Port Edgar Marina Ltd

Maintenance Dredging

Best Practicable Environmental Option Report

March 2025

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CONTROL SHEET

CLIENT: **Port Edgar Marina Ltd**

PROJECT TITLE: **Maintenance Dredging**

REPORT TITLE: **Best Practicable Environmental Option Report**

PROJECT REFERENCE: **164974**

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1.0 Introduction

1.1 This report has been prepared to set out the best practicable environmental option (BPEO) in support of a marine licence application for maintenance dredging and disposal at sea of dredge arising. It is proposed that dredge arising will be disposed at sea within the boundary of Port Edgar Marina ('the marina'). The aim of the BPEO is to provide reassurance, following pre-disposal sampling required by Marine Scotland (MS), that the dredge arising is suitable for disposal within the confines of Port Edgar Marina. The pre-disposal sampling is detailed in Section 2 below.

1.2 The objectives of the BPEO report are to:

- Describe dredge arising material
- Interpret pre-disposal sampling results
- Demonstrate consideration for disposal options
- Identify, minimise, manage and mitigate for potential environmental impacts
- Demonstrate consideration for and a commitment to manage (through a bio-security plan) invasive non-native species (INNS) within the site

2.0 Background

2.1 Port Edgar Marina Ltd ('the operator'), is seeking to obtain a maintenance dredging licence to carry out maintenance dredging by plough. Maintenance dredging is required within two areas of the marina. The two areas are referred to as Dredge Area A and Dredge Area B. Dredge Area A is the area surrounding the West Pier; whilst Dredge Area B is the main area of the Marina. The dredge areas (A and B) are shown on the Port Edgar Marina Sediment Sampling Plan ('the plan'), Appendix A. The plan also incorporates the information listed below:

- Pre-disposal Sampling Stations
- Dredge Arising Disposal Location
- Designated Sites (SSSI, SPA and RAMSAR)

2.2 Current marine licences associated with the marina are listed below:

- Dredge Area A and B - Marine Licence for Maintenance Dredging (MS-00009793)

Figure 1: The wider site area

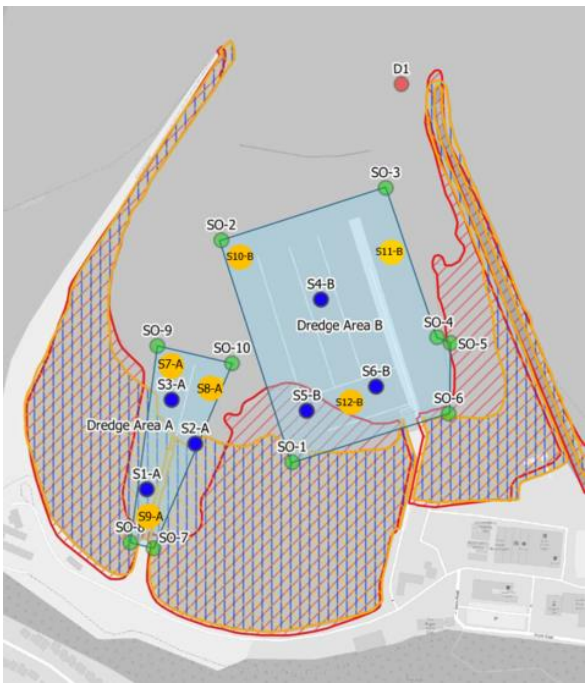

Figure 2: Proposed dredge areas

2.3 The operator has until recently been undertaking annual maintenance dredging (licence 06629/19/0) within Dredge Area B to maintain a sufficient depth for the continued operation of the marina, however this licence expired 9th January, 2022. Further, following capital dredging and construction of pontoons, maintenance dredging will also be required within Dredge Area A. Therefore it is considered appropriate that any future maintenance dredging licence for the Marina should cover both of these dredging areas as described.

2.4 The foreshore within Port Edgar Marina is a Site of Special Scientific Interest (SSSI) (SNH site code 8163, Firth of Forth). It is also covered by a Special Protection Area (SPA) (SNH site code 8499, Firth of Forth) designation, and is in close proximity to a RAMSAR1 site. These designations apply due to the area supporting a number of migratory overwintering, breeding and non-breeding bird populations. Maintenance dredging, which may affect the designated sites, will be to a maximum of 1.5 m (variable) depending on depth encountered. The maintenance dredging undertaken will remove silt some of which is anoxic with low level contamination from hydrocarbons. Contamination is the result of build-up over preceding decades since the West Pier was last utilised. Post-dredging, mud and silt will remain exposed at low-tide and will continue to provide valuable habitat as regards the qualifying features of the designated sites.

3.0 Pre-disposal Sampling

3.1 Pre-disposal sampling was carried out to support the BPEO and marine licence application as required by MS. Six grab samples were obtained from the sampling stations shown on the plan, Appendix A.

3.2 It is proposed that the pre-disposal sampling stations will accessed at high tide using a small displacement work boat approximately six meters in length, and powered by an air-cooled diesel engine. The grab samples will be obtained using a small stainless steel grab-bucket. The boat will be positioned using a handheld global positioning system (GPS) device over the pre-determined sampling stations and the grab lowered to the sea bed by hand over the side of the boat using a length of rope. Once the grab is on the sea bed it will be activated so the two sides close to collect the sample. The grab will then be recovered onto the boat where the samples will be removed and placed into the collection pots. The grab bucket will then be cleaned over the side of the boat to avoid contamination at each subsequent site.

3.3 Results of the pre-disposal sampling are provided in Section 6.

4.0 Proposed Dredging

4.1 Potential options considered as regards dredging are listed and considered below:

- Do-nothing
- Dredging via water injection
- Dredging via excavator and hopper-barge
- Dredging via plough

4.2 **Do-nothing:** If dredging does not take place, a gradual build-up of sediment within the marina would impact on the size of vessel able to utilise the marina. This would have an economic impact reducing the viability of the marina as a port. Do nothing is therefore not considered to be a viable option.

4.3 **Dredging via water injection:** Dredging via water injection (within Port Edgar Marina) has previously proven to be ineffective. This is due to there being an insufficient tidal current within the marina to remove and redistribute excavated sediment. This method has therefore been discounted.

4.4 **Dredging via excavator and hopper-barge:** Dredging via excavator and hopper-barge (within Port Edgar Marina) has previously proven to be inefficient when considering the commercial cost-benefit to the marina operator. This method has therefore also been discounted.

4.5 **Dredging via plough:** Dredging via plough is in line with current practice which has been consented for use by MS at the marina associated with aforementioned licences for capital dredging and maintenance dredging. Plough dredging is also considered to be the most suitable option for moving dredge arising to the disposal location within the marina.

4.6 It is anticipated that annual maintenance dredging will total approximately 13,300m3 of dredge arising. Dredge arising to be removed is predominantly of estuarine fine-grained sediments including silts and clays. The dredge arising will be deposited at the disposal location which sits within the inter-tidal zone of the Forth Estuary, within the boundary of the marina. A dredging method statement is detailed in Section 5 below.

5.0 Dredging Method Statement

5.1 Following consideration of potential dredging methods (Section 4), it is considered that dredging via plough is the most appropriate. As such, plough dredging operations will only take place when there is an adequate tide height for vessels to operate, with consideration given to the height of the vessels propeller above the plough, to prevent materials being washed out of the plough.

- Ploughing chains will be set to suit the dredge depth required
- Plough hoisting wires are pre-marked and calibrated to cope with varied water depth
- Dredging operations shall only commence when it is assessed that there is an adequate depth of water below the keel
- The dredging vessel will deploy the dredging plough to the seabed with sufficient slack on the hosting wires to allow for final dredge depth
- The vessel will work from north to south with the tide to achieve maximum working time
- The dredging process will be continued until the required dredge depth has been achieved
- Dredge arising will be moved to the proposed disposal location at the entrance to the marina adjacent to the main channel of the Forth where tidal movements and fast currents will aid the redistribution of sediment

5.2 The dredging method as described is in line with current licenced practice at Port Edgar Marina.

6.0 Pre-disposal Sediment Sampling Results

6.1 Pre-disposal sediment sampling was carried out 21st January, 2025. Sediment samples obtained from the sampling stations were tested in accordance with the guidelines set out in the MS document, Pre- disposal Sampling Guidance, Version 2 - November 2017.

6.2 A summary of results is provided below. Results that exceed MS AL 1 are highlighted blue, whilst results that exceed MS AL 2 are highlighted red. Full laboratory results are provided, Appendix B. Additionally, the full laboratory results will be submitted (alongside this BPEO report) to MS using the Pre-disposal Sampling Results Form referred to within the above MS guidance.

6.3 Physical characteristics for each of the samples analysed are shown, Table 1.

Table 1 Physical Characteristics

Parameter	Unit	S7-A	S8-A	S9-A	S10-B	S11-B	S12-B
Total Solids	%	42.1	42.1	35.3	44.8	41	36
Gravel	%	0.04	1.26	0	0	0	0.11
Sand	%	30.34	13.25	10.76	13.21	11.44	9.52
Silt	%	69.62	85.49	89.24	86.79	88.56	90.37
TOC	%	3.88	4.28	4.06	4.09	4.09	3.68
Specific Gravity	-	2.53	2.51	2.5	2.5	2.51	2.52
Asbestos	-	No	No	No	No	No	No

As shown (**Table 1**) no traces of asbestos were recorded at any of the sampling stations. The material sampled was relatively homogenous across each of the sampling stations and predominantly consisted of silt 85% and sand 12% and had minimal organic content <5%.

Concentrations of trace metals and organotins for each of the samples analysed are shown, **Table 2**. There were no trace metals or organotin concentrations which exceeded AL2; whilst of those shown to exceed AL1, all are below AL2.

Table 2 Trace Metals and Organotins Concentrations

Parameter	Unit	S7-A	S8-A	S9-A	S10-B	S11-B	S12-B
Arsenic (As)	mg/kg	14.9	17.4	16.1	14.8	16.4	16.1
Cadmium (Cd)	mg/kg	0.16	0.22	0.17	0.17	0.2	0.18

Chromium (Cr)	mg/kg	45.2	62.1	57.3	53.8	60.2	56.8
Copper (Cu)	mg/kg	24.9	43.2	30.3	30.6	32.4	29.9
Mercury (Hg)	mg/kg	0.51	0.77	0.66	0.69	0.68	0.63
Nickel (Ni)	mg/kg	26.8	32.7	31.6	28.3	33.1	32.1
Lead (Pb)	mg/kg	49.9	72	62.7	59.2	66.3	62.7
Zinc (Zn)	mg/kg	110	153	130	125	140	155
Dibutyltin (DBT)	mg/kg	<0.005	<0.005	<0.005	0.011	<0.005	<0.005
Tributyltin (TBT)	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Polycyclic aromatic hydrocarbon (PAH) concentrations for each of the samples analysed are shown, **Table 3**. There were no PAH concentrations which exceeded AL2.

Table 3 PAH Concentrations

Parameter	Unit	S7-A	S8-A	S9-A	S10-B	S11-B	S12-B
ACENAPTH	µg/kg	46.5	51.2	43.5	56.4	44.6	41.7
ACENAPHY	µg/kg	63.7	69.6	67.8	74.7	74.4	52.1
ANTHRACN	µg/kg	211	151	150	229	176	140
BAA	µg/kg	266	221	269	327	234	264
BAP	µg/kg	303	251	319	351	309	305
BBF	µg/kg	306	197	351	444	292	334
BEP	µg/kg	296	242	282	360	270	265
BENZGHIP	µg/kg	219	162	315	247	241	300
BKF	µg/kg	298	230	283	367	253	267
C1N	µg/kg	820	472	696	600	622	592
C1PHEN	µg/kg	702	466	697	661	613	566
C2N	µg/kg	697	495	668	552	555	606
C3N	µg/kg	717	531	703	620	572	649
CHRYSENE	µg/kg	312	279	305	408	274	295
DBENZAH	µg/kg	30.2	46.6	50.7	37.2	40.8	48.5
FLOURANT	µg/kg	586	417	510	565	501	526
FLOURENE	µg/kg	102	95.8	101	110	94.2	90.4
INDPYR	µg/kg	157	120	266	180	175	258
NAPTH	µg/kg	260	183	216	242	204	202
PERYLENE	µg/kg	163	204	198	231	186	170
PHENANT	µg/kg	449	324	244	438	421	346
PYRENE	µg/kg	673	507	595	703	597	596
THC	µg/kg	285000	370000	360000	450000	393000	365000

Organohalogens concentrations for each of the samples analysed are shown in Table 4. MS guidance does not provide AL for organohalogens. Further, as regards brominated flame retardants (BFRs) MS guidance states (at the time of publication, 2017) that provisional action levels for these compounds are subject to further investigation. Overall, levels of BFRs are relatively low. The presence of these within the sediment samples is considered reflective of historical uses flame retardants in

paints and other materials used in the construction and maintenance of marine vessels, now largely prohibited.

Table 4 Organohalogens Concentrations

Parameter	Unit	S7-A	S8-A	S9-A	S10-B	S11-B	S12-B
PCB28	µg/kg	1.34	2.25	1.7	1.95	1.85	1.58
PCB52	µg/kg	0.88	1.36	1.09	1.26	1.07	1.05
PCB101	µg/kg	1.07	1.9	1.46	1.55	1.36	1.27
PCB118	µg/kg	1.37	1.78	1.35	1.47	1.37	1.31
PCB138	µg/kg	1.1	1.83	1.48	1.41	1.64	1.56
PCB153	µg/kg	1.72	2.75	2.42	2.36	2.22	2.28
PCB180	µg/kg	1.06	1.48	1.46	1.46	1.39	1.35
ICES7	µg/kg	8.54	13.35	10.96	11.46	10.9	10.4
AHCH	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BHCH	µg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GHCH	µg/kg	0.18	0.24	0.12	0.14	0.15	0.15
DIELDRIN	µg/kg	0.78	1.6	1.46	1.57	0.62	1.78
HCB	µg/kg	4.57	8.13	6.02	7.75	5.34	5.15
DDE	µg/kg	1.16	1.8	1.62	1.46	1.42	1.41
DDT	µg/kg	<0.1	0.21	0.23	<0.1	<0.1	<0.1
TDE	µg/kg	2.28	3.54	3.69	3.64	3.32	2.94
BDE100	µg/kg	<0.05	0.08	0.09	0.08	0.06	<0.05
BDE138	µg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BDE153	µg/kg	0.06	0.11	0.07	0.1	0.1	0.09
BDE154	µg/kg	<0.05	0.07	0.11	0.09	0.09	0.08
BDE17	µg/kg	0.06	0.06	0.07	0.06	0.07	0.06
BDE183	µg/kg	<0.05	0.09	0.13	0.14	0.21	0.1
BDE209	µg/kg	81.9	68.2	76.3	86.1	83.4	104
BDE28	µg/kg	<0.05	0.1	<0.05	0.07	<0.05	<0.05
BDE47	µg/kg	0.28	0.55	0.4	0.43	0.39	0.38
BDE66	µg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
BDE85	µg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BDE99	µg/kg	0.09	0.37	0.3	0.21	0.21	0.23

7.0 Environmental Impact

7.1 Consideration has been given to options as regards the disposal of dredge arising from the dredging activities. The options considered are listed below:

- Agricultural spreading
- Beach nourishment
- Uses within the construction industry
- Land reclamation, landfill and incineration
- Sea disposal

7.2 Sampling undertaken has shown that the dredge arising is likely to contain some contaminants in excess of MS action levels. As such this means that dredge arising is likely to be unsuitable in respect of a number of the options outlined above. Considerations for each of the options have been outlined below:

7.3 Agricultural spreading: potential dredge arising material be pre-treated before it could be considered suitable for use, contamination also presents a health and safety risk; combined with costs associated with transportation and handling of the material this option is not considered suitable.

7.4 Beach nourishment: potential dredge arising material was shown to consist entirely of fine silts and clays. This would make it unsuitable for beach nourishment purposes as the fine particle sizes are less stable and prone to accelerated rates of erosion.

7.5 Uses within the construction industry: the potential dredge arising material consists soft and silty material and is therefore not considered to be suitable for use within the onshore construction industry e.g. for cement manufacture.

7.6 Land reclamation, landfill and incineration: given the likelihood of contamination within potential dredge arising material, costs associated with handling the anticipated volumes of material, and the fine nature of particle sizes, makes the material unsuitable for engineering purposes, therefore this option was also discounted.

7.7 Sea disposal: previously collected bathymetric survey data indicates that there is a significant change in depth where the main channel of the River Forth begins; this is

immediately outwith the bounds of the marina where the dredge arising disposal location is proposed.

7.8 The change in depth, combined with the fast flowing currents which empty into the estuary, make this the preferred location for the disposal of dredge arising.

7.9 Given the likely contaminated nature of the material, the relatively short distance from where the material is required to be dredged from, and where it is proposed to be deposited for redistribution – sea disposal was considered to represent the most appropriate with the least environmental impact.

7.10 Further, as the marina has been routinely dredged over a period of approximately 10 years, it is considered that the material will be largely similar in composition to that which has previously been plough dredged from within the marina and which has been disposed of at the identified location.

7.11 As such, it is not considered likely that the disposal of further dredge arising at this location would result in any adverse environmental impact.

8.0 Bio-security

8.1 The marina previously adopted a bio-security plan in October 2018 in respect of the control and removal of invasive non-native species, specifically Japanese Wakame seaweed. This plan follows the 'simple approach' outlined by Scottish Natural Heritage (SNH) [now NatureScot] Biosecurity Planning Guidance (2014). The operator is fully committed to the continued implementation of the measures as outlined within the bio-security plan cognisant of their proposed maintenance dredging operations.

9.0 Conclusions

9.1 We note the following conclusions with cognisance given to environmental impact in relation to the dredging and disposal of dredge arising:

- The primary objective of the proposed maintenance dredging is to maintain the operational effectiveness of the marina by maintaining a safe and navigable depth for vessels.
- Pre-disposal sampling of proposed dredge arising has shown that the material consists almost entirely of fine estuarine silts deposited by tidal movements within the marina.
- Laboratory results have indicated some exceedances of AL 1 thresholds; however there were no exceedances of AL 2 thresholds.
- Relatively low level of contaminants were detected. The presence of contaminants, particularly brominated flame retardants, within the sediment samples is considered reflective of historical uses flame retardants in paints and other materials used in the construction and maintenance of marine vessels, now largely prohibited.
- Plough dredging is considered to be the most appropriate dredging method and is in-line with current practice at the marina.
- The proposed dredge arising disposal location is considered to be the option with the least environmental impact.
- Following dredging operations and the removal of silt, mud which provides valuable habitat, as regards the qualifying features of the designated sites (e.g. Firth of Forth SPA and SSSI), will remain exposed at low-tides.

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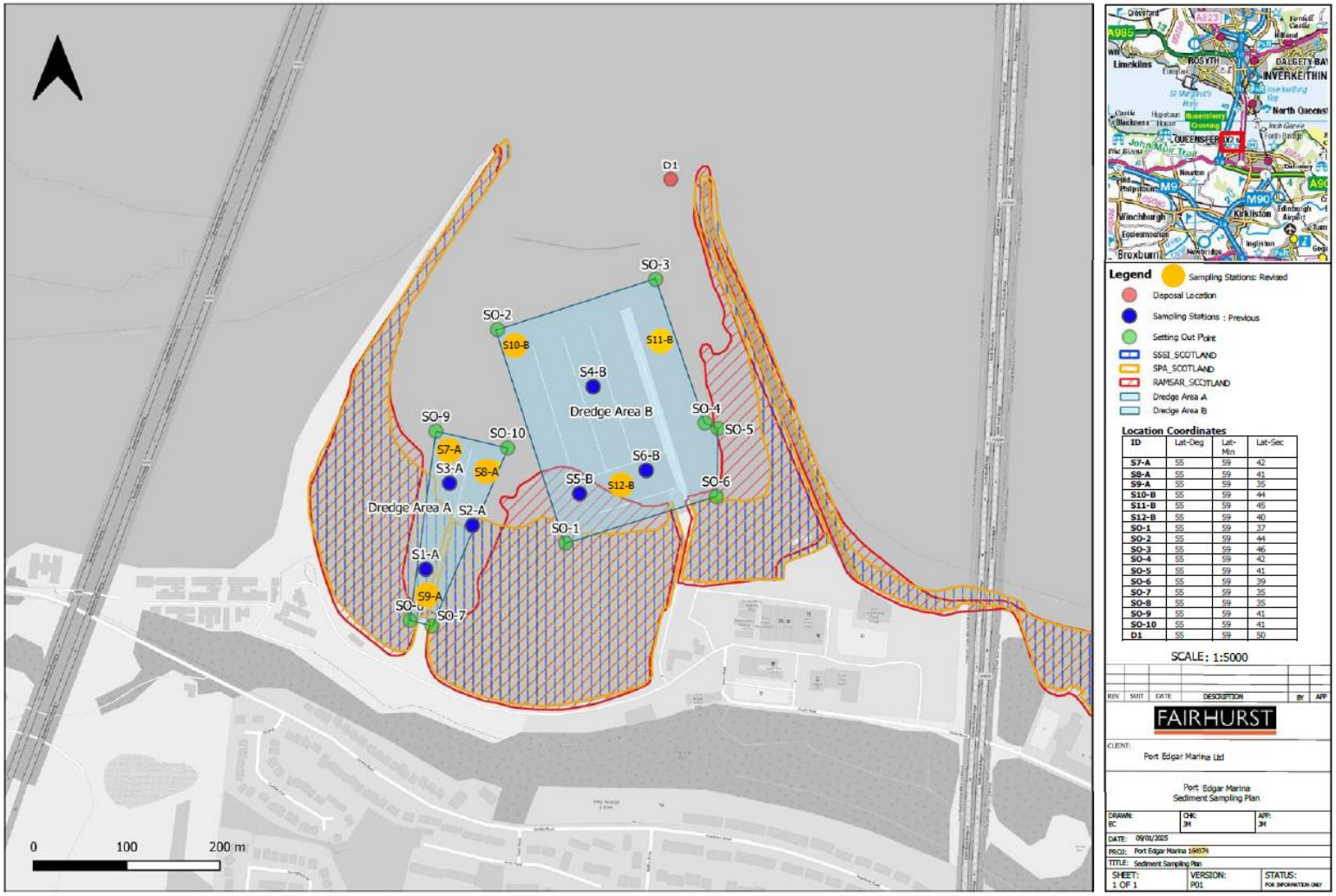
Appendix A – Sediment Sampling Plan



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Appendix B – Laboratory Results

Applicant Information

Applicant:	Port Edgar Marina Ltd
Description of dredging:	Maintenance
Total amount to be dredged (wet tonnes)	60,000

Sample Details & Physical Properties

Explanatory Notes:
An example of a 'Dredge area' is: 'Dock A, Harbour X'
Provide description of the dredge area and the latitude and longitude co-oridnates (WGS84) for each sample location. Co-ordinates taken from GPS equipment should be set to WGS84.
Note for sample depth that the seabed is 0 metres.
Gravel is defined as >2mm, **Sand** is defined as >63um<2mm, **Silt** is deinfed as <63um).

Sample information:

Sample ID	Dredge area	Latitude	Longitude	Type of sample	Sample depth (m)	Total solids (%)	Gravel (%)	Sand (%)	Silt (%)	TOC (%)	Specific gravity	Asbestos
MAR02567.00	S7-A	55° 59.683'N	003° 24.816'W	Grab	0	42.1	0.04	30.34	69.62	3.88	2.53	No
MAR02567.00	S8-A	55° 59.650'N	003° 24.783'W	Grab	0	42.1	1.26	13.25	85.49	4.28	2.51	No
MAR02567.00	S9-A	55° 59.583'N	003° 24.833'W	Grab	0	35.3	0	10.76	89.24	4.06	2.5	No
MAR02567.00	S10-B	55° 59.716'N	003° 24.733'W	Grab	0	44.8	0	13.21	86.79	4.09	2.5	No
MAR02567.00	S11-B	55° 59.733'N	003° 24.600'W	Grab	0	41	0	11.44	88.56	4.09	2.51	No
MAR02567.00	S12-B	55° 59.650'N	003° 24.633'W	Grab	0	36	0.11	9.52	90.37	3.68	2.52	No
		° . 'N	° . 'W									
		° . 'N	° . 'W									

Trace Metals & Organotins

Explanatory Notes:
Results above Action Level 1 will be highlighted in blue and above Action Level 2 in red.

Sample information:

Sample ID	Dredge area	Type of sample	Sample depth (m)	mg/kg dry weight									
				Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Mercury (Hg)	Nickel (Ni)	Lead (Pb)	Zinc (Zn)	Dibutyltin (DBT)	Tributyltin (TBT)
MAR02567.00	S7-A	Grab	0	14.9	0.16	45.2	24.9	0.51	26.8	49.9	110	<0.005	<0.005
MAR02567.00	S8-A	Grab	0	17.4	0.22	62.1	43.2	0.77	32.7	72	153	<0.005	<0.005
MAR02567.00	S9-A	Grab	0	16.1	0.17	57.3	30.3	0.66	31.6	62.7	130	<0.005	<0.005
MAR02567.00	S10-B	Grab	0	14.8	0.17	53.8	30.6	0.69	28.3	59.2	125	0.011	<0.005
MAR02567.00	S11-B	Grab	0	16.4	0.2	60.2	32.4	0.68	33.1	66.2	140	<0.005	<0.005
MAR02567.00	S12-B	Grab	0	16.1	0.18	56.8	29.9	0.63	32.1	62.7	155	<0.005	<0.005
0	0	0	0										

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Polyaromatic Hydrocarbons (PAH)

Explanatory Notes:
Results above Action Level 1 will be highlighted in blue

Definitions:

ACENAPTH	Acenaphthene
ACENAPHY	Acenaphthylene
ANTHRACN	Anthracene
BAA	Benz(a)anthracene
BAP	Benzo(a)pyrene
BBF	Benzo(b)fluoranthene
BEP	Benzo(e)pyrene
BENZGHIP	Benzo(ghi)perylene
BKF	Benzo(K)fluoranthene
C1N	C1-naphthalenes
C1PHEN	C1-phenanthrene
C2N	C2-naphthalenes
C3N	C3-naphthalenes
CHRYSENE	Chrysene
DBENZAH	Diben(ah)anthracene
FLUORANT	Fluoranthene
FLUORENE	Fluorene
INDPYR	Indeno(1,2,3-cd)pyrene
NAPTH	Naphthalene
PERYLENE	Perylene
PHENANT	Phenanthrene
PYRENE	Pyrene
THC	Total Hydrocarbon Content

Sample information:

				µg/kg																				
Sample ID	Dredge area	Type of sample	Sample depth (m)	ACENAPTH	ACENAPHY	ANTHRACN	BAA	BAP	BBF	BEP	BENZGHIP	BKF	C1N	C1PHEN	C2N	C3N	CHRYSENE	DBENZAH	FLUORANT	FLUORENE	INDPYR	NAPTH	PERYLENE	PHENANT	PYRENE	THC
MAR02567 001	S7-A	Grab	0	46.5	63.7	211	266	303	306	296	219	298	820	702	697	717	312	30.2	586	102	157	260	163	449	673	285000
MAR02567 002	S8-A	Grab	0	51.2	69.6	151	221	251	197	242	162	230	472	466	495	531	279	46.6	417	95.8	120	183	204	324	507	370000
MAR02567 003	S9-A	Grab	0	43.5	67.8	150	269	319	351	282	315	283	696	697	668	703	305	50.7	510	101	266	216	198	344	595	360000
MAR02567 004	S10-B	Grab	0	56.4	74.7	229	327	351	444	360	247	367	600	661	552	620	408	37.2	565	110	180	242	231	438	703	450000
MAR02567 005	S11-B	Grab	0	44.6	74.4	176	234	309	292	270	241	253	622	613	555	572	274	40.8	501	94.2	175	204	186	421	597	393000
MAR02567 006	S12-B	Grab	0	41.7	52.1	140	264	305	334	265	300	267	592	566	606	649	295	48.5	526	90.4	258	202	170	346	596	365000

Organohalogens

Explanatory Notes:
Results above Action Level 1 will be highlighted in blue and above Action Level 2 in red.
ICES7 is the sum of PCB 28,52,101,138,153,180 and 118.

Definitions:

AHCH	alpha-Hexachlorcyclohexane
BHCH	beta-Hexachlorcyclohexane
GHCH	gamma-Hexachlorcyclohexane
DIELDRIN	Dieldrin
HCB	Hexachlorobenzene
PPDDE	p,p'-Dichorodiphenyldicloroethylene
PPDDT	p,p'-Dichorodiphenyltrichloroethane
PPTDE	p,p'-Dichorodiphenyldicloroethane

Sample information:

Sample ID	Dredge area	Type of sample	Sample depth (m)	PCB28	PCB52	PCB101	PCB118	PCB138	PCB153	PCB180	ICES7	AHCH	BHCH	GHCH	DIELDRIN	HCB	DDE	DDT	TDE	BDE100	BDE138	BDE153	BDE154	BDE17	BDE183	BDE209	BDE28	BDE47	BDE66	BDE85	BDE99
MAR02567.00	S7-A	Grab	0	1.34	0.88	1.07	1.37	1.1	1.72	1.06	8.54	<0.1	<0.1	0.18	0.78	4.57	1.16	<0.1	2.28	<0.05	<0.05	0.06	<0.05	0.06	<0.05	81.9	<0.05	0.28	<0.05	<0.05	0.09
MAR02567.00	S8-A	Grab	0	2.25	1.36	1.9	1.78	1.83	2.75	1.48	13.35	<0.1	<0.1	0.24	1.6	8.13	1.8	0.21	3.54	0.08	<0.05	0.11	0.07	0.06	0.09	68.2	0.1	0.55	<0.05	<0.05	0.37
MAR02567.00	S9-A	Grab	0	1.7	1.09	1.46	1.35	1.48	2.42	1.46	10.96	<0.1	<0.1	0.12	1.46	6.02	1.62	0.23	3.69	0.09	<0.05	0.07	0.11	0.07	0.13	76.3	<0.05	0.4	<0.05	<0.05	0.3
MAR02567.00	S10-B	Grab	0	1.95	1.26	1.55	1.47	1.41	2.36	1.46	11.46	<0.1	<0.1	0.14	1.57	7.75	1.46	<0.1	3.64	0.08	<0.05	0.1	0.09	0.06	0.14	86.1	0.07	0.43	<0.05	<0.05	0.21
MAR02567.00	S11-B	Grab	0	1.85	1.07	1.36	1.37	1.64	2.22	1.39	10.9	<0.1	<0.1	0.15	0.62	5.34	1.42	<0.1	3.32	0.06	<0.05	0.1	0.09	0.07	0.21	83.4	<0.05	0.39	<0.05	<0.05	0.21
MAR02567.00	S12-B	Grab	0	1.58	1.05	1.27	1.31	1.56	2.28	1.35	10.4	<0.1	<0.1	0.15	1.78	5.15	1.41	<0.1	2.94	<0.05	<0.05	0.09	0.08	0.06	0.1	104	<0.05	0.38	0.05	<0.05	0.23

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