Report Number: 2023-0924ShapinsayC PSA

ANALYTICAL LABORATORY SERVICES
Chromatography Specialists

Peatfield Scientific Ltd

Analytical Report

on Analysis of Marine Sediment Samples from Shapinsay C for Particle Size Distribution

FOR:

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Job and Sample Information:	
Job No(s):	*2023-0924*
Client Order No/Reference:	SSF-069305
Date Sample(s) Received:	21st September 2023
Lab Code	**Client Code**
See below	See below

Methods
Particle size distribution by dry sieving and Folk and Ward

Analytical Procedures

Particle Size Distribution

The samples were dried and sieved through a stack of 17 standard sieves. The size fractions were weighed and the data processed according to Folk and Ward methodology, using a macro to calculate the grain size statistics (Gradistat Version 9.1).

Results

The results are presented in the following tables:

Table 1 – Particle Size Data

Station ID	% > 8 mm	% 8 – 4 mm	% 4 – 2 mm	% 2 – 1 mm	% 1 - 0.5 mm	% 0.5 - 0.25 mm	% 0.25-0.125 mm	% 0.125-0.063 mm	% < 0.063 mm	Degree of sorting	Degree of skewness	Degree of kurtosis	Folk Triangle
A1 #1	0.0	0.0	0.0	0.2	0.8	6.0	42.7	44.7	5.5	Moderately Well Sorted	Symmetrical	Leptokurtic	Very Fine Sand
A1 #2	0.0	0.0	0.0	0.2	0.8	6.0	40.5	46.7	5.7	Moderately Sorted	Symmetrical	Leptokurtic	Very Fine Sand
A1 #3	0.0	0.0	0.0	0.2	0.7	5.6	41.0	46.3	6.1	Moderately Sorted	Fine Skewed	Very Leptokurtic	Very Fine Sand
A2 #1	0.0	0.0	0.0	0.1	0.4	6.1	61.4	27.7	4.3	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A2 #2	0.0	0.0	0.0	0.1	0.5	7.1	64.6	24.7	3.0	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A2 #3	0.0	0.0	0.0	0.3	0.6	6.7	63.5	25.7	3.3	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A3 #1	0.0	0.0	0.0	0.2	0.5	4.2	48.0	41.0	6.0	Moderately Well Sorted	Fine Skewed	Leptokurtic	Very Fine Sand
A3 #2	0.0	0.0	0.0	0.1	0.4	5.0	50.6	38.5	5.3	Moderately Well Sorted	Fine Skewed	Leptokurtic	Fine Sand
A3 #3	0.0	0.0	0.0	0.2	0.5	4.6	49.0	40.0	5.7	Moderately Well Sorted	Fine Skewed	Leptokurtic	Fine Sand
A4 #1	0.0	0.1	0.1	0.4	0.9	6.5	59.9	28.7	3.4	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A4 #2	0.0	0.0	0.0	0.3	1.1	7.0	60.2	28.9	2.5	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A4 #3	0.0	0.0	0.2	0.6	1.0	6.2	60.8	28.2	3.0	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A5 #1	0.0	0.0	0.1	0.3	0.8	12.8	67.2	17.4	1.3	Moderately Well Sorted	Symmetrical	Mesokurtic	Fine Sand
A5 #2	1.2	0.0	0.1	0.5	0.9	11.2	66.3	18.0	1.8	Moderately Well Sorted	Symmetrical	Leptokurtic	Fine Sand
A5 #3	0.0	0.0	0.1	0.4	1.0	12.3	68.5	16.1	1.4	Moderately Well Sorted	Symmetrical	Mesokurtic	Fine Sand

Table 1 – Particle Size Data cont'd

Station ID	% > 8 mm	% 8 – 4 mm	% 4 – 2 mm	% 2 – 1 mm	% 1 - 0.5 mm	% 0.5 - 0.25 mm	% 0.25-0.125 mm	% 0.125-0.063 mm	% < 0.063 mm	Degree of sorting	Degree of skewness	Degree of kurtosis	Folk Triangle
B1 #1	0.0	0.2	1.6	1.5	1.0	5.9	31.2	51.4	7.1	Moderately Sorted	Symmetrical	Very Leptokurtic	Very Fine Sand
B1 #2	1.3	2.3	4.1	1.7	1.2	7.3	33.1	43.3	5.7	Poorly Sorted	Very Coarse Skewed	Very Leptokurtic	Fine Sand
B1 #3	0.2	1.7	2.8	1.9	1.1	5.7	29.5	49.9	7.2	Poorly Sorted	Coarse Skewed	Very Leptokurtic	Very Fine Sand
B2 #1	0.0	1.5	19.7	18.5	5.1	8.4	20.2	23.5	3.1	Poorly Sorted	Coarse Skewed	Very Platykurtic	Medium Sand
B2 #2	0.0	1.3	11.6	14.7	5.2	9.9	26.1	27.9	3.4	Poorly Sorted	Very Coarse Skewed	Very Platykurtic	Medium Sand
B2 #3	0.0	1.2	19.9	19.5	5.5	5.8	18.5	25.7	3.8	Poorly Sorted	Coarse Skewed	Very Platykurtic	Medium Sand
B3 #1	0.1	5.0	11.3	4.9	1.6	5.3	25.6	38.2	8.0	Very Poorly Sorted	Very Coarse Skewed	Very Leptokurtic	Medium Sand
B3 #2	1.2	2.4	11.1	5.8	1.5	4.7	27.1	38.2	8.0	Very Poorly Sorted	Very Coarse Skewed	Very Leptokurtic	Medium Sand
B3 #3	3.0	6.3	11.9	3.4	0.9	4.8	24.8	36.7	8.3	Very Poorly Sorted	Very Coarse Skewed	Leptokurtic	Medium Sand
B4 #1	0.6	0.5	1.8	1.8	1.8	6.2	34.9	45.2	7.3	Poorly Sorted	Coarse Skewed	Very Leptokurtic	Fine Sand
B4 #2	0.0	0.2	2.1	2.0	1.8	5.5	34.7	46.0	7.6	Poorly Sorted	Symmetrical	Very Leptokurtic	Very Fine Sand
B4 #3	1.0	1.1	3.0	2.1	2.0	5.6	31.2	46.2	7.7	Poorly Sorted	Coarse Skewed	Very Leptokurtic	Fine Sand
B5 #1	0.0	0.0	0.8	0.9	1.4	7.6	36.0	44.4	8.8	Poorly Sorted	Fine Skewed	Very Leptokurtic	Very Fine Sand
B5 #2	0.9	2.2	3.5	1.6	1.1	5.1	45.3	34.5	5.9	Poorly Sorted	Coarse Skewed	Very Leptokurtic	Fine Sand
B5 #3	0.1	0.7	2.2	1.8	1.4	6.4	35.9	44.9	6.6	Poorly Sorted	Coarse Skewed	Very Leptokurtic	Fine Sand

Table 2 – Particle Size Summary Statistics	A1 #1	A1 #2	A1 #3	A2 #1	A2 #2	A2 #3
>2mm (%)	0.00	0.00	0.04	0.02	0.00	0.02
<63µm (%)	5.51	5.72	6.10	4.27	2.97	3.26
Mean (mm)	0.123	0.120	0.120	0.143	0.149	0.147
Std dev (mm)	0.002	0.002	0.002	0.002	0.002	0.002
Phi	3.019	3.054	3.060	2.806	2.749	2.766
Wentworth classification	Very Fine Sand	Very Fine Sand	Very Fine Sand	Fine Sand	Fine Sand	Fine Sand
Classification description	Moderately Well Sorted Very Fine Sand	Slightly Very Fine Gravelly Very Fine Sand	Slightly Very Fine Gravelly Very Fine Sand	Slightly Very Fine Gravelly Fine Sand	Moderately Well Sorted Fine Sand	Slightly Very Fine Gravelly Fine Sand

Table 2 – Particle Size Summary Statistics Cont'd	A3 #1	A3 #2	A3 #3	A4 #1	A4 #2	A4 #3
>2mm (%)	0.05	0.02	0.05	0.19	0.02	0.17
<63µm (%)	6.04	5.32	5.69	3.37	2.51	2.99
Mean (mm)	0.124	0.128	0.127	0.144	0.145	0.146
Std dev (mm)	0.002	0.002	0.002	0.002	0.002	0.002
Phi	3.006	2.961	2.981	2.793	2.782	2.780
Wentworth classification	Very Fine Sand	Fine Sand	Fine Sand	Fine Sand	Fine Sand	Fine Sand
Classification description	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand

Table 2 – Particle Size Summary Statistics Cont'd	A5 #1	A5 #2	A5 #3	B1 #1	B1 #2	B1 #3
>2mm (%)	0.14	1.31	0.06	1.82	7.69	4.67
<63µm (%)	1.35	1.82	1.44	7.05	5.69	7.14
Mean (mm)	0.168	0.166	0.170	0.119	0.141	0.124
Std dev (mm)	0.001	0.002	0.001	0.002	0.003	0.002
Phi	2.577	2.590	2.557	3.075	2.825	3.013
Wentworth classification	Fine Sand	Fine Sand	Fine Sand	Very Fine Sand	Fine Sand	Very Fine Sand
Classification description	Slightly Very Fine Gravelly Fine Sand	Slightly Medium Gravelly Fine Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Slightly Very Fine Gravelly Very Fine Sand

Table 2 – Particle Size Summary Statistics Cont'd	B2 #1	B2 #2	B2 #3	B3 #1	B3 #2	B3 #3
>2mm (%)	21.20	12.84	21.15	16.45	14.66	21.12
<63µm (%)	3.11	3.35	3.79	8.01	7.99	8.24
Mean (mm)	0.412	0.311	0.403	0.276	0.263	0.297
Std dev (mm)	0.004	0.004	0.004	0.005	0.005	0.006
Phi	1.281	1.685	1.312	1.859	1.927	1.752
Wentworth classification	Medium Sand	Medium Sand	Medium Sand	Medium Sand	Medium Sand	Medium Sand
Classification description	Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Coarse Silty Very Fine Sand

Table 2 – Particle Size Summary Statistics Cont'd	B4 #1	B4 #2	B4 #3	B5 #1	B5 #2	B5 #3
>2mm (%)	2.83	2.36	5.11	0.82	6.65	2.95
<63µm (%)	7.33	7.55	7.73	8.75	5.84	6.61
Mean (mm)	0.126	0.124	0.128	0.123	0.145	0.128
Std dev (mm)	0.002	0.002	0.003	0.002	0.002	0.002
Phi	2.987	3.011	2.964	3.029	2.786	2.969
Wentworth classification	Fine Sand	Very Fine Sand	Fine Sand	Very Fine Sand	Fine Sand	Fine Sand
Classification description	Slightly Very Fine Gravelly Very Fine Sand	Slightly Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Very Fine Sand	Slightly Very Fine Gravelly Very Fine Sand	Very Fine Gravelly Fine Sand	Slightly Very Fine Gravelly Very Fine Sand