Public Services and Procurement Canada

PINKNEY'S POINT DFO-SCH (DFRP #02400)
PINKNEY'S POINT, NOVA SCOTIA

June 2020

Underwater Benthic Habitat Survey

1900182-18

FINAL REPORT

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Summary

Englobe Corp. (Englobe) was retained by Public Services and Procurement Canada (PSPC), on behalf of the Department of Fisheries and Oceans Canada (DFO), to complete an Underwater Benthic Habitat Survey (UBHS) at Pinkney's Point DFO Small Craft Harbour (SCH) (DFRP #02400) located in Pinkney's Point, Nova Scotia (NS). The Pinkney's Point DFO-SCH requires dredging and as such, an UBHS is required to characterize the existing site attributes. We understand the DFO-SCH is being dredged for general maintenance purposes and has not been dredged since 2013. The objective of the work is to characterize the underwater benthic habitat through underwater videos following transects which would provide site-specific information on the substrate type and marine macrofloral/faunal species present.

Underwater video along five transects was filmed and interpreted as part of the UBHS at Pinkney's Point DFO-SCH. These transects (T1 to T5) were located within the proposed dredge zone. Additionally, one transect (T6) was located north of the dredge area for the purposes of delineating a nearby eel grass bed. The transects were completed on May 21 and May 22, 2020. The area where eel grass was identified, was mapped and is presented in Figure 2.

The Pinkney's Point DFO-SCH underwater video analysis indicates that the proposed dredge zone consists of two habitat types. One uniform habitat type (observed along T5, T4 and the later parts of T3) consisted of rippled sandy subtidal plains with little to no macrofloral life that would provide habitat for benthic species that prefer sandy substrates. Between the wharf structures (T1 and T2 and the initial portions of T3), a more soft-bottomed habitat with silty substrate containing organic debris (consisting of dislodged and decaying macroflora) was observed. No rare or endangered species were observed during the survey.

The most dominant macrofauna species identified in the survey areas was hermit crab. Sand worm, rock crab, unidentified mobile species, barnacles and bivalve blowholes were present throughout the transects but not represented to the extent which the hermit crab was. No macrofloral species were recorded along the five transects located within the dredge zone with the exception of patches of eel grass (0-15 m of T5) and rock weed (14-40 m of T5).

An eel grass bed is located north and northeast of the proposed dredge zone and was observed along portions of T6 and along the beginning of T5, outside of the proposed dredge boundary. Eel grass forms the basis of a complex food web in estuaries and other sheltered marine areas. The structure of eelgrass plants also provides sheltered habitat for many species.

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1 Introduction

Englobe Corp. (Englobe) was retained by Public Services and Procurement Canada (PSPC), on behalf of the Department of Fisheries and Oceans Canada (DFO), to complete an Underwater Benthic Habitat Survey (UBHS) at Pinkney's Point DFO-SCH (DFRP #02400) located in Pinkney's Point, Nova Scotia (NS). The Pinkney's Point DFO-SCH requires dredging and as such, an UBHS is required to characterize the existing site attributes. The objective of the work is to characterize the underwater benthic habitat through underwater videos following transects which would provide site-specific information on the substrate type and marine macrofloral/faunal species present.

A Site Location Plan is presented on Figure 1 in Appendix A.

2 Scope and Methodology

Englobe retained the services of a diving team/crew from Huntly's Sub Aqua Construction based in Kentville, NS. Under Englobe's supervision, the divers navigated to each identified transect location using a handheld Global Positioning System (GPS). The crew completed an underwater video survey along five transect lines for a total length of 580 metres (m). Additionally, one transect (T6) was located north of the dredge area for the purposes of delineating a nearby eel grass bed. Transect locations were outlined by PSPC and are provided with the date and time of filming in Table 1, below. Refer to Figure 2 in Appendix A for a transect line location plan.

Table 1 – Transect Coordinates & Date and Time of Sampling

Transect id	Sample coordinates (latitude, longitude – decimal degrees)				2020 Date & time of filming (24 hour clock)
	start		finish		
T1	43.70348°	-66.05405°	43.70441°	- 66.05364°	May 22, 9:45
T2	43.703975°	- 66.05323°	43.70443°	- 66.05485°	May 22, 12:25
T3	43.70336°	- 66.05358°	43.70418°	-66.05245°	May 21, 9:55
T4	43.70417°	-66.05295°	43.70349°	-66.05213°	May 21, 10:45
T5	43.70464°	-66.05376°	43.70433°	-66.05259°	May 21, 11:30
T6	43.7049°	-66.0536°	43.7046°	-66.0523°	May 22, 12:45

A GPS was used to locate the pre-determined start and finish points of transects. Each transect was continuously filmed pausing at each 5 m mark and scanning to the right and left to provide a wider view of the habitats.

An Englobe representative was on-site to guide the dive crew in the event that any issue arose and to obtain supporting habitat and biological information.

At every 5 m for each transect, Englobe interpreted the underwater video including site specific substrate type and marine macrofloral/faunal species present; detailed descriptions of biological presence and/or habitat that are related to commercial, recreational or aboriginal fisheries; and general delineations of substrate types and a general characterization. In

addition, a summary statement about the overall quality of fish habitat in the survey area was made.

3 Underwater Habitat Survey Results

The results of the transect surveys are presented in Appendix B (Tables B.1 to B.5) which includes the following information for each 5 m increment of transect line:

- Visual determination of substrate type (in order of dominance);
- Macrofaunal species identification and abundance; and
- Macrofloral species identification and percent coverage.

A summary of the information provided in Appendix B is described below. Photographs of each 5 m transect segment have been included in Appendix C.

For the purpose of the video survey review and macrofaunal species identification and enumeration, four categories were developed to characterize the observed abundance levels.

The categories are as follows:

A = Abundant
Numerous (not quantifiable) observations made throughout the entire 5 m segment.

C = Common
Numerous (not quantifiable) observations made intermittently along the 5 m segment.

O = Occasional
Quantifiable observations made intermittently along the 5 m segment.

U = Uncommon
Quantifiable observations made infrequently along the 5 m segment.

Transect T1

T1 was located inside of the current wharf structures. T1 was 110 m in length running roughly south to north and parallel to the shoreline, as shown in Figure 2.

Poor visibility was encountered along T1 due to heavy vessel traffic and algae. The surficial sediment was predominantly silt with organic debris consisting of dislodged and decaying macroflora covering some area in most intervals along the transect (5% to 39% where observed). A small amount of cobble (1%) was noted along the 0-5 m area. No organic debris was noted within four of the 5 m intervals: three intervals have 100% silt, one interval has 95% silt, 5% anthropic debris (tire). A plastic bag was noted in the 15-20 m area.

In terms of observed macrofauna, only a single rock crab (Cancer pagurus) was observed along the entire transect.

All macrofloral species observed along the transect appeared to have been dislodged and decaying and therefore described as organic debris as it was difficult to determine what species, if any were alive. Generally speaking, more abundant organic debris was noted at the beginning of the transect compared to the later parts.

Transect T2

T2 was located inside of the current wharf structures. T2 was 140 m in length running roughly east to west perpendicular to the shoreline, as shown in Figure 2.

Poor visibility was encountered along T2 due to heavy vessel traffic and algae. The surficial sediment was predominantly silt with organic debris consisting of dislodged and decaying macroflora covering some area in most intervals along the transect (5% to 40% where observed). Some boulders (2% to 5% coverage) were observed between 50 to 55 m and 135 to 140 m. No organic debris was noted within four intervals. A tire was noted in the 120-125 m area.

In terms of observed macrofauna, sand coils from sandworms (*Arenicola marina*), hermit crabs (*Pagurus longicarpus*), bivalve blowholes, barnacles (*Balanus sp.)* and a small fast-moving unidentifiable species were observed along the latter parts of the transect, from 85 m to 140 m.

All macrofloral species observed along the transect appeared to have been dislodged and decaying and therefore described as organic debris as it was difficult to determine what species, if any were alive.

Transect T3

T3 was located southeast of the wharves and inside of the breakwater. T3 was 130 m in length running southwest to northeast intersecting T4, as shown in Figure 2.

The surficial sediment was predominantly sand with organic debris consisting of dislodged and decaying macroflora covering some areas. Along the first 80 m of transect 7% to 45% coverage in organic debris where observed. Boulders were observed at 35-40 m. From 30 m onwards, shell fragments were observed (1-5%). The sand from 80 m onwards was generally rippled and free of organic debris.

In terms of observed macrofauna, a sand coil from sandworms was observed at 25-30 m and a rock crab was observed at 75-80 m. From 95 m to 130 m, hermit crabs and sand coils from sandworms were observed within most 5 m intervals. A small fast-moving unidentifiable species was observed at 100-105 m.

All macrofloral species observed along the transect appeared to have been dislodged and decaying and therefore described as organic debris as it was difficult to determine what species, if any were alive.

Transect T4

T4 was located east of the wharves. T4 was 100 m in length running northwest to southeast intersecting T3, as shown in Figure 2.

The surficial sediment was predominantly rippled sand along the entire 100 m length with small amounts of organic debris and shell fragments (1-2%). A tire was observed near the 25 m distance.

In terms of observed macrofauna, hermit crabs were the most frequently identified benthic invertebrates and were observed along many intervals of the transect. Sand coils from sandworms were observed along several of the 5 m intervals.

Transect T5

T5 was located along the north side of the wharf structures. T5 was 100 m in length running roughly west to east, as shown in Figure 2.

Predominantly silty sand (0-40 m) then rippled sand (40-100 m) was identified along the transect with small amounts of organic debris and shell fragments (1-19% coverage) except more organic debris (45% coverage) was observed at 35-40 m.

In terms of observed macrofauna, hermit crabs were commonly observed along most of the 100 m length of the transect. Sand coils from sandworms were also observed within four of the 5 m intervals.

Macrofloral life including eel grass (*Zostera marina*) and rockweed (*Ascophyllum nodosum*) was observed along the beginning of the transect which is located outside of the proposed dredge zone. The eel grass was observed in small patches (between 1% and 10% coverage) from 0-15m. Sparse rockweed (5% coverage) was observed from 15-25 m and from 35-40 m (located within the dredge zone).

Transect T6

T6 was located north of T5 and outside of the proposed dredge zone. T6 was 100 m in length running roughly west to east and parallel to T5 and the wharf, as shown in Figure 2. T6 was laid and video recorded for the purposes of delineating a nearby eel grass bed and determining the proximity of the eel grass to the proposed dredge area.

Although some eel grass patches (5% coverage or more) were observed along the majority of the transect, thick dense eel grass was observed along the first 10 m of the transect and again from 30-50m.

4 Conclusions

The Pinkney's Point DFO-SCH underwater video analysis indicates that the proposed dredge zone consists of two habitat types. One uniform habitat type (observed along T5, T4 and the later parts of T3) consisted of rippled sandy subtidal plains with little to no macrofloral life that would provide habitat for benthic species that prefer sandy substrates. Between the wharf structures (T1 and T2 and the initial portions of T3), a more soft-bottomed habitat with silty substrate containing organic debris (consisting of dislodged and decaying macroflora) was observed. It was difficult to determine what dislodged and decaying organic debris, if any, were alive. No rare or endangered species were observed during the survey.

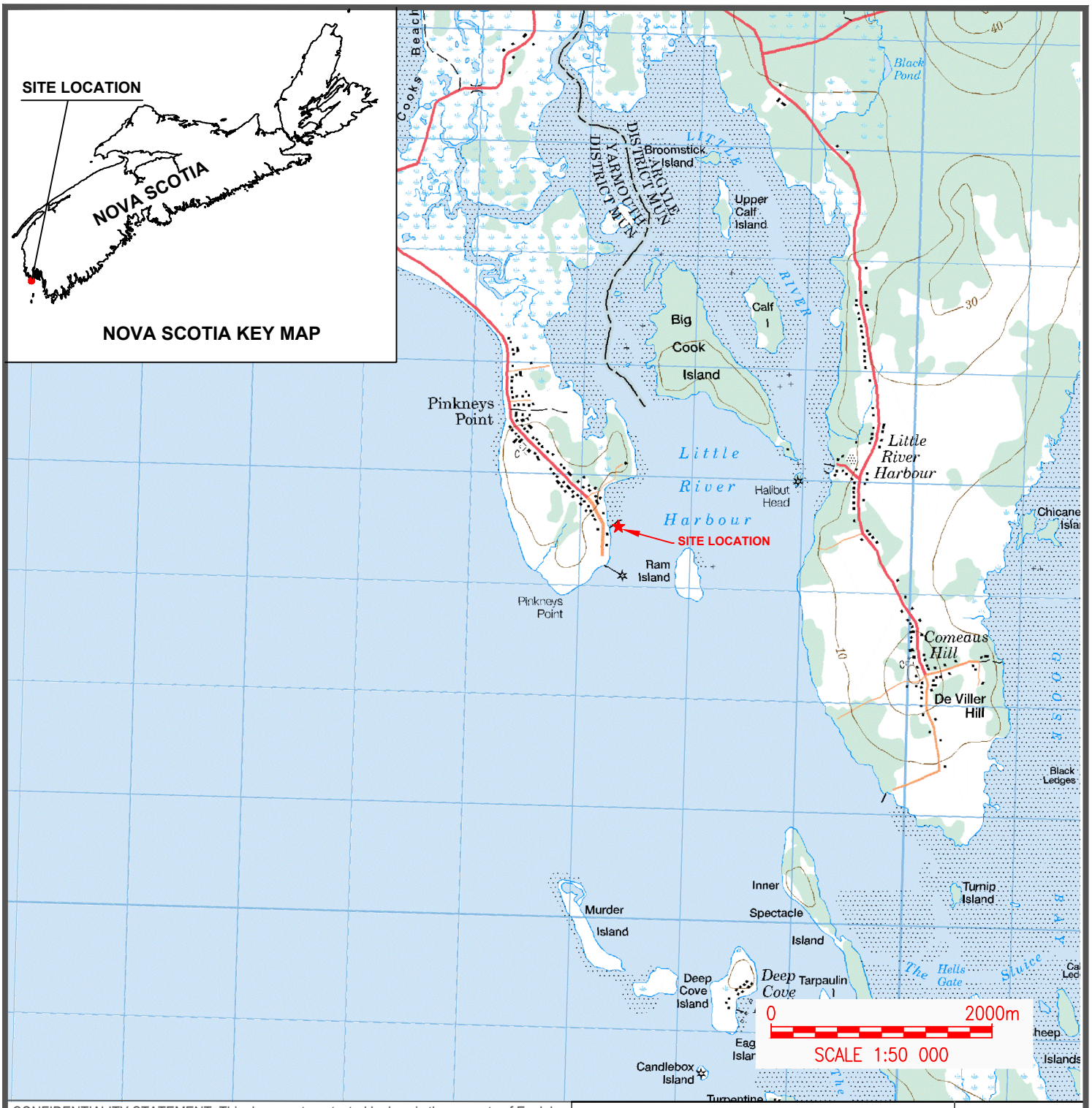
The most dominant macrofaunal species identified in the survey areas was hermit crab. Sand worm, rock crab, unidentified mobile species, barnacles and bivalve blowholes were present throughout the transects but not represented to the extent which the hermit crab was. Macrofaunal species were observed in both habitat types, but the hermit crab in particular was most commonly observed in the rippled sand areas. No macrofloral species were recorded along the five transects located within the dredge zone, with the exception of patches of eel grass (0-15 m of T5) and rock weed (15-40 m of T5).

An eel grass bed is located north and northeast of the proposed dredge zone and was observed along portions of T6 and along the beginning of T5, outside of the proposed dredge boundary. Eel grass forms the basis of a complex food web in estuaries and other sheltered marine areas. The structure of eelgrass plants also provides sheltered habitat for many species.

5 Report Use and Conditions

This report was prepared for the exclusive use of PSPC and DFO and is based on data and information obtained during a site visit by Englobe on the subject property; and is based solely upon the condition of the property on the date of such inspection, supplemented by information obtained and described herein. The evaluation and conclusions contained in this report have been prepared in light of the expertise and experience of Englobe. Environmental conditions are dynamic in nature and changing circumstances in the environment and in the use of the property can alter radically the conclusions and information contained herein.

Appendix A Figures



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Public Services and Procurement Canada

Underwater Benthic Habitat Survey
DFO Small Craft Harbour (DFRP #02400)
Pinkney's Point, Yarmouth, NS

Site Location Plan

Englobe
97 Troop Avenue
Dartmouth, NS B3B 2A7
902-468-6486

Discipline: Environment		Prepare by: CC	Verify by: CC
Scale: 1: 50,000		Draw by: JJ	Approval by: CC
Date: June 2020		Figure no: 1	
Page setup: Figure 1	Paper size: Letter	Register no.:	

Man.	Project	Otp	Project	Phase	Electronic ref.	Rev.
148	1900182	18	0	- - -	——	-

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Underwater Benthic Habitat Survey
DFO Small Craft Harbour (DFRP #02400)
Pinkney's Point, Yarmouth, NS

Transect Location Plan

Discipline: Environment		Prepare by: AS	Verify by: AS
Scale: 1: 1,250		Draw by: JJ	Approval by: CC
Date: June 2020		Figure no: 2	
Page setup: ANSI B-LAN (MM)	Paper size: Previous paper size (17.00 x 11.00 inches)	Register no.:	

Man.	Project	Otp	Project	Phase	Electronic ref.	Rev.
148	1900182	18	0			

Appendix B Transect Surveys

Table B.1 Transect T1 (110 m Survey, May 22, 2020) - Pinkney's Point, NS

Transect Distance / Interval (m)	Substrate (Estimated % Coverage[1])	Macrofaunal Life Observed (Estimated Abundances[2])	Macrofloral Life Observed (Estimated % Coverage)
0-5	Silt 60%; Organic debris 39%; Cobble 1%;	-	-
5-10	Silt 90%; Organic debris 10%;	-	-
10-15	Silt 90%; Organic debris 10%;	-	-
15-20	Silt 95%; Anthropic debris (Plastic bag) 5%;	-	-
20-25	Silt 100%;	-	-
25-30	Silt 95%; Organic debris 5%;	-	-
30-35	Silt 100%;	-	-
35-40	Silt 100%;	-	-
40-45	Silt 95%; Organic debris 5%;	-	-
45-50	Silt 95%; Organic debris 5%;	-	-
50-55	Silt 95%; Organic debris 5%;	Rock Crab (*Cancer pagurus*): U (1)	-
55-60	Silt 95%; Organic debris 5%;	-	-
60-65	Silt 95%; Organic debris 5%;	-	-
65-70	Silt 85%; Organic debris 15%;	-	-
70-75	Silt 90%; Organic debris 10%;	-	-
75-80	Silt 90%; Organic debris 10%;	-	-
80-85	Silt 90%; Organic debris 10%;	-	-
85-90	Silt 90%; Organic debris 10%;	-	-
90-95	Silt 95%; Organic debris 5%;	-	-
95-100	Silt 95%; Organic debris 5%;	-	-
100-105	Silt 95%; Organic debris 5%;	-	-
105-110	Silt 95%; Organic debris 5%;	-	-

Notes: Visibility is very low

" - " = None Observed

[1] Boulder (>256 mm), Cobble (>64-256 mm), Gravel (>2-64 mm), Sand (0.06-2 mm), Silt (<0.06 mm).

[2] A = Abundant, C = Common, O = Occasional, U = Uncommon (see below).

A = Abundant; Numerous (not quantifiable) observations made throughout the entire 5 m segment.
C = Common; Numerous (not quantifiable) observations made intermittently along the 5 m segment.
O = Occasional; Quantifiable observations made intermittently along the 5 m segment.
U = Uncommon; Quantifiable observations made infrequently along the 5 m segment.

Table B.2 Transect T2 (140 m Survey, May 22, 2020) - Pinkney's Point, NS

Transect Distance / Interval (m)	Substrate (Estimated % Coverage[1])	Macrofaunal Life Observed (Estimated Abundances[2])	Macrofloral Life Observed (Estimated % Coverage)
0-5	Silt 80%; Organic debris 20%;	-	-
5-10	Silt 80%; organic debris 20%;	-	-
10-15	Silt 90%; Organic debris 10%;	-	-
15-20	Silt 95%; Organic debris 5%;	-	-
20-25	Silt 95%; Organic debris 5%;	-	-
25-30	Silt 95%; Organic debris 5%;	-	-
30-35	Silt 90%; Organic debris 10%;	-	-
35-40	Silt 70%; Organic debris 30%;	-	-
40-45	Silt 80%; Organic debris 20%;	-	-
45-50	Silt 90%; Organic debris 10%;	-	-
50-55	Silt 98%; Boulder 2%;	-	-
55-60	Silt 90%; Organic debris 10%;	-	-
60-65	Silt 90%; Organic debris 10%;	-	-
65-70	Silt 95%; Organic debris 5%;	-	-
70-75	Silt 95%; Organic debris 5%;	-	-
75-80	Silt 95%; Organic debris 5%;	-	-
80-85	Silt 95%; Organic debris 5%;	-	-
85-90	Silt 95%; Organic debris 5%;	Unidentified mobile species: U (1)	-
90-95	Silt 95%; Organic debris 5%;	-	-
95-100	Silt 99%; Organic debris 1%;	-	-
100-105	Silt 99%; Organic debris 1%;	Unidentified mobile species: U (1) Bivalve blow holes: O (7)	-
105-110	Silt 95%; Organic debris 5%;	-	-
110-115	Silt 98%; Organic debris 2%;	-	-
115-120	Silt 60%; Organic debris 40%;	Sandworm (*Arenicola marina*) sand coil: O (6)	-
120-125	Silt 90%; Anthropic debris (Tire) 10%;	-	-
125-130	Silt 95%; Organic debris 5%;	Bivalve blowholes: C Unidentified mobile species: U (1)	-
130-135	Silt 97%; Boulder 2%; Shell fragments: 1%	Bivalve blowholes: C Unidentified mobile species: O (8) Sand worm (*Arenicola marina*) sand coil: U (2) Hermit crab (Pagurus longicarpus): U (2)	-
135-140	Silt 95%; Boulder 5%;	Barnacles (*Balanus sp.*): C	-

Notes: Visibility is poor

" - " = None Observed

[1] Boulder (>256 mm), Cobble (>64-256 mm), Gravel (>2-64 mm), Sand (0.06-2 mm), Silt (<0.06 mm).

[2] A = Abundant, C = Common, O = Occasional, U = Uncommon (see below).

A = Abundant; Numerous (not quantifiable) observations made throughout the entire 5 m segment.
C = Common; Numerous (not quantifiable) observations made intermittently along the 5 m segment.
O = Occasional; Quantifiable observations made intermittently along the 5 m segment.
U = Uncommon; Quantifiable observations made infrequently along the 5 m segment.

Table B.3 Transect T3 (130 m Survey, May 21, 2020) - Pinkney's Point, NS

Transect Distance / Interval (m)	Substrate (Estimated % Coverage[1])	Macrofaunal Life Observed (Estimated Abundances[2])	Macrofloral Life Observed (Estimated % Coverage)
0-5	Sand 80%: organic debris 20%;	-	-
5-10	Sand 80%: organic debris 20%;	-	-
10-15	Sand 90%: organic debris 10%;	-	-
15-20	Sand 80%: organic debris 20%;	-	-
20-25	Sand 85%: organic debris 15%;	-	-
25-30	Sand 93%: organic debris 7%;	Sand worm (*Arenicola marina*) sand coil: U (1)	-
30-35	Sand 85%: organic debris 14%; Shell fragment 1%;	-	-
35-40	Sand 85%: organic debris 14%; Boulder 1%;	-	-
40-45	Sand 50%: organic debris 45%; Shell fragment 5%;	-	-
45-50	Silty Sand 70%: organic debris 25%; Shell fragment 5%;	-	-
50-55	Silt 80%: organic debris 15%; Shell fragment 5%;	-	-
55-60	Silt 88%: organic debris 10%; Shell fragment 2%;	-	-
60-65	Sand 78%: organic debris 20%; Shell fragment 2%;	-	-
65-70	Silty Sand 75%: organic debris 24%; Shell fragment 1%;	-	-
70-75	Sand 75%: organic debris 24%; Shell fragment 1%;	-	-
75-80	Sand 87%: organic debris 12%; Shell fragment 1%;	Rock crab (*Cancer pagurus*): 1	-
80-85	Sand 95%: organic debris 4%; Shell fragment 1%;	-	-
85-90	Sand 95%: organic debris 4%; Shell fragment 1%;	-	-
90-95	Sand 95%: organic debris 4%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (1)	-
95-100	Sand 95%: organic debris 4%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (2) Hermit crab (*Pagurus longicarpus*): U (1)	-
100-105	Sand 95%: organic debris 4%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (2) Unidentified mobile species: U (1)	-
105-110	Sand 95%: organic debris 4%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): U (2) Sand worm (*Arenicola marina*) sand coil: U (1)	-
110-115	Sand 95%: organic debris 5%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
115-120	Sand 95%: organic debris 5%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
120-125	Sand 95%: organic debris 5%;	Hermit crab (*Pagurus longicarpus*): U (2) Sand worm (*Arenicola marina*) sand coil: U (1)	-
125-130	Sand 97%: organic debris 2%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): U (2)	-

Notes:
" - " = None Observed
1 Boulder (>256 mm), Cobble (>64-256 mm), Gravel (>2-64 mm), Sand (0.06-2 mm), Sand (<0.06 mm)
[2] A = Abundant, C = Common, O = Occasional, U = Uncommon (see below).

A = Abundant; Numerous (not quantifiable) observations made throughout the entire 5 m segment.
C = Common; Numerous (not quantifiable) observations made intermittently along the 5 m segment.
O = Occasional; Quantifiable observations made intermittently along the 5 m segment.
U = Uncommon; Quantifiable observations made infrequently along the 5 m segment.

Table B.4 Transect T4 (100 m Survey, May 21, 2020) - Pinkney's Point, NS

Transect Distance / Interval (m)	Substrate (Estimated % Coverage[1])	Macrofaunal Life Observed (Estimated Abundances[2])	Macrofloral Life Observed (Estimated % Coverage)
0-5	Sand 97%: organic debris 2%; Shell fragment 1%;	-	-
5-10	Sand 97%:	-	-
10-15	Sand 97%: organic debris 2%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): U (2) Sand worm (*Arenicola marina*) sand coil: U (1)	-
15-20	Sand 97%: organic debris 2%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (3)	-
20-25	Sand 87%: organic debris 2%; Shell fragment 1%; Anthropic debris (Tire) 10%;	Sand worm (*Arenicola marina*) sand coil: U (2)	-
25-30	Sand 97%: organic debris 2%; Shell fragment 1%;	-	-
30-35	Sand 97%: organic debris 2%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: O (7)	-
35-40	Sand 97%: organic debris 2%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (4)	-
40-45	Sand 97%: organic debris 2%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (1)	-
45-50	Sand 97%: organic debris 2%; Shell fragment 1%;	-	-
50-55	Sand 99%: organic debris 1%;	-	-
55-60	Sand 99%: organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
60-65	Sand 99%: organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
65-70	Sand 99%: organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1) Sand worm (*Arenicola marina*) sand coil: U (1)	-
70-75	Sand 97%: organic debris 2%; Shell fragment 1%;	-	-
75-80	Sand 98%: organic debris 1%; Shell fragment 1%;	-	-
80-85	Sand 98%: organic debris 1%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
85-90	Sand 98%: organic debris 1%; Shell fragment 1%;	Sand worm (*Arenicola marina*) sand coil: U (1)	-
90-95	Sand 98%: organic debris 1%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): O (9)	-
95-100	Sand 98%: organic debris 1%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): C	-

Notes:
" - " = None Observed
[1] Boulder (>256 mm), Cobble (>64-256 mm), Gravel (>2-64 mm), Sand (0.06-2 mm), Silt (<0.06 mm).
[2] A = Abundant, C = Common, O = Occasional, U = Uncommon (see below).

A = Abundant; Numerous (not quantifiable) observations made throughout the entire 5 m segment.
C = Common; Numerous (not quantifiable) observations made intermittently along the 5 m segment.
O = Occasional; Quantifiable observations made intermittently along the 5 m segment.
U = Uncommon; Quantifiable observations made infrequently along the 5 m segment.

Table B.5 Transect T5 (100 m Survey, May 21, 2020) - Pinkney's Point, NS

Transect Distance / Interval (m)	Substrate (Estimated % Coverage[1])	Macrofaunal Life Observed (Estimated Abundances[2])	Macrofloral Life Observed (Estimated % Coverage)
0-5	Silty sand 98%: Organic debris 2%;	Sand worm (*Arenicola marina*) sand coil: U (1) Hermit crab (*Pagurus longicarpus*): U (4)	Eel grass (*Zostera marina*) 5%;
5-10	Silty sand 98%: Organic debris 2%;	Hermit crab (*Pagurus longicarpus*): C	Eel grass (*Zostera marina*) 10%;
10-15	Silty sand 98%: Organic debris 2%;	Hermit crab (*Pagurus longicarpus*): C	Eel grass (*Zostera marina*) 1%;
15-20	Silty sand 95%: Organic debris 5%;	Hermit crab (*Pagurus longicarpus*): C	Rockweed (*Ascophyllum nodosum*) 5%;
20-25	Silty sand 95%: Organic debris 5%;	Hermit crab (*Pagurus longicarpus*): C	Rockweed (*Ascophyllum nodosum*) 5%;
25-30	Silty sand 98%: Organic debris 2%;	Hermit crab (*Pagurus longicarpus*): C	-
30-35	Silty sand 98%: Organic debris 2%;	Hermit crab (*Pagurus longicarpus*): C	-
35-40	Silty sand 55%: Organic debris 45%;	Hermit crab (*Pagurus longicarpus):* C	Rockweed (*Ascophyllum nodosum*) 5%;
40-45	Sand 80%: organic debris 19%; Shell fragment 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
45-50	Silty sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (4)	-
50-55	Silty sand 90%: Organic debris 10%;	Hermit crab (*Pagurus longicarpus*): C	-
55-60	Silty sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): C	-
60-65	Sand 90%: Organic debris 10%;	Sand worm (*Arenicola marina*) sand coil: U (3) Hermit crab (*Pagurus longicarpus*): U (1)	-
65-70	Sand 95%: Organic debris 5%;	Sand worm (Arenicola marina) sand coil: U (1) Hermit crab (Pagurus longicarpus): U (4)	-
70-75	Sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
75-80	Sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
80-85	Sand 99%: Organic debris 1%;	Sand worm (*Arenicola marina*) sand coil: U (1) Hermit crab (*Pagurus longicarpus*): U (3)	-
85-90	Sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (1)	-
90-95	Sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (3)	-
95-100	Sand 99%: Organic debris 1%;	Hermit crab (*Pagurus longicarpus*): U (4)	-

Notes:
" - " = None Observed
[1] Boulder (>256 mm), Cobble (>64-256 mm), Gravel (>2-64 mm), Sand (0.06-2 mm), Silt (<0.06 mm).
[2] A = Abundant, C = Common, O = Occasional, U = Uncommon (see below).

A = Abundant; Numerous (not quantifiable) observations made throughout the entire 5 m segment.
C = Common; Numerous (not quantifiable) observations made intermittently along the 5 m segment.
O = Occasional; Quantifiable observations made intermittently along the 5 m segment.
U = Uncommon; Quantifiable observations made infrequently along the 5 m segment.

Appendix C Transect Photos

Transect Interval (m)	Representative Substrate Character
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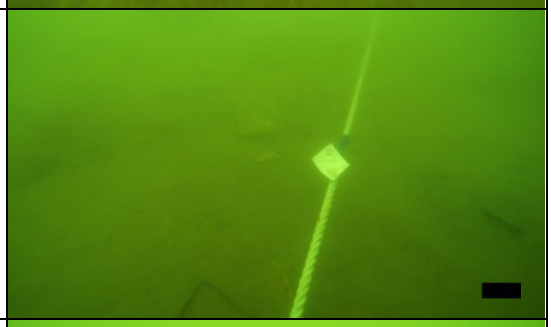
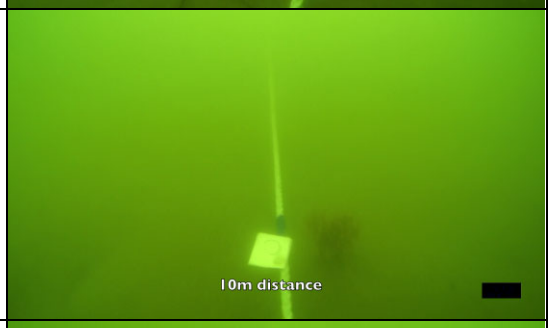
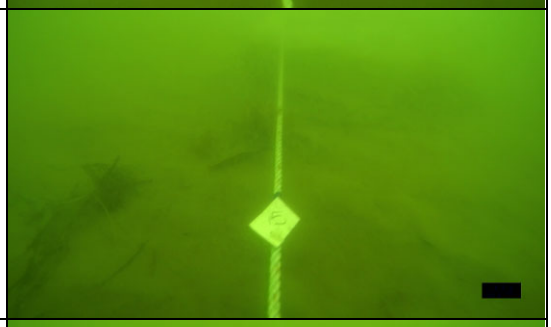
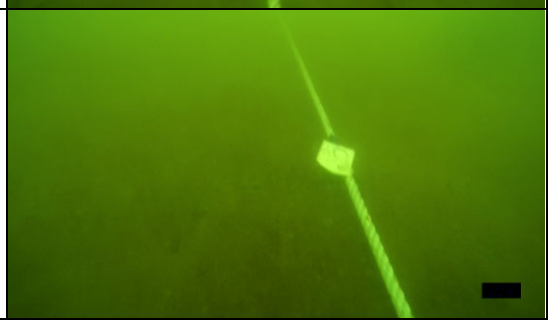
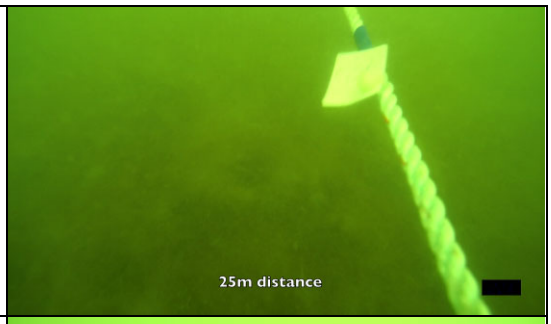
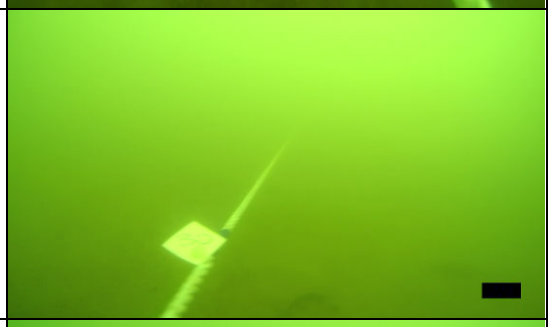
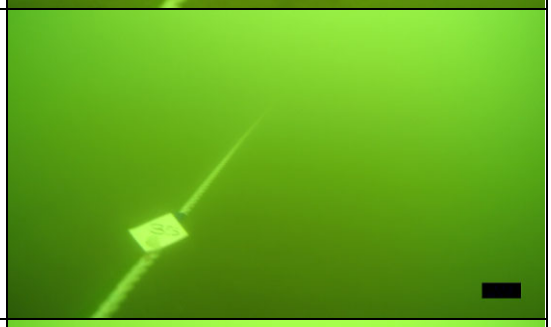
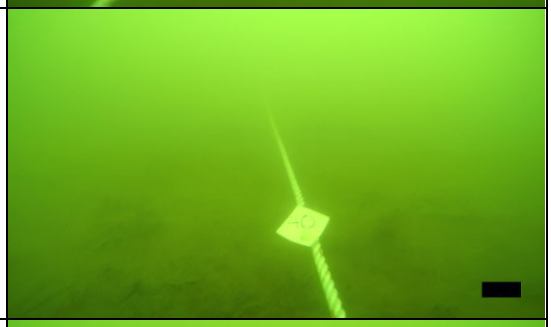
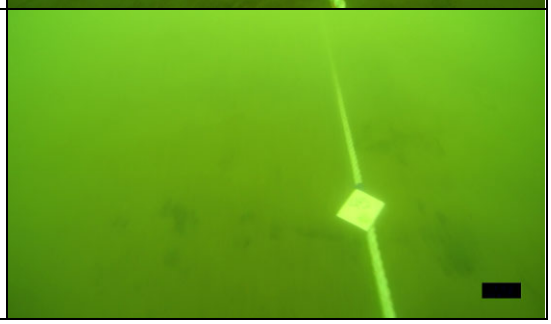
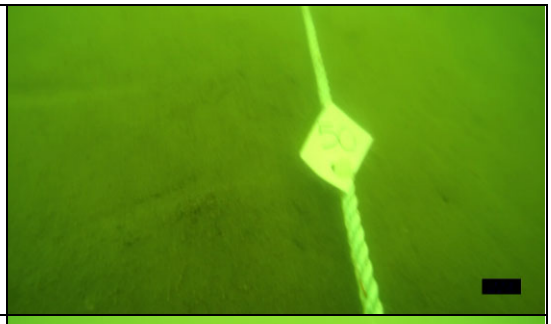
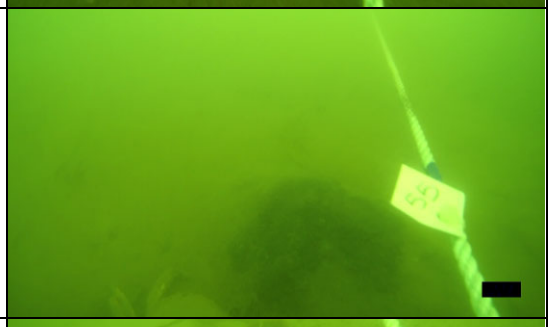
5	
10	
15	
20	

25	
30	
35	
40	
45	

50	
55	
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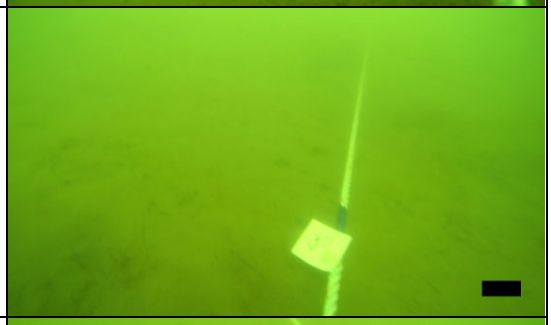
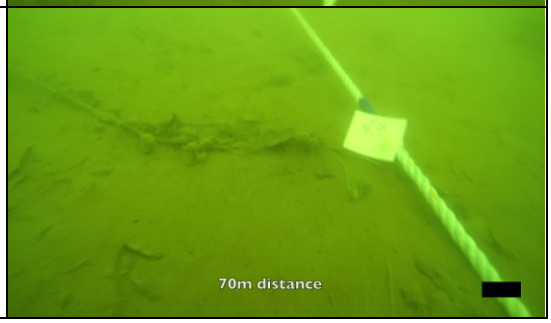
65	
70	

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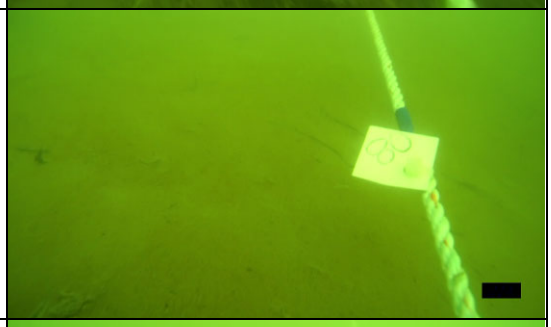
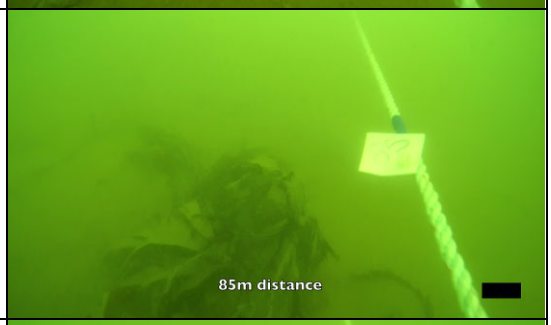
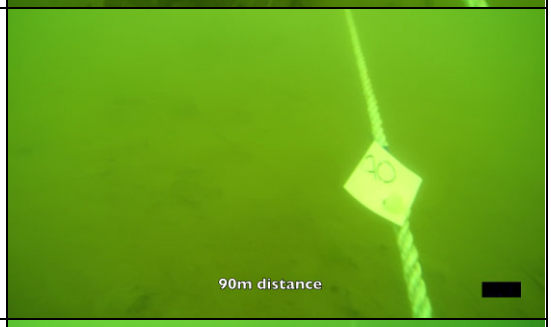
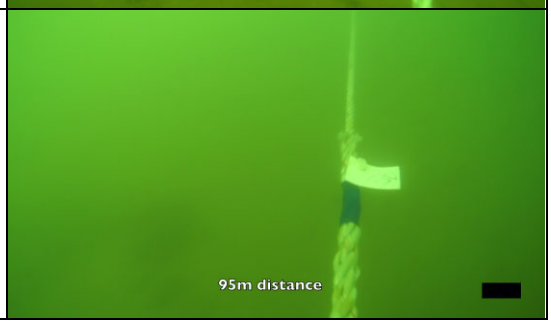
80	
85	
90	
95	

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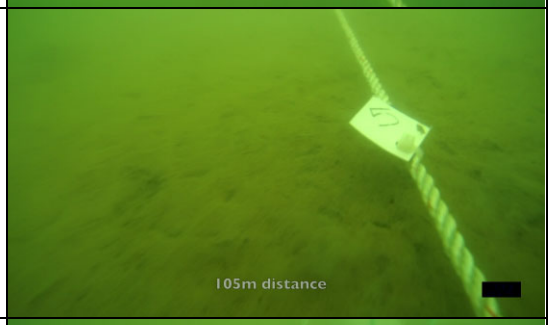
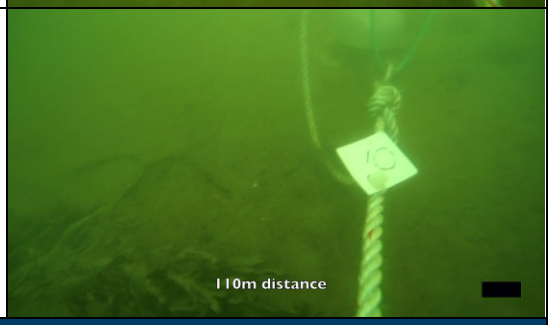
105	
110	
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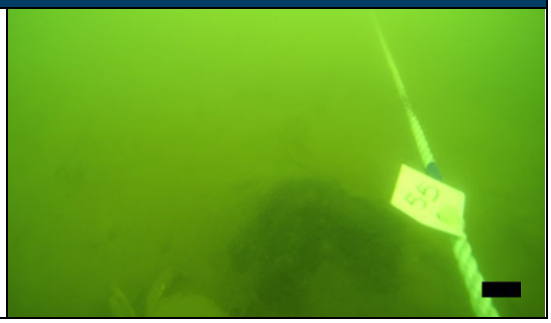
Rock Crab (*Cancer pagurus*)	

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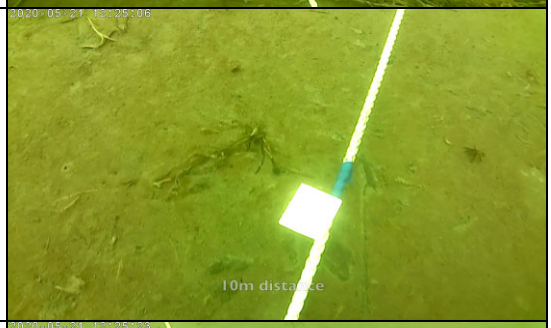
10	
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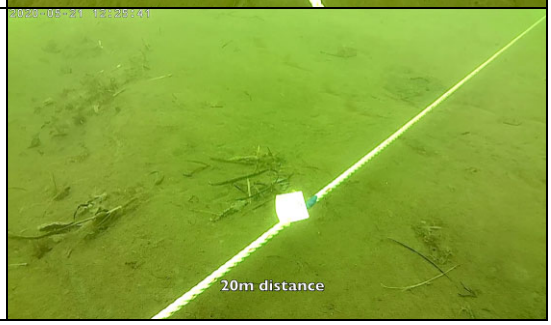
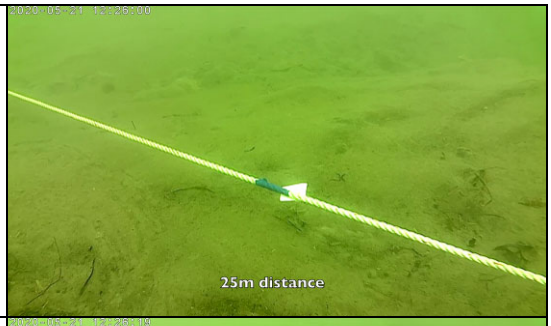
20	

25	
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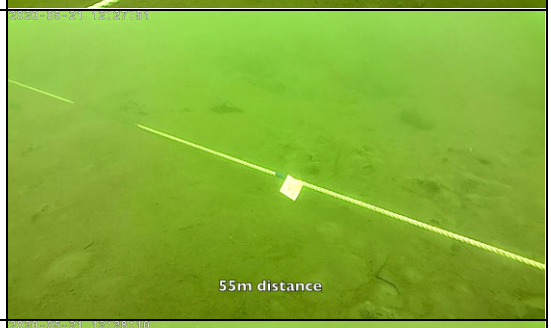
55	 55m distance
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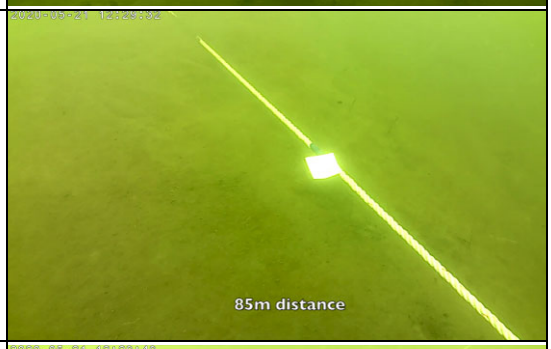
85	
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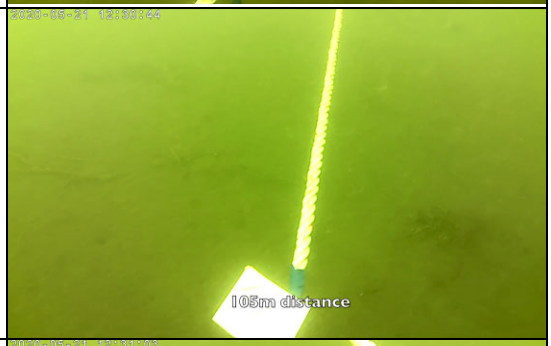
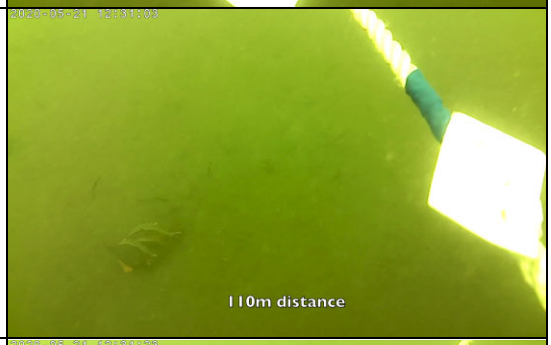
105	
110	
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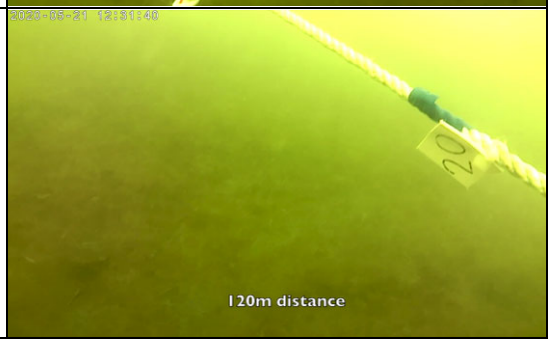
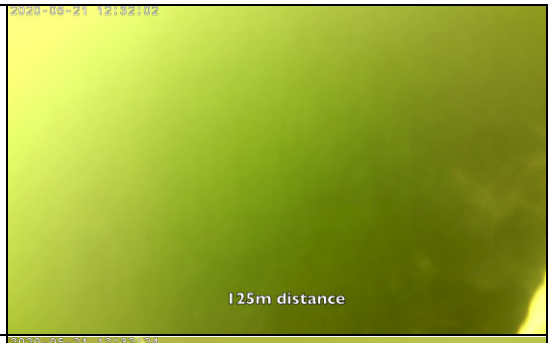
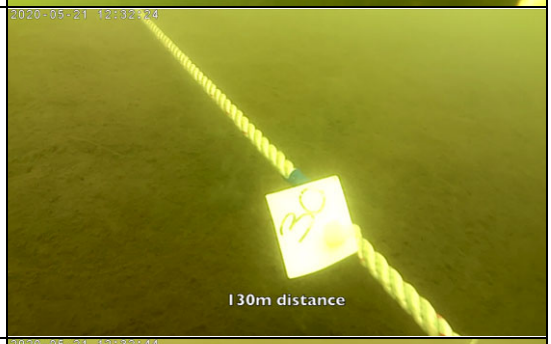
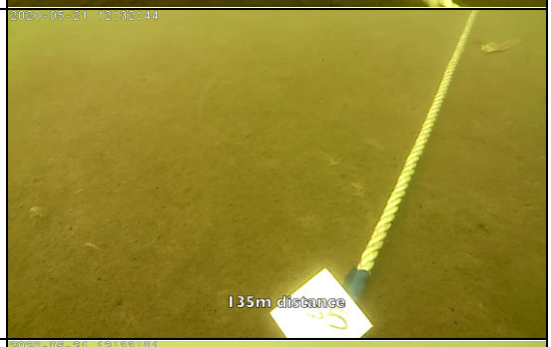
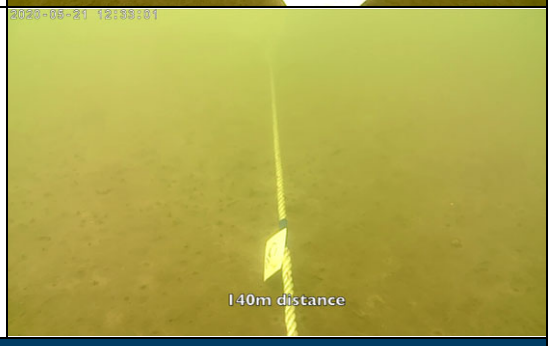
120	

125	
130	
135	
140	
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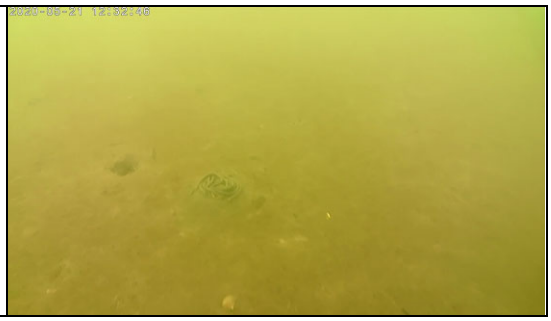
Hermit crab (*Pagurus longicarpus*)	

Sand worm (*Arenicola marina*) sand coil	

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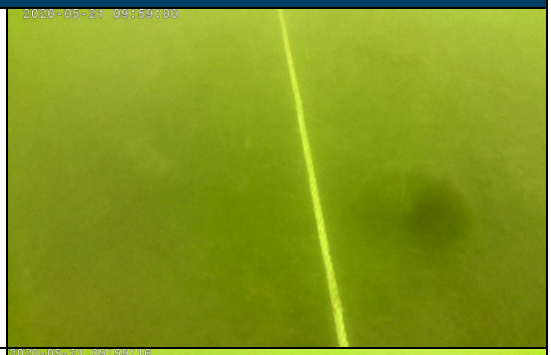
0	
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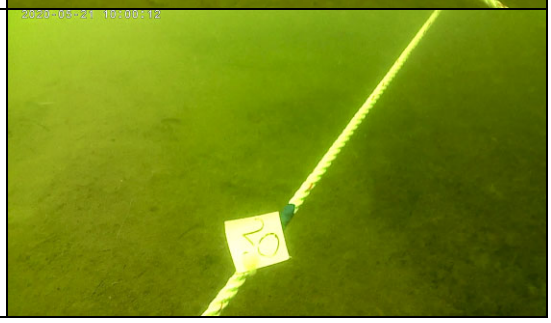
20	

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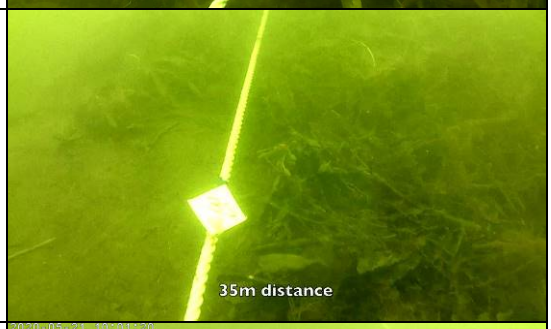
35	
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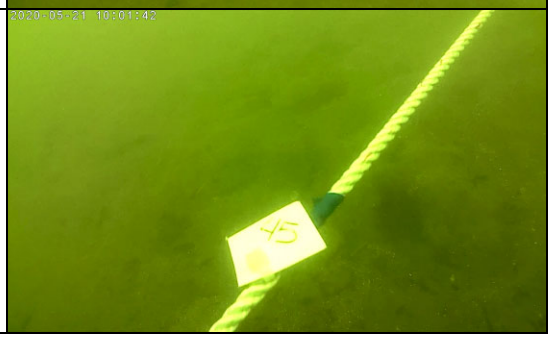
45	

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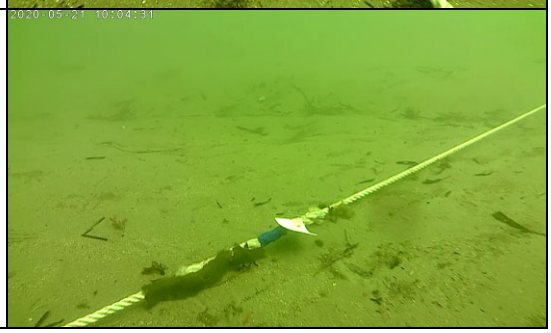
95	

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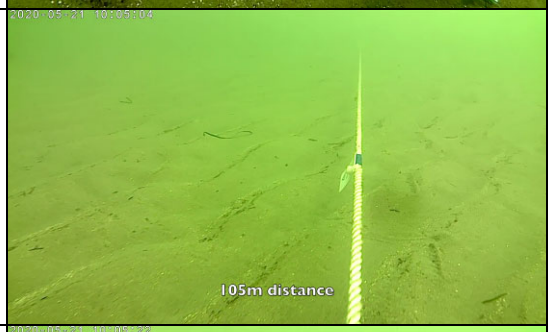
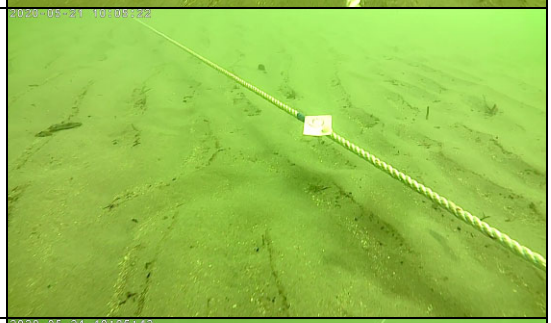
105	
110	
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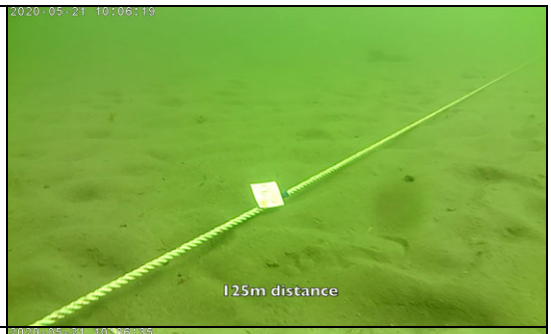
125	
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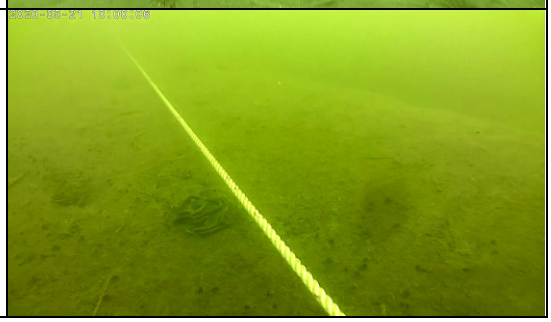
Rock crab (*Cancer pagurus*)	
Hermit crab (*Pagurus longicarpus*)	
Sand worm (*Arenicola marina*)	

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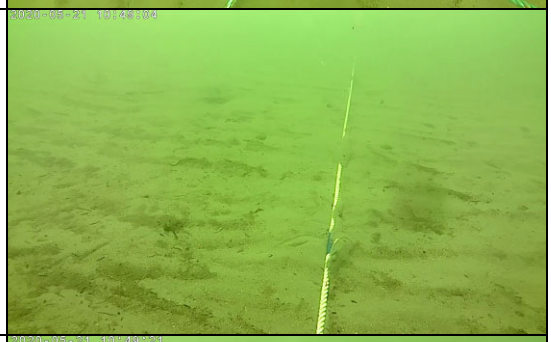
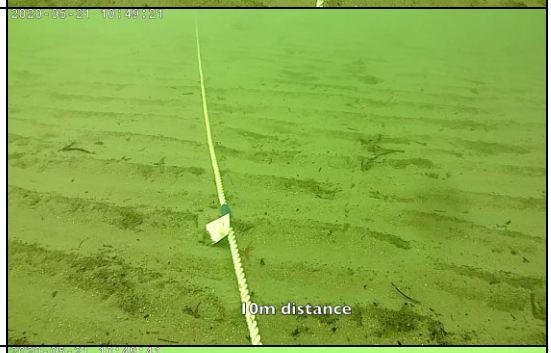
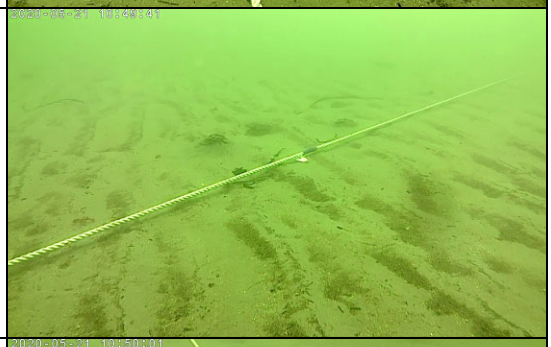
5	
10	
15	
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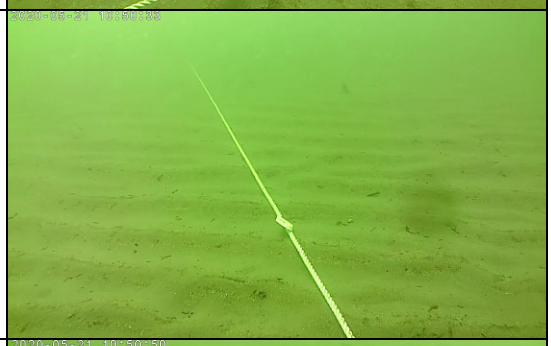
30	
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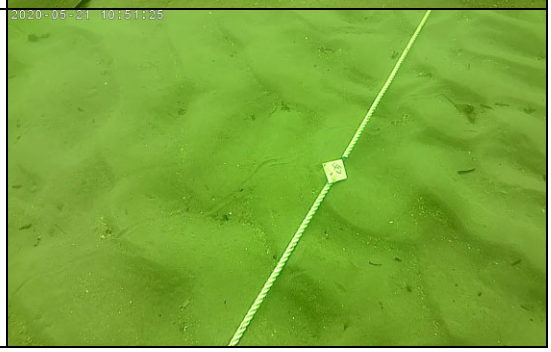
45	

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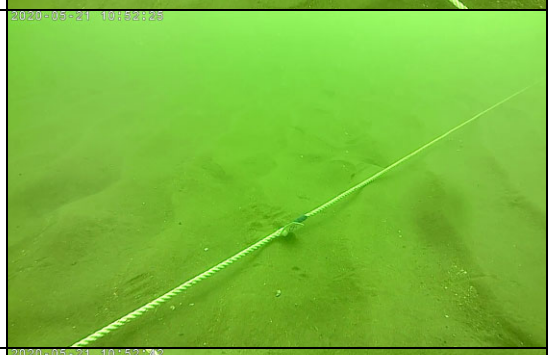
65	
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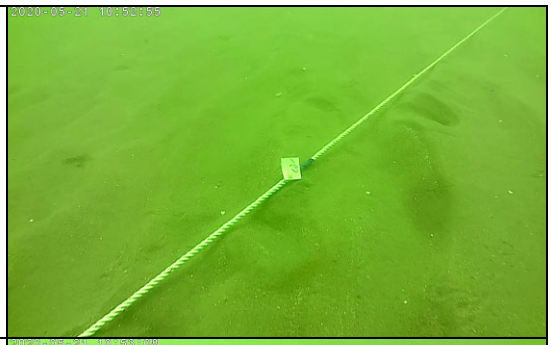
75	
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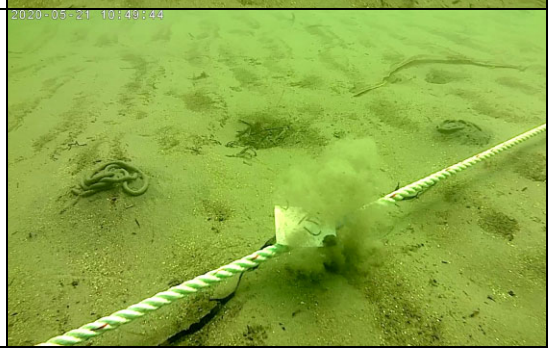
Additional Photos	
Hermit crab (*Pagurus longicarpus*)	
Sand worm (*Arenicola marina*)	

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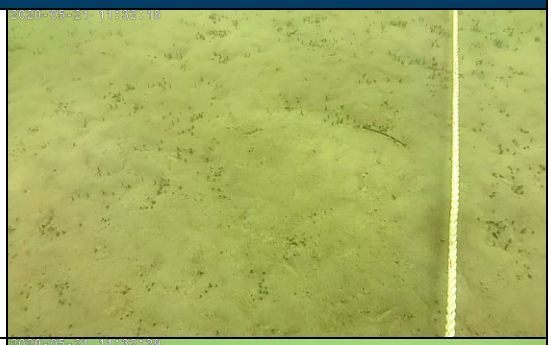
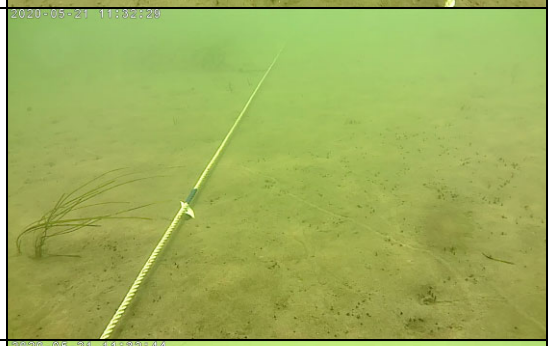
0	
5	
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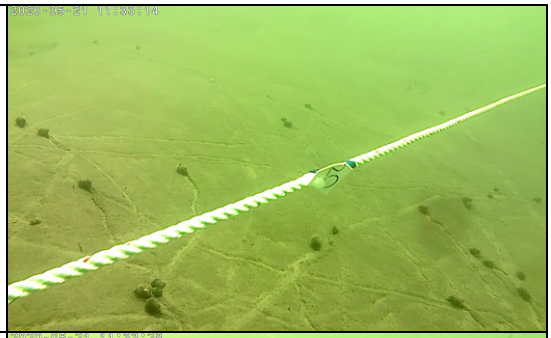
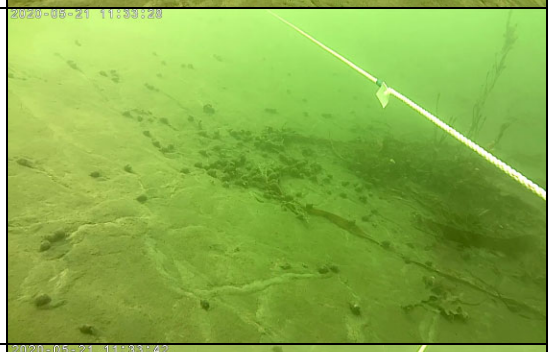
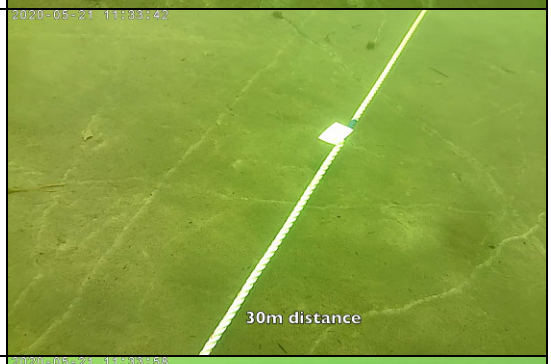
20	
25	
30	
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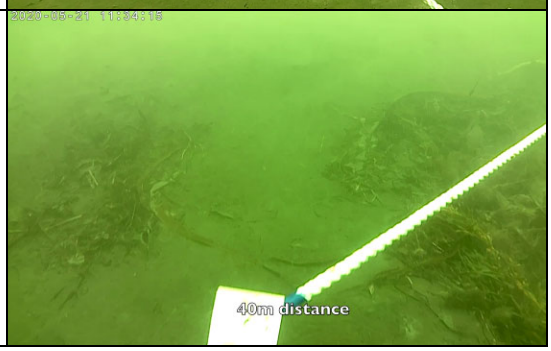
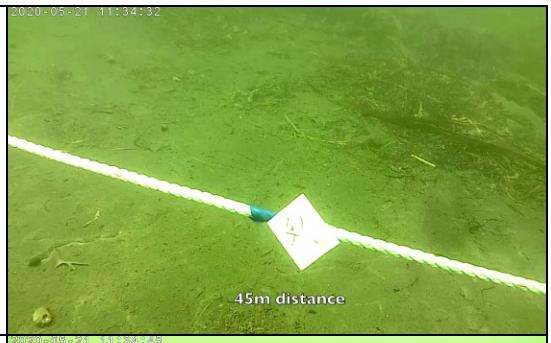
40	

45	 2020-05-21 11:34:32 45m distance
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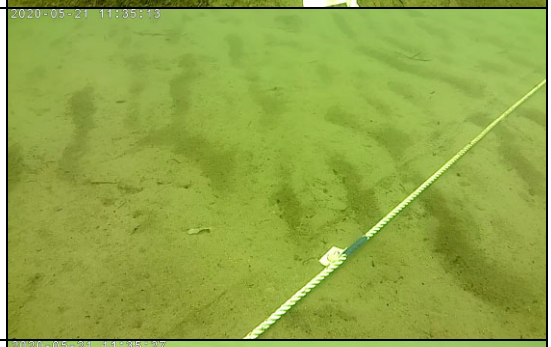
60	 2020-05-21 11:35:13
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70	2020-05-21 11:35:41 70m distance
75	2020-05-21 11:35:56 75m distance
80	2020-05-21 11:36:12 80m distance
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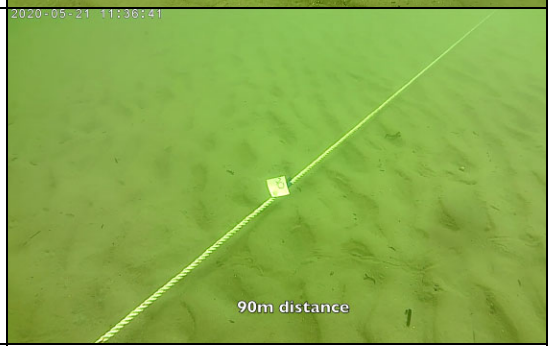
90	 2020-05-21 11:36:41 90m distance

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Additional Photos	
Eel grass (*Zostera marina*)	