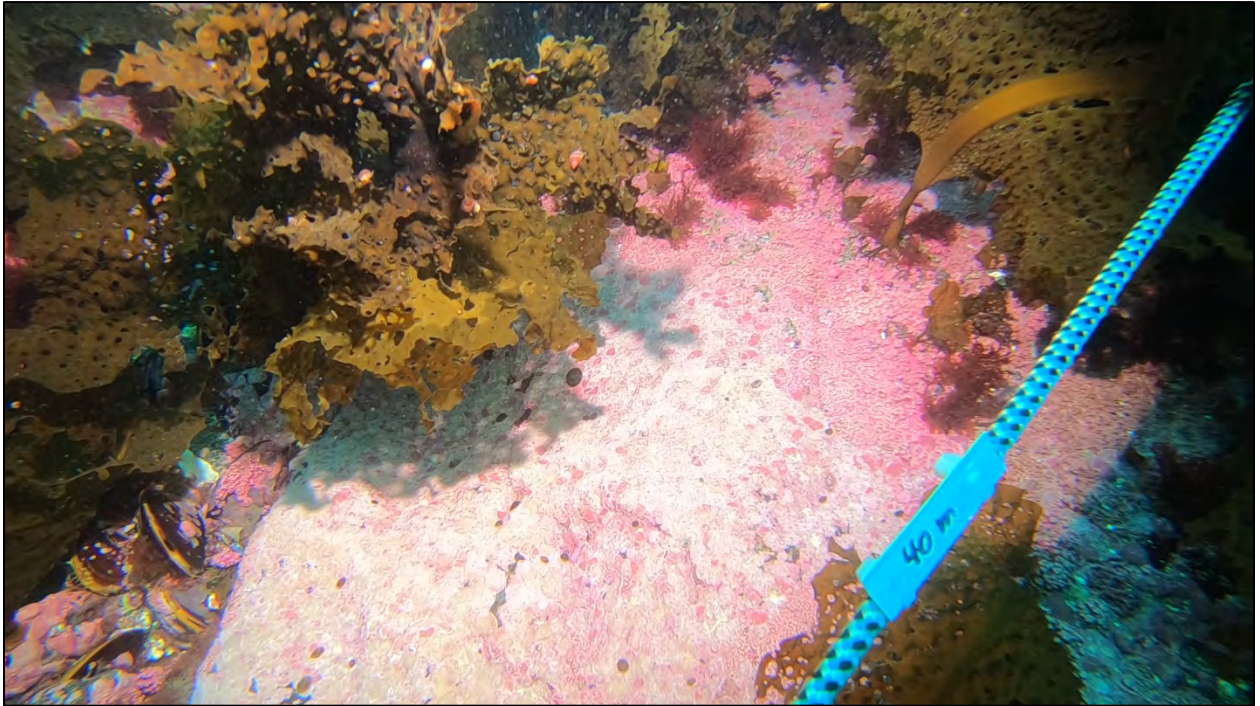


Photo 9: *Agarum clathratum*, encrusting red algae, and mussels on bedrock substrate in the Baldwin Rock dredge area.



Photo 10: *Desmarestia* sp. and *Alaria esculenta* with encrusting red algae and mussels on bedrock substrate in Transect 4.

Appendix C: Photo Log



Photo 11: A well camouflaged sculpin (*Myoxocephalus* sp.) is visible on the bottom of the image and blends in with the encrusting red algae on bedrock substrate in Transect 4. Mussels and urchins are also visible in the image.



Photo 12: *Agarum clathratum* and *Polysiphonia* sp. covers nearly the entire boulder slope of the Graveyard Point breakwater as observed from 4 metres above the breakwater as the diver ascended to the surface in Transect 5 in the Graveyard Point area.

Appendix C: Photo Log



Photo 13: *Saccharina* sp. and *Alaria esculenta* near the top of the Graveyard Point breakwater slope in Transect 5.

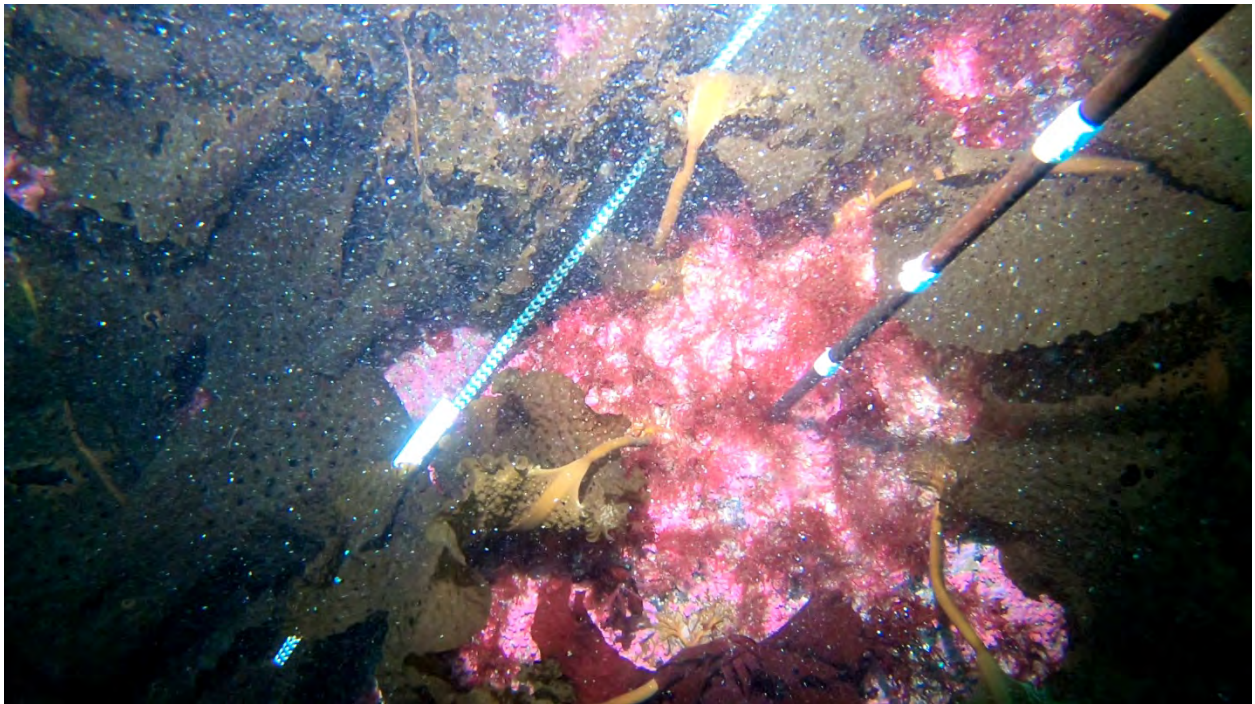


Photo 14: Bedrock observed at the base of the Graveyard Point breakwater with abundant *Agarum clathratum*, *Polysiphonia* sp., and coralline red algae. The diver's sediment probe is visible at the right side of the image.

Appendix C: Photo Log

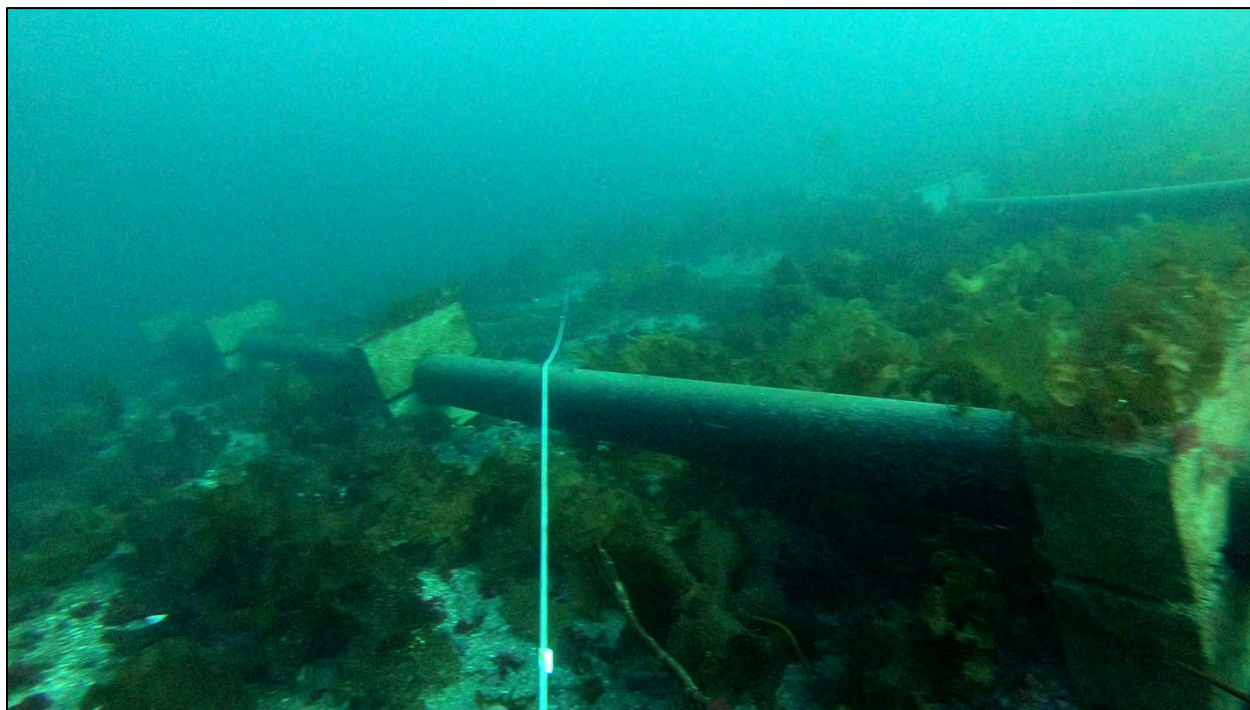


Photo 15: Water intake pipes observed on the bottom along Transect 7 in the South Turning Basin dredge area.

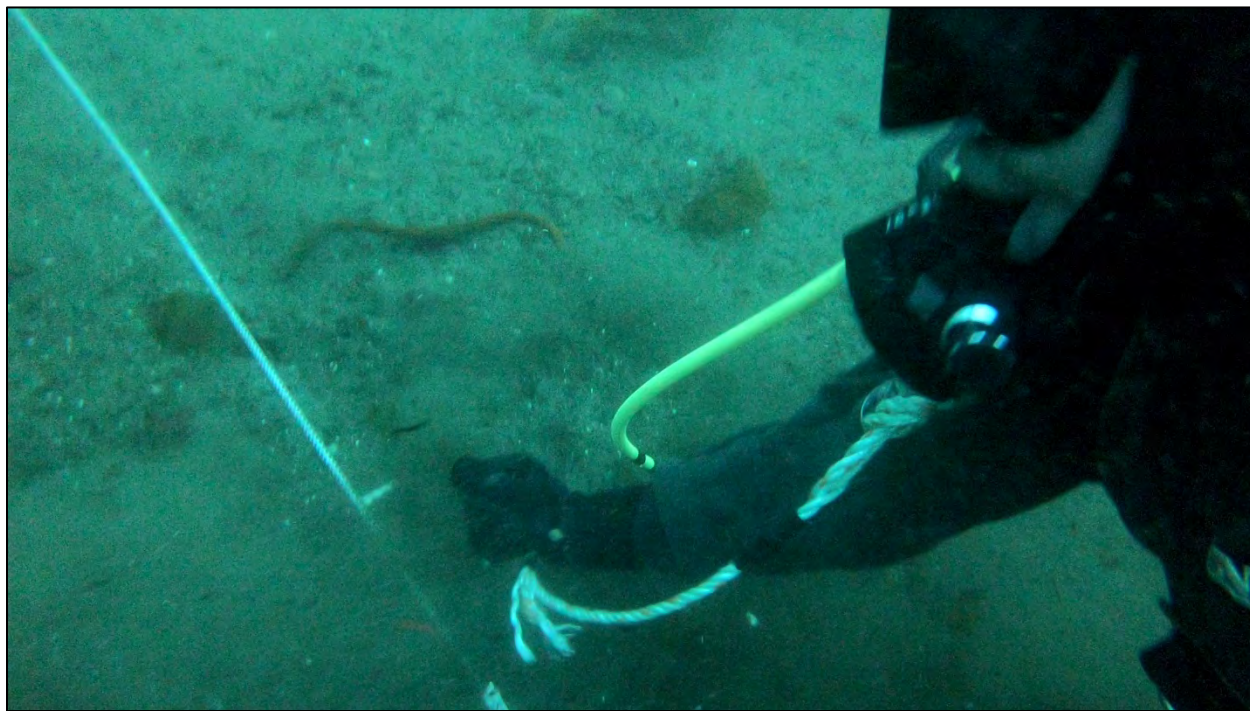


Photo 16: Fines-dominant sediment observed in Transect 8 in the South Turning Basin dredge area.

Appendix C: Photo Log

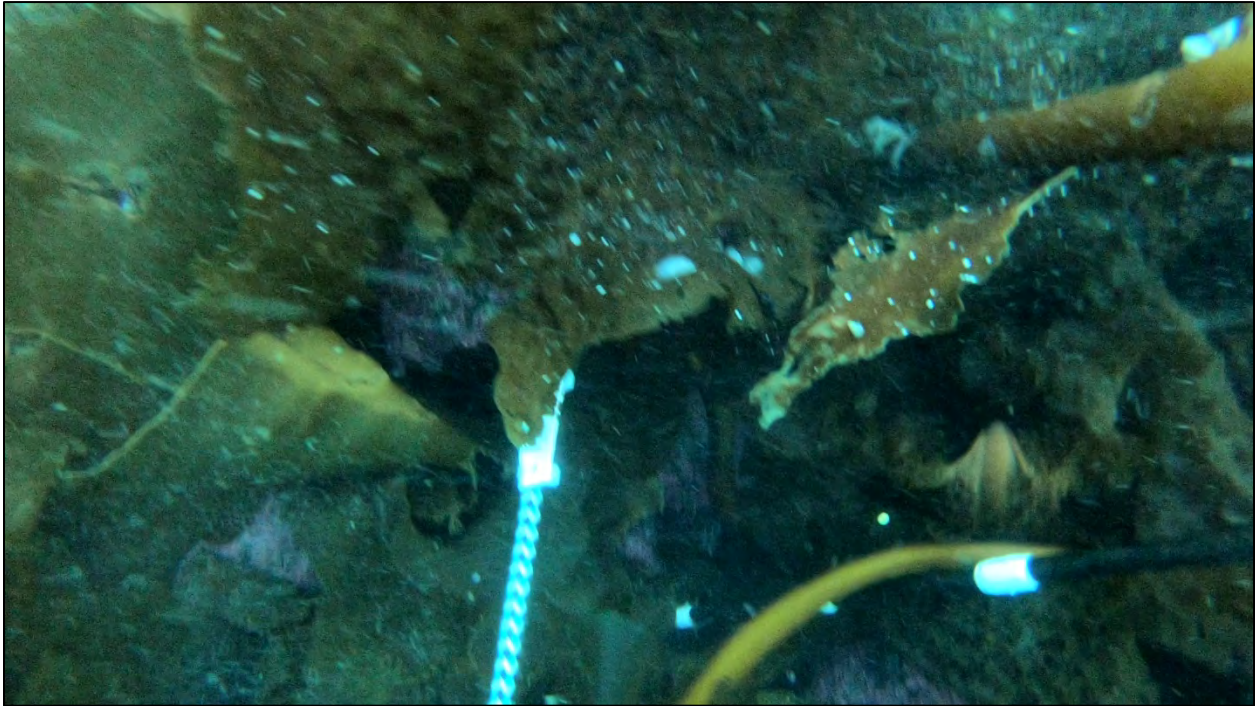


Photo 17: Coarse substrate with an abundance of *Agarum clathratum* observed in Transect 8 in the South Turning Basin dredge area.

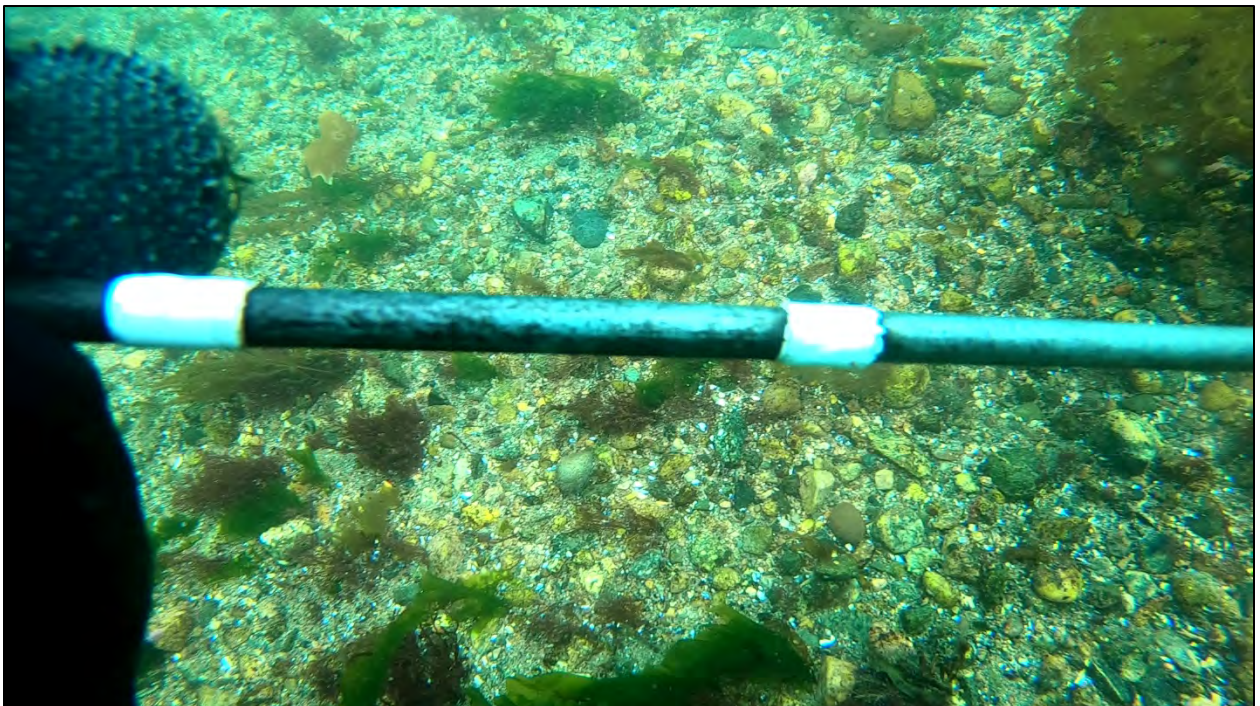


Photo 18: Mixed gravels and fines substrate observed in Transect 9 in the South Turning Basin dredge area.

Appendix C: Photo Log



Photo 19: Boulder and bedrock substrate with encrusting coralline algae and a small amount of *Agarum clathratum* and *Polysiphonia* sp. observed in Transect 9 in the South Turning Basin dredge area. Several limpets and small littorines can be seen on the algae and substrate in the image.

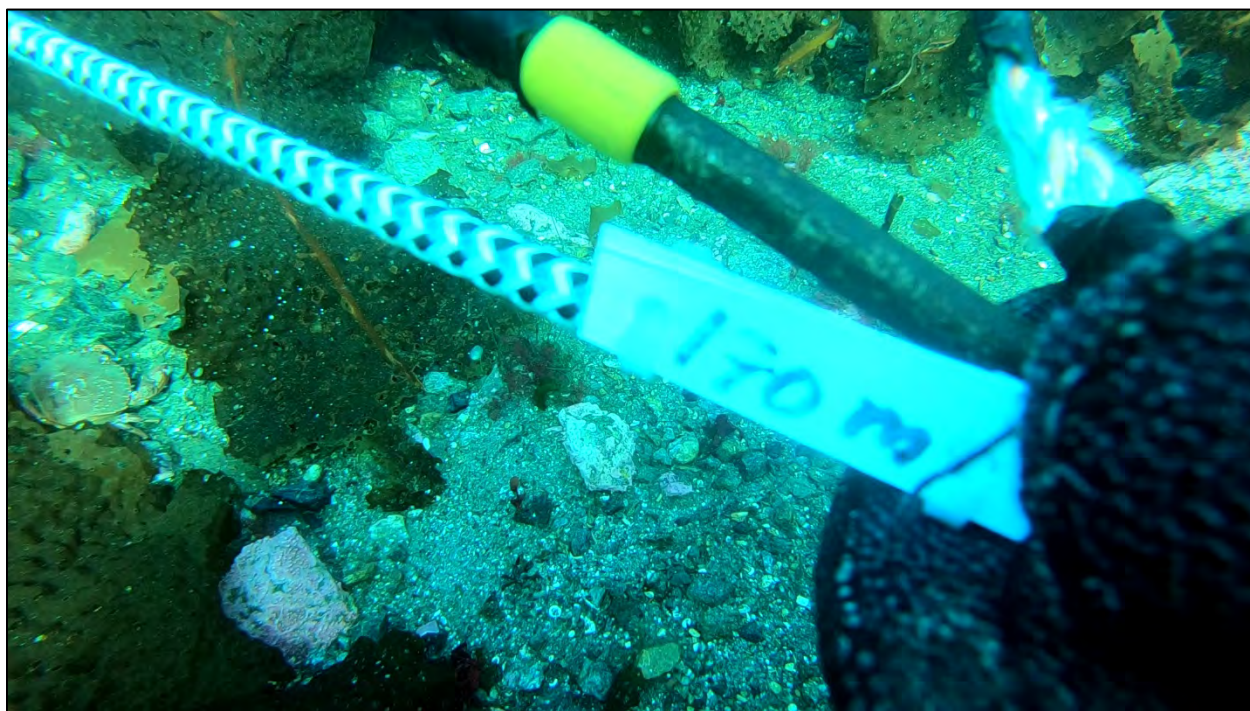


Photo 20: A rock crab is visible at left in the image on gravelly, cobbly substrate observed in Transect 10 in the South Turning Basin dredge area.

Appendix C: Photo Log

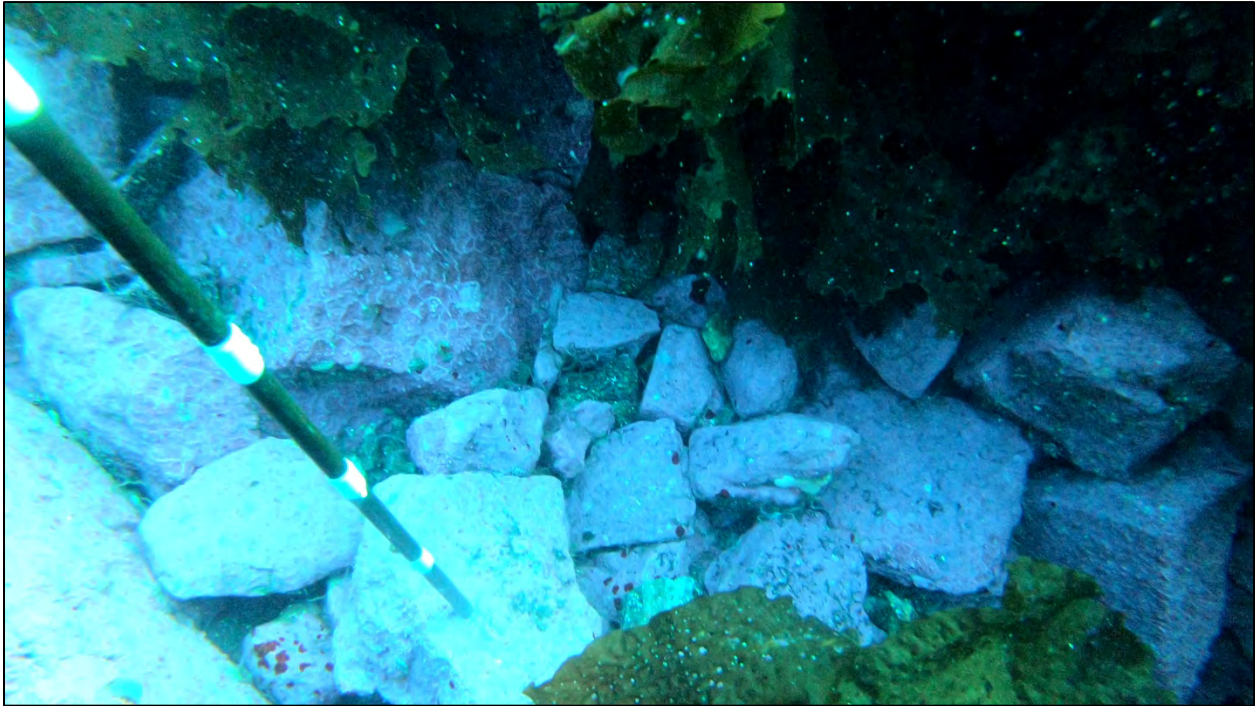


Photo 21: Large cobble and small boulders encrusted with coralline red algae observed in Transect 10 in the South Turning Basin dredge area.



Photo 22: An Atlantic wolffish (*Anarhichas lupus*) observed shelter in boulder substrate located at the base of Vardy's Island in Transect 11.

Appendix C: Photo Log



Photo 23: Frilled sea anemone (*Metridium senile*) and coralline red algae on a boulder located amongst otherwise fine substrate on the harbour bottom at the base of Vardy's Island in Transect 11.



Photo 24: *Saccharina latissima* and *Agarum clathratum* on cobble and boulder substrate on the southwest slope of Vardy's Island in Transect 12. A stalked jellyfish (*Lucernarnia quadricomis*) is visible to the right of the image circled in red.

Appendix C: Photo Log



Photo 25: Boulder and bedrock at the base of the southwest slope on Vardy's Island showing the rocky substrate transitioning to the fines-dominated harbour bottom in Transect 12.



Photo 26: An American lobster (*Homarus americanus*) found in boulder substrate on the west slope on Vardy's Island in Transect 13.

Appendix C: Photo Log

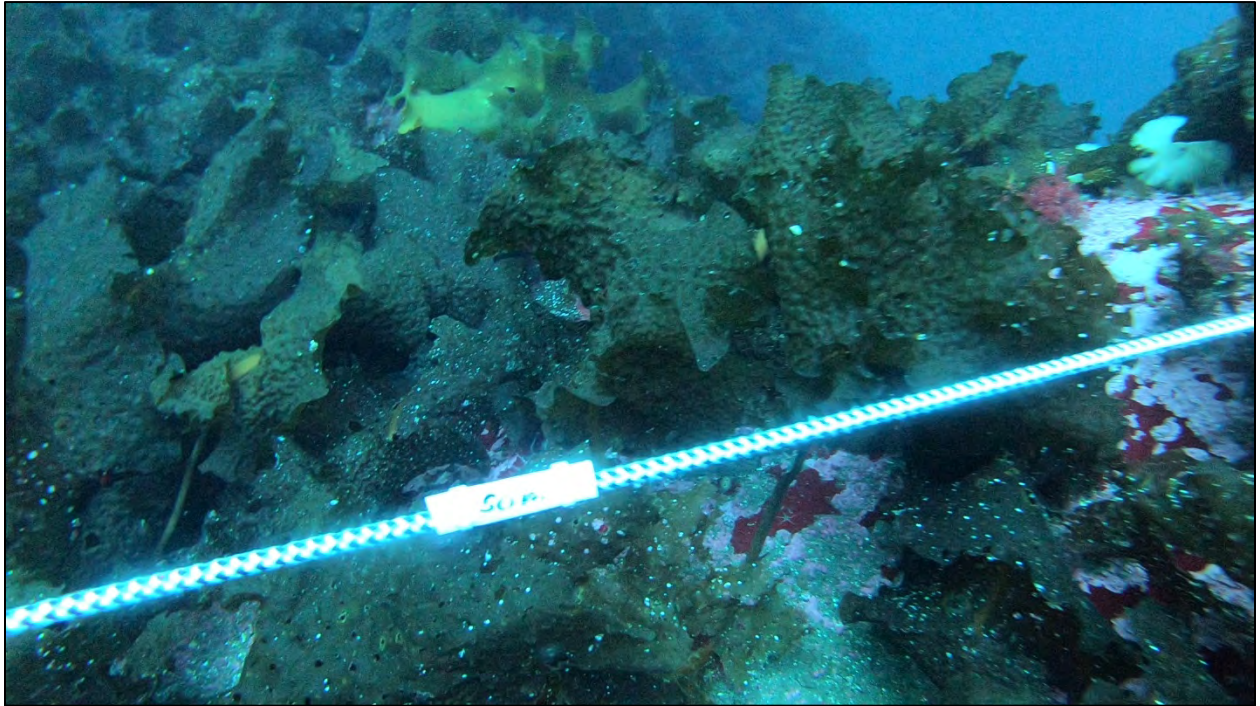


Photo 27: Bedrock substrate on the west slope on Vardy's Island in Transect 13 with abundant *Agarum clathratum* and encrusting coralline red algae.



Photo 28: Fines-dominant substrate on the northwest slope on Vardy's Island in Transect 14.

Appendix C: Photo Log

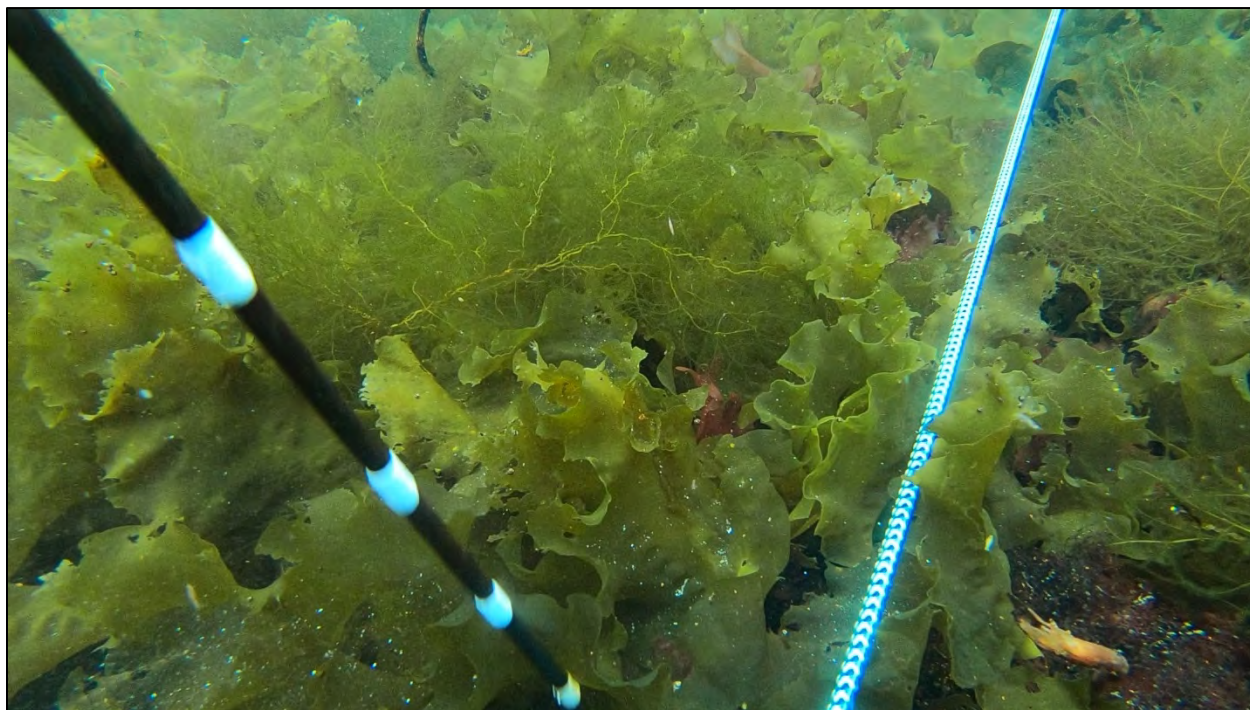


Photo 29: *Desmarestia* sp. and *Saccharina* sp. attached to subtidal rocky substrates on the north shoreline of Transect 15.

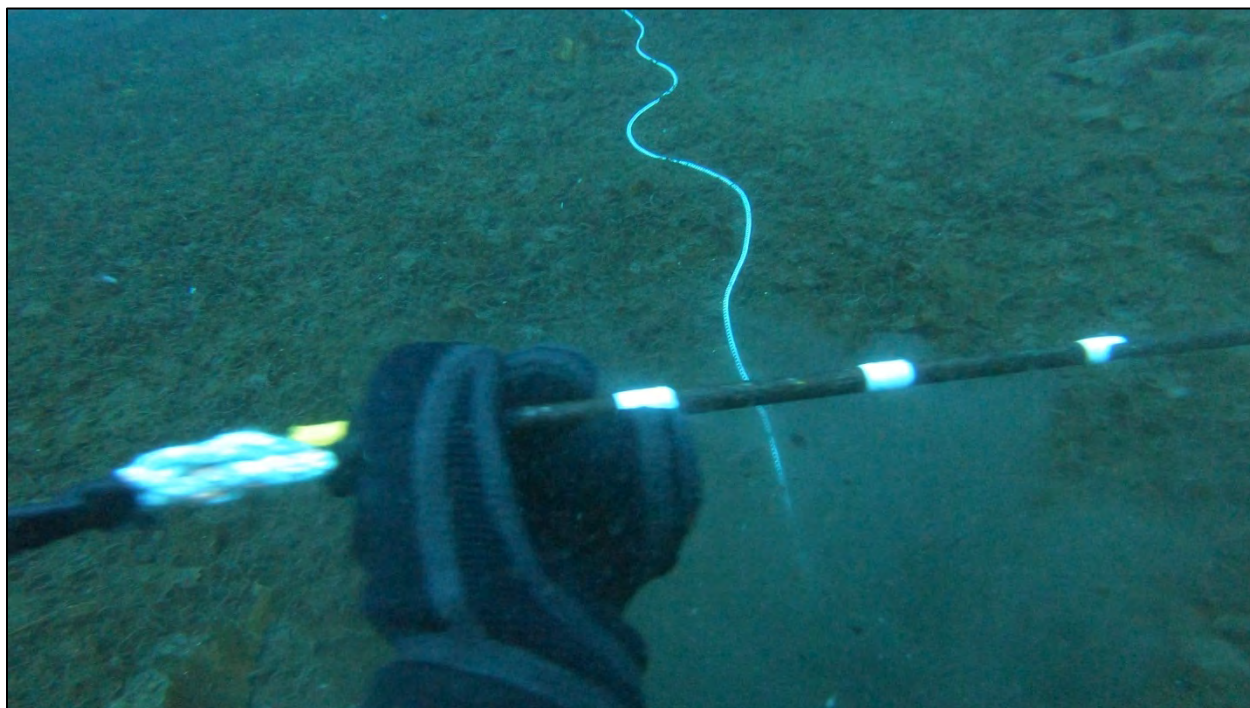


Photo 30: Fines-dominant substrate on the north slope on Vardy's Island in Transect 15.

Appendix C: Photo Log



Photo 31: *Saccharina* sp. on rocky subtidal habitat on Vardy's Island in Transect 16.

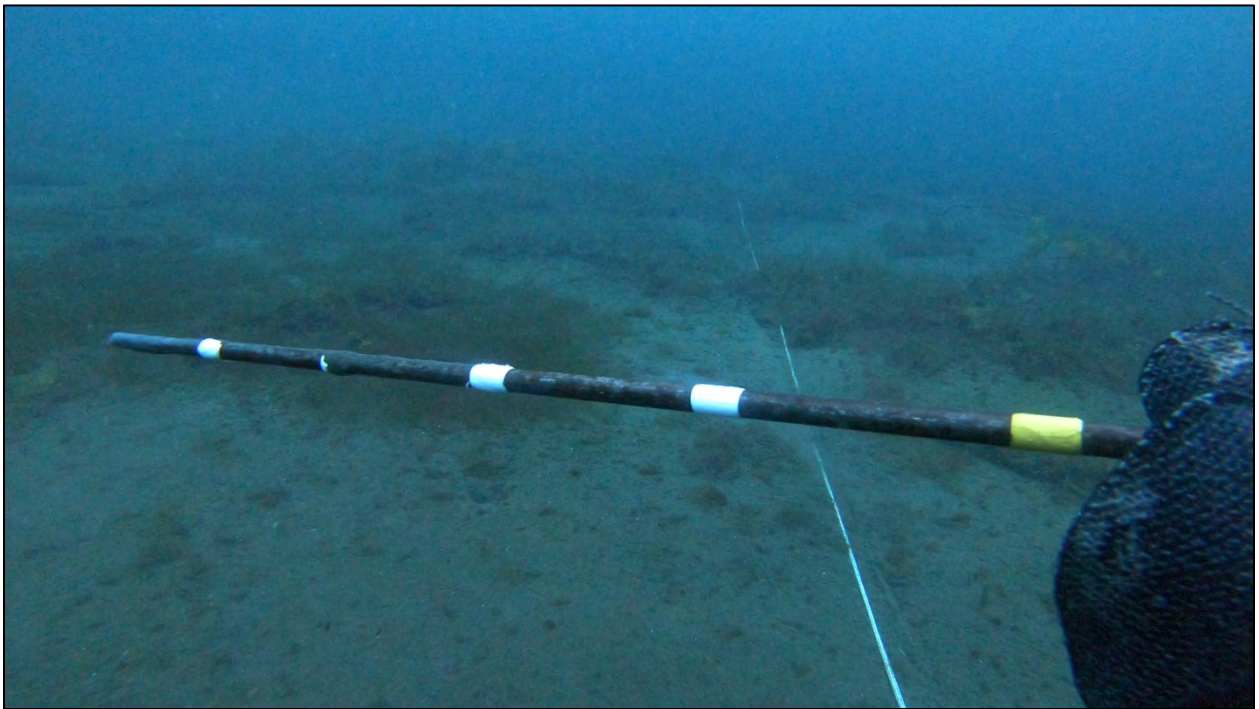


Photo 32: Fines-dominant substrate on the harbour bottom northeast of Vardy's Island in Transect 16. Filamentous brown algae and algal debris can be seen on the bottom in the background of the image.

Appendix C: Photo Log

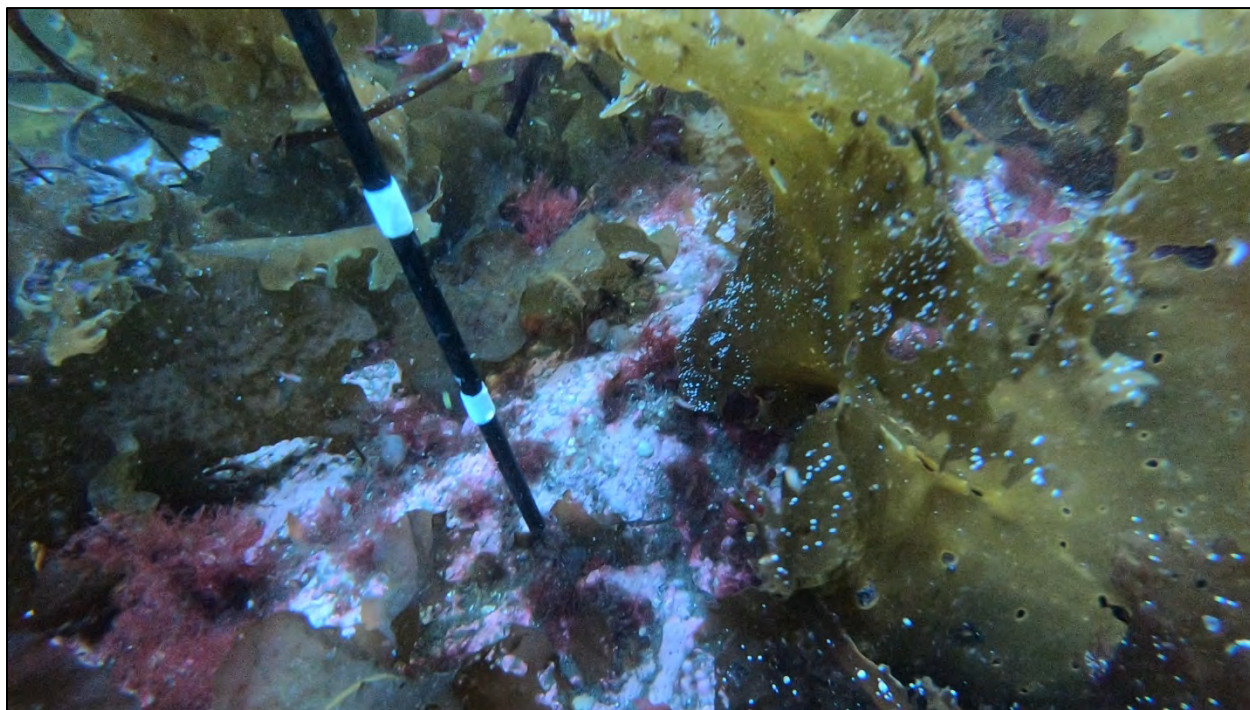


Photo 33: Rocky substrate on the east slope of Vardy's Island in Transect 17.

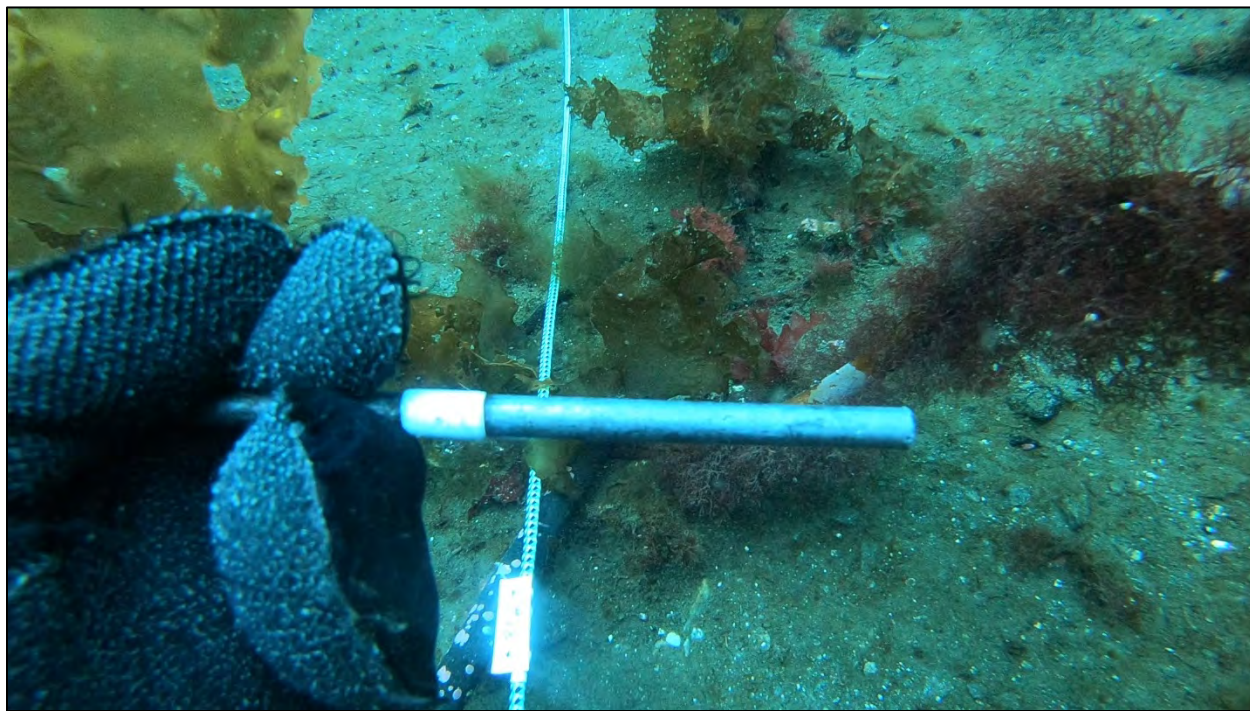


Photo 34: Fines-dominant substrate on the harbour bottom east of Vardy's Island in Transect 17.

Appendix C: Photo Log



Photo 35: Subtidal boulder and cobble substrate on the southeast slope of Vardy's Island in Transect 18.



Photo 36: Polychaete worm casings and fines-dominant substrates on the harbour bottom southeast of Vardy's Island in Transect 18.

Appendix C: Photo Log



Photo 37: Sand dollars and fines-dominant substrates on the outer harbour bottom north of the Baldwin Rock dredge area in SC-49.



Photo 38: Urchin grazed bedrock with abundant green sea urchins and one waved whelk (*Buccinum undatum*) in shallow waters near Pikes Island in SC-68.

Appendix C: Photo Log



Photo 39: Fines dominant substrates on the harbour bottom north of Vardy's Island at SC-4.

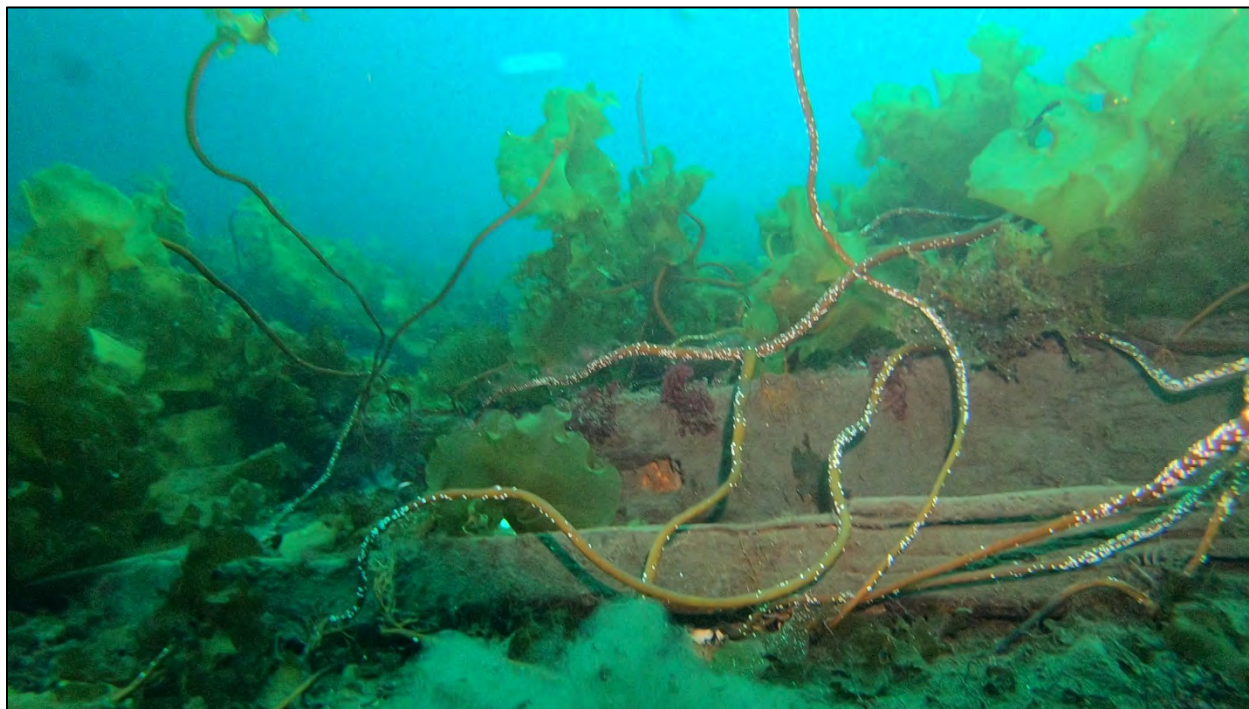


Photo 40: Metallic anthropogenic debris and attached algae on the harbour bottom near the Marine Atlantic ferry terminal at SC-11.

Appendix C: Photo Log



Photo 41: Atlantic Pollock observed at BRUVS 1 south of Vardy's Island.

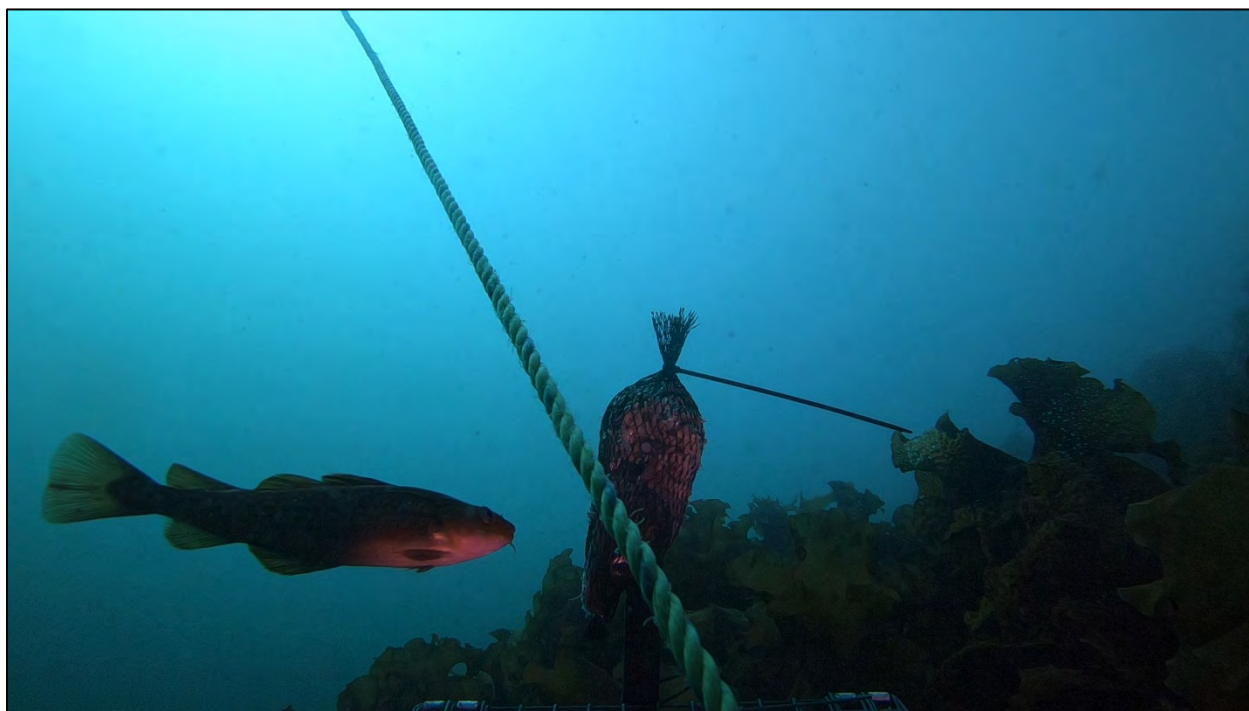


Photo 42: Atlantic Cod observed at BRUVS 5 south of Pikes Island.

Appendix C: Photo Log



Photo 43: Juvenile Atlantic cod observed at BRUVS 6 located in the South turning basin.



Photo 44: Multiple juvenile Atlantic cod observed at BRUVS 6 located in the South turning basin.

Appendix C: Photo Log

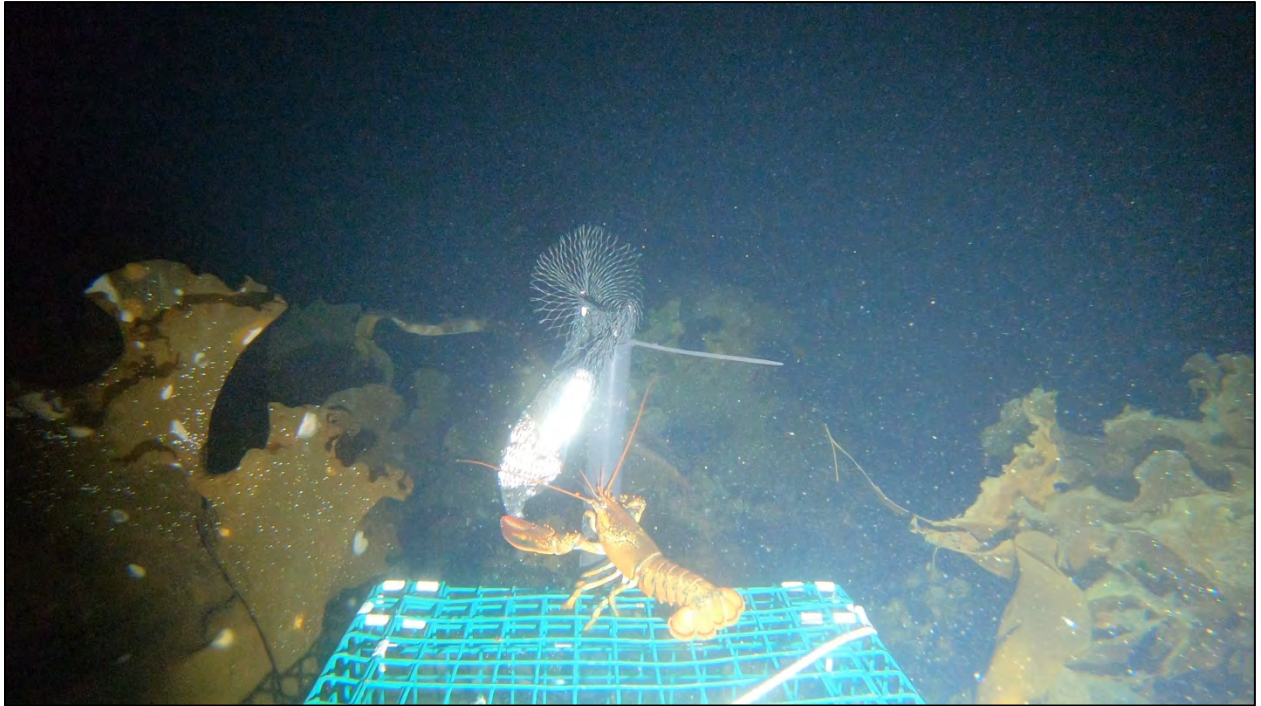


Photo 45: American lobster at bait bag at BRUVS 7 located south of Vardy's Island off of the lobster holding facility



Photo 46: Eel grass visible in small cove in ST1

Appendix C: Photo Log



Photo 47: Bedrock intertidal shoreline in ST1



Photo 48: Bedrock intertidal shoreline in ST2

Appendix C: Photo Log



Photo 49: Atlantic Pollock observed at BRUVS 1 south of Vardy's Island.

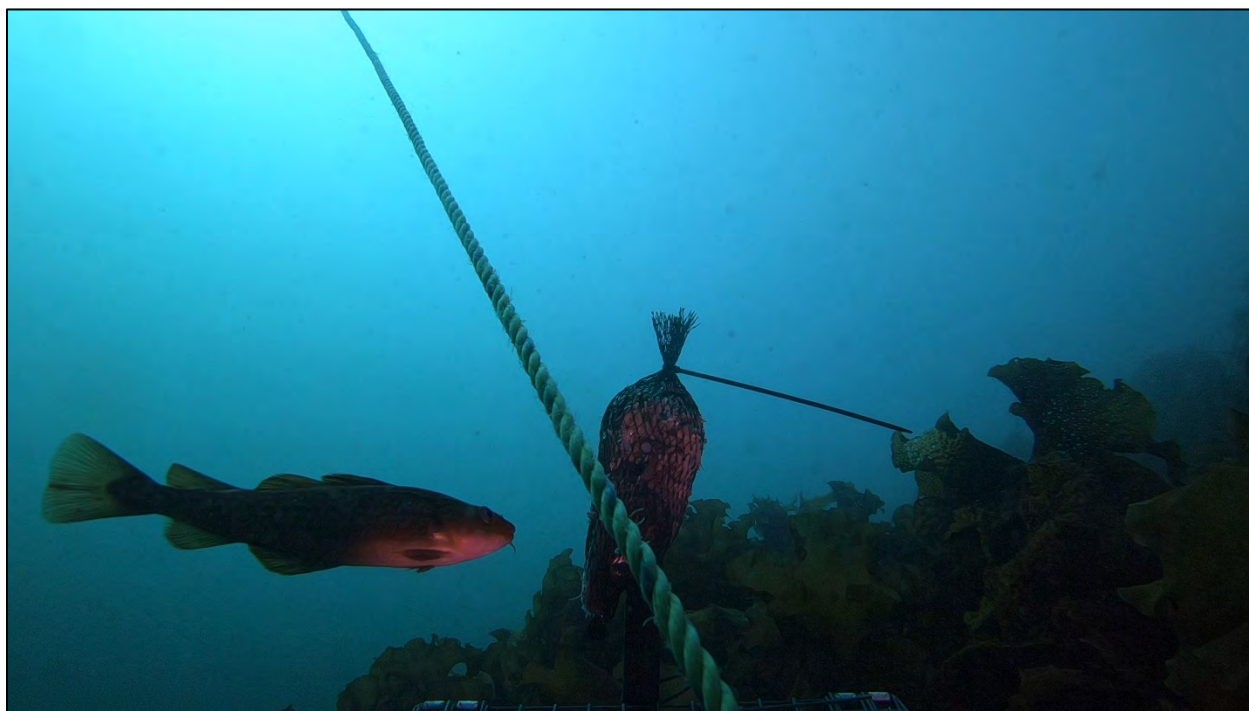


Photo 50: Atlantic Cod observed at BRUVS 5 south of Pikes Island.

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Photo 51: Boulder shoreline with metal slipway in ST3



Photo 52: Wharf section and riprap shoreline in ST4

Appendix C: Photo Log



Photo 53: Bedrock substrate observed in ST5A



Photo 54: Rock crab on bedrock observed in ST5B

Appendix C: Photo Log



Photo 55: American lobster observed in ST5B



Photo 56: American lobster observed in eel grass in ST6.

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Photo 57: Bedrock shoreline observed in ST7



Photo 58: School of cunner observed in SC3N.

Appendix C: Photo Log



Photo 59: Scallop observed on fines bottom in T19 in the South Turning Basin.

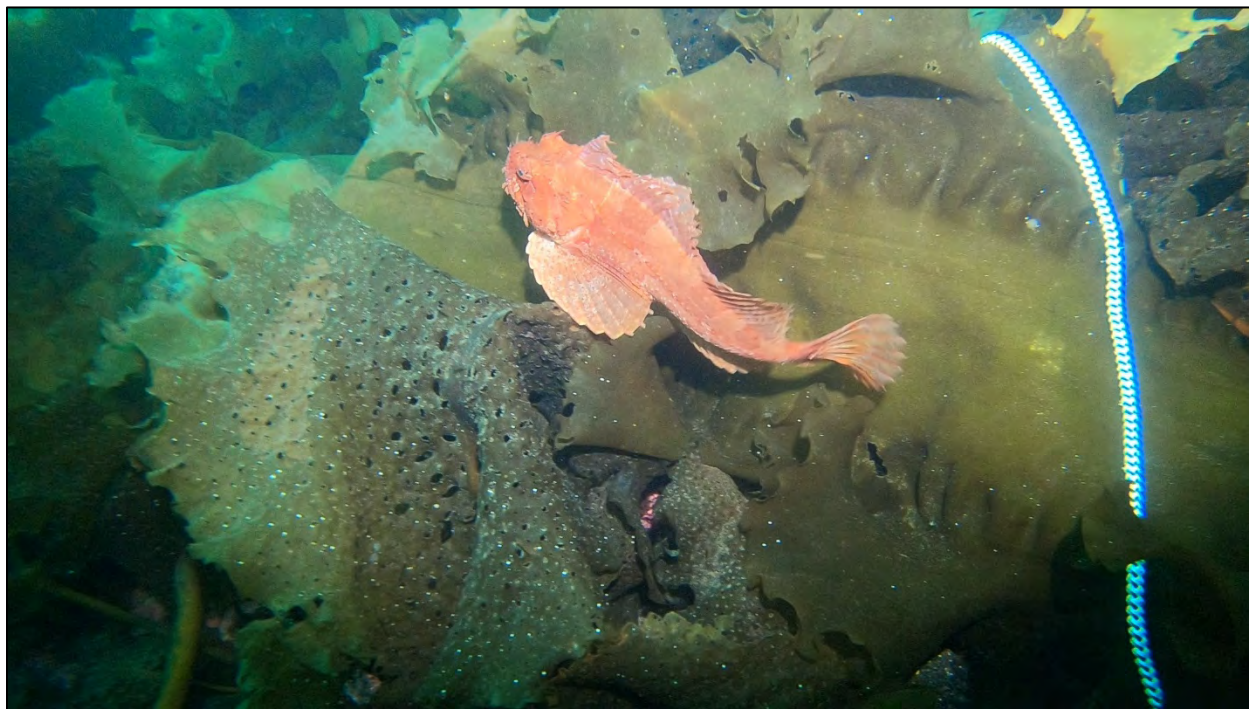


Photo 60: Atlantic sea raven observed on kelp in T20 in the South Turning Basin.

Appendix C: Photo Log



Photo 61: Fines dominated bottom with large boulder in T22 East of Vardy's Island



Photo 62: Arctic shanny observed in T23 in the Pikes Island infill area.

Appendix C: Photo Log



Photo 63: Hydroids on Saccharina observed in T23 in the Pikes Island infill area.



Photo 64: Rock crab and breadcrumb sponge observed in T23 in the Pikes Island infill area.

Appendix C: Photo Log

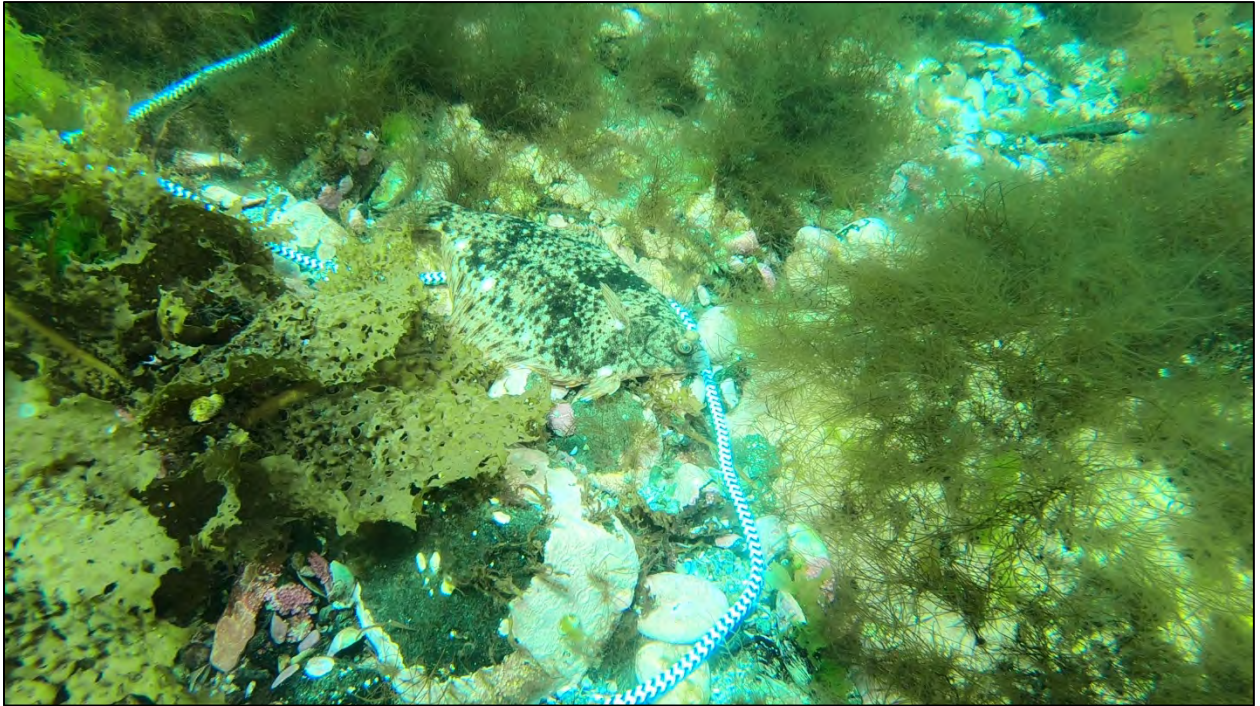


Photo 65: Winter flounder observed on rocky bottom in T24 outside the harbour on the Pikes Island breakwater



Photo 66: Kelp over rocky bottom observed in T24 outside the harbour on the Pikes Island breakwater.

Appendix C: Photo Log



Photo 67: Large school of cunner observed over kelp covered rocky bottom in T25 outside the harbour on the Pikes Island breakwater.



Photo 68: Abundant kelp observed on bedrock in T26 inside the harbour on the Pikes Island breakwater.

Appendix C: Photo Log

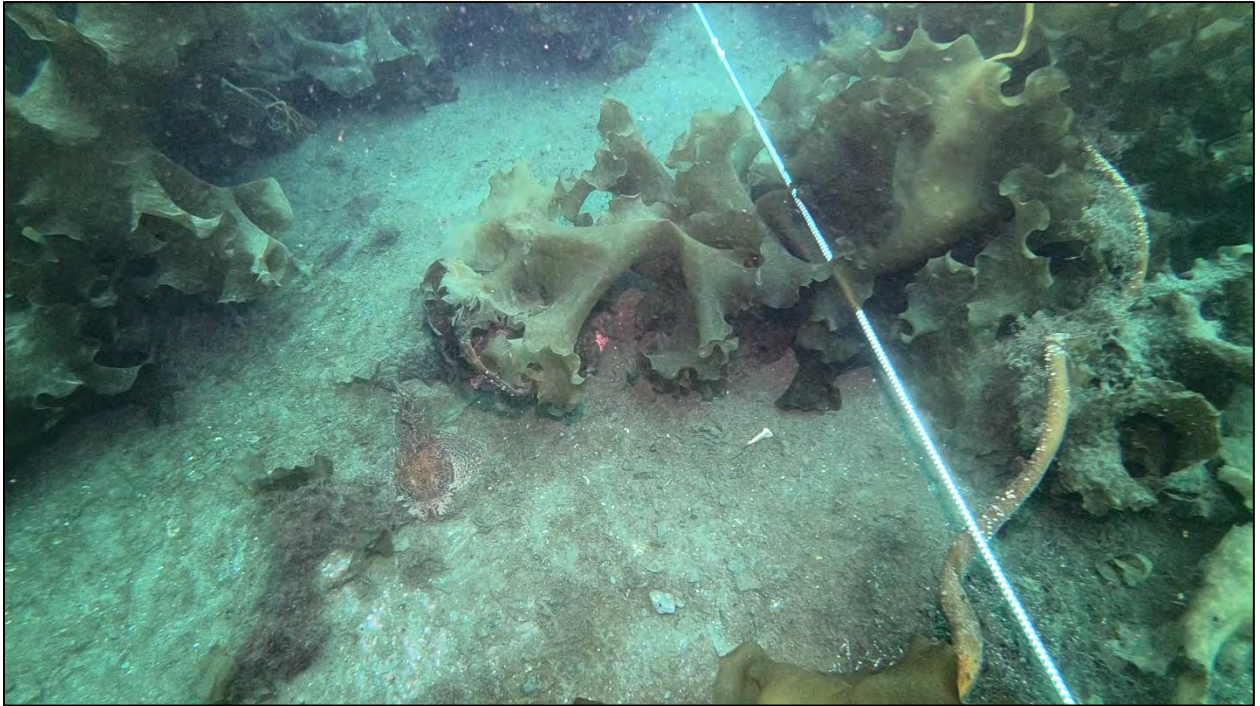


Photo 69: Goosefish observed one fines harbour bottom in T27 inside the harbour on the Pikes Island breakwater

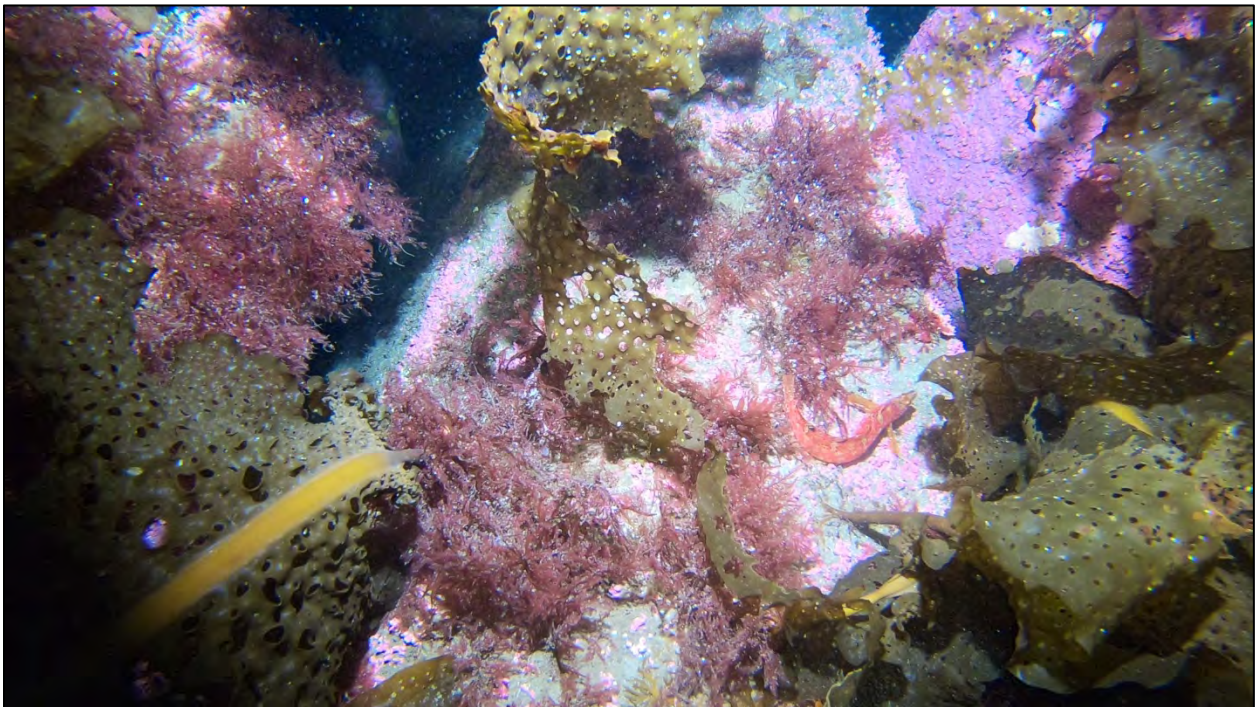


Photo 70: Juvenile ocean pout observed on rock in T28 on the South tips of Pikes Island breakwater.

Appendix C: Photo Log

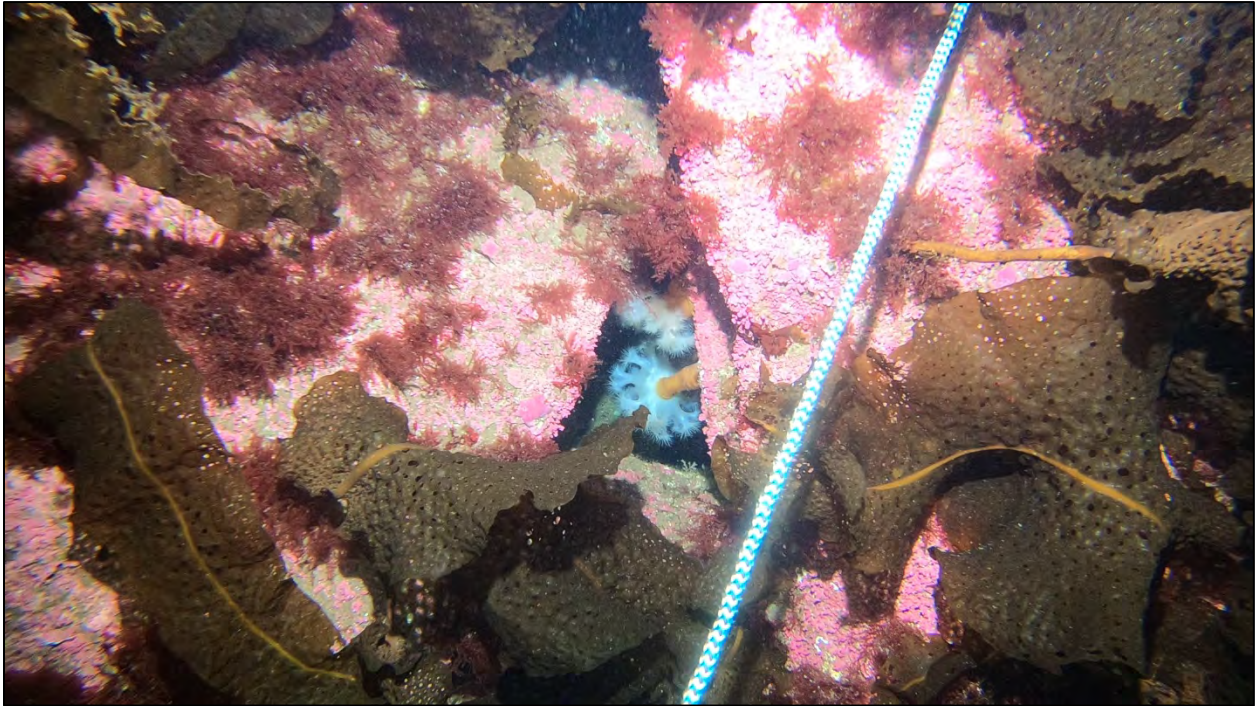


Photo 71: Frilled sea anemone on boulder substrate observed in T28 on the South tips of Pikes Island breakwater.

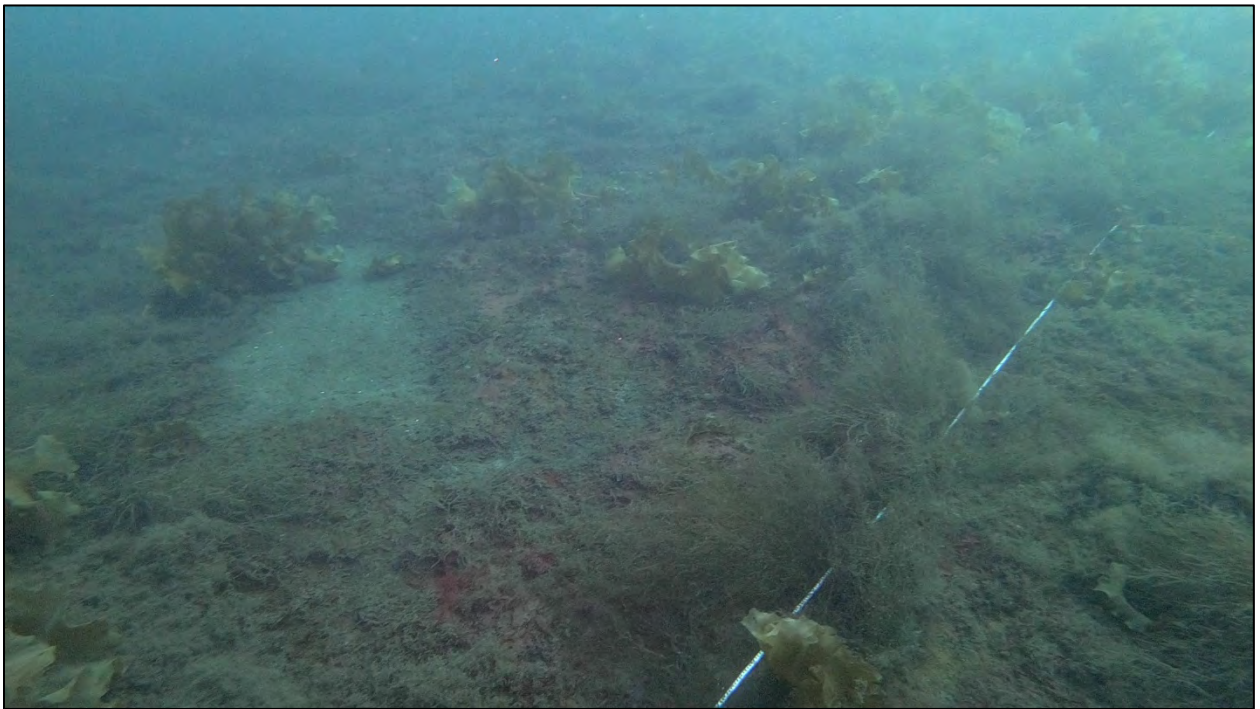


Photo 72: Fines-dominated bottom with algae debris observed in T29 east of Vardy's Island

Appendix C: Photo Log



Photo 73: Rocky substrate with abundant kelp observed in T30 moving between Vardy's Island and the Pikes Island breakwater.



Photo 74: *Palmaria palmata* observed on rocky substrate and kelp observed in T31 near the public wharfs in the South Turning Basin.

Appendix C: Photo Log

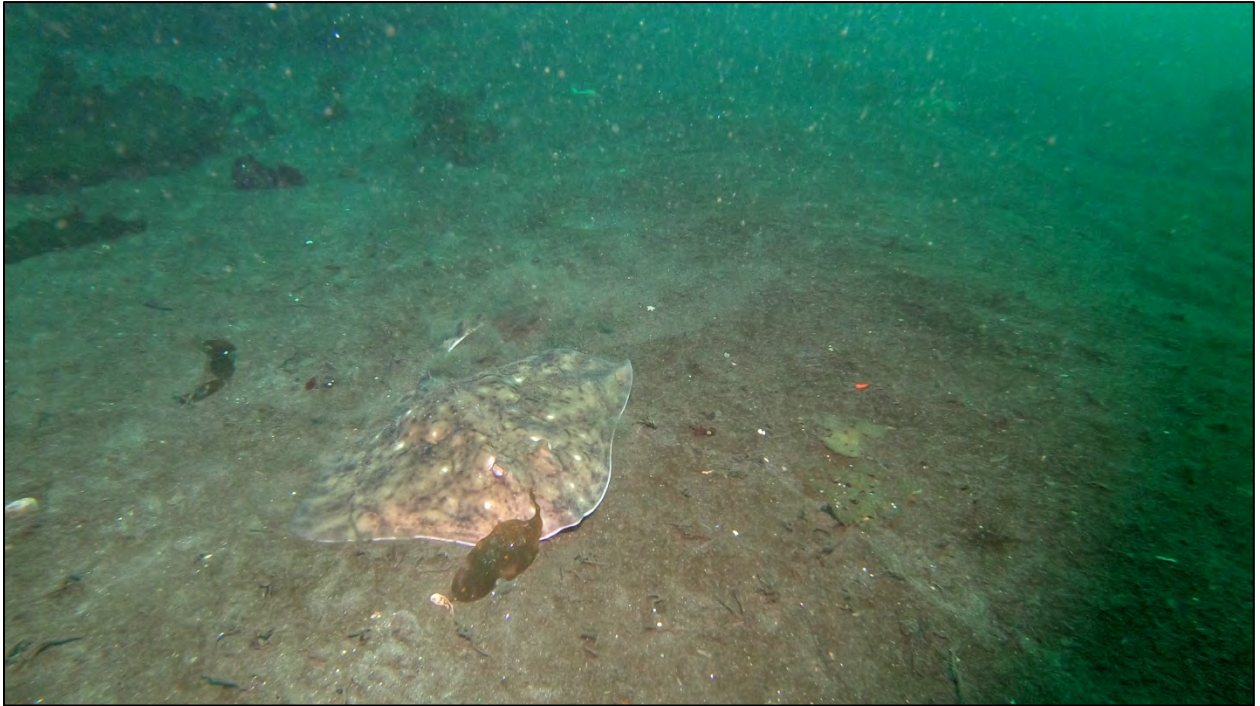


Photo 75: Skate observed on fines harbour bottom in T11-S South of Vardy's Island.

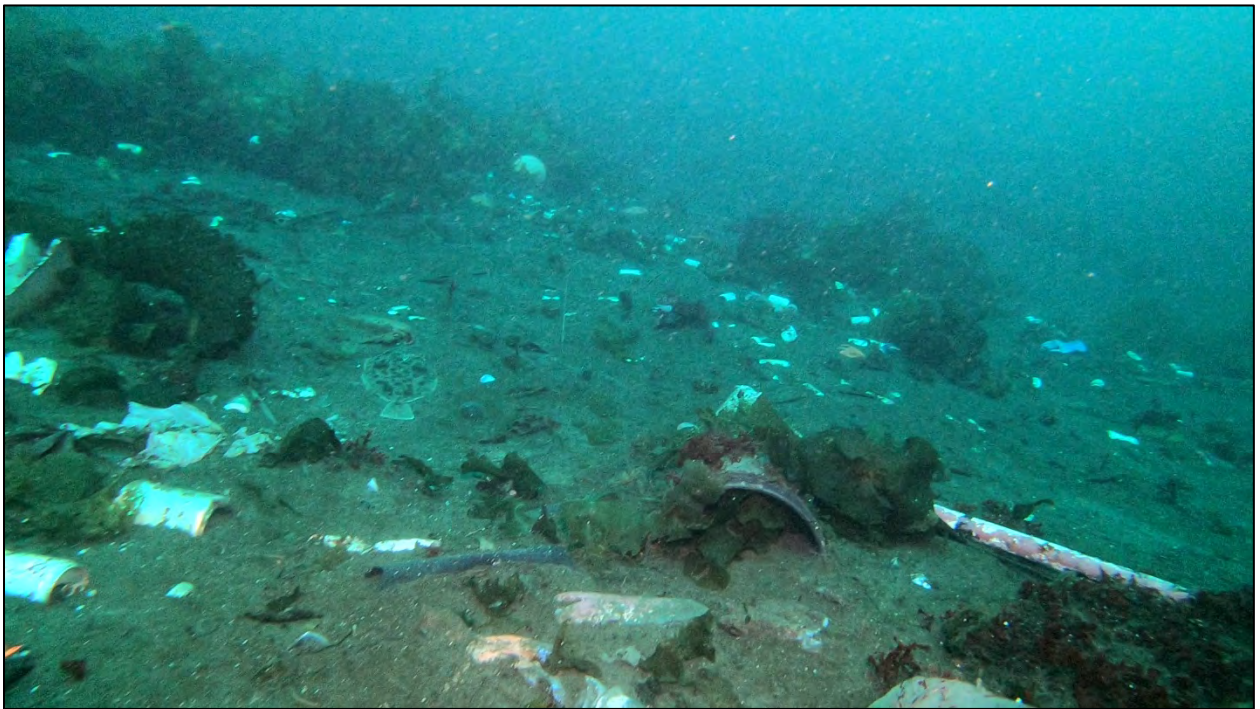
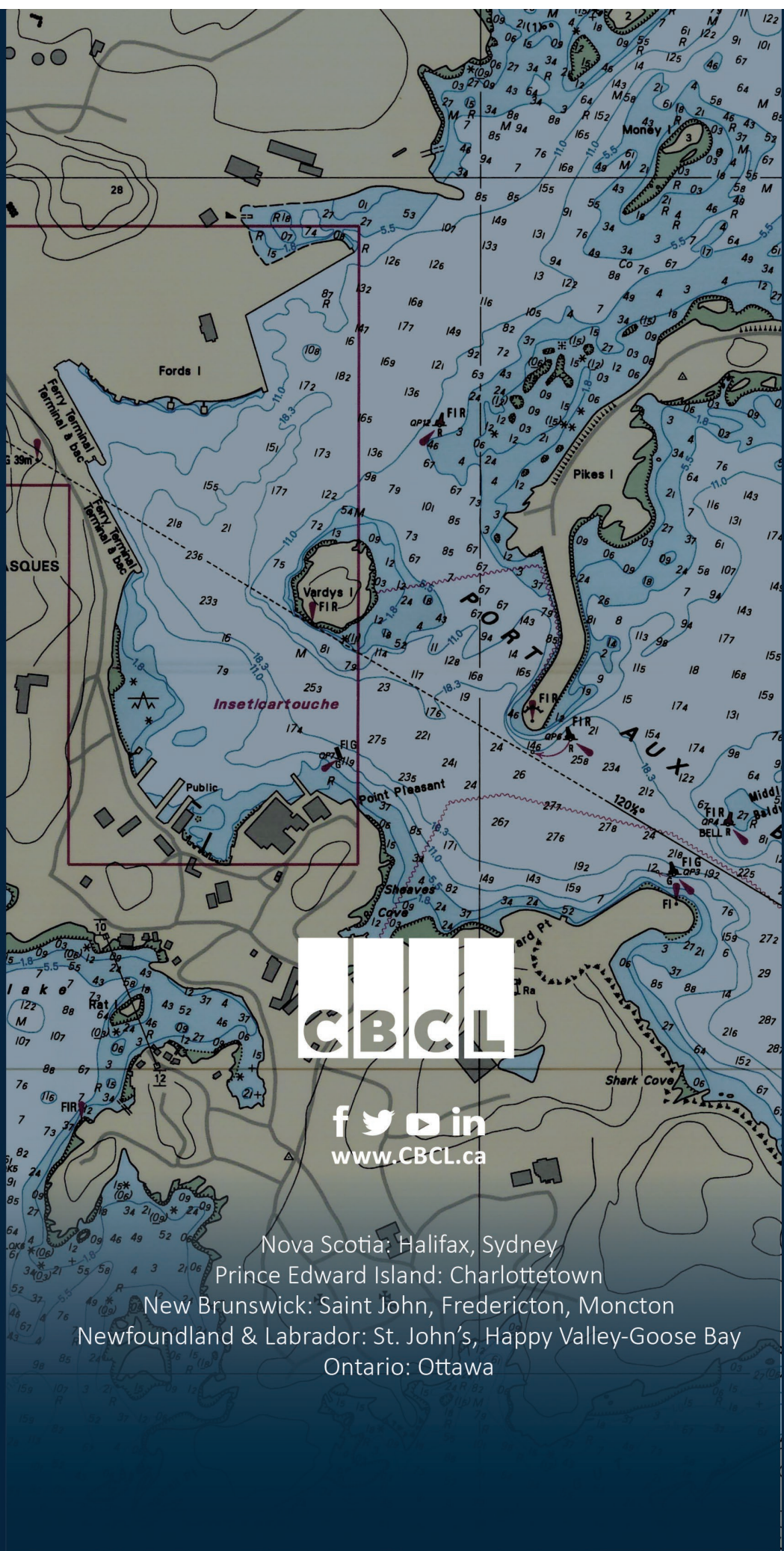


Photo 76: Winter flounder observed on fines bottom with abundant debris in T13-S West of Vardy's Island.



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