

Summary of marine sediment ¹ parameters

	Parameter	Unit ²	Reporting Limit	Standard Method / Technique used ⁸	Analysed by
Physical and Aggregate Properties	Particle Size Fractionation	% w/w	1	In house method, sieving and weighing : 8 fractions : >4000µm, <4000µm, <2000µm, <1000µm, <500µm, <250µm, <125µm and <63µm	MMT/EPD ⁶
	Electrochemical Potential ⁴	mV	1	Instrumental, Orion Model 250A pH/Redox Meter (electrodeometric)	MMT/EPD
	Total Solids (TS) ³	% w/w	0.1	In house method GL-PH-22, based on APHA 20ed 2540G (weighing)	GL ⁷
	Total Volatile Solids (TVS) ³	% TS	0.1	In house method GL-PH-22, based on APHA 20ed 2540G (weighing)	GL
	Dry Wet Ratio	-	0.01	In house method GL-PH-22, based on APHA 20ed 2540G (weighing)	GL
Aggregate Organic Constituents ³	Chemical Oxygen Demand (COD)	mg/kg	2	In house method GL-OR-38, based on ASTM D1252-00 A (open reflux)	GL
	Total Carbon (TC)	% w/w	0.1	In house method GL-OR-33, based on APHA 20ed 5310 B (FIA)	GL
Nutrients and Inorganic Constituents ³	Ammonia Nitrogen (NH ₄ -N)	mg/kg	0.05	In house method GL-IN-15, based on ASTM D3590-89 B (FIA)	GL
	Total Kjeldahl Nitrogen (TKN)	mg/kg	0.5	In house method GL-IN-14 & GL-IN-15, based on ASTM D3590-89 B (FIA) & APHA 20ed 4500-N A&D (FIA)	GL
	Total Phosphorus	mg/kg	0.2	In house method GL-IN-14 & GL-IN-16, based on ASTM D515-88 B (FIA) & APHA 20ed 4500-P G (FIA)	GL
	Total Sulphide	mg/kg	0.2	In house method GL-IN-45, based on APHA 20ed 4500-S ² -D (FIA)	GL
	Total Cyanide	mg/kg	0.1	In house method GL-IN-44, based on APHA, 20ed., 4500 CN -A&E (distillation and colorimetric)	GL
Metals & Metalloids ⁵	Aluminium (Al)	mg/kg	1	In house method GL-TE-60, based on USEPA method 6010B (ICP-AES)	GL
	Arsenic (As)	mg/kg	0.1	In house method GL-TE-64 & GL-TE-66, based on USEPA method 6020 (ICP-MS)	GL
	Barium (Ba)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL
	Boron (B)	mg/kg	5	In house method GL-TE-60, based on USEPA method 6010B (ICP-AES)	GL
	Cadmium (Cd)	mg/kg	0.1	In house method GL-TE-64, based on USEPA method 6020 (ICP-MS)	GL
	Chromium (Cr)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL
	Copper (Cu)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL
	Iron (Fe)	mg/kg	5	In house method GL-TE-60, based on USEPA method 6010B (ICP-AES)	GL
	Lead (Pb)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL
	Manganese (Mn)	mg/kg	1	In house method GL-TE-60, based on USEPA method 6010B (ICP-AES)	GL
	Mercury (Hg)	mg/kg	0.05	In house method GL-TE-64 & GL-TE-66, based on USEPA method 6020 (ICP-MS)	GL
	Nickel (Ni)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL
	Silver (Ag)	mg/kg	0.2	In house method GL-TE-64, based on USEPA method 6020 (ICP-MS)	GL
Vanadium (V)	mg/kg	0.1	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL	
Zinc (Zn)	mg/kg	0.2	In house method GL-TE-60 & GL-TE-64, based on USEPA method 6010B (ICP-AES) and USEPA method 6020 (ICP-MS)	GL	
Trace Organic Compounds	Polychlorinated Biphenyls (PCBs)				
	18 PCB congeners : PCB 8, 18, 28, 44, 52, 66, 77, 101, 105, 118, 126, 128, 138, 153, 169, 170, 180, 187	µg/kg	2	In house method GL-OR-25, based on Reference Method for the Analysis of Polychlorinated Biphenyls, Environmental Protection Series: Report EPS 1/RM/31, March 1997, Environment Canada (GC-MS)	GL
	Polyaromatic Hydrocarbons (PAHs)				
	- Acenaphthene	µg/kg	50	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Acenaphthylene	µg/kg	50	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Naphthalene	µg/kg	60	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Fluorene	µg/kg	10	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Phenanthrene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Anthracene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Fluoranthene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Pyrene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Benzo(a)anthracene	µg/kg	3	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Chrysene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Benzo(b)fluoranthene	µg/kg	1	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Benzo(k)fluoranthene	µg/kg	1	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Benzo(a)pyrene	µg/kg	1	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
	- Dibenzo(a,h)anthracene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL
- Benzo(ghi)perylene	µg/kg	1	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL	
- Indeno(1,2,3-cd)pyrene	µg/kg	5	In house method, GL-OR-15, based on USEPA method 610, 1984 (UV-FLUO)	GL	

Note: 1. Birge-Ekman (0.023m²) grab / Van Veen (0.1m²) grab / Smith-McIntyre (0.1m²) grab is employed to collect sediment samples from the top 10 cm of seabed.

2. All parameters are reported on a dry weight basis unless otherwise stated.

3. Determinants are reported on a wet weight basis.

4. Electrochemical potential (Eh) is measured "on-site" at 3cm below the surface of freshly collected sediment samples (Reference : Handbook of Techniques for Aquatic Sediment Sampling, By A. Mudrock & S.D. MacKnight, 1994, CRC Press).

5. Digestion procedure for metals and metalloids in sediment follows In house method, WC-ME-2 (3.5 hours digestion in conc. HCl/conc. HNO₃ ; 3:1 v/v)

6. MMT/EPD - Marine Monitoring Team, Waste & Water Science Group, Environmental Protection Department.

7. GL - Environmental Chemistry B Section, Environmental Chemistry & Other Scientific Services Group, Government Laboratory.

8. Mention of brand names and commercial products does not constitute or imply endorsement or recommendation by the Environmental Protection Department.