Underwater Benthic Habitat Survey and Marine Sediment Sampling Program (Final) Anse-Bleue Small Craft Harbour, Gloucester County, New Brunswick

DFRP No. 04898
RPIS No. MS 02502
SCH No. 02502

PUBLIC SERVICES AND PROCUREMENT CANADA FOR FISHERIES AND OCEANS CANADA

October 2018

Our File No: 18-8026

Submitted by:

DILLON CONSULTING LIMITED

October 18, 2018

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Underwater Benthic Habitat Survey and Marine Sediment Sampling Program (Final), Anse-Bleue Small Craft Harbour, Gloucester County, New Brunswick, DFRP No. 04898; RPIS No. MS 02502; SCH No. 2502

We are pleased to provide this final Underwater Benthic Habitat Survey and Marine Sediment Sampling Program report for the Anse-Bleue Small Craft Harbour, Gloucester County, New Brunswick.

We trust this meets your present needs. If you have any questions, please feel free to contact us at (506) 444-8820 at your convenience.

Yours truly,

DILLON CONSULTING LIMITED

Shawn Forster, M.Eng., P.Eng.
Project Manager

SAF:trw

Our File: 18-8026

EXECUTIVE SUMMARY

Dillon Consulting Limited (Dillon) was retained by PWGSC, on behalf of DFO, to conduct an underwater benthic habitat survey (UBHS) and marine sediment sampling program (MSSP) for proposed work at the Fisheries and Oceans (DFO) Small Craft Harbour (SCH) facility in Anse-Bleue, Gloucester County, New Brunswick (NB) (SCH No. 2502).

The purpose of the UBHS and MSSP was to characterize the substrate type(s), document any macrofaunal and macrofloral species presence and abundance, and confirm the presence and extent, if any, of eelgrass beds within the extent of the study areas.

Proposed Containment Cell Area: The proposed containment cell area is comprised primarily of eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 60% cover) (**Figure 2.1**). The eelgrass appears to be in good health and due to the thickness of the beds in this zone the observation of macrofaunal species was limited; however, Atlantic rock crab (*Cancer irroratus*); Periwinkle (*Littorina sp.*); Stickleback fish species (*Gasterosteus sp.*); and American Lobster (*Homarus americanus*) were observed within the study area.

Based upon the observations made during the completion of the UBHS within the proposed containment cell area it was determined that the habitat is dominated by eelgrass beds, which are known to be an important species in the coastal marine ecosystem. Eelgrass beds serve as critical nursery habitat for fish and invertebrates; feeding habitat for waterfowl and other waterbirds; and tend to be areas of enhanced biological productivity (Plummer et al. 2013; Sogard and Able, 1991; Nienhuis and Groenendijk 1986).

Proposed Dredge Area: The proposed dredge area is comprised of a mix of primarily areas of sandy substrate (10 to 70% cover) and macrofloral debris (primarily unattached eelgrass; 10 to 70% cover), in the vicinity of sediment sample locations (S18-1 to SS18-5). However, an area of thick eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 10% cover) was observed and documented within the proposed dredge area (**Figure 2.1**). The eelgrass appears to be in good health. Macrofaunal species observed within the eelgrass beds included Atlantic rock crab (*Cancer irroratus*), Periwinkle (*Littorina sp.*), Stickleback fish species (*Gasterosteus sp.*) and Hermit crab (*Pagurus sp.*).

Based upon the observations made during the completion of the UBHS within the proposed dredge area it was determined that majority of the potential habitat present within the proposed dredge area does not likely offer unique or preferred habitat for any ecological receptor population or community, with the exception of the eelgrass beds, as noted above.

The laboratory analytical results of the sediment samples collected from the proposed dredge area indicate exceedances of the applicable criteria for select parameters. A summary of the identified exceedances is presented below.

- **PAHs in Sediment:**
  - Total PAH concentrations were calculated at concentrations that exceed the CEPA Disposal at Sea Screening Criteria – Lower Level Screening Criteria in sample SS18-01.
  - Exceedances of the CCME SoQG for the protection of potable water were identified in the sediment samples SS18-01 to SS18-05.
  - Naphthalene (SS18-01 to SS18-05) and phenanthrene (SS18-01, SS18-03 and SS18-04) were identified at concentrations that exceed the CCME SoQGs for the protection of freshwater aquatic life.
- **PAHs in Leachate:**
  - *SPLP Leachate:* Leachate concentrations of fluoranthene and pyrene exceed the CCME Water Quality Guidelines for the Protection of Freshwater Aquatic Life. The remaining PAH parameters in leachate analyzed using the SPLP do not exceed the applicable criteria.
  - *TCLP Leachate:* Leachate concentrations of were not reported above the laboratory's RDL, and as such do not exceed Health Canada's Guidelines for Drinking Water Quality, the CCME Water Quality Guidelines for the Protection of Freshwater and Marine Aquatic Life or the CCME Water Quality Guidelines for the Protection of Agriculture – Irrigation and Livestock.
- **Metals in Sediment:**
  - Hot water boron concentrations in samples SS18-01, SS18-02, SS18-03, SS18-04 and SS18-05 exceed the agricultural land use CCME SoQG.
- **Sodium Adsorption Ratio, Conductivity and pH in Sediment:**
  - Sodium absorption ratios and conductivity identified in samples SS18-01, SS18-02, SS18-03, SS18-04, SS18-05 and SS18-06 exceed the CCME SoQGs and the Loggies Pit Dredge Material Acceptance Criteria. pH levels exceeding the

applicable CCME SoQGs; the Loggies Pit Dredge Material Acceptance Criteria and the Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria were identified in samples SS18-01 and SS18-06.

The statements made in this Executive Summary are subject to the same limitations included in **Section 6.0** (Closure), and are to be read in conjunction with the remainder of this report.

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1.0 INTRODUCTION

Dillon Consulting Limited (Dillon) was retained by PWGSC, on behalf of DFO, to conduct an underwater benthic habitat survey (UBHS) and marine sediment sampling program (MSSP) for proposed work at the Fisheries and Oceans (DFO) Small Craft Harbour (SCH) facility in Anse-Bleue, Gloucester County, New Brunswick (NB) (SCH No. 2502) (**Figure 1.1**).

The purpose of the UBHS and MSSP was to characterize the substrate type(s), document any macrofaunal and macrofloral species presence and abundance, and confirm the presence and extent, if any, of eelgrass beds within the extent of the study areas. The UBHS and MSSP were conducted at the Anse-Bleue DFO-SCH on July 17 and 18, 2018.

2.0 SCOPE AND METHODOLOGY

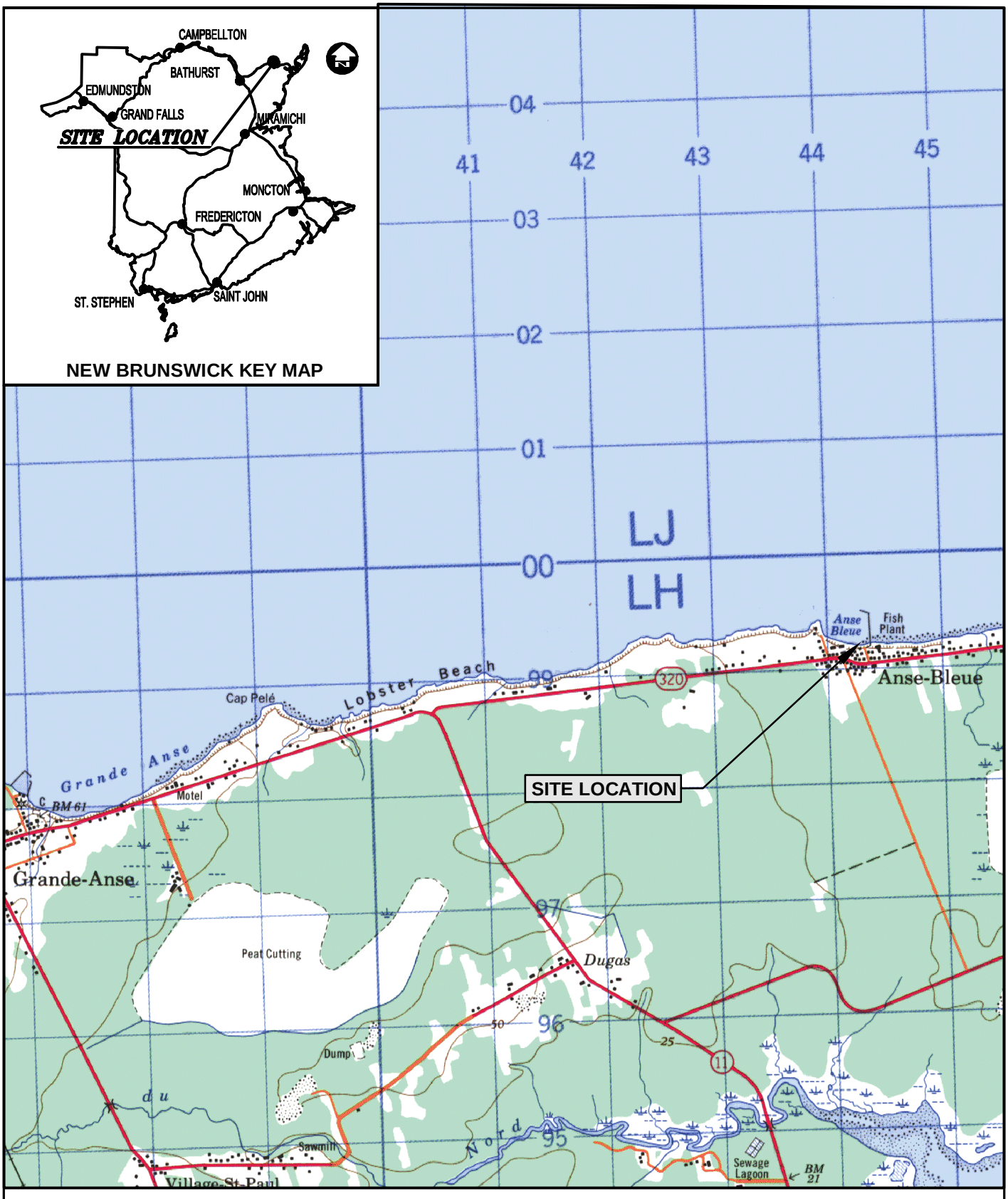
2.1 Scope of Work

The DFO-SCH wharf structure in Anse-Bleue is a Class B facility in the Baies des Chaleurs region of northern NB (**Figure 1.1**). The harbour requires maintenance dredging and as such PSPC requested that Dillon complete an UBHS and MSSP in two distinct areas of the harbour in an effort to characterize the benthic habitat in the proposed project footprint (i.e., study area; refer to **Figure 2.1**) to determine the location of the new containment cell and to facilitate applications for regulatory permits. The UBHS was completed in both the location of the proposed containment cell and the proposed dredge area. The MSSP was completed in the proposed dredge area to supplement the UBHS.

2.2 Methodology

2.2.1 Underwater Benthic Habitat Survey Methodology

On July 17 and 18, 2018, qualitative and quantitative observations were obtained from the study area at Anse-Bleue DFO-SCH using video survey techniques to map substrate type and document macrofaunal and macrofloral species presence and abundance. Dominator Marine Services (Dominator) of Carters Point, NB, was contracted by Dillon to perform the diving and video services required for the UBHS. A Dillon field personnel was on site to assist and direct the divers throughout the field program and to document the findings.



MAP/DRAWING INFORMATION
National Topographic System Mapsheet 21P/14.

0 250 500 1000m
SCALE 1:50,000

DILLON CONSULTING

DATE OCTOBER 2018

PROJECT UNDERWATER BETHNIC HABITAT SURVEY
ANSE-BLEUE DFO-SCH, GLOUCESTER CO., NB
SCH# 2502, DFRP# 04898, RPIS# MS 02502

PROJECT NO. 18-8026

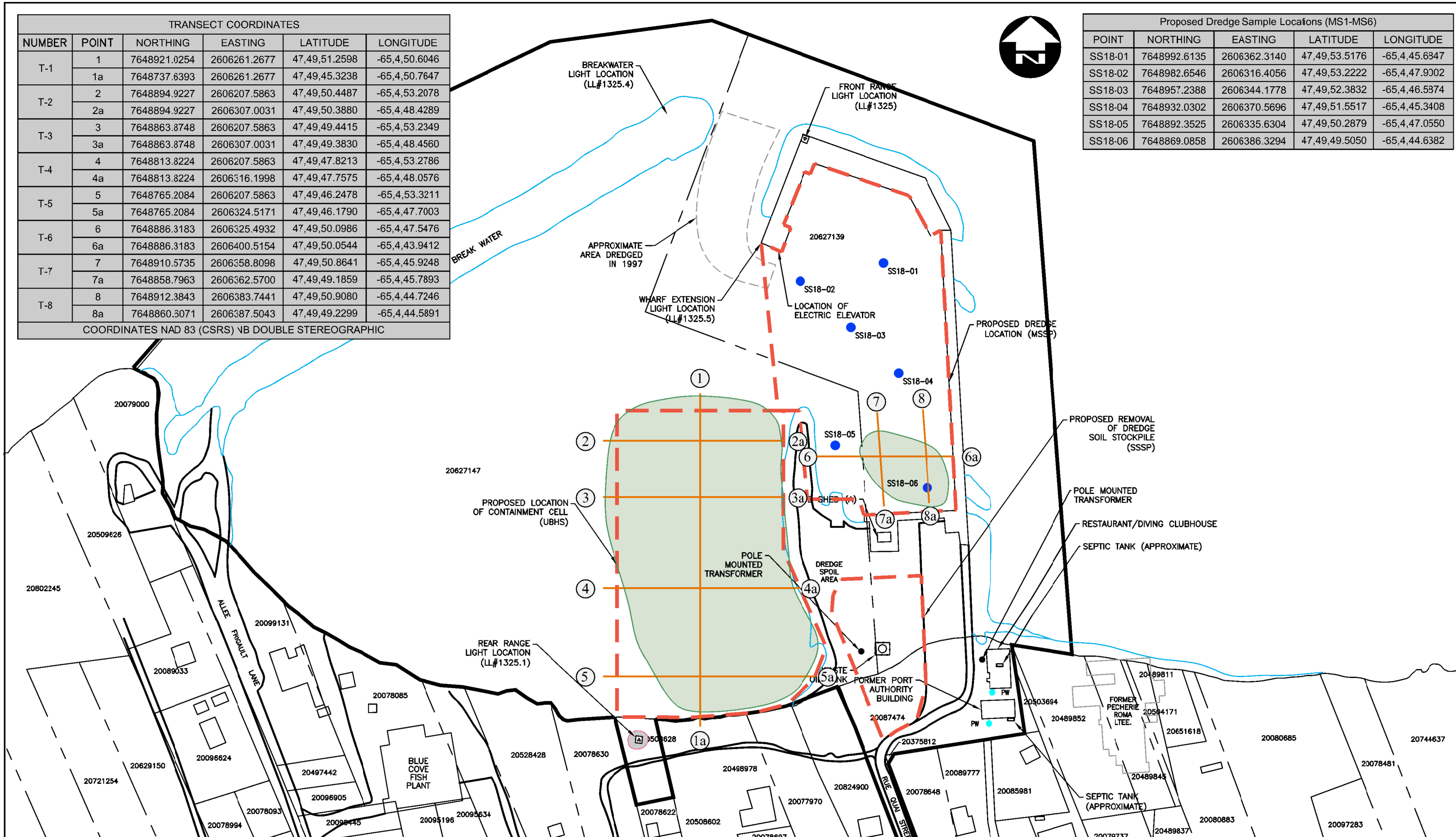
TITLE SITE LOCATION MAP

FIGURE NO. 1.1

FileName:c:\projectwise\working directory\projects 2018\50hebidms339451\188026-05-03-figure 1.1 (ubhs).dwg

TRANSECT COORDINATES					
NUMBER	POINT	NORTHING	EASTING	LATITUDE	LONGITUDE
T-1	1	7648921.0254	2606261.2677	47,49,51.2598	-65,4,50.6046
	1a	7648737.6393	2606261.2677	47,49,45.3238	-65,4,50.7647
T-2	2	7648894.9227	2606207.5863	47,49,50.4487	-65,4,53.2078
	2a	7648894.9227	2606307.0031	47,49,50.3880	-65,4,48.4289
T-3	3	7648863.8748	2606207.5863	47,49,49.4415	-65,4,53.2349
	3a	7648863.8748	2606307.0031	47,49,49.3830	-65,4,48.4560
T-4	4	7648813.8224	2606207.5863	47,49,47.8213	-65,4,53.2786
	4a	7648813.8224	2606316.1998	47,49,47.7575	-65,4,48.0576
T-5	5	7648765.2084	2606207.5863	47,49,46.2478	-65,4,53.3211
	5a	7648765.2084	2606324.5171	47,49,46.1790	-65,4,47.7003
T-6	6	7648886.3183	2606325.4932	47,49,50.0986	-65,4,47.5476
	6a	7648886.3183	2606400.5154	47,49,50.0544	-65,4,43.9412
T-7	7	7648910.5735	2606358.8098	47,49,50.8641	-65,4,45.9248
	7a	7648858.7963	2606362.5700	47,49,49.1859	-65,4,45.7893
T-8	8	7648912.3843	2606383.7441	47,49,50.9080	-65,4,44.7246
	8a	7648860.3071	2606387.5043	47,49,49.2299	-65,4,44.5891
COORDINATES NAD 83 (CSRS) NB DOUBLE STEREOGRAPHIC					

Proposed Dredge Sample Locations (MS1-MS6)				
POINT	NORTHING	EASTING	LATITUDE	LONGITUDE
SS18-01	7648992.6135	2606362.3140	47,49,53.5176	-65,4,45.6847
SS18-02	7648982.6546	2606316.4056	47,49,53.2222	-65,4,47.9002
SS18-03	7648957.2388	2606344.1778	47,49,52.3832	-65,4,46.5874
SS18-04	7648932.0302	2606370.5696	47,49,51.5517	-65,4,45.3408
SS18-05	7648892.3525	2606335.6304	47,49,50.2879	-65,4,47.0550
SS18-06	7648869.0858	2606386.3294	47,49,49.5050	-65,4,44.6382



LEGEND

● SEDIMENT SAMPLE LOCATIONS

APPROXIMATE EXTENT OF LIVE EELGRASS BEDS

50 0 50

SCALE 1:2,000 METRES

DILLON CONSULTING

DATE OCTOBER 2018

PROJECT UNDERWATER BENTHIC HABITAT SURVEY
ANSE-BLEUE DFO-SCH, GLOUCESTER CO., NB
SCH# 2502, DFRP# 04898, RPIS# MS 02502

TITLE SITE PLAN

PROJECT NO. 18-8026

FIGURE NO. 2.1

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The UBHS was conducted in two separate areas (**Figure 2.1**). A total of eight lead-line transects (five transects within the proposed containment cell area and three transects within the proposed dredge area) marked at every 5 meters (m) were laid on the harbour bottom. The transects ranged in length from 75 m to 175 m. Additionally, spot checks were completed in the vicinity of the sediment sample locations to support the substrate type, macrofaunal and macrofloral characterization, resulting from the observations made along the transects within the proposed dredge area. The transect locations were visually referenced in the field and coordinates were recorded using a handheld Global Positioning System (GPS) to mark the start and end points of the transects. The coordinates are listed below in **Table 2.1**.

Table 2.1 – UBHS Transect Coordinates, Anse-Bleue SCH

Transect	Start (UTM NAD 83 Zone 20)		End (UTM NAD 83 Zone 20)		Length (m)
	Easting	Northing	Easting	Northing	
Proposed Containment Cell Area					
T-1	344275.929	5299419.242	344284.193	5299602.401	175
T-2	344328.695	5299574.270	344229.401	5299578.750	100
T-3	344327.296	5299543.260	344228.002	5299547.740	100
T-4	344334.226	5299492.855	344225.747	5299497.750	100
T-5	344340.342	5299443.927	344223.556	5299449.196	100
Proposed Dredge Area					
T-6	344346.775	5299564.843	344421.704	5299561.462	75
T-7	344382.566	5299535.684	344381.143	5299587.567	75
T-8	344407.551	5299536.369	344406.128	5299588.252	75

A Canadian Standards Association (CSA)-certified diver using SCUBA was equipped with an underwater video camera and swam the length of each transect to record the substrate, macrofloral and macrofaunal communities along these transects. Where possible, the underwater video surveillance covered approximately 1 to 5 m on either side of the transect line. Seabed characterization included field observations made by the field crew and a review of the video footage by a Dillon biologist. Observations of the video footage were recorded for every 5m segment along each transect. Specific observations made by the Dillon biologist during the UBHS included the following:

- Interpretation of site specific information on the substrate type and marine macrofaunal/faunal species present;
- Detailed descriptions of biological presence (especially fish) and/or habitat that are related to commercial, recreational or aboriginal fisheries;
- Examination of the proposed project area for shellfish presence and abundance, including siphon holes; and

- General characterization and delineation of substrate types (i.e., rippled sand/rock/gravel) and a general characterization (i.e., what percentage of area is sand).

During the UBHS, photographs were taken along each of the surveyed transects. Site photographs as well as photographs from the UBHS program are presented in **Appendix A**, as well as in **Table B.1**.

Additionally, sediment samples were collected from the proposed dredge area to supplement the observations made during the completion of the UBHS. Six spatially balanced marine sediment grab samples (SS18-01 to SS18-06) were collected. At each sample location, replicate (back-up) samples were collected; one sample was submitted for analysis; and a second was stored until the completion of the program.

Throughout the sediment sampling program the divers and Dillon field personnel took the following measurement to aid in determine the sediment thickness, as well as the depth to bedrock within the proposed dredge area.

- Sediment thickness;
- Water depth; and
- Depth to water from select locations on the wharf.

The marine sediment sampling locations were selected in consultation with PSPC, as presented on **Figure 2.1**. A handheld Garmin Global Positioning System (GPS) was used to georeference the sample location coordinates during the field program. The coordinates are listed in **Table 2.2** as latitude and longitude and UTM (Easting/Northing) (Datum: NAD83).

During the sampling program, photographs were taken at each of the sampling locations. Site photographs as well as photographs from the sediment sampling program are presented in **Appendix A**.

Table 2.2 – Sediment Sample Coordinates for Anse-Bleue, NB

Sample ID	Latitude *	Longitude*	Easting**	Northing**	Sediment Thickness (m)	Water Depth (m)	Approximate Depth to Refusal from Top of Wharf (m)
SS18-01	47,49,53.5176	-65,4,45.6847	7648992.6135	2606362.3140	0.6	2.1	4.7
SS18-02	47,49,53.2222	-65,4,47.9002	7648982.6546	2606316.4056	>1.2	1.4	>4.6
SS18-03	47,49,52.3832	-65,4,46.5874	7648957.2388	2606344.1778	0.65	2.1	4.75
SS18-04	47,49,51.5517	-65,4,45.3408	7648932.0302	2606370.5696	>1.2	1.5	>4.7
SS18-05	47,49,50.2879	-65,4,47.0550	7648892.3525	2606335.6304	0.3	1.5	3.8
SS18-06	47,49,49.5050	-65,4,44.6382	7648869.0858	2606386.3294	0.2	2.1	4.3

*All coordinates were recorded with Garmin 2 Plus GPS.
**UTM coordinates (NAD83: 20T).

Following sample collection, Dillon staff packed and shipped the samples to the AGAT Laboratories (AGAT) laboratory in Dartmouth, NS for analysis. AGAT is an international standard ISO/IEC 17025-accredited laboratory, certified by the Standards Council of Canada.

The six discrete samples (SS18-01 to SS18-06) collected were analyzed for the following parameters:

- Polycyclic Aromatic Hydrocarbons (PAHs) low level analysis;
- ICP 23 Full metal scan; plus mercury, hexavalent chromium, tin, and low level selenium;
- OC Pesticides (including Polychlorinated biphenyls (PCBs) and Total Dicholoro-diphenyl-trichloroethane (DDT);
- Benzene, toluene, ethyl-benzene, xylenes, and Total Petroleum Hydrocarbons (BTEX/TPH), including low level analysis for BTEX;
- Total Organic Carbon (TOC) and Total Inorganic Carbon (TIC); and
- Grain Size Distribution.

The analyzed marine sediment samples were compared to the following screening criteria:

- CEPA Disposal at Sea Guidelines;
- CCME Soil Quality Guidelines (SoQGs) for the Protection of Environment and Human Health in agricultural, residential/parkland, and commercial/industrial applications;
- Loggies Pit (2016) Dredge Material Acceptance Criteria; and
- Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria.

The CCME Sediment Quality Guidelines, Interim Sediment Quality Guidelines (ISQGs) and Marine and Estuarine Probable Effects Levels (PELs) are presented in the analytical data tables, for reference only.

3.0 UNDERWATER BENTHIC HABITAT SURVEY RESULTS

The results of the transect surveys are presented in **Tables B.1** and **B.2** (**Appendix B**). These detailed results include:

- Visual determination of percent coverage (combination of substrate and macrofloral cover);
- Macrofaunal species identification and abundance (observation count); and
- Macrofloral species identification.

3.1 Proposed Containment Cell Area

3.1.1 Substrate Observations

According to the video surveillance, the predominant substrate type within the proposed containment cell area was primarily sand with sediment coverage ranging from <5% to 60%.

3.1.2 Macrofaunal Observations

A summary of the observations of macrofaunal life made along the transects in the proposed containment cell area provided in **Table 3.1**. Macrofaunal species were observed throughout the UBHS conducted within the proposed containment cell area. Macrofaunal species observed included the following:

- Atlantic rock crab (*Cancer irroratus*);
- Periwinkle (*Littorina sp.*);
- Stickleback fish species (*Gasterosteus sp.*); and
- American Lobster (*Homarus americanus*).

Table 3.1 – Summary of the Macrofaunal Life Observed in the Proposed Containment Cell Area

Macrofaunal Species	Occurrence	Transect Number and Length(s) Observed
Atlantic rock crab (*Cancer irroratus*)	Uncommon (1 Individual)	Transect 1: 5 - 10 m Transect 4: 0-5 m, 5-10 m, 15-20 m, 20-25 m and 40-45 m
Periwinkle (*Littorina sp.*)	Common Occurrence	Transect 1: 15 - 175 m Transect 2: 0 - 100 m Transect 3: 0 - 100 m Transect 4: 5 - 10 m, 15 - 100 m Transect 5: 30 - 100 m
	Abundant	Transect 5: 20 - 25 m
American Lobster (*Homarus americanus*)	Uncommon (1 Individual)	Transect 2: 95 -100 m
Stickleback fish species (*Gasterosteus sp.*)	Common Occurrence	Transect 1: 15 - 175 m Transect 2: 0 - 100 m Transect 4: 45 - 100 m Transect 5: 30 - 100 m

Notes:
During the UBHS, macrofaunal species identification and enumeration was divided into four categories in order to characterize the observed abundances. These categories are as follows:
i. Abundant - Numerous (not quantifiable) observations made throughout the 5 m segment;
ii. Common - Numerous (not quantifiable) observations made intermittently along the 5 m segment;
iii. Occasional - Quantifiable (number of individuals) observations made intermittently along the 5 m segment; and
iv. Uncommon - Quantifiable (number of individuals) observations made infrequently along the 5 m segment.

While siphon holes were not observed during the filming or review of the video footage, anecdotal evidence suggests that they are likely present within the study area given the substrate composition in the area; however, a lack of contrast in generally shallow water videos lit by sunlight, as well as the dense macrofaunal and macrofaunal debris coverage likely obscured any potential observation of siphon holes (Garnier, pers. comm. 2018).

3.1.3 Macrofloral Observations

Observations of macrofloral life were noted along each of the transects within the proposed containment cell area, as further described in **Table B.1** (attached). Macrofloral debris (i.e., detritus) was also noted along each of the transects; however, for the purpose of this report the debris was not considered as macrofloral life.

The species of macrofloral life observed within the proposed containment cell area include the following:

- Eelgrass (*Zostera marina*): observed along Transects 1 through 5 with coverage ranging from 10 to 100%.
- Bladderwrack (*Fucus sp.*) observed along Transects 1, 4 and 5 with coverage ranging from 5 to 50%.
- Brown algae (*Desmarestia viridis*): observed along Transects 5 with coverage ranging from 5 to 10%.
- Sea lettuce (*Ulva lactuca*): observed along Transect 5 with 5% coverage at various points.

Eelgrass (*Zostera marina*) beds were observed and documented within the proposed containment cell area, as presented on **Figure 2.1**, at the following intervals:

- **Transect 1**: 0 - 5 m (30% coverage), 5 - 10 m (70% coverage), 10 - 15m (80% coverage), 15 - 30 m (100% coverage), 30 - 35 m (70% coverage) and 35 - 175 m (100% coverage).
- **Transect 2:** 0 - 5 m (90% coverage), 5 - 85m (100% coverage) and 85 - 100m (90% coverage).
- **Transect 3:** 0 - 5 m (90% coverage) and 5 - 100 m (100% coverage).
- **Transect 4:** 0 - 10 m (10% coverage), 10 - 15 m (40% coverage) and 15 - 100 m (100% coverage).
- **Transect 5:** 20 - 25 m (30% coverage), 25 - 30 m (50% coverage) and 30 - 100 m (100% coverage).

Macrofloral debris (primarily unattached eelgrass) was noted within the proposed containment cell area with coverage ranging from 10% to 80%.

3.1.4 Summary

The proposed containment cell area is comprised primarily of eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 60% cover). The eelgrass appears to be in good health and due to the thickness of the beds in this zone the observation of macrofaunal species was limited; however, Atlantic rock crab (*Cancer irroratus*); Periwinkle

Typical condition of the eelgrass beds observed within the proposed containment cell area.

(*Littorina sp*.); Stickleback fish species (*Gasterosteus sp.*); and American Lobster (*Homarus americanus*) were observed within the study area.

Based upon the observations made during the completion of the UBHS within the proposed containment cell area it was determined that the habitat is dominated by eelgrass beds, which are known to be an important species in the coastal marine ecosystem. Eelgrass beds serve as critical nursery habitat for fish and invertebrates; feeding habitat for waterfowl and other waterbirds; and tend to be areas of enhanced biological productivity (Plummer et al. 2013; Sogard and Able, 1991; Nienhuis and Groenendijk 1986).

3.2 Proposed Dredge Area

3.2.1 Substrate Observations

According to the video surveillance, the predominant substrate type within the proposed dredge area was primarily sand with sediment coverage ranging from <5% to 70%. **Table 3.2** provides a summary of the visual observations made by the divers and field personnel during the collection of the sediment samples. The laboratory analytical result tables are provided in **Tables C.1** to **C.8** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**. Photographs of the sediment collected for analysis and of the substrate in the vicinity of the sample locations are provided in **Appendix A**.

Table 3.2 – Visual Observations of the Sediment Samples Collected at the Anse-Bleue SCH

Sample ID	Texture or Consistency	Colour	Odour	Biota Present (Y/N)	Maximum Core Depth (m)	Average Core Recovery (m)
SS18-01	Fine-grained sand	Dark grey	None	Y	1.0	0.28
SS18-02	Fine-grained sand	Dark grey	None	Y	0.6	0.4
SS18-03	Fine-grained sand	Dark grey	None	Y	Grab samples collected as result insufficient recovery from the core sampling attempts.	
SS18-04	Fine-grained sand	Dark greyish-brown	None	N		
SS18-05	Medium-grained sand	Dark brown to black	None	N		
SS18-06	Medium-grained sand	Dark brown	None	Y		

The analytical results of the grain size analysis completed on the six sediment samples indicated that the substrate in the proposed dredge area was a mix of fine and coarse-grained with average grain size distribution of 43% Sand, 38% Silt, 25% Clay and 2% Gravel, which is consistent with the visual observations made during the UBHS and the sediment sample collection. Visual

representation of the sediment composition and classification (created using SEDPLOT sediment classification and plotting program) are presented in **Figures C.1** and **C.2**, respectively.

3.2.2 Macrofaunal Observations

A summary of the observations of macrofaunal life made along the transects in the proposed dredge area provided in **Table 3.3**. Macrofaunal species were observed throughout the UBHS conducted within the proposed containment cell area. Macrofaunal species observed included the following:

- Atlantic rock crab (*Cancer irroratus*);
- Periwinkle (*Littorina sp.*);
- Stickleback fish species (*Gasterosteus sp.*); and
- Hermit crab (*Pagurus* sp.).

Table 3.3 – Summary of the Macrofaunal Life Observed in the Proposed Dredge Area

Macrofaunal Species	Occurrence	Transect Number and Length(s) Observed
Atlantic rock crab (*Cancer irroratus*)	Uncommon (2 individuals)	Transect 7: 15 - 20 m Transect 8: 45 - 50 m
	Uncommon (1 Individual)	Transect 6: 15 – 20 m Transect 7: 0 - 5 m, 5 - 10 m, 20 - 25 m, 25 - 30 m, 30 - 35 m and 40 - 45 m Transect 8: 10 - 15 m, 40 - 45 m, 50 - 55 m, and 65 - 70 m
Periwinkle (*Littorina sp.*)	Abundant	Transect 7: 40 - 75 m
Hermit crab (*Pagurus* sp.)	Uncommon (1 Individual)	Transect 7: 70 - 75 m
Stickleback fish species (*Gasterosteus sp.*)	Abundant	Transect 7: 40 - 75 m Transect 8: 55 - 60 m, 65 - 70 m and 70 - 75 m

Notes:

During the UBHS, macrofaunal species identification and enumeration was divided into four categories in order to characterize the observed abundances. These categories are as follows:

i. Abundant - Numerous (not quantifiable) observations made throughout the 5 m segment;

ii. Common - Numerous (not quantifiable) observations made intermittently along the 5 m segment;

iii. Occasional - Quantifiable (number of individuals) observations made intermittently along the 5 m segment; and,

iv. Uncommon - Quantifiable (number of individuals) observations made infrequently along the 5 m segment.

Biota observed within the core samples include hermit crab (SS18-01); periwinkles and clam spat (SS18-02); polychaetes (SS18-01, 02, 03 & 06); and shrimp (SS18-03), which is somewhat consistent with the observations made during the UBHS.

While siphon holes were not observed during the filming or review of the video footage, anecdotal evidence suggests that they are likely present within the study area given the substrate composition in the area; however, a lack of contrast in generally shallow water videos lit by sunlight, as well as the dense macrofaunal and macrofaunal debris coverage likely obscured any potential observation of siphon holes (Garnier, pers. comm. 2018).

3.2.3 Macrofloral Observations

Observations of macrofloral life were noted along each of the transects within the proposed dradge area, as further described in **Table B.1** (attached). Macrofloral debris (i.e., detritus) was also noted along each of the transects; however, for the purpose of this report the debris was not considered as macrofloral life.

The species of macrofloral life observed within the proposed dredge area include the following:

- Eelgrass (*Zostera marina*): observed along Transect 6 with coverage ranging from 5 to 100%, Transect 7 with coverage ranging from 50 to 100% and Transect 8 with coverage ranging from 10 to 80%, as well as in the vicinity of SS18-06.
- Brown algae (*Desmarestia viridis*): observed along Transect 6 with coverage ranging from 5 to 30%, Transect 7 with 10% coverage over a portion of the transect and Transect 8 with coverage ranging from 10 to 30%.
- Sea lettuce (*Ulva lactuca*): observed along Transect 6 with coverage ranging from 5 to 25%, Transect 7 with coverage ranging from 10 to 15% and Transect 8 with 10% coverage over a portion of the transect
- Sea lettuce (*Ulva compressa*): observed along Transect 6 with coverage ranging from 5 to 40%, Transect 7 with coverage ranging from 10 to 30%; and Transect 8 with coverage ranging from 5 to 50%.

Eelgrass (*Zostera marina*) beds were observed and documented within the proposed dredge area, as presented on **Figure 2.1**, at the following intervals:

- **Transect 6:** 15 – 20 m (10% coverage), 20 – 35 m (100% coverage), 35 – 60 m (10% coverage) and 60-75m (5% coverage).
- **Transect 7**: 30 – 35 m (50% coverage) and 35 – 75 m (100% coverage).

- **Transect 8:** 45 – 55 m (10% coverage); 55 – 60 m (40% coverage); 60 – 65 m (10% coverage); 65 – 70 m (40% coverage); and 70 – 75 m (80% coverage).

Macrofloral debris (primarily unattached eelgrass) was noted within the proposed dredge area with coverage ranging from 10% to 70%.

3.2.4 Summary

Typical condition of the sandy substrate observed within the proposed dredge area.

Based upon the results of the UBHS and the sediment sampling program the proposed dredge area is comprised of a mix of primarily areas of sandy substrate (10 to 70% cover) and macrofloral debris (primarily unattached eelgrass; 10 to 70% cover), in the vicinity of sediment sample locations (SS18-01 to SS18-05). However, an area of thick eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 10% cover) was identified in the vicinity of SS18-06 (**Figure 2.1**). The eelgrass appears to be in good health. Macrofaunal species observed within the eelgrass beds included Atlantic rock crab (*Cancer irroratus*), Periwinkle (*Littorina sp.*), Stickleback fish species (*Gasterosteus sp.*) and Hermit crab (*Pagurus sp.*).

Typical condition of the eelgrass beds observed within the proposed dredge area.

Based upon the observations made during the completion of the UBHS within the proposed dredge area it was determined that majority of the potential habitat present within the proposed dredge area does not likely offer unique or preferred habitat for any ecological receptor population or community, with the exception of the eelgrass beds, which are known to be an important species in the coastal marine ecosystem. Eelgrass beds serve as critical nursery habitat for fish and invertebrates; feeding habitat for waterfowl and other waterbirds; and tend to

be areas of enhanced biological productivity (Plummer et al. 2013; Sogard and Able, 1991; Nienhuis and Groenendijk 1986).

3.2.5 Marine Sediment Sampling – Laboratory Analytical Results

Marine sediment sampling was conducted within the proposed dredge area to characterize the sediment chemistry to in an effort facilitate the selection of disposal options for the sediment to be removed from the waterlot. The laboratory analytical result tables are provided in **Tables C.1** to **C.8** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**. Photographs of the sediment collected for analysis and of the substrate in the vicinity of the sample locations are provided in **Appendix A**.

Based on a review of the initial analytical results, it was decided through consultation with PSPC that one sample (SS18-1) should undergo leachate analysis (Synthetic Precipitation Leaching Procedure [SPLP]: EPA Method 1312 and Toxicity Characteristic Leaching Procedure [TCLP]: EPA SW-846 Method 1311) for the identified exceedances of the CCME SoQGs and the Loggies Pit Dredge Material Acceptance Criteria for IACR. The leachate analyses were completed as a requirement to determine if the material is suitable for disposal at NB landfills. Results from these analyses were compared to the Health Canada Guidelines for Drinking Water Quality (2017) and the CCME Water Quality Guidelines for the Protection of Aquatic Life and Agriculture.

It is also of note that for the PAH and metals results, only those parameters for which there are established regulatory guidelines or those used in calculations are included in the tables. The complete set of analytical results, including laboratory QA/QC and Certificates of Analyses for all parameters tested, are provided in **Appendix C**.

3.2.5.1 BTEX and mTPH in Sediment

The laboratory analytical result tables are provided in **Table C.1** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

BTEX concentrations were not reported above the laboratory's reported detection limit (RDL) in the six sediment samples analysed. As such, BTEX concentrations were not identified in the sediment samples collected at concentrations that exceed the applicable CCME SoQGs, Atlantic PIRI RBSLs or the Loggie's Pit – Dredge Material Acceptance Criteria.

Modified TPH (resembling unidentified compounds) in samples SS18-1, SS18-2, SS18-3 and SS18-4 was not reported at concentrations that exceed the applicable CCME SoQGs, Atlantic PIRI RBSLs or the Loggie's Pit – Dredge Material Acceptance Criteria.

Sample SS18-2 did not return to baseline at C32, as a result the F4G analysis (gravimetric heavy hydrocarbons) was conducted on the sample in an effort to assess the potential presence of motor oil. A F4 concentration of 1,450 mg/kg was identified in sample SS18-2, which does not exceed the applicable CCME SoQGs or the Loggie's Pit – Dredge Material Acceptance Criteria.

3.2.5.2 PAHs in Sediment

The laboratory analytical result tables are provided in **Table C.2** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

CEPA Disposal at Sea Screening Criteria – Lower Level

Total PAH concentrations were calculated at concentrations that exceed the CEPA Disposal at Sea Screening Criteria – Lower Level Screening Criteria in sample SS18-01. Calculated total PAH concentrations in the remaining samples did not exceed the CEPA Disposal at Sea Screening Criteria – Lower Level Screening Criteria.

CCME SoQGs – Human Health: Potable Water and Direct Contact

Exceedances of the CCME SoQG for the protection of potable water were identified in the following sediment samples:

- SS18-01: benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, benzo(b/j)fluoranthene, chrysene, phenanthrene and IACR;
- SS18-02: benzo(k)fluoranthene and IACR;
- SS18-03: benzo(k)fluoranthene, phenanthrene and IACR;
- SS18-04: benzo(k)fluoranthene, benzo(b/j)fluoranthene, phenanthrene and IACR; and
- SS18-05: benzo(k)fluoranthene and IACR.

The remaining PAH parameters were not identified at concentrations that exceed the CCME SoQGs for the protection of human health (potable water and direct contact).

CCME SoQGs – Environmental Health: Freshwater Aquatic Life

Naphthalene (SS18-01 to SS18-05) and phenanthrene (SS18-01, SS18-03 and SS18-04) were identified at concentrations that exceed the CCME SoQGs for the protection of freshwater aquatic life.

The remaining PAH parameters were not identified at concentrations that exceed the CCME SoQGs for the protection of environmental health (freshwater aquatic life).

Loggie's Pit – Dredge Material Acceptance Criteria

PAH parameters were not identified at concentrations that exceed the Loggie's Pit – Dredge Material Acceptance Criteria.

Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria

Benzo(a)pyrene concentrations were not identified at concentrations that exceed the Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria

3.2.5.3 Leachable PAH Results

Sample SS18-01 was submitted for SPLP and TCLP PAH analysis based on the noted benchmark exceedances and discussions with PSPC.

The laboratory analytical result tables are provided in **Tables C.3** and **C.4** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

SPLP Leachate: Leachate concentrations of fluoranthene and pyrene exceed the CCME Water Quality Guidelines for the Protection of Freshwater Aquatic Life. The remaining PAH parameters in leachate analyzed using the SPLP do not exceed Health Canada's Guidelines for Drinking Water Quality, the CCME Water Quality Guidelines for the Protection of Freshwater and Marine Aquatic Life or the CCME Water Quality Guidelines for the Protection of Agriculture – Irrigation and Livestock.

TCLP Leachate: Leachate concentrations of were not reported above the laboratory's RDL, and as such do not exceed Health Canada's Guidelines for Drinking Water Quality, the CCME Water Quality Guidelines for the Protection of Freshwater and Marine Aquatic Life or the CCME Water Quality Guidelines for the Protection of Agriculture – Irrigation and Livestock.

3.2.5.4 Metals in Sediment

The laboratory analytical result tables are provided in **Table C.5** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

Metal concentrations do not exceed the CEPA Disposal at Sea Regulations; the applicable CCME SoQGs; the Loggies Pit Dredge Material Acceptance Criteria or the Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria with the exception of hot water boron concentrations in samples SS18-01, SS18-02, SS18-03, SS18-04 and SS18-05, which exceed the agricultural land use CCME SoQG.

3.2.5.5 Sodium Absorption Ratio, Conductivity and pH in Sediment

The laboratory analytical result tables are provided in **Table C.5** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

Sodium absorption ratios and conductivity identified in samples SS18-01, SS18-02, SS18-03, SS18-04, SS18-05 and SS18-06 exceed the CCME SoQGs and the Loggies Pit Dredge Material Acceptance Criteria. pH levels exceeding the applicable CCME SoQGs; the Loggies Pit Dredge Material Acceptance Criteria and the Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria were identified in samples SS18-01 and SS18-06.

3.2.5.6 OC Pesticides in Sediment

The laboratory analytical result tables are provided in **Table C.6** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

OC pesticides including total PCB and DDT concentrations were not reported above the laboratory's RDL in the sediment samples analysed. As such, total PCB and DDT concentrations were not identified in the sediment samples collected from Anse-Bleue at concentrations that exceed the CEPA Disposal at Sea Regulations, the applicable CCME SoQGs or the Loggies Pit Dredge Material Acceptance Criteria.

3.2.5.7 TOC in Sediment

The laboratory analytical result tables are provided in **Table C.7** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix D**.

TOC was reported as ranging between <0.3% (SS18-06) to 8.1% (SS18-04).

3.2.5.8 TIC in Sediment

The laboratory analytical result tables are provided in **Table C.7** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix C**.

TIC was not reported above the laboratory's RDL in the sediment samples analysed.

3.2.5.9 Glycols in Sediment

The laboratory analytical result tables are provided in **Table C.8** (**Appendix C**) and the laboratory certificates of analyses are provided in **Appendix C**.

Glycols were not reported above the laboratory's RDL in the sediment samples analysed and as such do not exceed the applicable CCME SoQGs.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

The UBHS field component was conducted by a CSA certified diver using SCUBA, and directed by a Dillon field personnel experienced with environmental field data and sample collection. During the UBHS, Dillon was responsible for ensuring that standard operating procedures, best management practices and health and safety measures were maintained throughout the field survey.

Sediment samples collected were labeled by the laboratory prior to initiating the field program with the sample site identifier, and sample number. The samples were placed upright on ice inside a cooler for safe storage and transport, and were (hand-delivered or shipped) to the laboratory following program completion. Additional samples were collected to safeguard

against loss or damage during transport, and will be stored and refrigerated until the final report is received by PSPC.

Sample collection, preparation, and analyses followed guidance provided in the afore-referenced Environment Canada document. Samples were analyzed by an accredited laboratory with CALA and/or ISO/IEC 17025 and are certified by the Standards Council of Canada (SCC) for each selected chemical analyses of this program. The complete set of analytical results, including laboratory QA/QC and Certificates of Analyses for all parameters tested, are provided in **Appendix D**.

To assess the quality of the analytical data, a review of the internal laboratory QA/QC results was completed and included a review of laboratory duplicate analyses, method blanks, surrogates, spike samples, and QA/QC standards.

5.0 CONCLUSIONS

Characterization of the Anse-Bleue DFO-SCH site, Gloucester County, NB was completed through the combination of visual field observations, underwater video survey techniques and laboratory analysis of sediment samples.

Proposed Containment Cell Area: The proposed containment cell area is comprised primarily of eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 60% cover) (**Figure 2.1**). The eelgrass appears to be in good health and due to the thickness of the beds in this zone the observation of macrofaunal species was limited; however, Atlantic rock crab (*Cancer irroratus*); Periwinkle (*Littorina sp.*); Stickleback fish species (*Gasterosteus sp.*); and American Lobster (*Homarus americanus*) were observed within the study area.

Based upon the observations made during the completion of the UBHS within the proposed containment cell area it was determined that the habitat is dominated by eelgrass beds, which are known to be an important species in the coastal marine ecosystem. Eelgrass beds serve as critical nursery habitat for fish and invertebrates; feeding habitat for waterfowl and other waterbirds; and tend to be areas of enhanced biological productivity (Plummer et al. 2013; Sogard and Able, 1991; Nienhuis and Groenendijk 1986).

Proposed Dredge Area: The proposed dredge area is comprised of a mix of primarily areas of sandy substrate (10 to 70% cover) and macrofloral debris (primarily unattached eelgrass; 10 to 70% cover), in the vicinity of sediment sample locations (S18-1 to SS18-5). However, an area of thick eelgrass beds (10 to 100% cover) overlying sandy substrate (between <5% and 10% cover) (**Figure 2.1**). The eelgrass appears to be in good health. Macrofaunal species observed within the eelgrass beds included Atlantic rock crab (*Cancer irroratus*), Periwinkle (*Littorina sp.*), Stickleback fish species (*Gasterosteus sp.*) and Hermit crab (*Pagurus sp.*).

Based upon the observations made during the completion of the UBHS within the proposed dredge area it was determined that majority of the potential habitat present within the proposed dredge area does not likely offer unique or preferred habitat for any ecological receptor population or community, with the exception of the eelgrass beds, as noted above.

The laboratory analytical results of the sediment samples collected from the proposed dredge area indicate exceedances of the applicable criteria for select parameters. A summary of the identified exceedances is presented below.

- **PAHs in Sediment:**
  - Total PAH concentrations were calculated at concentrations that exceed the CEPA Disposal at Sea Screening Criteria – Lower Level Screening Criteria in sample SS18-01.
  - Exceedances of the CCME SoQG for the protection of potable water were identified in the sediment samples SS18-01 to SS18-05.
  - Naphthalene (SS18-01 to SS18-05) and phenanthrene (SS18-01, SS18-03 and SS18-04) were identified at concentrations that exceed the CCME SoQGs for the protection of freshwater aquatic life.
- **PAHs in Leachate:**
  - *SPLP Leachate:* Leachate concentrations of fluoranthene and pyrene exceed the CCME Water Quality Guidelines for the Protection of Freshwater Aquatic Life. The remaining PAH parameters in leachate analyzed using the SPLP do not exceed the applicable criteria.
  - *TCLP Leachate:* Leachate concentrations of were not reported above the laboratory's RDL, and as such do not exceed Health Canada's Guidelines for Drinking Water Quality, the CCME Water Quality Guidelines for the Protection

of Freshwater and Marine Aquatic Life or the CCME Water Quality Guidelines for the Protection of Agriculture – Irrigation and Livestock.

- **Metals in Sediment:**
  - Hot water boron concentrations in samples SS18-01, SS18-02, SS18-03, SS18-04 and SS18-05 exceed the agricultural land use CCME SoQG.
- **Sodium Adsorption Ratio, Conductivity and pH in Sediment:**
  - Sodium absorption ratios and conductivity identified in samples SS18-01, SS18-02, SS18-03, SS18-04, SS18-05 and SS18-06 exceed the CCME SoQGs and the Loggies Pit Dredge Material Acceptance Criteria. pH levels exceeding the applicable CCME SoQGs; the Loggies Pit Dredge Material Acceptance Criteria and the Nepisiguit-Chaleur Region Solid Waste Commission Acceptance Criteria were identified in samples SS18-01 and SS18-06.

6.0 CLOSURE

This report was prepared exclusively for the purposes, project, and site location(s) outlined in the report. The report is based on information provided to, or obtained by Dillon Consulting Limited ("Dillon") as indicated in the report, and applies solely to site conditions existing at the time of the site investigation(s). Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site(s). Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site(s), and that the levels of contamination or hazardous materials may vary across the site(s). Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of Public Services and Procurement Canada and Fisheries and Oceans Canada. The material in it reflects Dillon’s best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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APPENDIX A

PHOTO LOG

Photo 1: SS18-1 – Cover is primarily decaying seaweed and woody debris (July 18, 2018).

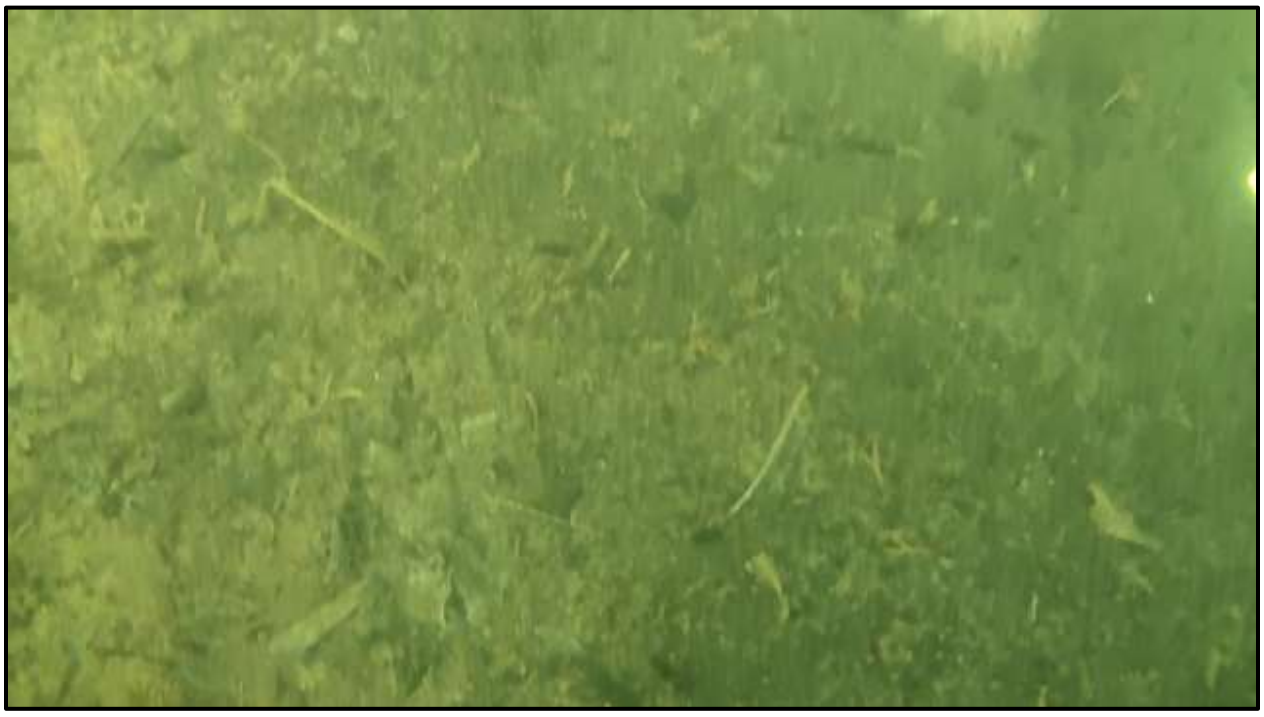


Photo 2: SS18-2 – Sandy substrate with some decaying seaweed and woody debris (July 18, 2018).

Photo 3: SS18-3 – Sandy substrate with some shell hash and woody debris (July 18, 2018).

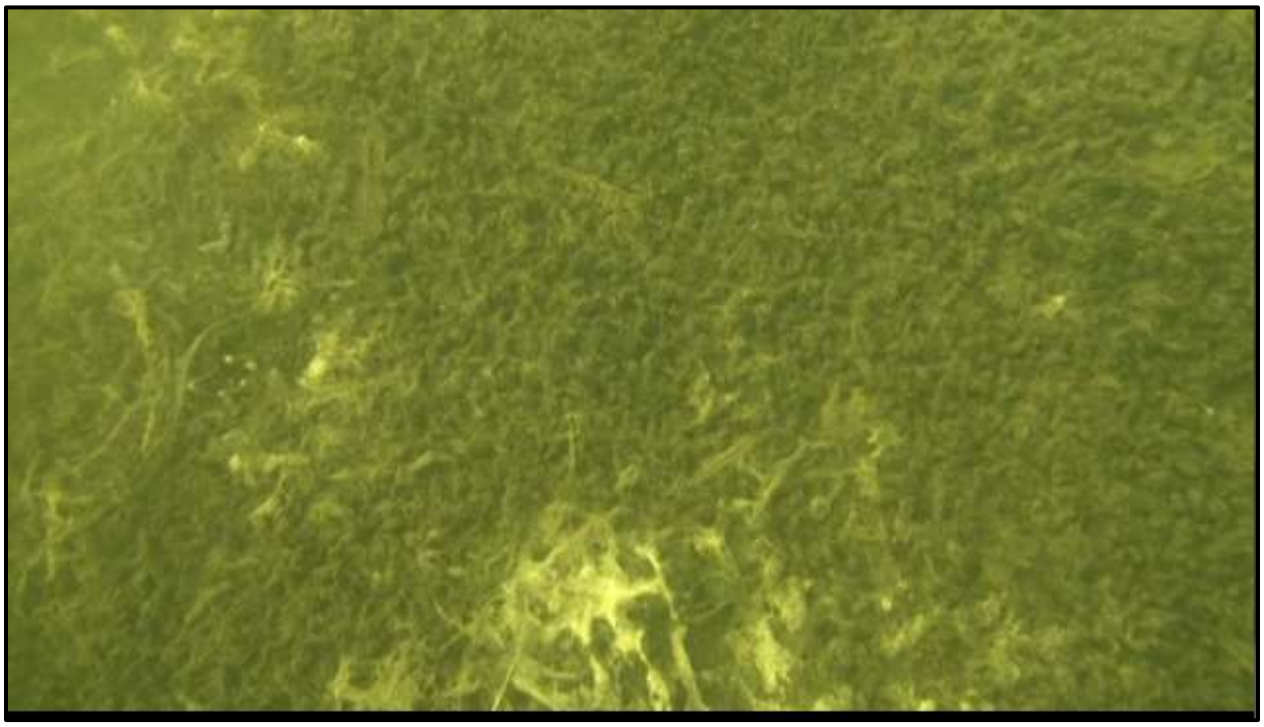


Photo 4: SS18-4 - Cover is primarily decaying seaweed overlying boulders and cobbles (July 18, 2018).

Photo 5: SS18-5 – Sandy silt substrate with decayed eelgrass and woody debris (July 18, 2018).

Photo 6: Eelgrass in the vicinity of SS18-6 (July 18, 2018).

Photo 7: Demonstrating the depth from the top of the water to the top of the wharf (approximately 2 meters) at the time of sediment sample collection (July 17, 2018).

Photo 8: Demonstrating the depth from the top of the water to the top of the wharf (approximately 2 meters) at the time of sediment sample collection (July 17, 2018).

Photo 9: Looking southeast across the waterlot at the timber wharf and ice shed (July 17, 2018).

Photo 10: Looking northwest across the waterlot at the docked fishing boats and the breakwater (July 17, 2018).

APPENDIX B

UBHS OBSERVATIONS

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	<5% Sand	20% 50% 30%	Macrofloral debris *Fucus* sp. *Zostera marina*	---	---	Sandy substrate with scattering of macroalgae debris. Patches of anchored macroalgae dominated by bladderwrack (Fucus sp.), with intermittent patches of eelgrass (Zostera marina) were observed along the ocean floor.
5-10	<5% Sand	20% 10% 70%	Macrofloral debris *Fucus* sp. *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering of macroalgae debris. Patches of anchored macroalgae dominated by eelgrass (Zostera marina), with a minimal amount of bladderwrack (Fucus sp.) mixed in, were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) was observed.
10-15	<5% Sand	20% 80%	Macrofloral debris *Zostera marina*	---	---	Sandy substrate with scattering of macroalgae debris. Dense pataches of eelgrass (Zostera marina) were observed along the ocean floor.
15-20	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
20-25	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
25-30	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
30-35	<5% Sand	20% 10% 70%	Macrofloral debris *Fucus* sp. *Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate with scattering of macroalgae debris. Patches of anchored macroalgae dominated by eelgrass (Zostera marina), with a minimal amount of bladderwrack (Fucus sp.) mixed in, were observed along the ocean floor. Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) were observed living within the eelgrass bed.
35-40	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
40-45	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
75-80	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
80-85	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
85-90	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
90-95	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
95-100	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
100-105	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
105-110	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
110-115	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
115-120	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
120-125	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
125-130	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
130-135	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
135-140	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
140-145	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
145-150	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
150-155	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
155-160	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
160-165	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
165-170	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
170-175	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 2						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	<5% Sand	10% 90%	Macrofloral debris *Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	--- ---	Sandy substrate with scattering of macrofloral debris. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
5-10	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
10-15	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
15-20	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
20-25	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
25-30	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
30-35	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
35-40	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
40-45	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
75-80	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
80-85	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
85-90	<5% Sand	10% 90%	Macrofloral debris *Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate with scattering of macrofloral debris. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
90-95	<5% Sand	10% 90%	Macrofloral debris *Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate with scattering of macrofloral debris. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
95-100	<5% Sand	10% 90%	Macrofloral debris *Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.) American Lobster (*Homarus americanus*)	Common Common 1	Sandy substrate with scattering of macrofloral debris. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	<5% Sand	10% 90%	Macrofloral debris *Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate with scattering of macroalgae debris. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
5-10	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
10-15	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
15-20	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
20-25	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
25-30	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
30-35	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
35-40	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
40-45	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
75-80	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
80-85	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
85-90	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
90-95	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.
95-100	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	30% Sand	50% 10% 10%	Macrofloral debris *Fucus* sp. *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering of macroalgae debris. Intermittent patches of anchored bladderwrack (Fucus sp.), and eelgrass (Zostera marina) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
5-10	<5% Sand	80% 10% 10%	Macrofloral debris *Fucus* sp. *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*) Periwinkle (*Littorina* sp.)	1 Common	Sandy substrate with scattering of macroalgae debris. Intermittent patches of anchored bladderwrack (Fucus sp.), and eelgrass (Zostera marina) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) and numerous Periwinkle (Littorina sp.) observed.
10-15	<5% Sand	50% 10% 40%	Macrofloral debris *Fucus* sp. *Zostera marina*	---	---	Sandy substrate with scattering of macroalgae debris. Intermittent patches of anchored bladderwrack (Fucus sp.), and eelgrass (Zostera marina) were observed along the ocean floor.
15-20	<5% Sand	100%	*Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*) Periwinkle (*Littorina* sp.)	1 Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). One Atlantic Rock Crab (Cancer irroratus) and numerous Periwinkle (Littorina sp.) observed.
20-25	<5% Sand	100%	*Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*) Periwinkle (*Littorina* sp.)	1 Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). One Atlantic Rock Crab (Cancer irroratus) and numerous Periwinkle (Littorina sp.) observed.
25-30	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). Numerous Periwinkle (Littorina sp.) observed.
30-35	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). Numerous Periwinkle (Littorina sp.) observed.
35-40	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.)	Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). Numerous Periwinkle (Littorina sp.) observed.
40-45	<5% Sand	100%	*Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*) Periwinkle (*Littorina* sp.)	1 Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina). One Atlantic Rock Crab (Cancer irroratus) and numerous Periwinkle (Littorina sp.) observed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
75-80	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
80-85	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
85-90	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
90-95	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
95-100	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	60% Sand	30% 10%	Macrofloral debris *Desmarestia* sp.	---	---	Sandy substrate with scattering of macroalgae debris. Patches of anchored macroalgae dominated by soft sour weed (Desmarestia viridis) were observed along the ocean floor.
5-10	60% Sand	30% 5% 5%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca*	---	---	Sandy substrate with scattering of macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva lactuca) were observed along the ocean floor.
10-15	55% Sand	30% 5% 5% 5%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca* *Fucus* sp.	---	---	Sandy substrate with scattering of macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva lactuca) and bladderwrack (Fucus sp.) were observed along the ocean floor.
15-20	35% Sand	50% 5% 5% 5%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca* *Fucus* sp.	---	---	Sandy substrate with dense macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva lactuca) and bladderwrack (Fucus sp.) were observed along the ocean floor. Empty bivalve shells were observed.
20-25	5% Sand	50% 5% 5% 5% 30%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca* *Fucus* sp. *Zostera marina*	Periwinkle (*Littorina* sp.)	Abundant	Sandy substrate with dense macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva lactuca), bladderwrack (Fucus sp.) and eelgrass (Zostera marina) were observed along the ocean floor. Numerous periwinkle (Littorina sp.) were observed. Empty bivalve shells were observed.
25-30	15% Sand	20% 5% 5% 5% 50%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca* *Fucus* sp. *Zostera marina*	---	---	Sandy substrate with dense macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva lactuca), bladderwrack (Fucus sp.) and eelgrass (Zostera marina) were observed along the ocean floor.
30-35	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
35-40	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
40-45	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
75-80	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
80-85	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
85-90	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
90-95	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
95-100	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Common Common	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 6						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	30% Sand	70%	Macrofloral debris	---	---	Sandy substrate with dense macroalgae debris.
5-10	30% Sand	70%	Macrofloral debris	---	---	Sandy substrate with dense macroalgae debris.
10-15	30% Sand	70%	Macrofloral debris	---	---	Sandy substrate with dense macroalgae debris.
15-20	10% Sand	70% 5% 5% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with dense macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
20-25	<5% Sand	100%	*Zostera marina*	---	---	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) observed along the ocean floor.
25-30	<5% Sand	100%	*Zostera marina*	---	---	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) observed along the ocean floor.
30-35	<5% Sand	100%	*Zostera marina*	---	---	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) observed along the ocean floor.
35-40	<5% Sand	20% 30% 20% 20% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
40-45	<5% Sand	20% 30% 20% 20% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
45-50	<5% Sand	20% 30% 30% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
50-55	<5% Sand	20% 20% 40% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
55-60	<5% Sand	30% 20% 30% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
60-65	10% Sand	30% 20% 30% 5% 5%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
65-70	10% Sand	30% 20% 20% 15% 5%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.
70-75	<5% Sand	30% 20% 20% 25% 5%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), sea lettuce (Ulva compressa and Ulva lactuca), and eelgrass (Zostera marina) were observed along the ocean floor.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 7						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	10% Sand	50% 30% 10%	Macrofloral debris *Ulva compressa* *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with dense macroalgae debris. Intermittent patches of sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
5-10	30% Sand	30% 10% 15% 15%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
10-15	60% Sand	10% 10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
15-20	70% Sand	10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	2	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva lactuca) were observed along the ocean floor. Two Atlantic Rock Crab (Cancer irroratus) observed.
20-25	70% Sand	10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
25-30	70% Sand	10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
30-35	20% Sand	10% 10% 10% 50%	Macrofloral debris *Desmarestia* sp. *Ulva lactuca* *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
35-40	<5% Sand	100%	*Zostera marina*	---	---	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) observed along the ocean floor.
40-45	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.) Atlantic Rock Crab (*Cancer irroratus*)	Abundant Abundant 1	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed. One Atlantic Rock Crab (Cancer irroratus) observed.
45-50	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Abundant Abundant	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
50-55	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Abundant Abundant	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
55-60	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Abundant Abundant	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
60-65	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Abundant Abundant	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
65-70	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.)	Abundant Abundant	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed.
70-75	<5% Sand	100%	*Zostera marina*	Periwinkle (*Littorina* sp.) Stickleback species (*Gasterosteus* sp.) Hermit crab (*Pagurus* sp.)	Abundant Abundant 1	Sandy substrate. Dense, healthy live eelgrass bed (Zostera marina) with Periwinkle (Littorina sp.) and Stickleback species (Gasterosteus sp.) living within the eelgrass bed. One Hermit crab (Pagurus sp.) observed.

Table B.1 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 8						
Transect Section (m)	**% Sediment Cover**	**% Cover by Macroflora**	**Macroflora Observed**	**Macrofauna Observed**	**Number of Organisms**	**Comments**
0-5	60% Sand	30% 10%	Macrofloral debris *Desmarestia* sp.	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) were observed along the ocean floor.
5-10	70% Sand	10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis) and sea lettuce (Ulva compressa) were observed along the ocean floor.
10-15	40% Sand	30% 10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
15-20	10% Sand	30% 10% 40% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
20-25	<5% Sand	20% 30% 40% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
25-30	<5% Sand	20% 30% 40% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
30-35	<5% Sand	20% 20% 50% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
35-40	10% Sand	30% 20% 30% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
40-45	10% Sand	30% 20% 30% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
45-50	10% Sand	30% 20% 20% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca*	Atlantic Rock Crab (*Cancer irroratus*)	2	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. Two Atlantic Rock Crab (Cancer irroratus) observed.
50-55	10% Sand	30% 20% 20% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*)	1	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.
55-60	<5% Sand	30% 10% 10% 10% 40%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	Stickleback fish species (*Gasterosteus* sp.)	Abundant	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. Numerous stickleback species (Gasterosteus sp.) were observed.
60-65	10% Sand	30% 30% 10% 10% 10%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	---	---	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor.
65-70	<5% Sand	20% 20% 10% 10% 40%	Macrofloral debris *Desmarestia* sp. *Ulva compressa* *Ulva lactuca* *Zostera marina*	Atlantic Rock Crab (*Cancer irroratus*) Stickleback fish species (*Gasterosteus* sp.)	1 Abundant	Sandy substrate with scattering macroalgae debris. Intermittent patches of anchored soft sour weed (Desmarestia viridis), and sea lettuce (Ulva compressa and Ulva lactuca) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) and numerous stickleback species (Gasterosteus sp.) were observed.
70-75	<5% Sand	20% 80%	Macrofloral debris *Zostera marina*	Stickleback fish species (*Gasterosteus* sp.)	Abundant	Sandy substrate with scattering macroalgae debris. Dense live eelgrass (Zostera marina) was observed along the ocean floor. Numerous stickleback species (Gasterosteus sp.) were observed.

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering of macroalgae debris.	Patches of anchored macroalgae dominated by bladderwrack (*Fucus* sp.), with intermittent patches of eelgrass (*Zostera marina*) were observed along the ocean floor.	
5-10	Sandy substrate with scattering of macroalgae debris.	Patches of anchored macroalgae dominated by eelgrass (*Zostera marina*), with a minimal amount of bladderwrack (*Fucus* sp.) mixed in, were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) was observed.	
10-15	Sandy substrate with scattering of macroalgae debris.	Dense pataches of eelgrass (*Zostera marina*) were observed along the ocean floor.	
15-20	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
25-30	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
75-80	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
80-85	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
85-90	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
90-95	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
95-100	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
100-105	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
105-110	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
110-115	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
115-120	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
120-125	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
125-130	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
130-135	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
135-140	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
140-145	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
145-150	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
150-155	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
155-160	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 1			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
160-165	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
165-170	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
170-175	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marin* a) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

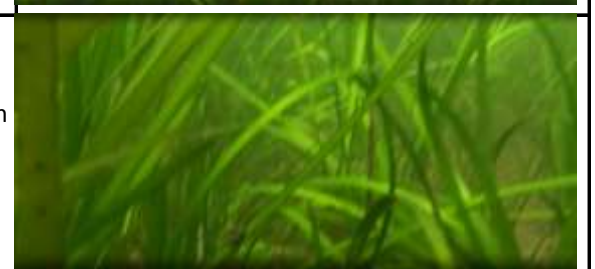
Transect 2			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering of macrofloral debris.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
5-10	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
10-15	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
15-20	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 2			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
25-30	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 2			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 2			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
75-80	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 2			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
80-85	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
85-90	Sandy substrate with scattering of macrofloral debris.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
90-95	Sandy substrate with scattering of macrofloral debris.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
95-100	Sandy substrate with scattering of macrofloral debris.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed. One American Lobster (*Homarus americanus*) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering of macroalgae debris.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
5-10	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
10-15	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
15-20	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
25-30	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
75-80	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 3			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
80-85	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
85-90	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
90-95	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	
95-100	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering of macroalgae debris.	Intermittent patches of anchored bladderwrack (*Fucus* sp.), and eelgrass (*Zostera marina*) were observed along the ocean floor. One Atlantic Rock Crab (Cancer irroratus) observed.	
5-10	Sandy substrate with scattering of macroalgae debris.	Intermittent patches of anchored bladderwrack (*Fucus* sp.), and eelgrass (*Zostera marina*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) and numerous Periwinkle (*Littorina* sp.) observed.	
10-15	Sandy substrate with scattering of macroalgae debris.	Intermittent patches of anchored bladderwrack (*Fucus* sp.), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
15-20	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). One Atlantic Rock Crab (*Cancer irroratus*) and numerous Periwinkle (*Littorina* sp.) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). One Atlantic Rock Crab (*Cancer irroratus*) and numerous Periwinkle (*Littorina* sp.) observed.	
25-30	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). Numerous Periwinkle (*Littorina* sp.) observed.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). Numerous Periwinkle (*Littorina* sp.) observed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). Numerous Periwinkle (*Littorina* sp.) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*). One Atlantic Rock Crab (*Cancer irroratus*) and numerous Periwinkle (*Littorina* sp.) observed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
75-80	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 4			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
80-85	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
85-90	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
90-95	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
95-100	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering of macroalgae debris.	Patches of anchored macroalgae dominated by soft sour weed (*Desmarestia viridis*) were observed along the ocean floor.	
5-10	Sandy substrate with scattering of macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva lactuca*) were observed along the ocean floor.	
10-15	Sandy substrate with scattering of macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva lactuca*) and bladderwrack (*Fucus* sp.) were observed along the ocean floor.	
15-20	Sandy substrate with dense macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva lactuca*) and bladderwrack (*Fucus* sp.) were observed along the ocean floor. Empty bivalve shells were observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate with dense macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva lactuca*), bladderwrack (*Fucus* sp.) and eelgrass (*Zostera marina*) were observed along the ocean floor. Numerous periwinkle (*Littorina* sp.) were observed. Empty bivalve shells were observed.	
25-30	Sandy substrate with dense macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva lactuca*), bladderwrack (*Fucus* sp.) and eelgrass (*Zostera marina*) were observed along the ocean floor.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
75-80	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 5			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
80-85	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
85-90	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
90-95	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
95-100	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 6			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with dense macroalgae debris.	No life observed	
5-10	Sandy substrate with dense macroalgae debris.	No life observed	
10-15	Sandy substrate with dense macroalgae debris.	No life observed	
15-20	Sandy substrate with dense macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 6			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) observed along the ocean floor.	
25-30	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) observed along the ocean floor.	
30-35	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) observed along the ocean floor.	
35-40	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 6			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
45-50	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
50-55	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
55-60	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 6			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
65-70	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	
70-75	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), sea lettuce (*Ulva compressa* and *Ulva lactuca*), and eelgrass (*Zostera marina*) were observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 7			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with dense macroalgae debris.	Intermittent patches of sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
5-10	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
10-15	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	
15-20	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva lactuca*) were observed along the ocean floor. Two Atlantic Rock Crab (*Cancer irroratus*) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 7			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
25-30	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
30-35	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
35-40	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 7			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
45-50	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
50-55	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
55-60	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 7			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
65-70	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed.	
70-75	Sandy substrate.	Dense, healthy live eelgrass bed (*Zostera marina*) with Periwinkle (*Littorina* sp.) and Stickleback species (*Gasterosteus* sp.) living within the eelgrass bed. One Hermit crab (*Pagurus* sp.) observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 8			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
0-5	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) were observed along the ocean floor.	
5-10	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*) and sea lettuce (*Ulva compressa*) were observed along the ocean floor.	
10-15	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
15-20	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 8			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
20-25	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	
25-30	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	
30-35	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	
35-40	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

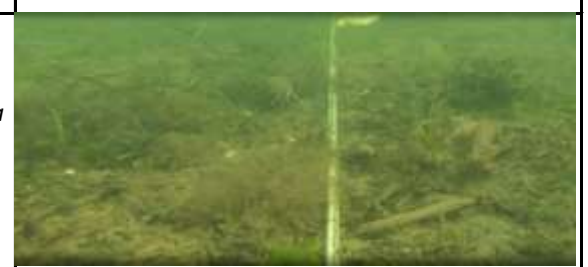
Transect 8			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
40-45	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
45-50	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. Two Atlantic Rock Crab (*Cancer irroratus*) observed.	
50-55	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) observed.	
55-60	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. Numerous stickleback species (*Gasterosteus* sp.) were observed.	

Table B.2 - UBHS Results for Transects 1 to 8, Anse-Bleue DFO-SCH.

Transect 8			
Area Distance (m)	**Substrate Observation**	**Macroflora/fauna Observations**	**Representative bottom camera images captured from the diver video camera**
60-65	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor.	
65-70	Sandy substrate with scattering macroalgae debris.	Intermittent patches of anchored soft sour weed (*Desmarestia viridis*), and sea lettuce (*Ulva compressa* and *Ulva lactuca*) were observed along the ocean floor. One Atlantic Rock Crab (*Cancer irroratus*) and numerous stickleback species (*Gasterosteus* sp.) were observed.	
70-75	Sandy substrate with scattering macroalgae debris.	Dense live eelgrass (*Zostera marina*) was observed along the ocean floor. Numerous stickleback species (*Gasterosteus* sp.) were observed.	

APPENDIX C

MSSP LABORATORY ANALYTICAL SUMMARY TABLES

Figure C.1 - Proposed Dredge Area Average Substrate Composition (%)

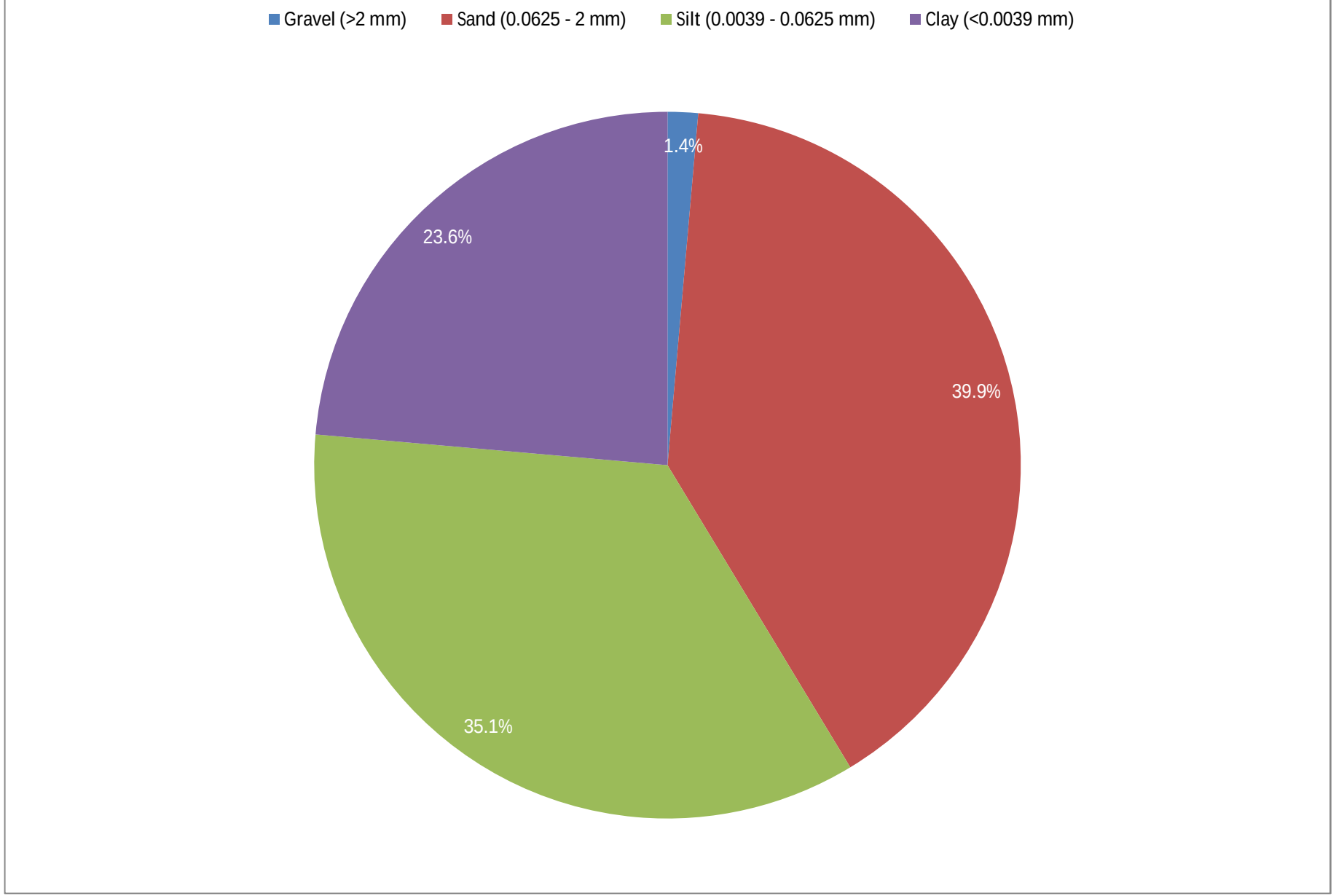


Figure C.2 - Ternary Diagram of the Sediment Samples Collected Within the Proposed Dredge Area, Anse-Bleue SCH.

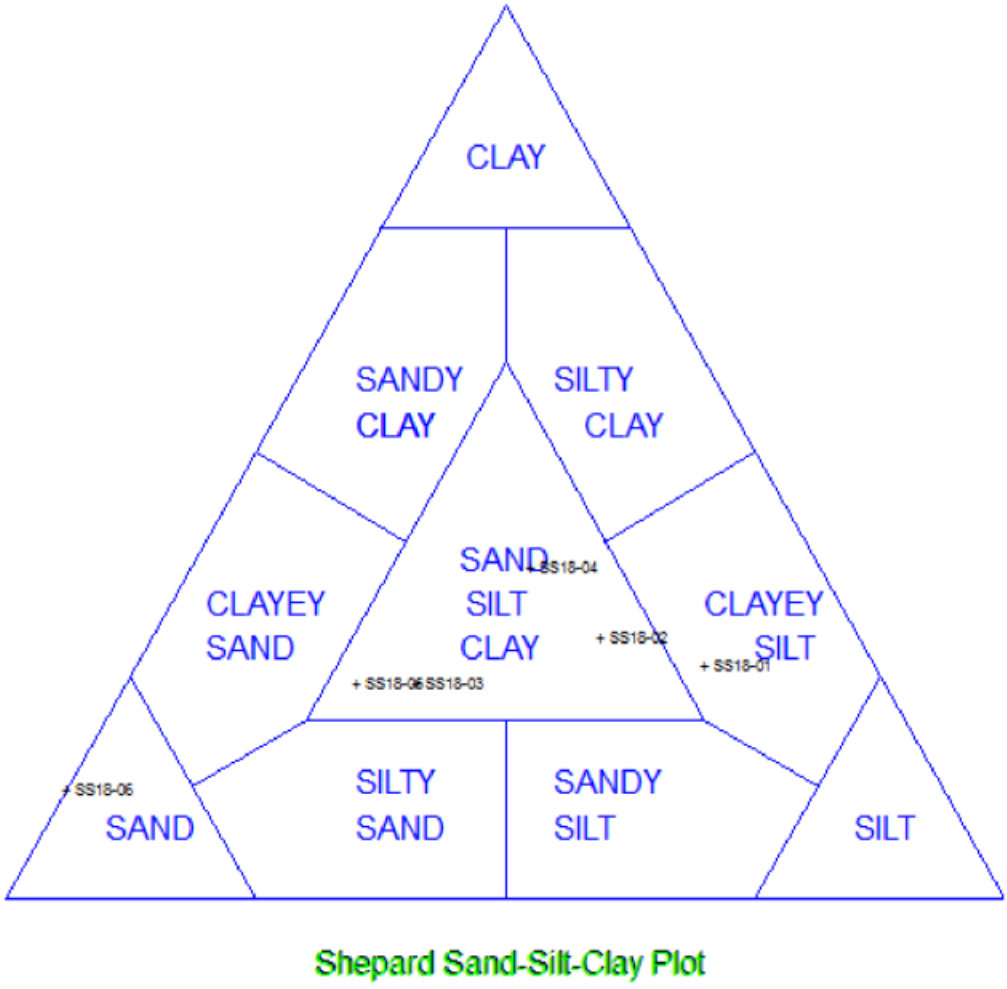


Table C.1: BTEX and Petroleum Hydrocarbon Concentrations in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Sample ID		Date (mm/dd/yyyy)		BTEX Concentrations (mg/kg)				Petroleum Hydrocarbon (PHC) Fraction Concentrations (mg/kg)							
				Benzene	Toluene	Ethylbenzene	Xylenes	F1 (C_6-C_{10})	F2 (C_{10}-C_{16})	>C_{16}-C_{21}	>C_{21}-C_{32}	F4G	Modified TPH (less BTEX)	Resemblance (G/F/L)	Reached Baseline at C32
SS18-1		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	<15	41	--	41	UC	Y
SS18-2		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	<15	21	1450	21	UC	N
SS18-3		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	<15	22	--	22	UC	Y
SS18-4		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	25	44	--	69	UC	Y
SS18-5		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	<15	<15	--	<20	NR	Y
SS18-6		**7/17/2018**		<0.005	<0.04	<0.01	<0.05	<3	<15	<15	<15	--	<20	NR	Y
Atlantic PIRI Tier I RBSLs[1]	**Agricultural**	**Potable**	**Coarse**	0.042	0.35	0.043	0.73	--	--	--	--	--	74/270/1,100	--	--
			Fine	0.094	0.74	0.089	1.5	--	--	--	--	--	1,900/4,700/10,000	--	--
		Non-potable	**Coarse**	0.099	77	30	8.8	--	--	--	--	--	74/270/1,100	--	--
			Fine	2.3	10,000	9,300	210	--	--	--	--	--	2,100/8,600,10,000	--	--
	Residential	**Potable**	**Coarse**	0.042	0.35	0.043	0.73	--	--	--	--	--	74/270/1,100	--	--
			Fine	0.094	0.74	0.089	1.5	--	--	--	--	--	1,900/4,700/10,000	--	--
		Non-potable	**Coarse**	0.099	77	30	9	--	--	--	--	--	74/270/1,100	--	--
			Fine	2.3	10,000	9,300	210	--	--	--	--	--	2,100/8,600,10,000	--	--
	Commercial	**Potable**	**Coarse**	0.042	0.35	0.043	0.73	--	--	--	--	--	870/1,800/10,000	--	--
			Fine	0.094	0.74	0.089	1.5	--	--	--	--	--	1,900/4,700/10,000	--	--
		Non-potable	**Coarse**	2.5	10,000	10,000	110.0	--	--	--	--	--	870/4,000/10,000	--	--
			Fine	33	10,000	10,000	10,000	--	--	--	--	--	10,000	--	--
	Industrial	**Potable**	**Coarse**	0.042	0.35	0.73	0.73	--	--	--	--	--	870/1,800/10,000	--	--
			Fine	0.094	0.74	1.5	1.5	--	--	--	--	--	1,900/4,700/10,000	--	--
		Non-potable	**Coarse**	2.5	10,000	110	110	--	--	--	--	--	870/4,000/10,000	--	--
			Fine	33	10,000	10,000	10,000	--	--	--	--	--	10,000	--	--
CCME SoQGs[2] (BTEX) and Canada Wide Standards[3] (PHCs)	**Agricultural**	**Surface**	**Coarse**	0.03 [a]	0.37	0.082	11	30	150	--	--	2,800	--	--	--
			Fine	0.00683 [a]	0.08	0.018	2.4	170	150	--	--	5,600	--	--	--
	Residential/ Parkland	**Surface**	**Coarse**	0.03 [a]	0.37	0.082	11	30	150	--	--	2,800	--	--	--
			Fine	0.00683 [a]	0.08	0.018	2.4	170	150	--	--	5,600	--	--	--
	Commercial/ Industrial	**Surface**	**Coarse**	0.03 [a]	0.37	0.082	11	240	260	--	--	3,300	--	--	--
			Fine	0.00683 [a]	0.08	0.018	2.4	170	230	--	--	6,600	--	--	--
Dredge Material Acceptance Criteria[5]			**Coarse**	0.03	0.37	0.082	11	240	260	--	--	3,300	--	--	--

Notes:

"--" denotes not guideline available; "NR" denotes no resemblance. "<" denotes parameter was not detected.

Bold values indicate concentrations exceed guidelines

1. Atlantic PIRI Tier I RBSLs (2015).
2. Candian SoQGs for the Protection of Environmental and Human Health.
3. Canada-Wide Standards (CWS) for PHC in Soil Technical Supplement January 2008.
4. For CWS the most conservative value was choosen from all exposure pathways.
5. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.

a. Denotes guideline value based on "10^{-5} Incremental Risk"

Table C.2: PAH Concentrations in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]						Dredge Material Acceptance Criteria[4]	Nepisiguit-Chaleur Solid Waste Commission Criteria[5]	Sample ID and Date		
					Human Health		Environmental Health								
							Soil Contact		Soil and Food Ingestion				SS18-01	SS18-02	SS18-03
			ISQGs[2]	PELs[2]	Potable Water	Direct Contact	Agricultural, Residential/ Parkland Land Uses	Commerical/ Industrial Land Uses	Agricultural, Residential/ Parkland Land Uses	Freshwater Life			7/17/2018	7/17/2018	7/17/2018
1-Methylnaphthalene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	mg/kg	--	0.0202	0.201	--	--	--	--	--	--	--	--	0.02	0.01	0.02
Acenaphthene	mg/kg	--	0.00671	0.0889	--	--	--	--	21.5	0.28	--	--	0.0236	0.0119	0.0241
Acenaphtylene	mg/kg	--	0.00578	0.128	--	--	--	--	--	320	--	--	0.12	< 0.004	< 0.004
Acridine	mg/kg	--	--	--	--	--	--	--	--	--	--	--	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	--	0.0469	0.245	--	--	2.5	32	61.5	--	32	--	0.35	0.03	0.05
Benzo(a)anthracene	mg/kg	--	0.0748	0.693	0.33	--	--	--	6.2	--	--	--	1.27	0.03	0.07
Benzo(a)pyrene	mg/kg	--	0.0888	0.763	0.37	--	20	72	0.6	8800	72	0.7	0.46	0.03	0.05
Benzo(b)fluoranthene	mg/kg	--	--	--	---	--	--	--	6.2	--	10	--	0.87	0.06	0.1
Benzo(b/j)fluoranthene	mg/kg	--	--	--	0.16	--	--	--	--	--	10	--	1.57	0.12	0.14
Benzo(e)pyrene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	0.96	< 0.05	0.06
Benzo(g,h,i)perylene	mg/kg	--	--	--	6.8	--	--	--	--	--		--	0.35	0.02	0.02
Benzo(k)fluroanthene	mg/kg	--	--	--	0.034	--	--	--	6.2	--	10	--	0.68	0.13	0.1
Chrysene	mg/kg	--	0.108	0.846	2.1	--	--	--	--	--	--	--	2.52	0.06	0.09
Dibenz(a,h)anthracene	mg/kg	--	0.00622	0.135	0.23	--	--	--	--	--	10	--	0.071	< 0.006	< 0.006
Fluoranthene	mg/kg	--	0.0113	1.494	--	--	50	180	15.4	--	180	--	6.76	0.09	0.31
Fluorene	mg/kg	--	0.0212	0.144	--	--	--	--	15.4	0.25	--	--	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	2.7	--	--	--	--	--	10	--	0.29	0.02	0.02
Naphthalene	mg/kg	--	0.0346	0.391	--	--	--	--	8.8	0.013	22	--	0.04	0.02	0.07
Perylene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	0.16	< 0.05	< 0.05
Phenanthrene	mg/kg	--	0.0687	0.544	--	--	--	--	43	0.046	50	--	0.26	0.03	0.05
Pyrene	mg/kg	--	0.153	1.398	--	--	--	--	7.7	--	100	--	4.26	0.06	0.19
Quinoline	mg/kg	--	--	--	--	--	--	--	--	--	--	--	< 0.05	< 0.05	< 0.05
Total PAH	mg/kg	2.5	--	--	--	--	--	--	--	--	--	--	14.1	0.6	1.0
IACR*	---	--	--	--	1	--	--	--	--	--	---	--	20.8	1.8	1.9
B(a)P TPE*	mg/kg	--	--	--	--	5.3	--	--	--	--	5.3	--	0.9	0.1	0.1
Creosote or Coal Tar source suspected/known?	Yes or No	--	--	--	--	--	--	--	--	--	--	--	No	No	No

Notes:

The CCME Sediment Quality Guidelines, Interim Sediment Quality Guidelines (ISQGs) and Marine and Estuarine Probable Effects Levels (PELs), as well as the CEPA Disposal at Sea Regulations are presented for reference only.

"--" denotes benchmarks not available or parameter not analyzed. "<" denotes parameter was not detected.

CEPA = Canadan Environmental Protection Act

PEL= Probable Effects Level

ISQG = Interim Sediment Quality Guideline

*The RDL was used in the calculation of B(a)P TPE and IACR, when a carcinogenic PAH soil concentration was <RDL. B(a)P TPE and IACR were calculated as indicated in CCME (2010).

BOLD values indicate exceedances.

Guidelines accessed August 2018.

1. *CEPA.* 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.
2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html
3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html
4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.
5. Nepisiguit-Chaleur Solid Waste Commission Acceptance Parameters for Petroleum Contaminated Soil.

Table C.2: PAH Concentrations in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]						Dredge Material Acceptance Criteria[4]	Nepisiguit-Chaleur Solid Waste Commission Criteria[5]	Sample ID and Date		
					Human Health		Environmental Health								
							Soil Contact		Soil and Food Ingestion				SS18-04	SS18-05	SS18-06
			ISQGs[2]	PELs[2]	Potable Water	Direct Contact	Agricultural, Residential/ Parkland Land Uses	Commerical/ Industrial Land Uses	Agricultural, Residential/ Parkland Land Uses	Freshwater Life			7/17/2018	7/17/2018	7/17/2018
1-Methylnaphthalene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	0.1	< 0.05	< 0.05
2-Methylnaphthalene	mg/kg	--	0.0202	0.201	--	--	--	--	--	--	--	--	0.09	0.03	< 0.01
Acenaphthene	mg/kg	--	0.00671	0.0889	--	--	--	--	21.5	0.28	--	--	0.0667	0.0133	< 0.00671
Acenaphtylene	mg/kg	--	0.00578	0.128	--	--	--	--	--	320	--	--	< 0.004	0.007	< 0.004
Acridine	mg/kg	--	--	--	--	--	--	--	--	--	--	--	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	--	0.0469	0.245	--	--	2.5	32	61.5	--	32	--	0.11	0.03	< 0.03
Benzo(a)anthracene	mg/kg	--	0.0748	0.693	0.33	--	--	--	6.2	--	--	--	0.07	0.04	< 0.01
Benzo(a)pyrene	mg/kg	--	0.0888	0.763	0.37	--	20	72	0.6	8800	72	0.7	0.05	0.03	< 0.01
Benzo(b)fluoranthene	mg/kg	--	--	--	---	--	--	--	6.2	--	10	--	0.14	0.08	< 0.05
Benzo(b/j)fluoranthene	mg/kg	--	--	--	0.16	--	--	--	--	--	10	--	0.23	0.09	< 0.05
Benzo(e)pyrene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	0.07	< 0.05	< 0.05
Benzo(g,h,i)perylene	mg/kg	--	--	--	6.8	--	--	--	--	--		--	0.03	0.02	< 0.01
Benzo(k)fluroanthene	mg/kg	--	--	--	0.034	--	--	--	6.2	--	10	--	0.13	0.05	< 0.01
Chrysene	mg/kg	--	0.108	0.846	2.1	--	--	--	--	--	--	--	0.09	0.05	< 0.01
Dibenz(a,h)anthracene	mg/kg	--	0.00622	0.135	0.23	--	--	--	--	--	10	--	< 0.006	< 0.006	< 0.006
Fluoranthene	mg/kg	--	0.0113	1.494	--	--	50	180	15.4	--	180	--	0.24	0.14	< 0.05
Fluorene	mg/kg	--	0.0212	0.144	--	--	--	--	15.4	0.25	--	--	0.08	0.02	< 0.01
Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	2.7	--	--	--	--	--	10	--	0.03	0.02	< 0.01
Naphthalene	mg/kg	--	0.0346	0.391	--	--	--	--	8.8	0.013	22	--	0.12	0.03	< 0.01
Perylene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	0.07	< 0.05	< 0.05
Phenanthrene	mg/kg	--	0.0687	0.544	--	--	--	--	43	0.046	50	--	0.17	0.04	< 0.03
Pyrene	mg/kg	--	0.153	1.398	--	--	--	--	7.7	--	100	--	0.16	0.09	< 0.05
Quinoline	mg/kg	--	--	--	--	--	--	--	--	--	--	--	< 0.05	< 0.05	< 0.05
Total PAH	mg/kg	2.5	--	--	--	--	--	--	--	--	--	--	1.3	0.6	< 0.5
IACR*	---	--	--	--	1	--	--	--	--	--	---	--	2.7	1.1	0.5
B(a)P TPE*	mg/kg	--	--	--	--	5.3	--	--	--	--	5.3	--	0.1	0.1	0.02
Creosote or Coal Tar source suspected/known?	Yes or No	--	--	--	--	--	--	--	--	--	--	--	No	No	No

Notes:

The CCME Sediment Quality Guidelines, Interim Sediment Quality Guidelines (ISQGs) and Marine and Estuarine Probable Effects Levels (PELs), as well as the CEPA Disposal at Sea Regulations are presented for reference only.

"--" denotes benchmarks not available or parameter not analyzed. "<" denotes parameter was not detected.

CEPA = Canadan Environmental Protection Act

PEL= Probable Effects Level

ISQG = Interim Sediment Quality Guideline

*The RDL was used in the calculation of B(a)P TPE and IACR, when a carcinogenic PAH soil concentration was <RDL. B(a)P TPE and IACR were calculated as indicated in CCME (2010).

BOLD values indicate exceedances.

Guidelines accessed August 2018.

1. *CEPA.* 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.
2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html
3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html
4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.
5. Nepisiguit-Chaleur Solid Waste Commission Acceptance Parameters for Petroleum Contaminated Soil.

Table C.3: PAH Concentrations in SPLP Leachate Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	Health Canada Guidelines for Drinking Water Quality[1]		CCME Water Quality Guidelines for the Protection of Aquatic Life[2]		CCME Water Quality Guidelines for the Protection of Agriculture[2]		Sample ID and Date
		Maximum Allowable Concentration	Aesthetic Objective	Freshwater	Marine	Irritigation	Livestock	SS18-1
								7/17/2018
1-Methylnaphthalene	ug/L	---	---	---	---	---	---	0.01
2-Methylnaphthalene	ug/L	---	---	---	---	---	---	0.01
Acenaphthene	ug/L	---	---	---	---	---	---	0.05
Acenaphthylene	ug/L	---	---	5.8	---	---	---	< 0.04
Anthracene	ug/L	---	---	0.012	---	---	---	< 0.03
Benzo(a)anthracene	ug/L	---	---	0.018	---	---	---	< 0.06
Benzo(a)pyrene	ug/L	0.4 [3]	---	0.015	---	---	---	< 0.03
Benzo(b)fluoranthene	ug/L	---	---	---	---	---	---	< 0.05
Benzo(ghi)perylene	ug/L	---	---	---	---	---	---	< 0.02
Benzo(k)fluoranthene	ug/L	---	---	---	---	---	---	< 0.04
Chrysene	ug/L	---	---	---	---	---	---	< 0.04
Dibenzo(a,h)anthracene	ug/L	---	---	---	---	---	---	< 0.03
Fluoranthene	ug/L	---	---	0.04	---	---	---	**0.06**
Fluorene	ug/L	---	---	3	---	---	---	0.03
Indeno(1,2,3-cd)pyrene	ug/L	---	---	---	---	---	---	< 0.04
Naphthalene	ug/L	---	---	1.1	1.4	---	---	0.03
Perylene	ug/L	---	---	---	---	---	---	< 0.05
Phenanthrene	ug/L	---	---	0.4	---	---	---	0.03
Pyrene	ug/L	---	---	0.025	---	---	---	**0.04**
Benzo(e)pyrene	ug/L	---	---	---	---	---	---	< 0.06

Notes:

"--" denotes benchmarks not available or parameter not analyzed.

BOLD values indicate exceedances.

Guidelines accessed July 2018.

1. Health Canada. 2017. Guidelines for Canadian Drinking Water Quality Summary Table.
2. CCME Water Quality Guidelines from CCME Summary table. http://st-ts.ccme.ca/en/index.html
3. Lifetime cancer risk of 10^{-5} applied to the guideline.

Table C.4: PAH Concentrations in TCLP Leachate Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	Health Canada Guidelines for Drinking Water Quality[1]		CCME Water Quality Guidelines for the Protection of Aquatic Life[2]		CCME Water Quality Guidelines for the Protection of Agriculture[2]		Sample ID and Date
		Maximum Allowable Concentration	Aesthetic Objective	Freshwater	Marine	Irritigation	Livestock	SS18-1
								7/17/2018
Naphthalene	mg/L	---	---	0.0011	0.0014	---	---	< 0.001
2-Methylnaphthalene	mg/L	---	---	---	---	---	---	< 0.001
1-Methylnaphthalene	mg/L	---	---	---	---	---	---	< 0.001
Acenaphthylene	mg/L	---	---	0.0058	---	---	---	< 0.001
Acenaphthene	mg/L	---	---	---	---	---	---	< 0.001
Fluorene	mg/L	---	---	0.003	---	---	---	< 0.001
Phenanthrene	mg/L	---	---	0.0004	---	---	---	< 0.001
Anthracene	mg/L	---	---	0.000012	---	---	---	< 0.001
Fluoranthene	mg/L	---	---	0.000004	---	---	---	< 0.001
Pyrene	mg/L	---	---	0.000025	---	---	---	< 0.001
Benzo(a)anthracene	mg/L	---	---	0.000018	---	---	---	< 0.001
Chrysene	mg/L	---	---	---	---	---	---	< 0.001
Benzo(b)fluoranthene	mg/L	---	---	---	---	---	---	< 0.001
Benzo(k)fluoranthene	mg/L	---	---	---	---	---	---	< 0.001
Benzo(a)pyrene	mg/L	0.0004 [3]	---	---	---	---	---	< 0.001
Indeno(1,2,3-c,d)pyrene	mg/L	---	---	---	---	---	---	< 0.001
Dibenzo(a,h)anthracene	mg/L	---	---	---	---	---	---	< 0.001
Benzo(g,h,i)perylene	mg/L	---	---	---	---	---	---	< 0.001

Notes:

"--" denotes benchmarks not available or parameter not analyzed.

BOLD values indicate exceedances.

Guidelines accessed July 2018.

1. Health Canada. 2017. Guidelines for Canadian Drinking Water Quality Summary Table.
2. CCME Water Quality Guidelines from CCME Summary table. http://st-ts.ccme.ca/en/index.html
3. Lifetime cancer risk of 10^{-5} applied to the guideline.

Table C.5: Metal Concentrations in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]			Dredge Material Acceptance Criteria[4]	Nepisiguit-Chaleur Solid Waste Commission Criteria[5]	Sample ID and Date					
			ISQGs[2]	PELs[2]	Agricultural	Residential/ Parkland	Commercial/ Industrial			SS18-01	SS18-02	SS18-03	SS18-04	SS18-05	SS18-06
										7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
Aluminum	mg/kg	--	--	--	--	--	--	--	--	16700	16000	12700	12300	12500	5040
Antimony	mg/kg	--	--	--	20	20	40	40	--	<1	<1	<1	<1	<1	<1
Arsenic	mg/kg	--	7.24	41.6	17	17	26	26	12	8	9	7	8	9	4
Barium	mg/kg	--	--	--	750	500	2000	2000	2000	189	179	162	149	197	29
Beryllium	mg/kg	--	--	--	4	4	8	8	--	<2	<2	<2	<2	<2	<2
Boron	mg/kg	--	--	--	--	--	--	--	--	41	38	23	86	22	2
Boron HWS	mg/kg	--	--	--	2	--	--	--	--	12.4	9.99	9.95	20.9	9.06	1.43
Cadmium	mg/kg	0.6	0.7	4.2	1.4	10	22	22	22	0.5	0.6	<0.3	0.5	0.3	<0.3
Chromium	mg/kg	--	52.3	160	64	64	87	87	87	35	31	22	23	23	8
Chromium (VI)	mg/kg	--	--	--	0.4	0.4	1.4	--	--	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Cobalt	mg/kg	--	--	--	40	50	300	300	--	15	14	10	10	10	4
Copper	mg/kg	--	18.7	108	63	63	91	91	--	25	23	18	20	16	3
Iron	mg/kg	--	--	--	--	--	--	--	--	32100	31700	22400	23500	21700	9220
Lead	mg/kg	--	30.2	112	70	140	260	260	260	24	24	16.1	18.2	14.3	3.1
Lithium	mg/kg	--	--	--	--	--	--	--	--	28	27	21	20	21	10
Manganese	mg/kg	--	--	--	--	--	--	--	--	413	426	250	306	233	179
Mercury	mg/kg	0.75	0.13	0.7	6.6	6.6	24	24	24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum	mg/kg	--	--	--	5	10	40	40	--	5	5	3	5	3	<2
Nickel	mg/kg	--	--	--	45	45	89	89	50	34	31	22	23	22	8
Selenium	mg/kg	--	--	--	1	1	2.9	2.9	3.9	2	2	1	2	1	<1
Silver	mg/kg	--	--	--	20	20	40	40	40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	mg/kg	--	--	--	--	--	--	--	--	42	45	21	55	22	5
Thallium	mg/kg	--	--	--	1	1	1	1	--	0.2	0.2	0.1	<0.1	0.1	<0.1
Tin	mg/kg	--	--	--	5	50	300	300	--	3	3	3	3	3	3
Uranium	mg/kg	--	--	--	23	23	33	33	--	1.3	1.5	1.1	1.4	1.1	0.1
Vanadium	mg/kg	--	--	--	130	130	130	130	--	48	46	33	39	34	14
Zinc	mg/kg	--	124	271	200	200	360	360	--	85	84	62	69	63	23
Sodium Adsorption Ratio	--	--	--	--	5	5	12	12	--	48	38.3	36	72.2	33.2	15.7
Conductivity	uS/cm	--	--	--	2000	2000	4000	4000	--	18400	10900	17100	51400	14200	4570
pH	--	--	--	--	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8	8.09	7.84	7.34	7.61	7.38	8.1

Notes:
The CCME Sediment Quality Guidelines, Interim Sediment Quality Guidelines (ISQGs) and Marine and Estuarine Probable Effects Levels
"--" denotes benchmarks not available or parameter not analyzed. "<" denotes parameter was not detected.
CEPA = Canadan Environmental Protection Act
PEL= Probable Effects Level
ISQG = Interim Sediment Quality Guideline
BOLD values indicate exceedances.
Guidelines accessed July 2018.
1. *CEPA*. 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.
2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html
3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html
4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.

Table C.6: PCB and DDT Concentrations in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]			Dredge Material Acceptance Criteria[4]	Sample ID and Date					
			ISQGs[2]	PELs[2]	Agricultural	Residential/ Parkland	Commercial/ Industrial		SS18-01	SS18-02	SS18-03	SS18-04	SS18-05	SS18-06
									7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
Total PCB	mg/kg	0.1	0.0215	0.189	0.5	1.3	33	33	<0.0215	<0.0215	<0.0215	<0.0215	<0.0215	<0.0215
Dieldrin	mg/kg	--	0.00071	0.00667	--	--	--	--	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
o,p-DDD	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o,p-DDE	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o,p-DDT	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDD	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDE	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDT	mg/kg	--	--	--	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o,p-DDT + p,p-DDT	mg/kg	--	0.00119	0.00477	0.7	0.7	12	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o,p-DDD + p,p-DDD	mg/kg	--	0.00122	0.00781	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
o,p-DDE + p,p-DDE	mg/kg	--	0.00207	0.374	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total DDT	mg/kg								<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:

The CCME Sediment Quality Guidelines, ISQGs and Marine and Estuarine PELs, as well as the CEPA Disposal at Sea Regulations are presented for reference only.

"--" denotes benchmarks not available or parameter not analyzed.

CEPA = Canadan Environmental Protection Act

PEL= Probable Effects Level

ISQG = Interim Sediment Quality Guideline

BOLD values indicate exceedances.

Guidelines accessed July 2018.

1. *CEPA.* 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.
2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html
3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html
4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.

Table C.7: Grain Size, TIC and TOC in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]			Dredge Material Acceptance Criteria[4]	Sample ID and Date					
			ISQGs[2]	PELs[2]	Agricultural	Residential/ Parkland	Commercial/ Industrial		SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
									7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
< -4 Phi (<12.5 mm)	%	--	--	--	--	--	--	--	100	100	100	100	100	100
< -3 Phi (<9.5 mm)	%	--	--	--	--	--	--	--	100	100	100	100	100	100
< -2 Phi (<4.75 mm)	%	--	--	--	--	--	--	--	100	100	99	100	100	100
< -1 Phi (2 mm)	%	--	--	--	--	--	--	--	100	100	98.1	98.8	99.6	99.9
< 0 Phi (1 mm)	%	--	--	--	--	--	--	--	100	99	98	98	99.4	99.7
< +1 Phi (0.5 mm)	%	--	--	--	--	--	--	--	99	98	97	97	99	99
< +2 Phi (0.25 mm)	%	--	--	--	--	--	--	--	96	93	87	90	95	29.3
< +3 Phi (0.12 mm)	%	--	--	--	--	--	--	--	91.8	82	62.9	79.3	59.7	12.9
< +4 Phi (0.062 mm)	%	--	--	--	--	--	--	--	83.4	74	53.1	70.6	46.4	12.3
< +5 Phi (0.031 mm)	%	--	--	--	--	--	--	--	70.9	69	47.1	65.2	40.3	12
< +6 Phi (0.016 mm)	%	--	--	--	--	--	--	--	35.9	50	36.7	51.4	32.3	11.5
< +7 Phi (0.0078 mm)	%	--	--	--	--	--	--	--	27.7	34	28.4	39.6	27.3	11.5
< +8 Phi (0.0039 mm)	%	--	--	--	--	--	--	--	26.3	29	24.1	37	23.7	11.5
< +9 Phi (0.0020 mm)	%	--	--	--	--	--	--	--	23.1	26	20.2	32.4	19.7	11.4
Gravel	%	--	--	--	--	--	--	--	<1	<1	2	1	<1	<1
Sand	%	--	--	--	--	--	--	--	17	26	45	28	53	88
Silt	%	--	--	--	--	--	--	--	57	45	29	34	23	<1
Clay	%	--	--	--	--	--	--	--	26	29	24	37	24	12
Particles >75um	%	--	--	--	--	--	--	--	14	24	44	27	50	88
Classification	--	--	--	--	--	--	--	--	Fine	Fine	Fine	Fine	Coarse	Coarse
Moisture	%	--	--	--	--	--	--	--	50	48	46	71	42	30
TIC	%	--	--	--	--	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
TOC	%	--	--	--	--	--	--	--	4	3	2.7	8.1	2	<0.3

Notes:
"--" denotes benchmarks not available parameter not analyzed."<" denotes parameter was not detected.
Guidelines accessed August 2018.

1. *CEPA*. 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.
2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html
3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html
4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.

Table C.8: Glycol Concentrations in in Sediment, Anse-Bleue SCH (SCH No. 2502), NB.

Parameter	Units	*CEPA* Disposal at Sea Regulations[1]	CCME Sediment		CCME SoQGs[3]			Dredge Material Acceptance Criteria[4]	Sample ID and Date					
			ISQGs[2]	PELs[2]	Agricultural	Residential/ Parkland	Commercial/ Industrial		SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
									7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018	7/17/2018
Ethylene Glycol	mg/kg	---	---	---	960	960	960	---	<10	<10	<10	<10	<10	<10
Diethylene Glycol	mg/kg	---	---	---	---	---	---	---	<10	<10	<10	<10	<10	<10
Triethylene Glycol	mg/kg	---	---	---	---	---	---	---	<10	<10	<10	<10	<10	<10
Tetraethylene Glycol	mg/kg	---	---	---	---	---	---	---	<10	<10	<10	<10	<10	<10
Propylene Glycol	mg/kg	---	---	---	---	---	---	---	<10	<10	<10	<10	<10	<10

Notes:

"--" denotes benchmarks not available or parameter not analyzed.

CEPA = Canadan Environmental Protection Act

PEL= Probable Effects Level

ISQG = Interim Sediment Quality Guideline

BOLD values indicate exceedances.

Guidelines accessed July 2018.

1. *CEPA.* 1999 (amended 2014). Disposal at Sea Regualtions. Table Lower Level.

2. CCME Sediment ISQ and PEL Guidelines from CCME Sumamry table. http://st-ts.ccme.ca/en/index.html

3. CCME SoQGs from CCME Summary table. http://st-ts.ccme.ca/en/index.html

4. Loggies Pit Environmental Management Plan (2016). Table 2-1: Dredge Material Acceptance Criteria.

APPENDIX D

LABORATORY ANALYTICAL CERTIFICATES

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AGAT WORK ORDER: 18X364330

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TRACE ORGANICS REVIEWED BY: Amy Hunter, Trace Organics Supervisor, B.Sc.

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PAGES (INCLUDING COVER): 31

VERSION*: 3

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*NOTES

VERSION 3:This report supersedes all previous reports and includes the additional F4 gravimetric, SPLP and TCLP PAHs analysis requested.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Available Metals & Hg in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Aluminum	mg/kg		10	16700	16000	12700	12300	12500	5040
Antimony	mg/kg		1	<1	<1	<1	<1	<1	<1
Arsenic	mg/kg		1	8	9	7	8	9	4
Barium	mg/kg		5	189	179	162	149	197	29
Beryllium	mg/kg		2	<2	<2	<2	<2	<2	<2
Boron	mg/kg		2	41	38	23	86	22	2
Cadmium	mg/kg		0.3	0.5	0.6	<0.3	0.5	0.3	<0.3
Chromium	mg/kg		2	35	31	22	23	23	8
Cobalt	mg/kg		1	15	14	10	10	10	4
Copper	mg/kg		2	25	23	18	20	16	3
Iron	mg/kg		50	32100	31700	22400	23500	21700	9220
Lead	mg/kg		0.5	24.0	24.0	16.1	18.2	14.3	3.1
Lithium	mg/kg		5	28	27	21	20	21	10
Manganese	mg/kg		2	413	426	250	306	233	179
Molybdenum	mg/kg		2	5	5	3	5	3	<2
Nickel	mg/kg		2	34	31	22	23	22	8
Selenium	mg/kg		1	2	2	1	2	1	<1
Silver	mg/kg		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	mg/kg		5	42	45	21	55	22	5
Thallium	mg/kg		0.1	0.2	0.2	0.1	<0.1	0.1	<0.1
Tin	mg/kg		2	3	3	3	3	3	3
Uranium	mg/kg		0.1	1.3	1.5	1.1	1.4	1.1	0.1
Vanadium	mg/kg		2	48	46	33	39	34	14
Zinc	mg/kg		5	85	84	62	69	63	23
Mercury	mg/kg		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 Results are based on the dry weight of the sample.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Analyses Inorganiques (sol)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

						SAMPLE DESCRIPTION:	SS18-1	SS18-2	SS18-3	SS18-4	SS18-5
						SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil
						DATE SAMPLED:	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S: A	G / S: B	G / S: C	G / S: D	RDL	9414196	9414197	9414198	9414199	9414200
Carbone organique total	%					0.3	4.0	3.1	2.7	8.1	2.0
Total inorganic Carbon (Montreal)	%					0.3	<0.3	<0.3	<0.3	<0.3	<0.3

						SAMPLE DESCRIPTION:	SS18-6	
						SAMPLE TYPE:	Soil	
						DATE SAMPLED:	2018-07-17	
Parameter	Unit	G / S: A	G / S: B	G / S: C	G / S: D	RDL	9414201	
Carbone organique total	%					0.3	<0.3	
Total inorganic Carbon (Montreal)	%					0.3	<0.3	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Basses-Terres du St-Laurent, B Refers to QC PTC 2016 B, C Refers to QC PTC 2016 C, D Refers to QC RESC (Annexe 1)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9414196 Une LDR plus élevée indique qu'une dilution a été effectuée afin de réduire la concentration des analytes ou de réduire l'interférence de la matrice.
Une différence de 22% entre COT et Carbone total. L'analyse des deux paramètres a été refaite une 2e fois.

9414197-9414201 Une LDR plus élevée indique qu'une dilution a été effectuée afin de réduire la concentration des analytes ou de réduire l'interférence de la matrice.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Grain Size Analysis (Sieve & Pipette)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Particle Size Distribution (<12.5mm, -4 PHI)	%		0.1	100	100	100	100	100	100
Particle Size Distribution (<9.5mm, -3 PHI)	%		0.1	100	100	100	100	100	100
Particle Size Distribution (<4.75mm, -2 PHI	%		0.1	100	100	98.6	100	100	100
Particle Size Distribution (<2mm, -1 PHI)	%		0.1	99.9	99.6	98.1	98.8	99.6	99.9
Particle Size Distribution (<1mm, 0 PHI)	%		0.1	99.8	99.2	97.7	98.1	99.4	99.7
Particle Size Distribution (<1/2mm, 1 PHI)	%		0.1	99.2	98.3	96.7	96.7	98.9	98.9
Particle Size Distribution (<1/4mm, 2 PHI)	%		0.1	96.4	93.1	87.2	89.8	94.6	29.3
Particle Size Distribution (<1/8mm, 3 PHI)	%		0.1	91.8	81.8	62.9	79.3	59.7	12.9
Particle Size Distribution (<1/16mm, 4 PHI)	%		0.1	83.4	73.6	53.1	70.6	46.4	12.3
Particle Size Distribution (<1/32mm, 5 PHI)	%		0.1	70.9	69.3	47.1	65.2	40.3	12.0
Particle Size Distribution (<1/64mm, 6 PHI)	%		0.1	35.9	50.0	36.7	51.4	32.3	11.5
Particle Size Distribution (<1/128mm, 7 PHI)	%		0.1	27.7	34.2	28.4	39.6	27.3	11.5
Particle Size Distribution (<1/256mm, 8 PHI)	%		0.1	26.3	29.1	24.1	37.0	23.7	11.5
Particle Size Distribution (<1/512mm, 9 PHI)	%		0.1	23.1	26.0	20.2	32.4	19.7	11.4
Particle Size Distribution (Gravel)	%		1	<1	<1	2	1	<1	<1
Particle Size Distribution (Sand)	%		1	17	26	45	28	53	88
Particle Size Distribution (Silt)	%		1	57	45	29	34	23	<1
Particle Size Distribution (Clay)	%		1	26	29	24	37	24	12
Particles >75um	%		1	14	24	44	27	50	88
Classification	Coarse/Fine			Fine	Fine	Fine	Fine	Coarse	Coarse

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Grain Size Analysis (Sieve & Pipette)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Hexavalent Chromium in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Chromium, Hexavalent	mg/kg		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Inorganic Chemistry (Soil)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Boron (Hot Water Soluble)	µg/g		0.10	12.4	9.99	9.95	20.9	9.06	1.43
Electrical Conductivity	mS/cm		0.005	18.4	10.9	17.1	51.4	14.2	4.57
Sodium Adsorption Ratio	NA		NA	48.0	38.3	36.0	72.2	33.2	15.7

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

pH in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
pH				8.09	7.84	7.34	7.61	7.38	8.10

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Polycyclic Aromatic Hydrocarbons in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
1-Methylnaphthalene	mg/kg		0.05	<0.05	<0.05	<0.05	0.10	<0.05	<0.05
2-Methylnaphthalene	mg/kg		0.02	0.02	<0.02	0.02	0.09	0.03	<0.02
Acenaphthene	mg/kg		0.00671	0.0236	0.0119	0.0241	0.0667	0.0133	<0.00671
Acenaphthylene	mg/kg		0.005	0.120	<0.005	<0.005	<0.005	0.007	<0.005
Acridine	mg/Kg		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	mg/kg		0.03	0.35	0.03	0.05	0.11	0.03	<0.03
Benzo(a)anthracene	mg/kg		0.01	1.27	0.03	0.07	0.07	0.04	<0.01
Benzo(a)pyrene	mg/kg		0.01	0.46	0.03	0.05	0.05	0.03	<0.01
Benzo(b)fluoranthene	mg/kg		0.05	0.87	0.06	0.10	0.14	0.08	<0.05
Benzo(b+j)fluoranthene	mg/kg		0.1	1.57	0.12	0.14	0.23	<0.1	<0.1
Benzo(e)pyrene	mg/kg		0.05	0.96	<0.05	0.06	0.07	<0.05	<0.05
Benzo(ghi)perylene	mg/kg		0.01	0.35	0.02	0.02	0.03	0.02	<0.01
Benzo(k)fluoranthene	mg/kg		0.01	0.68	0.13	0.10	0.13	0.05	<0.01
Chrysene	mg/kg		0.01	2.52	0.06	0.09	0.09	0.05	<0.01
Dibenzo(a,h)anthracene	mg/kg		0.006	0.071	<0.006	<0.006	<0.006	<0.006	<0.006
Fluoranthene	mg/kg		0.05	6.76	0.09	0.31	0.24	0.14	<0.05
Fluorene	mg/kg		0.01	0.03	0.03	0.03	0.08	0.02	<0.01
Indeno(1,2,3)pyrene	mg/kg		0.01	0.29	0.02	0.02	0.03	0.02	<0.01
Naphthalene	mg/kg		0.01	0.04	0.02	0.07	0.12	0.03	<0.01
Perylene	mg/kg		0.05	0.16	<0.05	<0.05	0.07	<0.05	<0.05
Phenanthrene	mg/kg		0.03	0.26	0.03	0.05	0.17	0.04	<0.03
Pyrene	mg/kg		0.05	4.26	0.06	0.19	0.16	0.09	<0.05
Quinoline	mg/Kg		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total PAH	mg/Kg		0.5	14.1	0.6	1.0	1.3	0.6	<0.5
Surrogate	Unit	Acceptable Limits							
Nitrobenzene-d5	%	50-140		88	84	100	96	99	104
2-Fluorobiphenyl	%	50-140		98	85	101	91	93	96
Terphenyl-d14	%	50-140		92	78	97	95	94	90

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Polycyclic Aromatic Hydrocarbons in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 Results are based on the dry weight of the soil.
Benzo(b)fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Total Polychlorinated Biphenyls

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Total Polychlorinated Biphenyls	mg/kg		0.0215	<0.0215	<0.0215	<0.0215	<0.0215	<0.0215	<0.0215

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 Results are based on the dry weight of the soil.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Atlantic RBCA Tier 1 Hydrocarbons in Soil (Version 3.1) - Field Preserved - Low Level + 1X Silica Gel + Cre

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

				SAMPLE DESCRIPTION:	SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
				SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
				DATE SAMPLED:	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL		9414196	9414197	9414198	9414199	9414200	9414201
Benzene	mg/kg		0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	mg/kg		0.04		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	mg/kg		0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylene (Total)	mg/kg		0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C6-C10 (less BTEX)	mg/kg		3		<3	<3	<3	<3	<3	<3
>C10-C16 Hydrocarbons	mg/kg		15		<15	<15	<15	<15	<15	<15
>C16-C21 Hydrocarbons	mg/kg		15		<15	<15	<15	25	<15	<15
>C21-C32 Hydrocarbons	mg/kg		15		41	21	22	44	<15	<15
Modified TPH (Tier 1)	mg/kg		20		41	21	22	69	<20	<20
Resemblance Comment					UC	UC	UC	UC	NR	NR
Return to Baseline at C32					Y	N	Y	Y	Y	Y
Silica Gel Cleanup					Y	Y	Y	Y	Y	Y
Creosote Comment					N	N	N	N	N	N
Surrogate	Unit	Acceptable Limits								
Isobutylbenzene - EPH	%	60-140			96	87	99	87	95	80
Isobutylbenzene - VPH	%	60-140			108	67	69	72	92	70
n-Dotriacontane - EPH	%	60-140			113	105	116	110	110	98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 Results are based on the dry weight of the soil.

Resemblance Comment Key:
GF - Gasoline Fraction
WGF - Weathered Gasoline Fraction
GR - Product in Gasoline Range
FOF - Fuel Oil Fraction
WFOF - Weathered Fuel Oil Fraction
FR - Product in Fuel Oil Range
LOF - Lube Oil Fraction
LR - Lube Range
UC - Unidentified Compounds
NR - No Resemblance
NA - Not Applicable

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

DDT in Soil

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Dieldrin	µg/kg		0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
o,p'-DDD	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o,p'-DDE	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o,p'-DDT	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p,p'-DDD	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p,p'-DDE	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p,p'-DDT	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o,p'-DDT + p,p'-DDT	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o,p'-DDD + p,p'-DDD	ug/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o,p'-DDE + p,p'-DDE	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total DDT	µg/kg		1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Glycols (sol)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
Éthylène glycol	mg/Kg		10	<10	<10	<10	<10	<10	<10
Diéthylène Glycol	mg/Kg		10	<10	<10	<10	<10	<10	<10
Triéthylène Glycol	mg/Kg		10	<10	<10	<10	<10	<10	<10
Tétraéthylène Glycol	mg/Kg		10	<10	<10	<10	<10	<10	<10
Propylène Glycol	mg/Kg		10	<10	<10	<10	<10	<10	<10
Surrogate	Unit	Acceptable Limits							
Heptanol	%	40-140		92	96	92	95	99	108

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196-9414201 Une LDR plus élevée indique qu'une dilution a été effectuée afin de réduire la concentration des analytes ou de réduire l'interférence de la matrice.

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Moisture

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

SAMPLE DESCRIPTION:				SS18-1	SS18-2	SS18-3	SS18-4	SS18-5	SS18-6
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9414196	9414197	9414198	9414199	9414200	9414201
% Moisture	%			50	48	46	71	42	30

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Polyaromatic Hydrocarbons Analysis - Leachate

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2018-07-17
Parameter	Unit	G / S	RDL	9414196
Naphthalene - Leachable	mg/L		0.001	<0.001
2-Methylnaphthalene - Leachable	mg/L		0.001	<0.001
1-Methylnaphthalene - Leachable	mg/L		0.001	<0.001
Acenaphthylene - Leachable	mg/L		0.001	<0.001
Acenaphthene - Leachable	mg/L		0.001	<0.001
Fluorene - Leachable	mg/L		0.001	<0.001
Phenanthrene - Leachable	mg/L		0.001	<0.001
Anthracene - Leachable	mg/L		0.001	<0.001
Fluoranthene - Leachable	mg/L		0.001	<0.001
Pyrene - Leachable	mg/L		0.001	<0.001
Benzo(a)anthracene - Leachable	mg/L		0.001	<0.001
Chrysene - Leachable	mg/L		0.001	<0.001
Benzo(b)fluoranthene - Leachable	mg/L		0.001	<0.001
Benzo(k)fluoranthene - Leachable	mg/L		0.001	<0.001
Benzo(a)pyrene - Leachable	mg/L		0.001	<0.001
Indeno(1,2,3-c,d)pyrene - Leachable	mg/L		0.001	<0.001
Dibenzo(a,h)anthracene - Leachable	mg/L		0.001	<0.001
Benzo(g,h,i)perylene - Leachable	mg/L		0.001	<0.001
Surrogate	Unit	Acceptable Limits		
Naphthalene - d8	%	50-130		91
2-Fluorobiphenyl	%	50-130		90
P-Terphenyl - d14	%	60-130		76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196 Analysis based on "as received"
Analysis performed by AGAT Burnaby.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Polycyclic Aromatic Hydrocarbons in SPLP Leachate

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2018-07-17
Parameter	Unit	G / S	RDL	9414196
1-Methylnaphthalene	ug/L		0.01	0.01
2-Methylnaphthalene	ug/L		0.01	0.01
Acenaphthene	ug/L		0.04	0.05
Acenaphthylene	ug/L		0.04	<0.04
Anthracene	ug/L		0.03	<0.03
Benzo(a)anthracene	ug/L		0.06	<0.06
Benzo(a)pyrene	ug/L		0.03	<0.03
Benzo(b)fluoranthene	ug/L		0.05	<0.05
Benzo(ghi)perylene	ug/L		0.02	<0.02
Benzo(k)fluoranthene	ug/L		0.04	<0.04
Chrysene	ug/L		0.04	<0.04
Dibenzo(a,h)anthracene	ug/L		0.03	<0.03
Fluoranthene	ug/L		0.03	0.06
Fluorene	ug/L		0.01	0.03
Indeno(1,2,3-cd)pyrene	ug/L		0.04	<0.04
Naphthalene	ug/L		0.01	0.03
Perylene	ug/L		0.05	<0.05
Phenanthrene	ug/L		0.02	0.03
Pyrene	ug/L		0.01	0.04
Benzo(e)pyrene	ug/L		0.06	<0.06
Surrogate	Unit	Acceptable Limits		
Nitrobenzene-d5	%	50-140		99
2-Fluorobiphenyl	%	50-140		93
Terphenyl-d14	%	50-140		109

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

9414196 Benzo(b)fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

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Certificate of Analysis

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

CLIENT NAME: DILLON CONSULTING LTD

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

TOG (Soil)

DATE RECEIVED: 2018-07-20

DATE REPORTED: 2018-08-14

		SAMPLE DESCRIPTION:		SS18-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2018-07-17
Parameter	Unit	G / S	RDL	9414197
Total Oil and Grease	µg/g		50	1450

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD
AGAT WORK ORDER: 18X364330
PROJECT: 18-8026 Anse-Bleue SCH
ATTENTION TO: Shawn Forster
SAMPLING SITE:
SAMPLED BY:

Soil Analysis

RPT Date: Aug 14, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Available Metals & Hg in Soil															
Aluminum	9414201	9414201	5040	4690	7.2%	< 10	109%	80%	120%	101%	80%	120%	116%	70%	130%
Antimony	9414201	9414201	<1	<1	NA	< 1	80%	80%	120%	107%	80%	120%	81%	70%	130%
Arsenic	9414201	9414201	4	4	NA	< 1	99%	80%	120%	96%	80%	120%	99%	70%	130%
Barium	9414201	9414201	29	14	NA	< 5	105%	80%	120%	107%	80%	120%	117%	70%	130%
Beryllium	9414201	9414201	<2	<2	NA	< 2	98%	80%	120%	103%	80%	120%	108%	70%	130%
Boron	9414201	9414201	2	2	NA	< 2	96%	80%	120%	99%	80%	120%	116%	70%	130%
Cadmium	9414201	9414201	<0.3	<0.3	NA	< 0.3	95%	80%	120%	95%	80%	120%	97%	70%	130%
Chromium	9414201	9414201	8	8	NA	< 2	96%	80%	120%	101%	80%	120%	107%	70%	130%
Cobalt	9414201	9414201	4	4	NA	< 1	92%	80%	120%	95%	80%	120%	100%	70%	130%
Copper	9414201	9414201	2	2	NA	< 2	97%	80%	120%	94%	80%	120%	98%	70%	130%
Iron	9414201	9414201	9220	8990	2.5%	< 50	95%	80%	120%	93%	80%	120%	103%	70%	130%
Lead	9414201	9414201	3.1	3.0	3.3%	< 0.5	109%	80%	120%	108%	80%	120%	102%	70%	130%
Lithium	9414201	9414201	10	9	NA	< 5	96%	70%	130%	98%	70%	130%	102%	70%	130%
Manganese	9414201	9414201	179	176	1.7%	< 2	107%	80%	120%	106%	80%	120%	100%	70%	130%
Molybdenum	9414201	9414201	<2	<2	NA	< 2	93%	80%	120%	96%	80%	120%	100%	70%	130%
Nickel	9414201	9414201	8	7	NA	< 2	90%	80%	120%	95%	80%	120%	98%	70%	130%
Selenium	9414201	9414201	<1	<1	NA	< 1	102%	80%	120%	103%	80%	120%	92%	70%	130%
Silver	9414201	9414201	<0.5	<0.5	NA	< 0.5	96%	80%	120%	101%	80%	120%	98%	70%	130%
Strontium	9414201	9414201	5	5	NA	< 5	108%	80%	120%	108%	80%	120%	110%	70%	130%
Thallium	9414201	9414201	<0.1	<0.1	NA	< 0.1	102%	80%	120%	102%	80%	120%	70%	70%	130%
Tin	9414201	9414201	3	3	NA	< 2	91%	80%	120%	96%	80%	120%	98%	70%	130%
Uranium	9414201	9414201	0.1	0.1	NA	< 0.1	99%	80%	120%	99%	80%	120%	96%	70%	130%
Vanadium	9414201	9414201	14	14	1.8%	< 2	94%	80%	120%	98%	80%	120%	105%	70%	130%
Zinc	9414201	9414201	23	21	NA	< 5	92%	80%	120%	94%	80%	120%	94%	70%	130%
Mercury	1	9414201	<0.05	<0.05	NA	< 0.05	86%	70%	130%	NA	70%	130%	72%	70%	130%
Hexavalent Chromium in Soil															
Chromium, Hexavalent	1	9414196	<0.4	<0.4	NA	< 0.4	96%	80%	120%	99%	80%	120%			
pH in Soil															
pH	1	9414196	8.09	8.15	0.7%	<	100%	80%	120%						
Analyses Inorganiques (sol)															
Carbone organique total	9414196		4.0	4.1	2.5%	< 0.3	95%	80%	120%	NA	80%	120%	NA	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Aug 14, 2018			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Inorganic Chemistry (Soil)															
Boron (Hot Water Soluble)	9414196	9414196	12.4	13.0	4.4%	< 0.10	103%	60%	140%	88%	70%	130%	92%	60%	140%
Electrical Conductivity	9414196	9414196	18.4	18.4	0.2%	< 0.005	96%	90%	110%						
Sodium Adsorption Ratio	9414196	9414196	48.0	48.0	0.1%	NA									

Comments: NA : Non applicable

NA dans l'écart du duplicata indique que l'écart n'a pu être calculé car l'un ou les deux résultats sont < 5x LDR.

NA dans le pourcentage de récupération de l'échantillon fortifié indique que le résultat n'est pas fourni en raison de l'hétérogénéité de l'échantillon ou de la concentration trop élevée par rapport à l'ajout.

NA dans le blanc fortifié ou le MRC indique qu'il n'est pas requis par la procédure.

Le pourcentage de récupération du MRC peut être en dehors du critère d'acceptabilité de 80-120%, s'il est conforme à l'écart du certificat du matériau de référence.

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD
AGAT WORK ORDER: 18X364330
PROJECT: 18-8026 Anse-Bleue SCH
ATTENTION TO: Shawn Forster
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Aug 14, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Polycyclic Aromatic Hydrocarbons in Soil															
1-Methylnaphthalene	1	9414196	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	89%	50%	140%	NA	50%	140%
2-Methylnaphthalene	1	9414196	0.02	0.02	NA	< 0.02	91%	50%	140%	88%	50%	140%	NA	50%	140%
Acenaphthene	1	9414196	0.0236	0.0266	NA	< 0.00671	92%	50%	140%	87%	50%	140%	NA	50%	140%
Acenaphthylene	1	9414196	0.120	0.129	7.2%	< 0.005	78%	50%	140%	74%	50%	140%	NA	50%	140%
Acridine	1	9414196	< 0.05	< 0.05	NA	< 0.05	54%	50%	140%	56%	50%	140%	NA	50%	140%
Anthracene	1	9414196	0.35	0.38	8.2%	< 0.03	77%	50%	140%	66%	50%	140%	NA	50%	140%
Benzo(a)anthracene	1	9414196	1.27	1.45	13.2%	< 0.01	78%	50%	140%	71%	50%	140%	NA	50%	140%
Benzo(a)pyrene	1	9414196	0.46	0.52	12.2%	< 0.01	67%	50%	140%	53%	50%	140%	NA	50%	140%
Benzo(b)fluoranthene	1	9414196	0.87	0.86	1.2%	< 0.05	79%	50%	140%	81%	50%	140%	NA	50%	140%
Benzo(b+j)fluoranthene	1	9414196	1.57	1.59	1.3%	< 0.1	75%	50%	140%	71%	50%	140%	NA	50%	140%
Benzo(e)pyrene	1	9414196	0.96	0.96	0.0%	< 0.05	102%	50%	140%	99%	50%	140%	NA	50%	140%
Benzo(ghi)perylene	1	9414196	0.35	0.34	2.9%	< 0.01	69%	50%	140%	62%	50%	140%	NA	50%	140%
Benzo(k)fluoranthene	1	9414196	0.68	0.75	9.8%	< 0.01	102%	50%	140%	75%	50%	140%	NA	50%	140%
Chrysene	1	9414196	2.52	2.62	3.9%	< 0.01	88%	50%	140%	83%	50%	140%	NA	50%	140%
Dibenzo(a,h)anthracene	1	9414196	0.071	0.097	31.0%	< 0.006	81%	50%	140%	83%	50%	140%	NA	50%	140%
Fluoranthene	1	9414196	6.76	7.11	5.0%	< 0.05	82%	50%	140%	74%	50%	140%	NA	50%	140%
Fluorene	1	9414196	0.03	0.05	NA	< 0.01	84%	50%	140%	76%	50%	140%	NA	50%	140%
Indeno(1,2,3)pyrene	1	9414196	0.29	0.30	3.4%	< 0.01	62%	50%	140%	75%	50%	140%	NA	50%	140%
Naphthalene	1	9414196	0.04	0.04	NA	< 0.01	94%	50%	140%	91%	50%	140%	NA	50%	140%
Perylene	1	9414196	0.16	0.13	NA	< 0.05	85%	50%	140%	81%	50%	140%	NA	50%	140%
Phenanthrene	1	9414196	0.26	0.24	8.0%	< 0.03	91%	50%	140%	86%	50%	140%	NA	50%	140%
Pyrene	1	9414196	4.26	4.50	5.5%	< 0.05	81%	50%	140%	75%	50%	140%	NA	50%	140%
Quinoline	1	9414196	< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	66%	50%	140%	NA	50%	140%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Total Polychlorinated Biphenyls															
Total Polychlorinated Biphenyls	1	9418222	31.0	29.7	4.3%	< 0.0215	82%	70%	130%	99%	60%	130%	NA	60%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Atlantic RBCA Tier 1 Hydrocarbons in Soil (Version 3.1) - Field Preserved - Low Level + 1X Silica Gel + Cre															
Benzene	1	9411767	< 0.005	< 0.005	NA	< 0.005	128%	60%	140%	92%	60%	140%			
Toluene	1	9411767	< 0.04	< 0.04	NA	< 0.04	127%	60%	140%	90%	60%	140%			
Ethylbenzene	1	9411767	<0.01	0.03	NA	< 0.01	127%	60%	140%	89%	60%	140%			
Xylene (Total)	1	9411767	< 0.05	< 0.05	NA	< 0.05	129%	60%	140%	100%	60%	140%			
C6-C10 (less BTEX)	1	9411767	< 3	< 3	NA	< 3	124%	60%	140%	106%	60%	140%	104%	30%	130%
>C10-C16 Hydrocarbons	1	9404043	< 15	< 15	NA	< 15	102%	60%	140%	90%	60%	140%	90%	30%	130%
>C16-C21 Hydrocarbons	1	9404043	< 15	< 15	NA	< 15	101%	60%	140%	90%	60%	140%	90%	30%	130%
>C21-C32 Hydrocarbons	1	9404043	< 15	< 15	NA	< 15	83%	60%	140%	90%	60%	140%	90%	30%	130%

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD
AGAT WORK ORDER: 18X364330
PROJECT: 18-8026 Anse-Bleue SCH
ATTENTION TO: Shawn Forster
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Aug 14, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
DDT in Soil															
Dieldrin	1	9414196	< 0.7	< 0.7	NA	< 0.7	111%	60%	130%	102%	70%	130%	122%	60%	130%
o,p'-DDD	1	9414196	< 1.0	< 1.0	NA	< 1.0	111%	60%	130%	101%	70%	130%	117%	60%	130%
o,p'-DDE	1	9414196	< 1.0	< 1.0	NA	< 1.0	110%	60%	130%	102%	70%	130%	109%	60%	130%
o,p'-DDT	1	9414196	< 1.0	< 1.0	NA	< 1.0	114%	60%	130%	101%	70%	130%	110%	60%	130%
p,p'-DDD	1	9414196	< 1.0	< 1.0	NA	< 1.0	102%	60%	130%	100%	70%	130%	110%	60%	130%
p,p'-DDE	1	9414196	< 1.0	< 1.0	NA	< 1.0	102%	60%	130%	100%	70%	130%	110%	60%	130%
p,p'-DDT	1	9414196	< 1.0	< 1.0	NA	< 1.0	102%	60%	130%	100%	70%	130%	100%	60%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Glycols (sol)															
Éthylène glycol	NA	NA	NA	NA	NA	< 10	NA	70%	130%	89%	70%	130%	NA	70%	130%
Diéthylène Glycol	NA	NA	NA	NA	NA	< 10	NA	70%	130%	87%	70%	130%	NA	70%	130%
Triéthylène Glycol	NA	NA	NA	NA	NA	< 10	NA	70%	130%	84%	70%	130%	NA	70%	130%
Tétraéthylène Glycol	NA	NA	NA	NA	NA	< 10	NA	70%	130%	82%	70%	130%	NA	70%	130%
Propylène Glycol	NA	NA	NA	NA	NA	< 10	NA	70%	130%	99%	70%	130%	NA	70%	130%

Comments: NA : Non applicable

NA dans l'écart du duplicata indique que l'écart n'a pu être calculé car l'un ou les deux résultats sont < 5x LDR.

NA dans le pourcentage de récupération de l'échantillon fortifié indique que le résultat n'est pas fourni en raison de l'hétérogénéité de l'échantillon ou de la concentration trop élevée par rapport à l'ajout.

NA dans le blanc fortifié ou le MRC indique qu'il n'est pas requis par la procédure.

TOG (Soil)															
Total Oil and Grease	1	9414197	1450	1330	8.6%	< 50				70%	60%	140%	NA	60%	140%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Polycyclic Aromatic Hydrocarbons in SPLP Leachate															
1-Methylnaphthalene	1	9441960	0.02	0.02	NA	< 0.01	92%	50%	140%	74%	50%	140%	80%	50%	140%
2-Methylnaphthalene	1	9441960	0.02	0.02	NA	< 0.01	94%	50%	140%	75%	50%	140%	81%	50%	140%
Acenaphthene	1	9441960	0.06	0.06	NA	< 0.04	91%	50%	140%	67%	50%	140%	75%	50%	140%
Acenaphthylene	1	9441960	0.08	0.07	NA	< 0.04	95%	50%	140%	74%	50%	140%	81%	50%	140%
Anthracene	1	9441960	0.088	0.082	NA	< 0.03	84%	50%	140%	64%	50%	140%	72%	50%	140%
Benzo(a)anthracene	1	9441960	0.180	0.157	NA	< 0.06	81%	50%	140%	63%	50%	140%	68%	50%	140%
Benzo(a)pyrene	1	9441960	0.161	0.136	NA	< 0.03	77%	50%	140%	57%	50%	140%	66%	50%	140%
Benzo(b)fluoranthene	1	9441960	0.24	0.23	NA	< 0.05	74%	50%	140%	64%	50%	140%	71%	50%	140%
Benzo(ghi)perylene	1	9441960	0.08	0.07	NA	< 0.02	56%	50%	140%	56%	50%	140%	57%	50%	140%

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD
AGAT WORK ORDER: 18X364330
PROJECT: 18-8026 Anse-Bleue SCH
ATTENTION TO: Shawn Forster
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Aug 14, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Benzo(k)fluoranthene	1	9441960	0.12	0.09	NA	< 0.04	88%	50%	140%	73%	50%	140%	77%	50%	140%
Chrysene	1	9441960	0.32	0.32	0.0%	< 0.04	84%	50%	140%	61%	50%	140%	70%	50%	140%
Dibenzo(a,h)anthracene	1	9441960	< 0.03	< 0.03	NA	< 0.03	54%	50%	140%	53%	50%	140%	53%	50%	140%
Fluoranthene	1	9441960	0.68	0.65	4.5%	< 0.03	90%	50%	140%	68%	50%	140%	78%	50%	140%
Fluorene	1	9441960	0.08	0.07	13.3%	< 0.01	91%	50%	140%	71%	50%	140%	78%	50%	140%
Indeno(1,2,3-cd)pyrene	1	9441960	0.08	0.06	NA	< 0.04	53%	50%	140%	52%	50%	140%	64%	50%	140%
Naphthalene	1	9441960	0.05	0.05	0.0%	< 0.01	97%	50%	140%	72%	50%	140%	79%	50%	140%
Perylene	1	9441960	0.06	0.05	NA	< 0.05	94%	50%	140%	66%	50%	140%	75%	50%	140%
Phenanthrene	1	9441960	0.29	0.29	0.0%	< 0.02	93%	50%	140%	64%	50%	140%	74%	50%	140%
Pyrene	1	9441960	0.52	0.49	5.9%	< 0.01	90%	50%	140%	68%	50%	140%	77%	50%	140%
Benzo(e)pyrene	1	9441960	0.21	0.19	NA	< 0.06	90%	50%	140%	61%	50%	140%	73%	50%	140%
Nitrobenzene-d5	1	9441960	75	<0	NA	<	0%			0%			0%		
2-Fluorobiphenyl	1	9441960	76	<0	NA	<	0%			0%			0%		
Terphenyl-d14	1	9441960	95	<0	NA	<	0%			0%			0%		

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Polyaromatic Hydrocarbons Analysis - Leachate															
Naphthalene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	101%	80%	120%				73%	50%	130%
2-Methylnaphthalene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	101%	80%	120%				62%	50%	130%
1-Methylnaphthalene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	103%	80%	120%				76%	50%	130%
Acenaphthylene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	98%	80%	120%				80%	50%	130%
Acenaphthene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	102%	80%	120%				78%	50%	130%
Fluorene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	98%	80%	120%				90%	50%	130%
Phenanthrene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	102%	80%	120%				82%	60%	130%
Anthracene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	102%	80%	120%				89%	60%	130%
Fluoranthene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	99%	80%	120%				90%	60%	130%
Pyrene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	100%	80%	120%				96%	60%	130%
Benzo(a)anthracene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	97%	80%	120%				80%	60%	130%
Chrysene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	101%	80%	120%				105%	60%	130%
Benzo(b)fluoranthene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	91%	80%	120%				71%	60%	130%
Benzo(k)fluoranthene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	105%	80%	120%				71%	60%	130%
Benzo(a)pyrene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	100%	80%	120%				95%	60%	130%
Indeno(1,2,3-c,d)pyrene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	95%	80%	120%				84%	60%	130%
Dibenzo(a,h)anthracene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	102%	80%	120%				73%	60%	130%
Benzo(g,h,i)perylene - Leachable	69515	MS1	<0.001	<0.001	NA	< 0.001	101%	80%	120%				86%	60%	130%
Naphthalene - d8	69515	MS1	99	93	6.3%		99%	80%	120%				100%	50%	130%
2-Fluorobiphenyl	69515	MS1	98	98	0.0%		103%	80%	120%				99%	50%	130%

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Quality Assurance

CLIENT NAME: DILLON CONSULTING LTD

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Aug 14, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
P-Terphenyl - d14	69515	MS1	97	102	5.0%		103%	80%	120%				98%	60%	130%

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

Certified By:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Mercury	MET-121-6101 & MET-121-6107	EPA 245.5	CVAAS
Carbone organique total	INOR-101-6057F	MA. 405-C 1.1	TITRAGE
Particle Size Distribution (<12.5mm, -4 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<9.5mm, -3 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<4.75mm, -2 PHI	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<2mm, -1 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE

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Method Summary

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AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Particle Size Distribution (<1mm, 0 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/2mm, 1 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/4mm, 2 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/8mm, 3 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/16mm, 4 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/32mm, 5 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/64mm, 6 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/128mm, 7 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/256mm, 8 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (<1/512mm, 9 PHI)	INOR-121-6034	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Gravel)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Sand)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Silt)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particle Size Distribution (Clay)	INOR-121-6031	ASTM D-422-63	SIEVE & PIPETTE
Particles >75um	INOR-121-6031, INOR-121-6034	ASTM D-422-63	CALCULATED
Classification	INOR-121-6031, INOR-121-6031	Atlantic RBCA	CALCULATED
Chromium, Hexavalent	INOR-121-6029	SSSA 5;25 p. 683	SPECTROPHOTOMETER
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH	INOR-121-6006	modified from Canadian Society of Soil Science p15	pH METER

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
1-Methylnaphthalene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
2-Methylnaphthalene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Acenaphthene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Acenaphthylene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Acridine	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Anthracene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(a)anthracene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(a)pyrene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(b)fluoranthene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(b+j)fluoranthene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(e)pyrene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(ghi)perylene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Benzo(k)fluoranthene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Chrysene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Dibenzo(a,h)anthracene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Fluoranthene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Fluorene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Indeno(1,2,3)pyrene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Naphthalene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Perylene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Phenanthrene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Pyrene	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Quinoline	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Total PAH			CALCULATION
Nitrobenzene-d5	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
2-Fluorobiphenyl	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Terphenyl-d14	ORG-120-5104	EPA SW846/3541/3510/8270C	GC/MS
Total Polychlorinated Biphenyls	ORG-120-5106	EPA SW846/8081/8080	GC/ECD
Benzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Toluene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Ethylbenzene	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
Xylene (Total)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
C6-C10 (less BTEX)	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
>C10-C16 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
>C16-C21 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
>C21-C32 Hydrocarbons	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Modified TPH (Tier 1)	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	CALCULATION
Resemblance Comment	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS/FID
Return to Baseline at C32	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Isobutylbenzene - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID

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Method Summary

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AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

ATTENTION TO: Shawn Forster

SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Isobutylbenzene - VPH	VOL-120-5013	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/MS
n-Dotriacontane - EPH	ORG-120-5101	Atlantic RBCA Guidelines for Laboratories Tier 1	GC/FID
Silica Gel Cleanup			GC/FID
Creosote Comment			GC/FID
Dieldrin	ORG-120-5108		GC/ECD
o,p'-DDD	ORG-120-5108		GC/ECD
o,p'-DDE	ORG-120-5108		GC/ECD
o,p'-DDT	ORG-120-5108		GC/ECD
p,p'-DDD	ORG-120-5108		GC/ECD
p,p'-DDE	ORG-120-5108		GC/ECD
p,p'-DDT	ORG-120-5108		GC/ECD
o,p'-DDT + p,p'-DDT	ORG-120-5108	Based on EPA SW-846/6510 C-8080-8081 A	CALCULATION
o,p'-DDD + p,p'-DDD	ORG-120-5108	Based on EPA SW-846/6510 C-8080-8081 A	CALCULATION
o,p'-DDE + p,p'-DDE	ORG-120-5108	Based on EPA SW-846/6510 C-8080-8081 A	CALCULATION
Total DDT	Calculation	Calculation	CALCULATION
Éthylène glycol	ORG-100-5120F.001	MA.400-Eth-Gly 1.0	GC/FID
Diéthylène Glycol	ORG-100-5123F	MA. 400 – Eth-Gly 1.0	GC/FID
Triéthylène Glycol	ORG-100-5123F	MA. 400 – Eth-Gly 1.0	GC/FID
Tétraéthylène Glycol	ORG-100-5123F	MA. 400 – Eth-Gly 1.0	GC/FID
Propylène Glycol	ORG-100-5123F	MA. 400 – Eth-Gly 1.0	GC/FID
Heptanol	ORG-100-5123F	MA. 400 – Eth-Gly 1.0	GC/FID
% Moisture		Calculation	GRAVIMETRIC
Naphthalene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
2-Methylnaphthalene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
1-Methylnaphthalene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Acenaphthylene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Acenaphthene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Fluorene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Phenanthrene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Anthracene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Fluoranthene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Pyrene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Benzo(a)anthracene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Chrysene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Benzo(b)fluoranthene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS

AGAT Laboratories

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Method Summary

CLIENT NAME: DILLON CONSULTING LTD

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Benzo(k)fluoranthene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Benzo(a)pyrene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Indeno(1,2,3-c,d)pyrene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Dibenzo(a,h)anthracene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Benzo(g,h,i)perylene - Leachable	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
Naphthalene - d8	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
2-Fluorobiphenyl	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
P-Terphenyl - d14	ORG-180-5133, LAB-181-4001	BC Lab Manual Section D, and EPA 1311	GC/MS
1-Methylnaphthalene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
2-Methylnaphthalene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Acenaphthene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Acenaphthylene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Anthracene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(a)anthracene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(a)pyrene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(b)fluoranthene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(ghi)perylene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(k)fluoranthene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Chrysene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Dibenzo(a,h)anthracene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Fluoranthene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Fluorene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Naphthalene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Perylene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Phenanthrene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Pyrene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS
Benzo(e)pyrene	ORG-120-5104/INOR-121-6040	CGSB 164-GP-IMP/EPA SW846/3510/8270D/354	GC/MS

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Method Summary

CLIENT NAME: DILLON CONSULTING LTD

AGAT WORK ORDER: 18X364330

PROJECT: 18-8026 Anse-Bleue SCH

ATTENTION TO: Shawn Forster

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Nitrobenzene-d5	ORG-120-5104	EPA SW846/3510/8270C	GC/MS
2-Fluorobiphenyl	ORG-120-5104	EPA SW846/3510/8270C	GC/MS
Terphenyl-d14	ORG-120-5104	EPA SW846/3510/8270C	GC/MS
Total Oil and Grease	ORG-120-5102	Based on CCME	GRAVIMETRIC