



NMQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

Particle Size Report – PS86

Particle Size Component 2022/23

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- No data provided.

n/p - not participating in this exercise at current time/ non-participation not communicated.

n/p* - not participating in this exercise at current time - non-participation communicated.

BENCHMARK DATA

NOTE FROM BENCHMARK LAB: It was not possible to take a laser subsample from the bulk before wet separation due to there being proportionally very little sediment <1 mm. Therefore, the sediment was wet separated at 1 mm, the >1 mm and <1 mm fractions dried, sieved and weighed. Laser analysis was then performed on the <1 mm wet separated sediment.

Table 1. Summary data for the benchmark replicates distributed as PS86.

	Method	% Gravel	% Sand	% Mud	Sediment Description (Post analysis)
PSA_2936 BM REP 1	NMBAQC	46.99	52.35	0.66	Sandy gravel
PSA_2937 BM REP 2	NMBAQC	46.54	52.92	0.54	Sandy gravel
PSA_2938 BM REP 3	NMBAQC	46.43	52.84	0.73	Sandy gravel
PSA_2939 BM REP 4	NMBAQC	46.07	53.37	0.56	Sandy gravel
PSA_2940 BM REP 5	NMBAQC	46.05	53.39	0.57	Sandy gravel
BM REP AVERAGE	NMBAQC	46.42	52.97	0.61	Sandy gravel

Table 2. Summary of sieve data for the benchmark replicates distributed as PS86.

		PSA_2936 BM REP 1	PSA_2937 BM REP 2	PSA_2938 BM REP 3	PSA_2939 BM REP 4	PSA_2940 BM REP 5	BM Average
Sieves used		Yes	Yes	Yes	Yes	Yes	Yes
Phi interval	Microns	Weight in grams					
-6.5 to -6.0	>63000	0.00	0.00	0.00	0.00	0.00	0.00
-6.0 to -5.5	45000 - 63000	0.00	0.00	0.00	0.00	0.00	0.00
-5.5 to -5.0	31500 - 45000	0.00	0.00	0.00	0.00	0.00	0.00
-5.0 to -4.5	22400 - 31500	0.00	0.00	0.00	0.00	0.00	0.00
-4.5 to -4.0	16000 - 22400	0.00	0.00	0.00	0.00	0.00	0.00
-4.0 to -3.5	11200 - 16000	0.00	0.00	0.00	0.00	0.00	0.00
-3.5 to -3.0	8000 - 11200	0.00	0.00	0.00	0.00	0.00	0.00
-3.0 to -2.5	5600 - 8000	22.87	27.86	21.51	29.54	23.33	25.02
-2.5 to -2.0	4000 - 5600	115.19	111.37	133.14	123.22	125.83	121.75
-2.0 to -1.5	2800 - 4000	55.74	65.87	49.56	48.59	52.69	54.49
-1.5 to -1.0	2000 - 2800	1.07	1.20	1.42	1.62	1.48	1.36
-1.0 to -0.5	1400 - 2000	59.21	64.82	68.96	67.76	69.33	66.02
-0.5 to 0.0	1000 - 1400	126.79	135.62	132.58	133.83	132.83	132.33
>1.0 mm		380.87	406.74	407.17	404.56	405.49	400.97
<1.0 mm	Base Pan	11.69	17.02	11.95	12.69	13.13	13.30
	Oven Dried	22.15	19.48	23.77	23.32	22.95	22.33
Total Weight (g)		414.71	443.24	442.89	440.57	441.57	436.60

BENCHMARK DATA

Table 3. Summary of final laser data for the benchmark replicates distributed as PS86.

Phi interval	Microns	PSA_2936	PSA_2937	PSA_2938	PSA_2939	PSA_2940	BM
		BM REP 1	BM REP 2	BM REP 3	BM REP 4	BM REP 5	AVERAGE
0.0 to 0.5	710 - 1000	63.82	67.36	63.76	65.92	65.55	65.28
0.5 to 1.0	500 - 710	15.73	16.35	16.26	16.92	16.66	16.38
1.0 to 1.5	355 - 500	5.55	5.25	5.22	5.39	5.43	5.37
1.5 to 2.0	250 - 355	1.98	1.66	1.75	1.80	1.82	1.80
2.0 to 2.5	180 - 250	1.59	1.15	1.40	1.22	1.39	1.35
2.5 to 3.0	125 - 180	1.12	0.53	0.89	0.78	0.80	0.83
3.0 to 3.5	90 - 125	1.04	0.59	0.90	0.54	0.76	0.76
3.5 to 4.0	63 - 90	1.04	0.61	0.81	0.63	0.64	0.75
4.0 to 4.5	44.19 - 63	1.10	0.69	1.06	0.68	0.77	0.86
4.5 to 5.0	31.25 - 44.19	1.09	0.79	1.19	0.82	0.88	0.95
5.0 to 5.5	22.097 - 31.25	0.96	0.78	1.16	0.80	0.85	0.91
5.5 to 6.0	15.625 - 22.097	0.80	0.67	0.98	0.72	0.72	0.78
6.0 to 6.5	11.049 - 15.625	0.75	0.63	0.89	0.67	0.66	0.72
6.5 to 7.0	7.813 - 11.049	0.59	0.51	0.67	0.53	0.52	0.56
7.0 to 7.5	5.524 - 7.813	0.52	0.44	0.57	0.46	0.45	0.49
7.5 to 8.0	3.906 - 5.524	0.47	0.39	0.51	0.42	0.40	0.44
8.0 to 8.5	2.762 - 3.906	0.35	0.30	0.37	0.32	0.30	0.33
8.5 to 9.0	1.953 - 2.762	0.27	0.23	0.29	0.25	0.24	0.26
9.0 to 9.5	1.381 - 1.953	0.27	0.23	0.29	0.25	0.24	0.25
9.5 to 10.0	0.977 - 1.381	0.26	0.22	0.29	0.24	0.23	0.25
10.0 to 10.5	0.691 - .0977	0.22	0.19	0.24	0.20	0.20	0.21
10.5 to 11.0	0.488 - 0.691	0.16	0.15	0.18	0.15	0.16	0.16
11.0 to 11.5	0.345 - 0.488	0.11	0.11	0.13	0.11	0.12	0.11
11.5 to 12.0	0.244 - 0.345	0.08	0.08	0.08	0.08	0.08	0.08
12.0 to 12.5	0.173 - 0.244	0.05	0.05	0.05	0.05	0.06	0.05
12.5 to 13.0	0.122 - 0.173	0.03	0.04	0.03	0.03	0.04	0.03
13.0 to 13.5	0.086 - 0.122	0.02	0.02	0.02	0.02	0.02	0.02
13.5 to 14.0	0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01
14.0 to 14.5	0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00
> 14.5	0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00
Total		100.00	100.00	100.00	100.00	100.00	100.00
MEAN:		642.12	704.28	644.79	689.49	680.09	671.58
SORTING:		2.21	1.97	2.28	2.04	2.06	2.12
SKEWNESS:		-0.73	-0.65	-0.73	-0.67	-0.68	-0.70
KURTOSIS:		3.39	3.72	3.64	3.65	3.55	3.61
MODE:		Unimodal	Unimodal	Unimodal	Unimodal	Unimodal	Unimodal
MODE 1 (µm):		853.5	853.5	853.5	853.5	853.5	853.5
MODE 2 (µm):		-	-	-	-	-	-
MODE 3 (µm):		-	-	-	-	-	-

BENCHMARK DATA

Table 4. Summary of Coefficient of Variation (COV) for Benchmark laser replicates for PS86.

		PSA_2936 BM REP 1	PSA_2937 BM REP 2	PSA_2938 BM REP 3	PSA_2939 BM REP 4	PSA_2940 BM REP 5
D ₁₀	Subsample 1	13.80	3.93	21.56	4.97	22.56
	Subsample 2	5.53	11.30	13.14	9.16	16.07
	Subsample 3	17.93	12.28	6.00	7.81	7.95
					n	
D ₅₀	Subsample 1	0.27	0.17	0.33	0.11	0.56
	Subsample 2	0.02	0.24	0.22	0.25	0.33
	Subsample 3	0.29	0.36	0.04	0.16	0.14
D ₉₀	Subsample 1	0.05	0.04	0.07	0.02	0.11
	Subsample 2	0.00	0.05	0.04	0.05	0.07
	Subsample 3	0.06	0.07	0.01	0.03	0.03

$$COV = \left(\frac{StDev}{Mean} \right) * 100$$

ISO 133020 defines good reproducibility when: COV is <3% for D50

COV is <5% for D10 and D90

All limits double when the D50 is <10microns.

In reality 3% and 5% are low and greater variability is expected for natural sediment samples therefore a maximum of 20% (based on three replicates being measured) will be used as a guide.

**The COV is slightly high for the D₁₀ in replicates BM Rep3 and BM Rep 5.
Generally the Benchmark replicates show good reproducibility.**

Table 5. Laser metadata for Benchmark replicates for PS86.

If laser used, provide manufacturer/model:	Beckman Coulter LS 13320
Dispersion unit:	Universal Liquid Module
Analysis model:	Mie
Dispersant used:	Water (RI - 1.33)
Particle Refractive Index:	1.55
Particle Absorption Index:	0.1
Fines extension	PIDS system
Obscuration (average):	10%
Pump speed (% or rpm)	80%
Stirrer speed (% or rpm)	n/a
Ultrasonic duration (seconds)	20
Ultrasonic level (eg %, unit as described by instrument manual)	2

Figure 1a. Percentage bar charts resulting from final sieve analysis of 5 replicate samples of sediment distributed as PS86 (Benchmark Data).

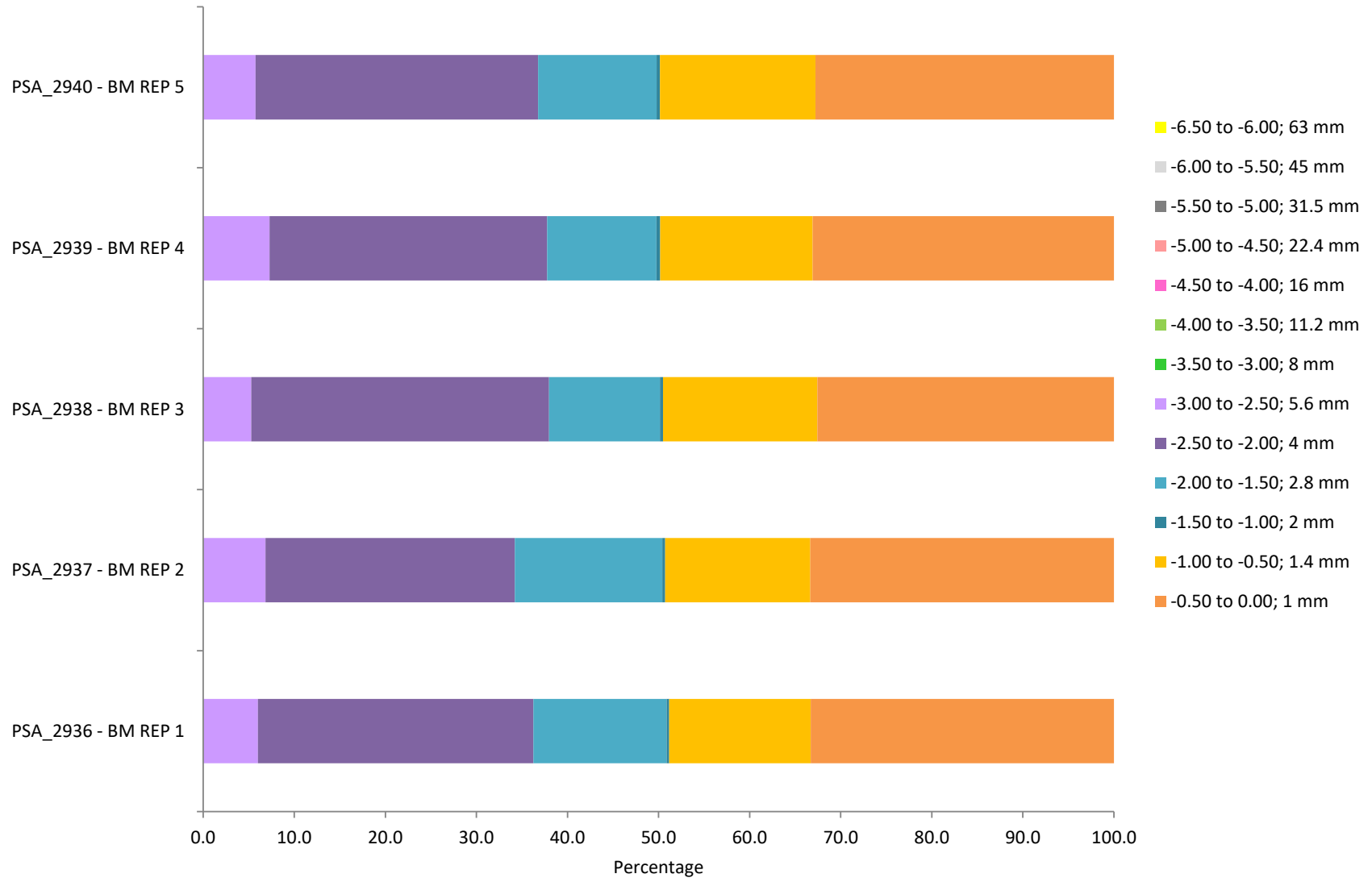


Figure 1b. Particle size distribution curves resulting from final laser analysis of 5 replicate samples of sediment distributed as PS86 (Benchmark Data).

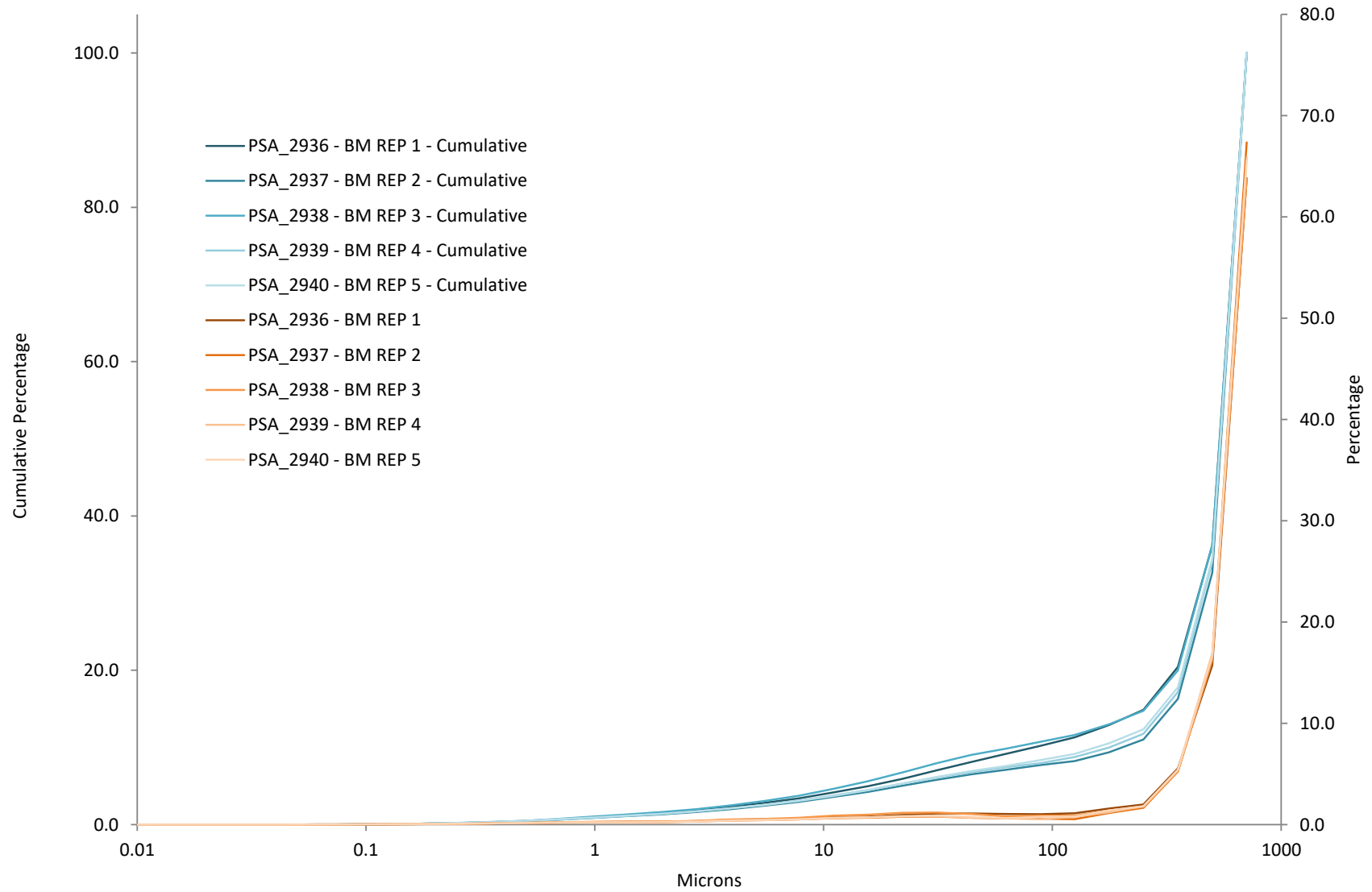


Figure 2. Particle size distribution curves resulting from laser analysis of five replicate samples of sediment distributed as PS86.

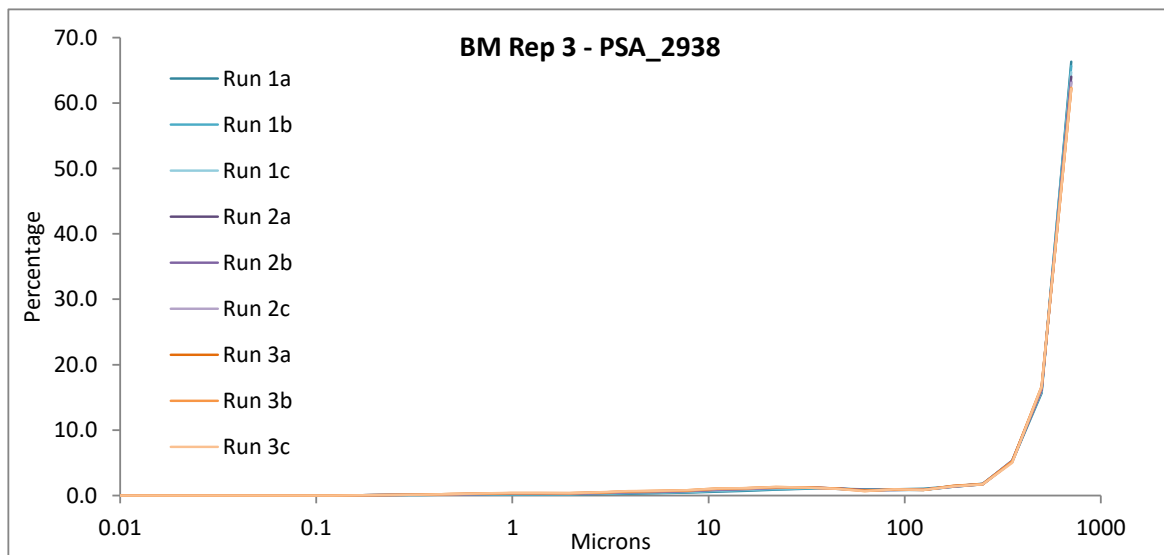
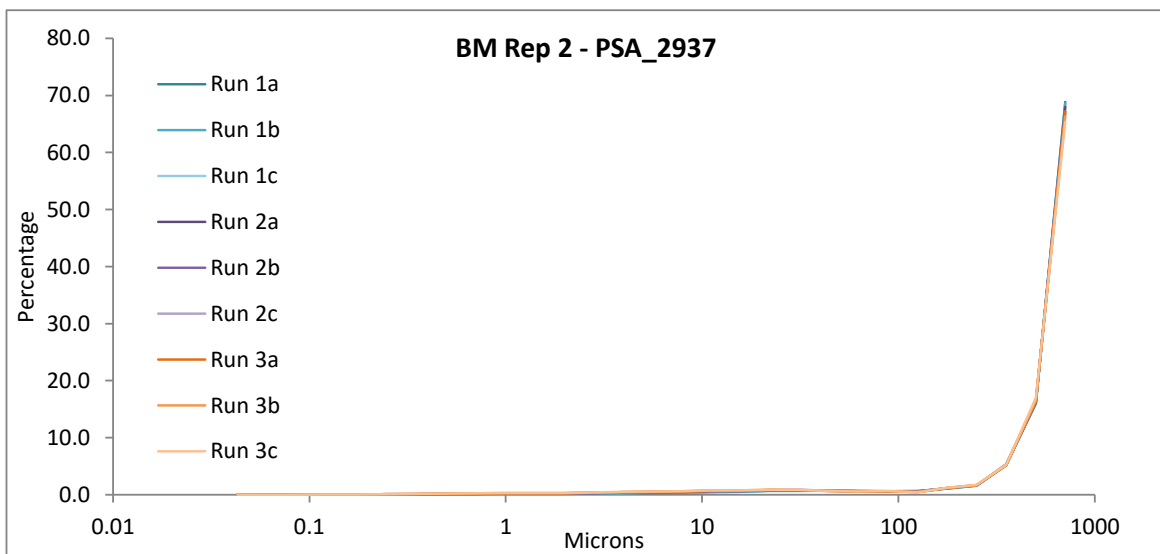
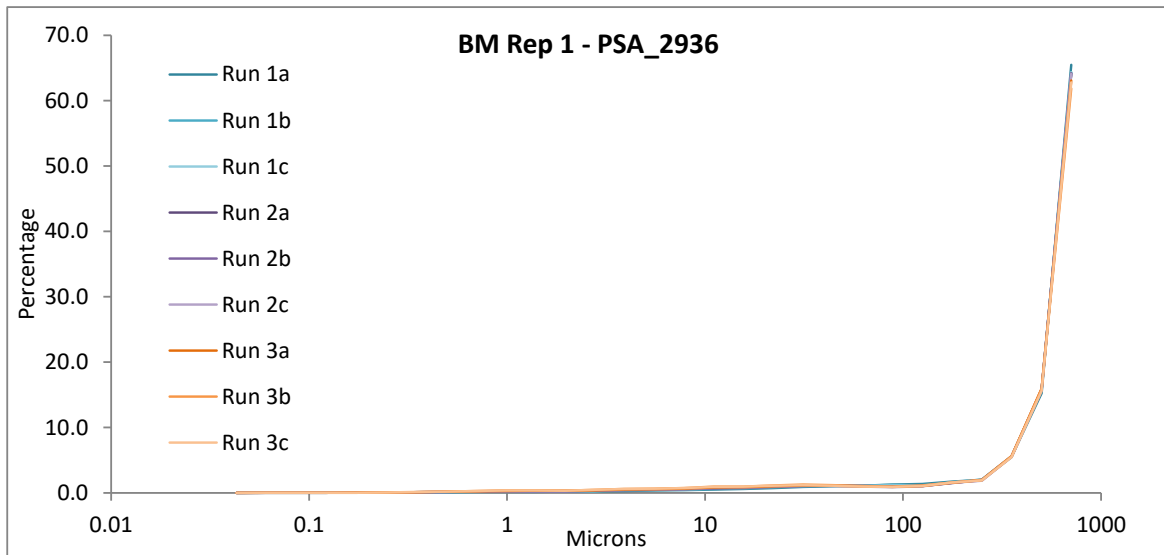


Figure 2. Particle size distribution curves resulting from laser analysis of five replicate samples of sediment distributed as PS86.

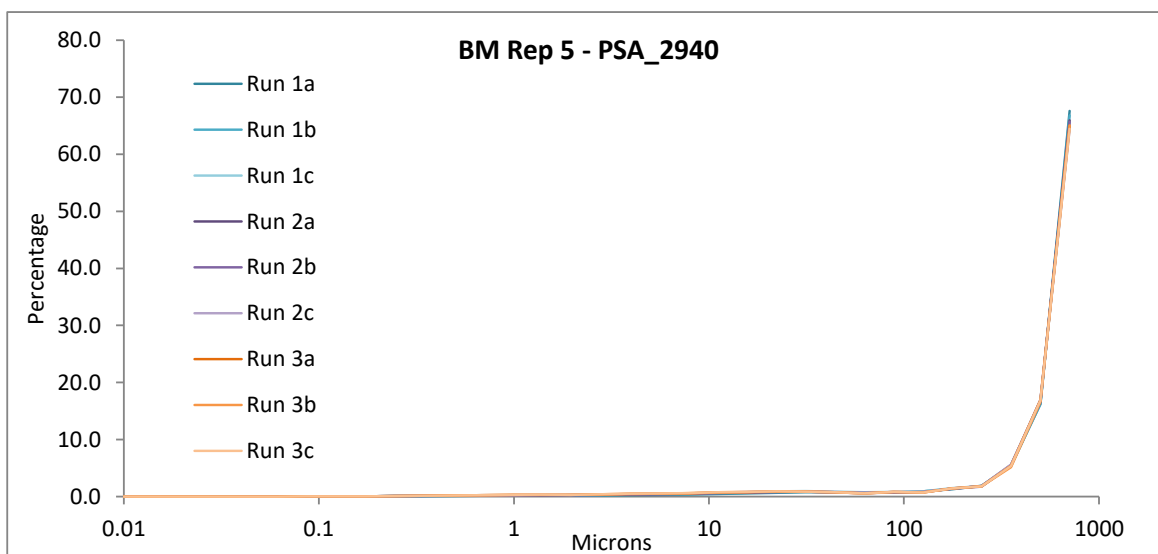
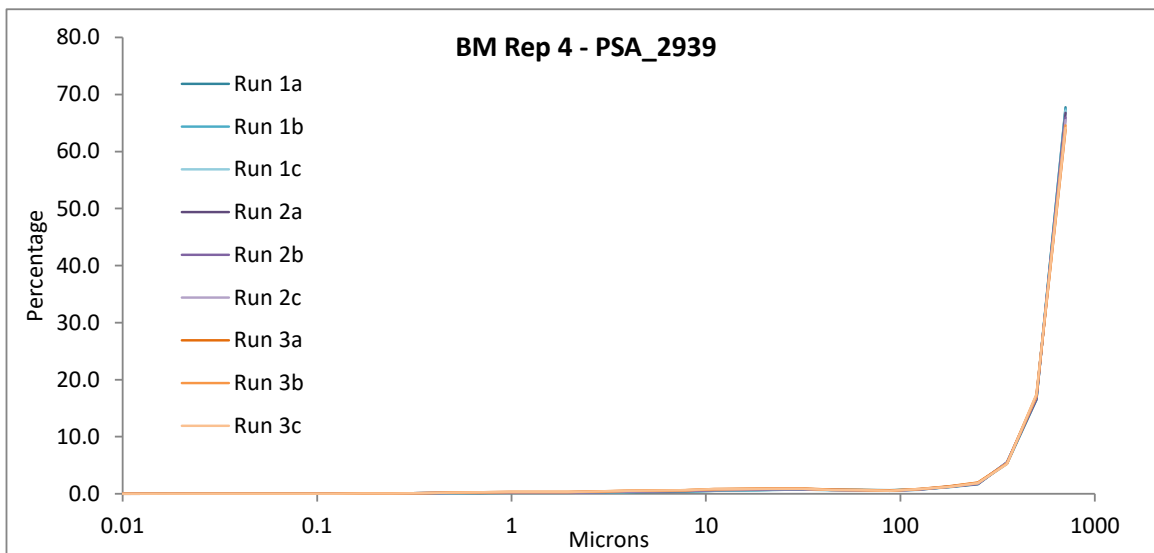
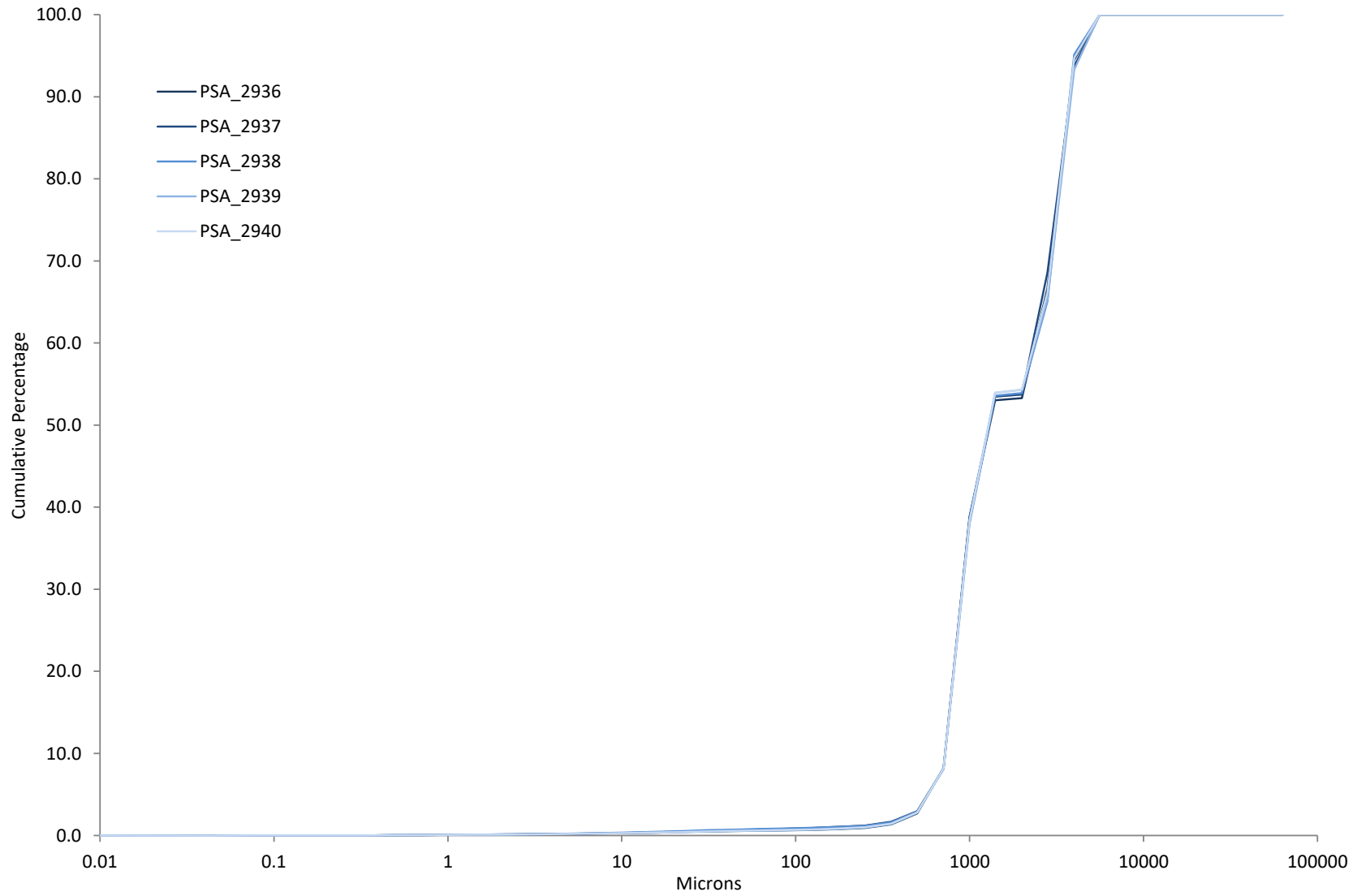


Figure 3. Particle size distribution curves resulting from analysis of 5 replicate samples of sediment distributed as PS86 (Benchmark Data).



PARTICIPANT DATA

Table 6. Summary of equipment and methods used by participants and sample summary data provided by participants for sediment distributed as PS86.

Lab	Equipment Used		Method Used	Chemical Dispersant Used	Peroxide pre-treatment Used	Summary Data			Sediment Description (Post Analysis)	Sediment Description* Gradistat Textural Group
	Sieves	Laser				% Gravel	% Sand	% Mud		
Benchmark Average	Yes	Yes	NMBAQC	No	No	46.42	52.97	0.61	Sandy Gravel	Sandy Gravel
PSA_2901	Yes	Yes	NMBAQC	No	No	46.33	53.55	0.12	Sandy Gravel	Sandy Gravel
PSA_2902	Yes	Yes	NMBAQC	No	No	46.10	53.10	0.80	Sandy Gravel	Sandy Gravel
PSA_2903	Yes	Yes	NMBAQC	No	No	46.27	53.1	0.7	Sandy Gravel	Sandy Gravel
PSA_2904	Yes	No	NMBAQC	No	No	46.07	53.93	0	Sandy Gravel	Sandy Gravel
PSA_2905	Yes	Yes	OTHER	No	No	46.48	53.49	0.02	Sandy Gravel	Sandy Gravel
PSA_2906	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p
PSA_2907	Yes	No	NMBAQC	No	No	46.24	53.76	0.00	Sandy Gravel	Sandy Gravel
PSA_2908	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*
PSA_2909	Yes	Yes	NMBAQC	No	No	48.17	50.92	0.91	Sandy Gravel	Sandy Gravel
PSA_2910	Yes	No	NMBAQC	No	No	46.43	53.57	0.00	Sandy Gravel	Sandy Gravel
PSA_2911	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*	n/p*
PSA_2912	Yes	Yes	NMBAQC	No	No	46.13	52.43	1.44	Sandy Gravel	Sandy Gravel
PSA_2913	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p
PSA_2914	Yes	Yes	OTHER	No	No	55.07	44.93	0.00	Sandy Gravel	Sandy Gravel
PSA_2916	Yes	No	NMBAQC	No	No	45.75	54.25	0	Gravelly Sand	Sandy Gravel
PSA_2917	Yes	Yes	NMBAQC	No	No	46.32	53.01	0.67	Sandy Gravel	Sandy Gravel
PSA_2918	Yes	No	NMBAQC	No	No	45.98	54.07	0.00	Sandy Gravel	Sandy Gravel

NB: Decimal places as supplied by participant.

* Sediment description from Gradistat textural group based on final data supplied by participant.

PARTICIPANT DATA

Table 7. Raw sieve data (weight in grams) provided by participants for sediment distributed as PS86.

Phi interval Microns		Participant										
		Benchmark Average	PSA_2901	PSA_2902	PSA_2903	PSA_2904	PSA_2905	PSA_2906	PSA_2907	PSA_2908	PSA_2909	PSA_2910
Sieves Used		Yes	Yes	Yes	Yes	Yes	n/p	n/p	Yes	n/p*	Yes	Yes
-6.5 to -6.0	>63000	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-6.0 to -5.5	45000 - 63000	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-5.5 to -5.0	31500 - 45000	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-5.0 to -4.5	22400 - 31500	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-4.5 to -4.0	16000 - 22400	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-4.0 to -3.5	11200 - 16000	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-3.5 to -3.0	8000 - 11200	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
-3.0 to -2.5	5600 - 8000	25.02	27.55	24.53	31.08	34.18	27.93	n/p	29.32	n/p*	25.23	42.16
-2.5 to -2.0	4000 - 5600	121.75	101.28	120.12	122.07	79.76	103.70	n/p	106.92	n/p*	96.28	96.13
-2.0 to -1.5	2800 - 4000	54.49	73.70	58.53	49.15	58.67	69.17	n/p	62.81	n/p*	61.31	63.92
-1.5 to -1.0	2000 - 2800	1.36	2.17	1.76	3.10	1.92	3.07	n/p	1.07	n/p*	2.48	2.50
-1.0 to -0.5	1400 - 2000	66.02	49.33	51.72	51.23	54.86	50.73	n/p	73.72	n/p*	46.61	55.78
-0.5 to 0.0	1000 - 1400	132.33	150.26	137.13	145.36	131.55	132.90	n/p	139.38	n/p*	112.45	139.80
<i>Total</i>		400.97	404.29	393.78	401.99	360.96	387.50	n/p	413.22	a/d	344.36	400.29
Summary Data												
< 0.00; >1 mm		400.97	404.29	393.78	401.99	360.96	387.50	n/p	413.22	n/p*	344.36	400.29
> 0.00; <1 mm	Base pan	13.30	37.50	1.61	16.26	12.43	-	n/p	19.57	n/p*	31.31	28.02
	Oven dried	22.33	0.00	49.04	25.65	5.50	51.07	n/p	0.00	n/p*	9.03	12.61
Total Sample Weight		436.60	441.79	444.43	443.90	378.89	438.57	n/p	432.79	n/p*	384.70	440.92

PARTICIPANT DATA

Table 7. Raw sieve data (weight in grams) provided by participants for sediment distributed as PS86.

Phi interval Microns		Participant							
		Benchmark Average	PSA_2911	PSA_2912	PSA_2913	PSA_2914	PSA_2916	PSA_2917	PSA_2918
Sieves Used		Yes	n/p*	Yes	n/p	Yes	Yes	Yes	Yes
-6.5 to -6.0	>63000	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-6.0 to -5.5	45000 - 63000	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-5.5 to -5.0	31500 - 45000	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-5.0 to -4.5	22400 - 31500	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-4.5 to -4.0	16000 - 22400	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-4.0 to -3.5	11200 - 16000	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-3.5 to -3.0	8000 - 11200	0.00	n/p*	0.00	n/p	-	0.00	0.00	0.00
-3.0 to -2.5	5600 - 8000	25.02	n/p*	33.47	n/p	-	37.41	24.73	31.08
-2.5 to -2.0	4000 - 5600	121.75	n/p*	100.57	n/p	-	93.77	113.96	93.73
-2.0 to -1.5	2800 - 4000	54.49	n/p*	69.17	n/p	-	68.61	64.36	71.83
-1.5 to -1.0	2000 - 2800	1.36	n/p*	1.16	n/p	243.82	1.51	1.23	4.58
-1.0 to -0.5	1400 - 2000	66.02	n/p*	49.03	n/p	-	62.20	69.51	57.03
-0.5 to 0.0	1000 - 1400	132.33	n/p*	135.85	n/p	184.96	158.80	133.05	147.40
<i>Total</i>		400.97	0.00	389.25	n/p	428.78	422.30	406.84	405.65

Summary Data

< 0.00; >1 mm		400.97	n/p*	389.25	n/p	428.78	422.30	406.84	405.65
> 0.00; <1 mm	Base pan	13.30	n/p*	43.37	n/p	-	17.70	12.58	25.27
	Oven dried	22.33	n/p*	10.39	n/p	-	0.00	21.56	7.21
Total Sample Weight		436.60	n/p*	443.01	n/p	428.78	440.00	440.98	438.13

PARTICIPANT DATA

Table 8. Summary of final laser data for the participants for sediment distributed as PS86 with Gradistat output.

Phi interval	Microns	Benchmark Average	PSA_2901	PSA_2902	PSA_2903	PSA_2904	PSA_2905	PSA_2906
0.0 to 0.5	710 - 1000	65.28	73.53	54.72	70.32	-	68.83	n/p
0.5 to 1.0	500 - 710	16.38	18.35	25.88	20.48	-	19.61	n/p
1.0 to 1.5	355 - 500	5.37	3.52	4.62	1.14	-	1.02	n/p
1.5 to 2.0	250 - 355	1.80	1.74	0.03	0.00	-	1.58	n/p
2.0 to 2.5	180 - 250	1.35	0.78	1.35	0.21	-	3.81	n/p
2.5 to 3.0	125 - 180	0.83	0.53	2.81	0.45	-	3.53	n/p
3.0 to 3.5	90 - 125	0.76	0.22	2.15	0.23	-	1.28	n/p
3.5 to 4.0	63 - 90	0.75	0.10	1.15	0.09	-	0.16	n/p
4.0 to 4.5	44.19 - 63	0.86	0.15	0.89	0.25	-	0.14	n/p
4.5 to 5.0	31.25 - 44.19	0.95	0.18	1.04	0.80	-	0.04	n/p
5.0 to 5.5	22.097 - 31.25	0.91	0.13	1.04	0.95	-	0.00	n/p
5.5 to 6.0	15.625 - 22.097	0.78	0.10	0.85	0.90	-	0.00	n/p
6.0 to 6.5	11.049 - 15.625	0.72	0.09	0.67	0.85	-	0.00	n/p
6.5 to 7.0	7.813 - 11.049	0.56	0.08	0.60	0.83	-	0.00	n/p
7.0 to 7.5	5.524 - 7.813	0.49	0.06	0.58	0.78	-	0.00	n/p
7.5 to 8.0	3.906 - 5.524	0.44	0.05	0.54	0.67	-	0.00	n/p
8.0 to 8.5	2.762 - 3.906	0.33	0.04	0.46	0.54	-	0.00	n/p
8.5 to 9.0	1.953 - 2.762	0.26	0.04	0.37	0.31	-	0.00	n/p
9.0 to 9.5	1.381 - 1.953	0.25	0.03	0.25	0.14	-	0.00	n/p
9.5 to 10.0	0.977 - 1.381	0.25	0.04	0.00	0.04	-	0.00	n/p
10.0 to 10.5	0.691 - .0977	0.21	0.04	0.00	0.00	-	0.00	n/p
10.5 to 11.0	0.488 - 0.691	0.16	0.04	0.00	0.00	-	0.00	n/p
11.0 to 11.5	0.345 - 0.488	0.11	0.04	0.00	0.00	-	0.00	n/p
11.5 to 12.0	0.244 - 0.345	0.08	0.03	0.00	0.00	-	0.00	n/p
12.0 to 12.5	0.173 - 0.244	0.05	0.03	0.00	0.00	-	0.00	n/p
12.5 to 13.0	0.122 - 0.173	0.03	0.02	0.00	0.00	-	0.00	n/p
13.0 to 13.5	0.086 - 0.122	0.02	0.02	0.00	0.00	-	0.00	n/p
13.5 to 14.0	0.061 - 0.086	0.01	0.01	0.00	0.00	-	0.00	n/p
14.0 to 14.5	0.043 - 0.061	0.00	0.00	0.00	0.00	-	0.00	n/p
> 14.5	0.01 - 0.043	0.00	0.00	0.00	0.00	-	0.00	n/p
Total		100.00	100.00	100.00	100.00	-	100.00	n/p
GRADISTAT OUTPUTS								
MEAN:		671.58	751.89	634.23	739.97	-	729.25	n/p
SORTING:		2.12	1.30	2.12	2.02	-	1.48	n/p
SKEWNESS:		-0.70	-0.44	-0.67	-0.61	-	-0.55	n/p
KURTOSIS:		3.61	1.56	3.17	5.17	-	2.14	n/p
MODE:		Unimodal	Unimodal	Unimodal	Unimodal	-	Unimodal	n/p
MODE 1 (µm):		853.5	853.5	853.5	853.5	-	853.5	n/p
MODE 2 (µm):		-	-	-	-	-	-	n/p
MODE 3 (µm):		-	-	-	-	-	-	n/p

PARTICIPANT DATA

Table 8. Summary of final laser data for the participants for sediment distributed as PS86 with Gradistat output.

Phi interval	Microns	Benchmark Average	PSA_2907	PSA_2908	PSA_2909	PSA_2910	PSA_2911	PSA_2912
0.0 to 0.5	710 - 1000	65.28	-	n/p*	64.18	-	n/p*	57.57
0.5 to 1.0	500 - 710	16.38	-	n/p*	15.02	-	n/p*	18.86
1.0 to 1.5	355 - 500	5.37	-	n/p*	4.59	-	n/p*	1.84
1.5 to 2.0	250 - 355	1.80	-	n/p*	1.91	-	n/p*	0.07
2.0 to 2.5	180 - 250	1.35	-	n/p*	1.87	-	n/p*	2.06
2.5 to 3.0	125 - 180	0.83	-	n/p*	1.27	-	n/p*	3.36
3.0 to 3.5	90 - 125	0.76	-	n/p*	1.23	-	n/p*	2.62
3.5 to 4.0	63 - 90	0.75	-	n/p*	1.23	-	n/p*	1.78
4.0 to 4.5	44.19 - 63	0.86	-	n/p*	1.28	-	n/p*	1.65
4.5 to 5.0	31.25 - 44.19	0.95	-	n/p*	1.12	-	n/p*	1.81
5.0 to 5.5	22.097 - 31.25	0.91	-	n/p*	1.16	-	n/p*	1.78
5.5 to 6.0	15.625 - 22.097	0.78	-	n/p*	0.79	-	n/p*	1.55
6.0 to 6.5	11.049 - 15.625	0.72	-	n/p*	0.68	-	n/p*	1.29
6.5 to 7.0	7.813 - 11.049	0.56	-	n/p*	0.69	-	n/p*	1.06
7.0 to 7.5	5.524 - 7.813	0.49	-	n/p*	0.58	-	n/p*	0.86
7.5 to 8.0	3.906 - 5.524	0.44	-	n/p*	0.44	-	n/p*	0.69
8.0 to 8.5	2.762 - 3.906	0.33	-	n/p*	0.32	-	n/p*	0.54
8.5 to 9.0	1.953 - 2.762	0.26	-	n/p*	0.26	-	n/p*	0.41
9.0 to 9.5	1.381 - 1.953	0.25	-	n/p*	0.23	-	n/p*	0.18
9.5 to 10.0	0.977 - 1.381	0.25	-	n/p*	0.21	-	n/p*	0.00
10.0 to 10.5	0.691 - .0977	0.21	-	n/p*	0.19	-	n/p*	0.00
10.5 to 11.0	0.488 - 0.691	0.16	-	n/p*	0.18	-	n/p*	0.00
11.0 to 11.5	0.345 - 0.488	0.11	-	n/p*	0.16	-	n/p*	0.00
11.5 to 12.0	0.244 - 0.345	0.08	-	n/p*	0.14	-	n/p*	0.00
12.0 to 12.5	0.173 - 0.244	0.05	-	n/p*	0.11	-	n/p*	0.00
12.5 to 13.0	0.122 - 0.173	0.03	-	n/p*	0.09	-	n/p*	0.00
13.0 to 13.5	0.086 - 0.122	0.02	-	n/p*	0.06	-	n/p*	0.00
13.5 to 14.0	0.061 - 0.086	0.01	-	n/p*	0.03	-	n/p*	0.00
14.0 to 14.5	0.043 - 0.061	0.00	-	n/p*	0.01	-	n/p*	0.00
> 14.5	0.01 - 0.043	0.00	-	n/p*	0.00	-	n/p*	0.00
Total		100.00	0.00	a/d	100.00	-	0.00	100.00
GRADISTAT OUTPUTS								
MEAN:		671.58	-	n/p*	620.02	-	n/p*	433.40
SORTING:		2.12	-	n/p*	2.30	-	n/p*	3.10
SKEWNESS:		-0.70	-	n/p*	-0.75	-	n/p*	-0.83
KURTOSIS:		3.61	-	n/p*	3.42	-	n/p*	3.29
MODE:		Unimodal	-	n/p*	Unimodal	-	n/p*	Unimodal
MODE 1 (µm):		853.5	-	n/p*	853.50	-	n/p*	853.50
MODE 2 (µm):		-	-	n/p*	-	-	n/p*	-
MODE 3 (µm):		-	-	n/p*	-	-	n/p*	-

PARTICIPANT DATA

Table 8. Summary of final laser data for the participants for sediment distributed as PS86 with Gradistat output.

Phi interval	Microns	Benchmark Average	PSA_2913	PSA_2914	PSA_2916	PSA_2917	PSA_2918
0.0 to 0.5	710 - 1000	65.28	n/p	64.28	-	64.12	-
0.5 to 1.0	500 - 710	16.38	n/p	30.34	-	15.80	-
1.0 to 1.5	355 - 500	5.37	n/p	5.39	-	5.47	-
1.5 to 2.0	250 - 355	1.80	n/p	0.00	-	1.99	-
2.0 to 2.5	180 - 250	1.35	n/p	0.00	-	1.55	-
2.5 to 3.0	125 - 180	0.83	n/p	0.00	-	0.85	-
3.0 to 3.5	90 - 125	0.76	n/p	0.00	-	0.80	-
3.5 to 4.0	63 - 90	0.75	n/p	0.00	-	0.79	-
4.0 to 4.5	44.19 - 63	0.86	n/p	0.00	-	1.00	-
4.5 to 5.0	31.25 - 44.19	0.95	n/p	0.00	-	1.18	-
5.0 to 5.5	22.097 - 31.25	0.91	n/p	0.00	-	1.15	-
5.5 to 6.0	15.625 - 22.097	0.78	n/p	0.00	-	0.97	-
6.0 to 6.5	11.049 - 15.625	0.72	n/p	0.00	-	0.82	-
6.5 to 7.0	7.813 - 11.049	0.56	n/p	0.00	-	0.62	-
7.0 to 7.5	5.524 - 7.813	0.49	n/p	0.00	-	0.53	-
7.5 to 8.0	3.906 - 5.524	0.44	n/p	0.00	-	0.46	-
8.0 to 8.5	2.762 - 3.906	0.33	n/p	0.00	-	0.34	-
8.5 to 9.0	1.953 - 2.762	0.26	n/p	0.00	-	0.27	-
9.0 to 9.5	1.381 - 1.953	0.25	n/p	0.00	-	0.27	-
9.5 to 10.0	0.977 - 1.381	0.25	n/p	0.00	-	0.27	-
10.0 to 10.5	0.691 - .0977	0.21	n/p	0.00	-	0.23	-
10.5 to 11.0	0.488 - 0.691	0.16	n/p	0.00	-	0.17	-
11.0 to 11.5	0.345 - 0.488	0.11	n/p	0.00	-	0.12	-
11.5 to 12.0	0.244 - 0.345	0.08	n/p	0.00	-	0.09	-
12.0 to 12.5	0.173 - 0.244	0.05	n/p	0.00	-	0.06	-
12.5 to 13.0	0.122 - 0.173	0.03	n/p	0.00	-	0.04	-
13.0 to 13.5	0.086 - 0.122	0.02	n/p	0.00	-	0.02	-
13.5 to 14.0	0.061 - 0.086	0.01	n/p	0.00	-	0.01	-
14.0 to 14.5	0.043 - 0.061	0.00	n/p	0.00	-	0.00	-
> 14.5	0.01 - 0.043	0.00	n/p	0.00	-	0.00	-
Total		100.00	n/p	100.00	-	100.00	-
GRADISTAT OUTPUTS							
MEAN:		671.58	n/p	733.94	-	646.51	-
SORTING:		2.12	n/p	1.25	-	2.24	-
SKEWNESS:		-0.70	n/p	-0.27	-	-0.72	-
KURTOSIS:		3.61	n/p	0.85	-	3.54	-
MODE:		Unimodal	n/p	Unimodal	-	Unimodal	-
MODE 1 (µm):		853.5	n/p	853.50	-	853.50	-
MODE 2 (µm):		-	n/p	-	-	-	-
MODE 3 (µm):		-	n/p	-	-	-	-

Figure 4. Final sieve data (in percentages) provided by each participant for sediment distributed as PS86.

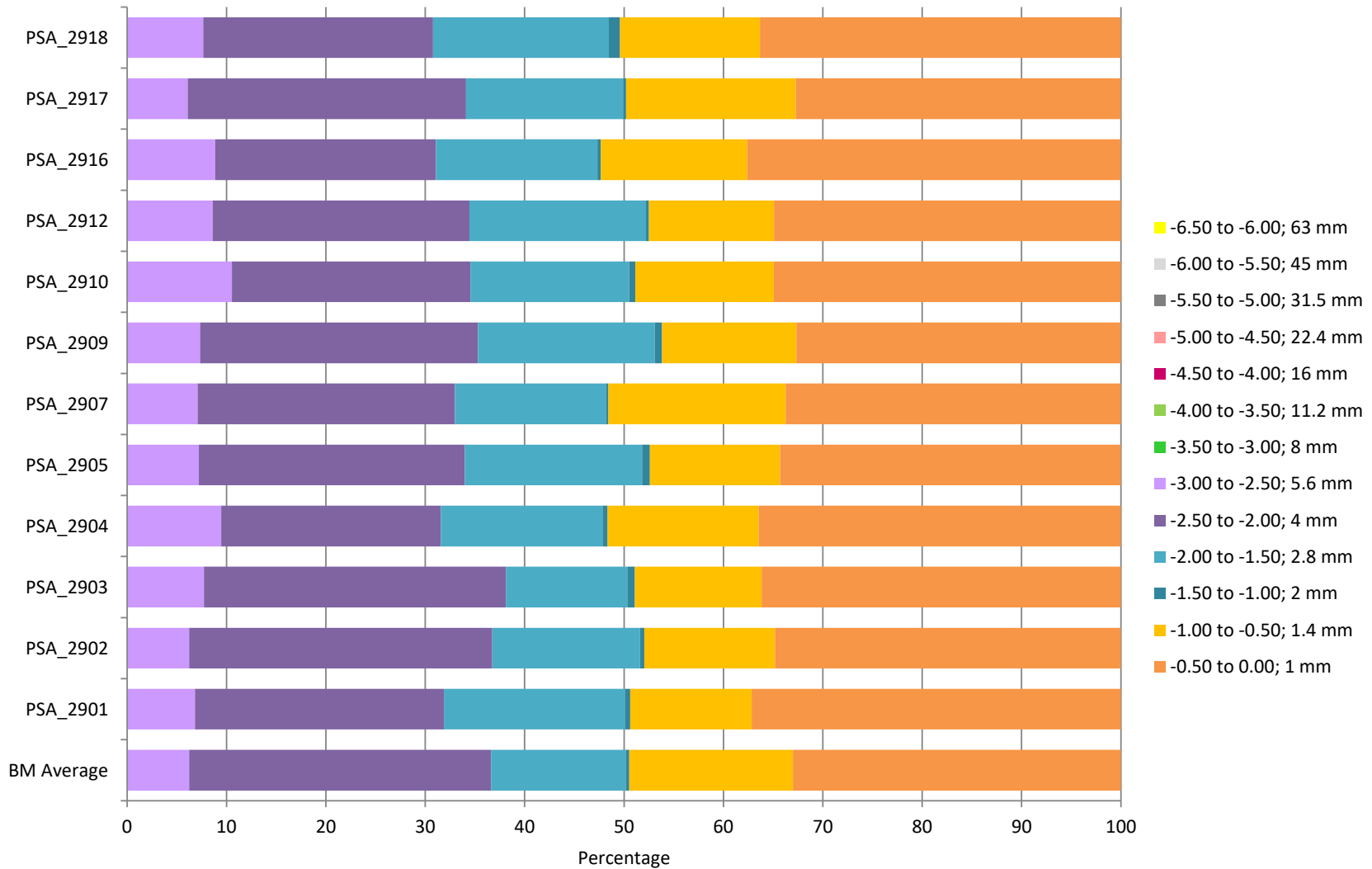


Figure 5. (a) Cumulative and (b) Differential final laser data provided by the participants and Benchmark average for sediment distributed as PS86.

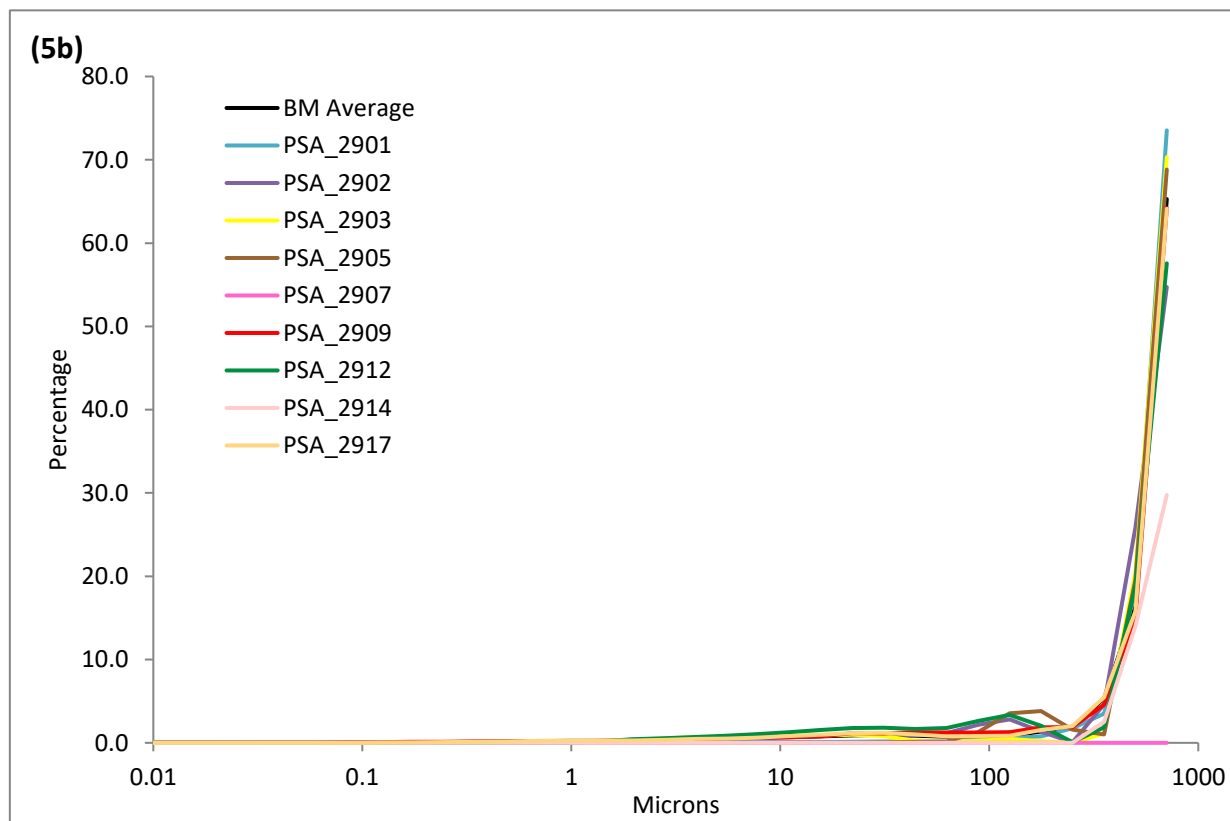
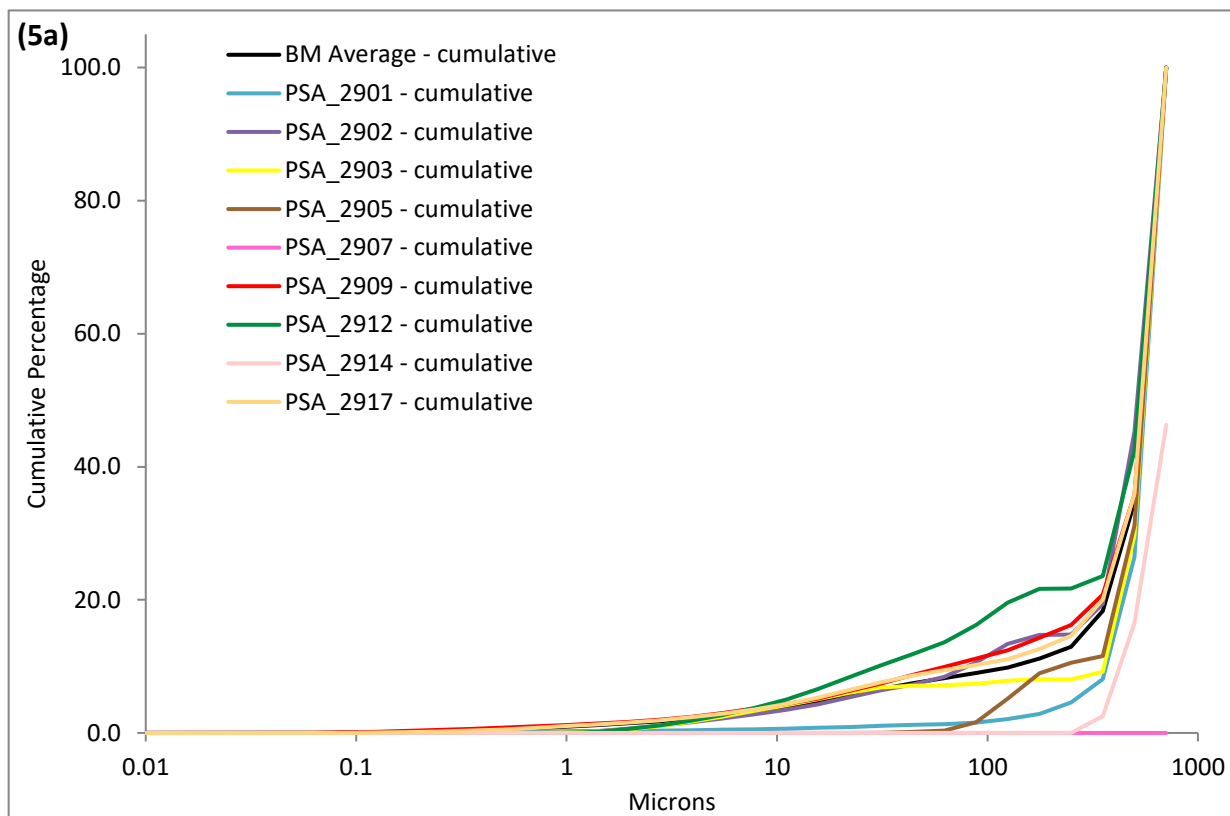


Figure 6. Particle size distribution curves from all participating laboratories and the Benchmark Average for sediment distributed as PS86.

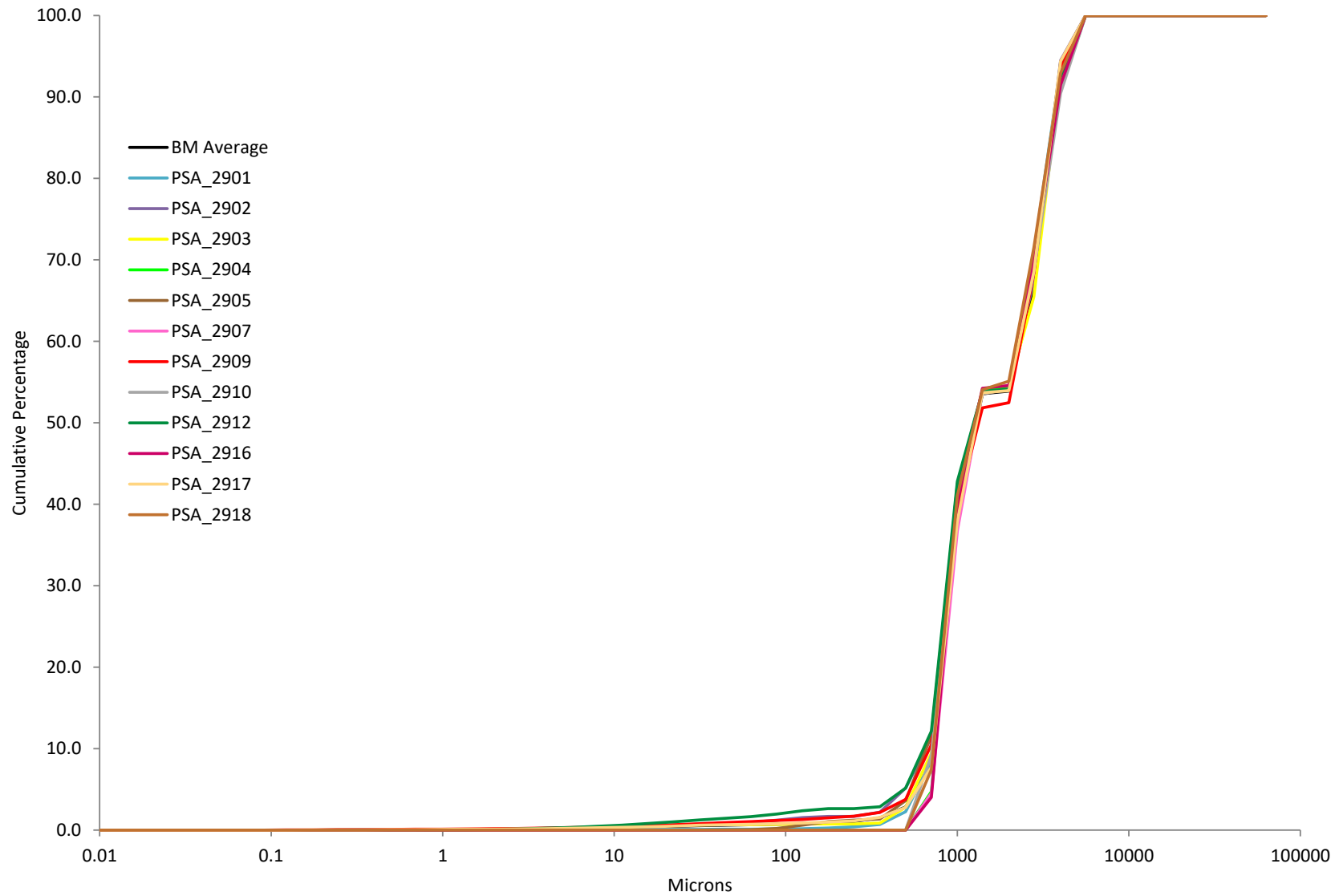


Figure 7. Bar chart showing the percentage gravel, sand, silt and clay recorded by each participating laboratory and the Benchmark Average for PS86.

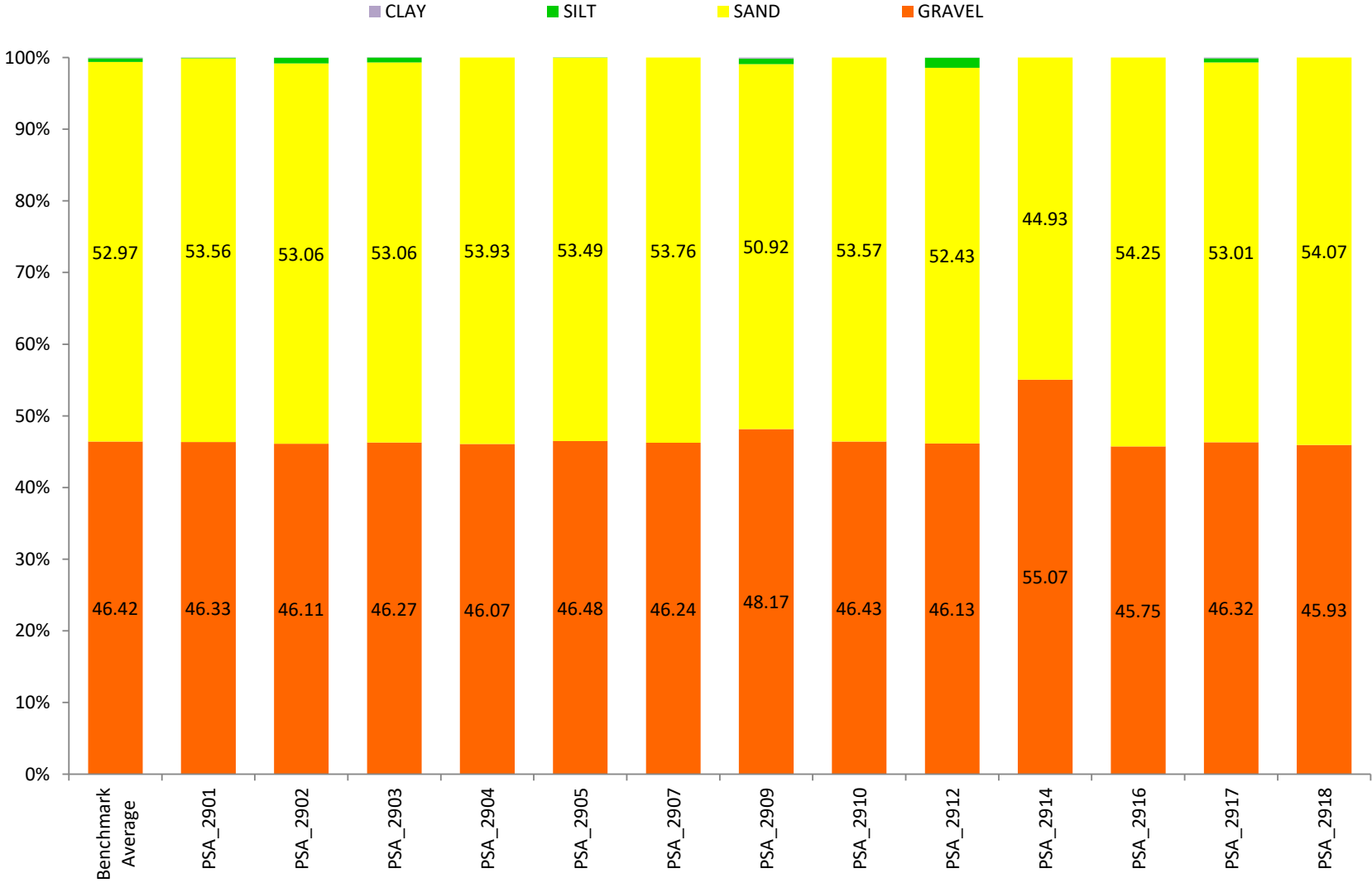


Figure 8. Individual comparisons of participant sieve data with the Benchmark Average for sediment distributed as PS86.

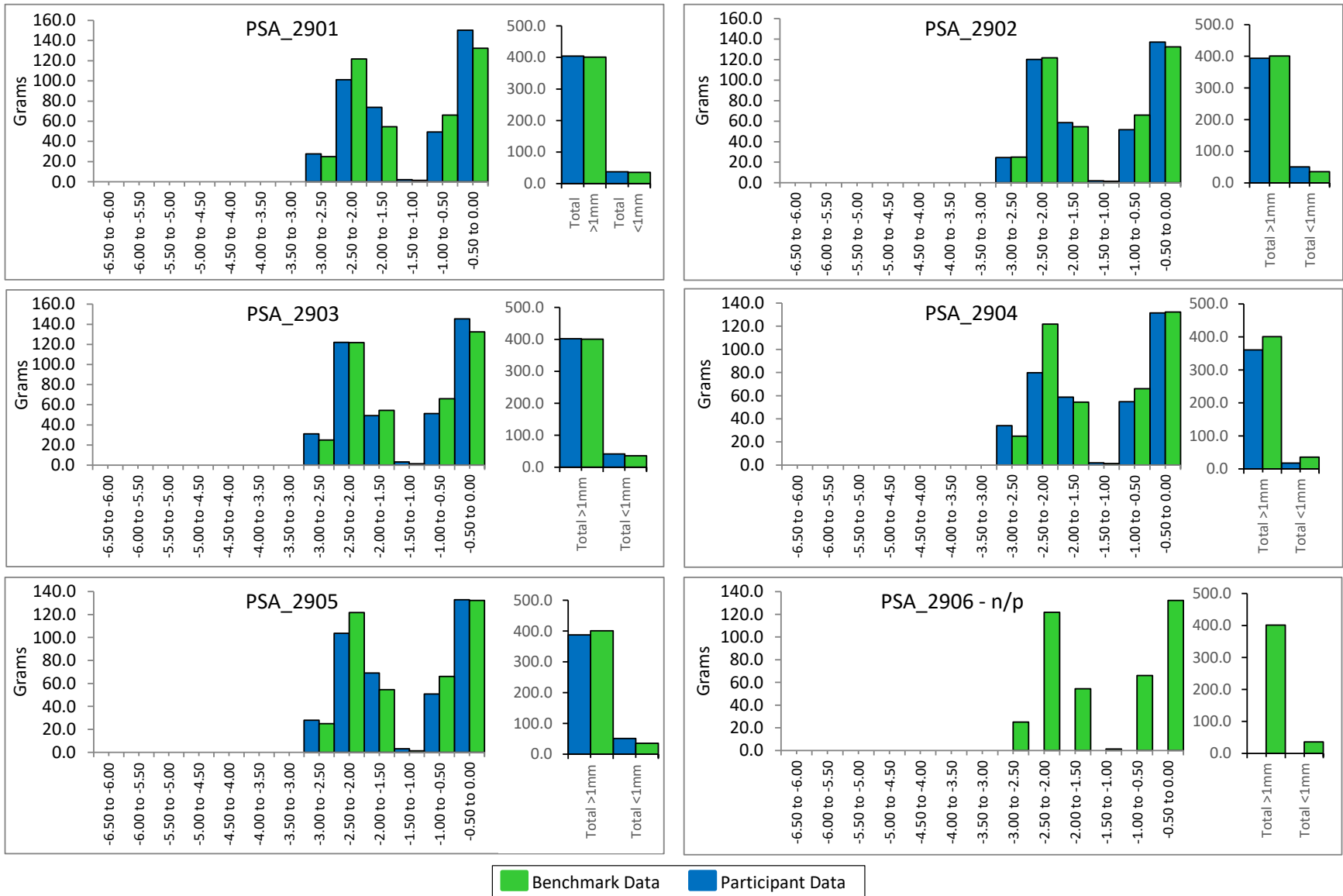


Figure 8. Individual comparisons of participant sieve data with the Benchmark Average for sediment distributed as PS86.

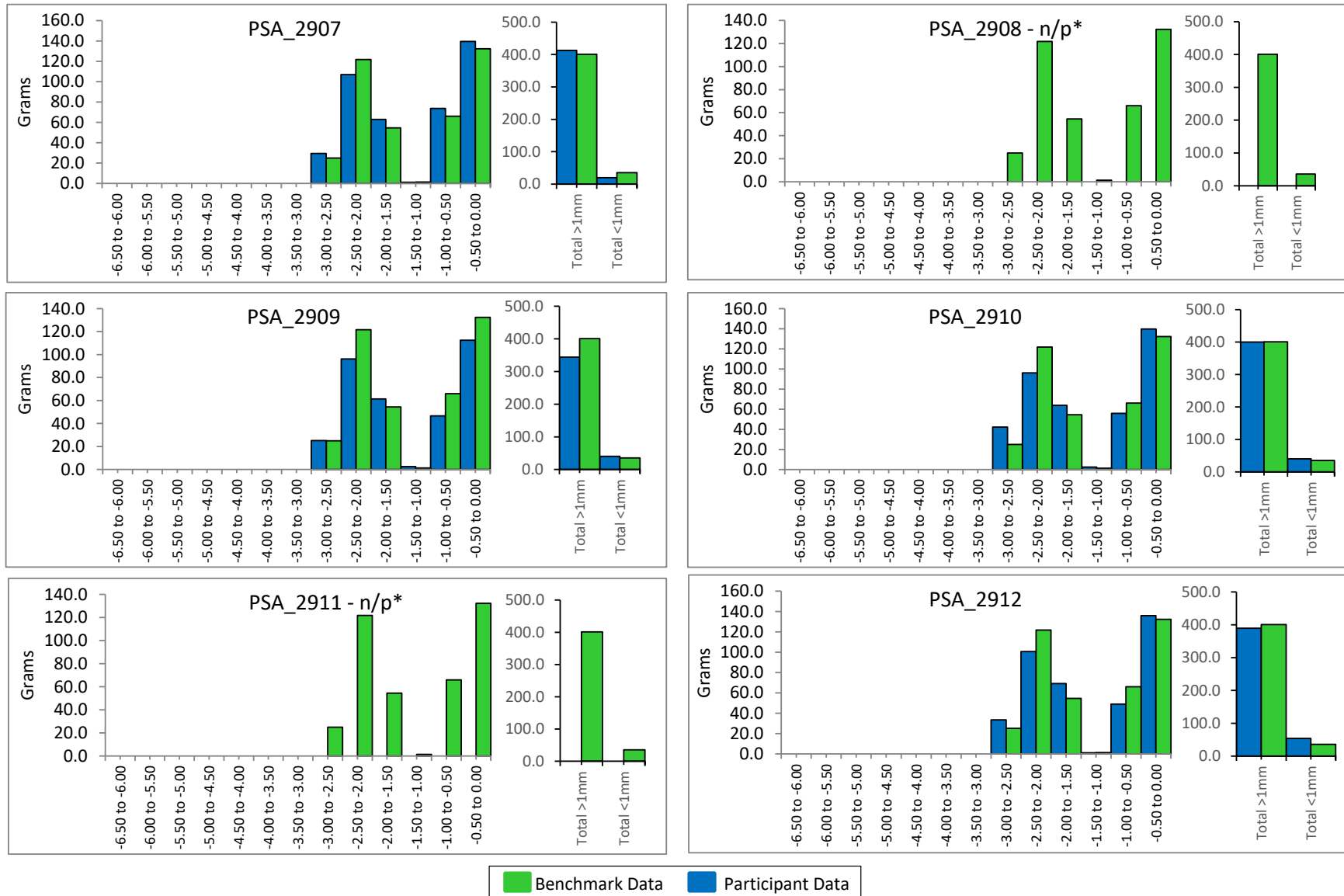


Figure 8. Individual comparisons of participant sieve data with the Benchmark Average for sediment distributed as PS86.

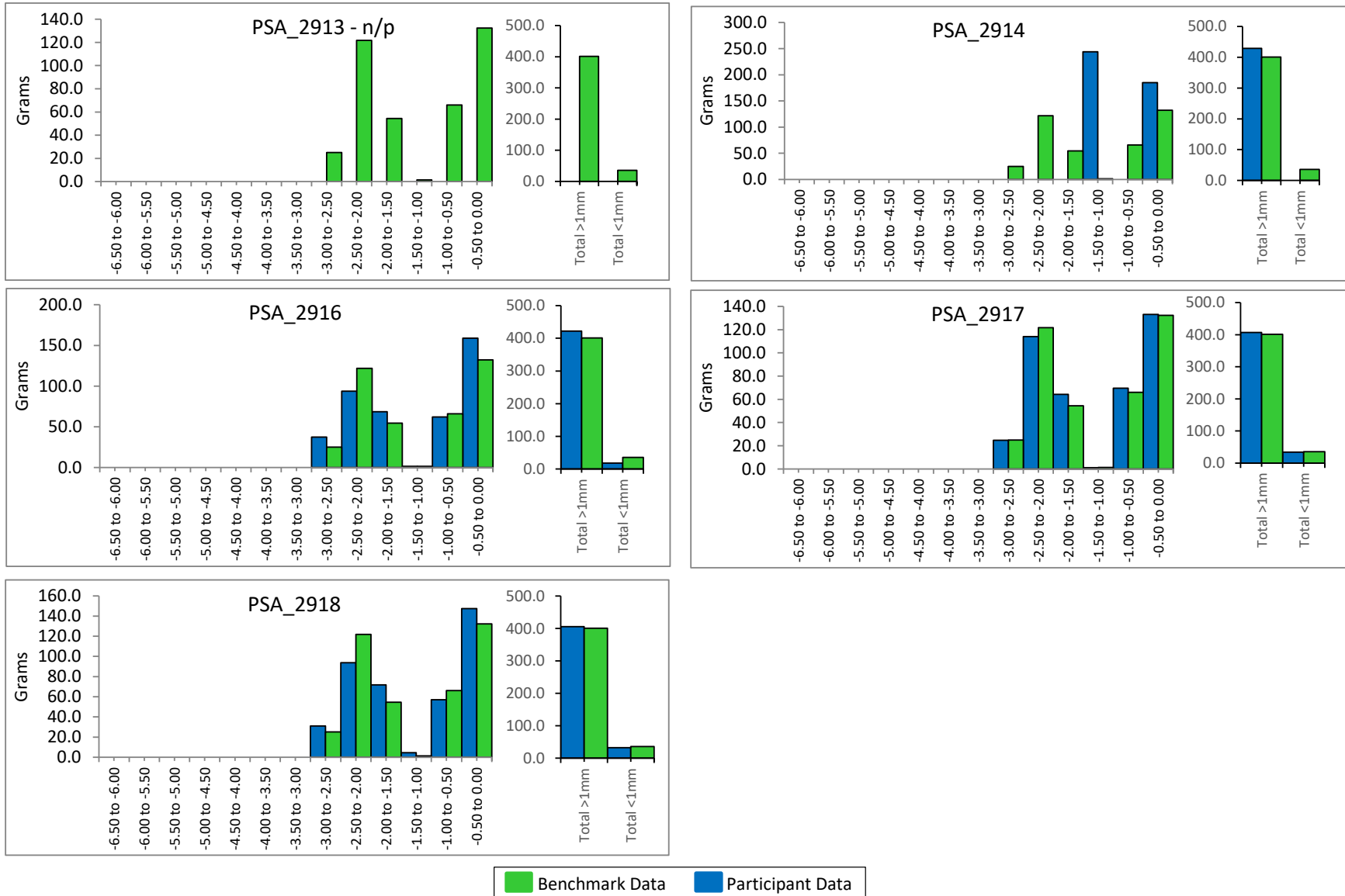


Figure 8. Comparison of participant laser replicate data with the Benchmark Average for sediment distributed as PS86.

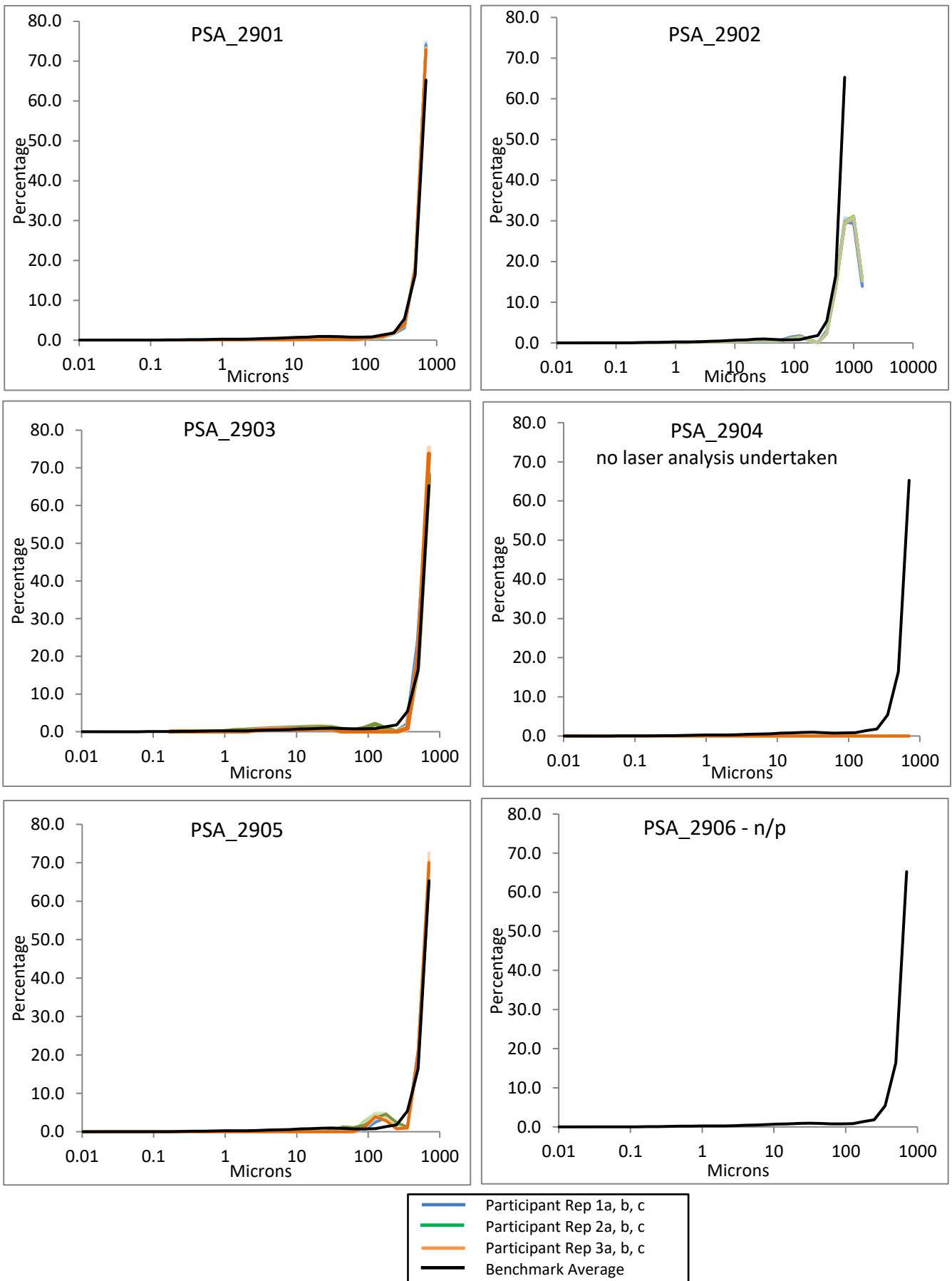


Figure 8. Comparison of participant laser replicate data with the Benchmark Average for sediment distributed as PS86.

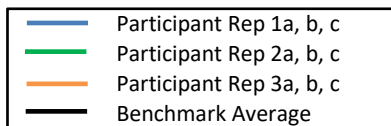
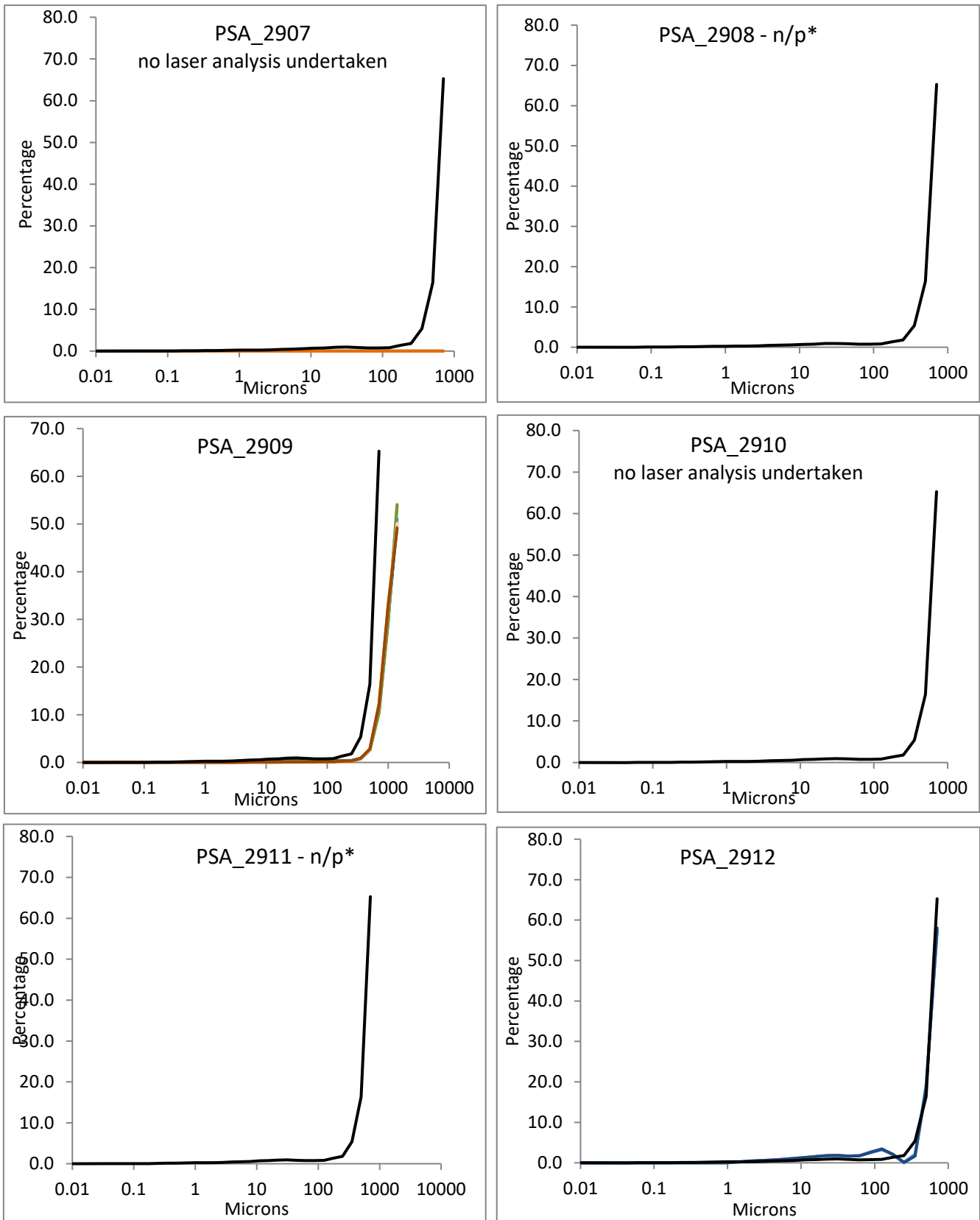
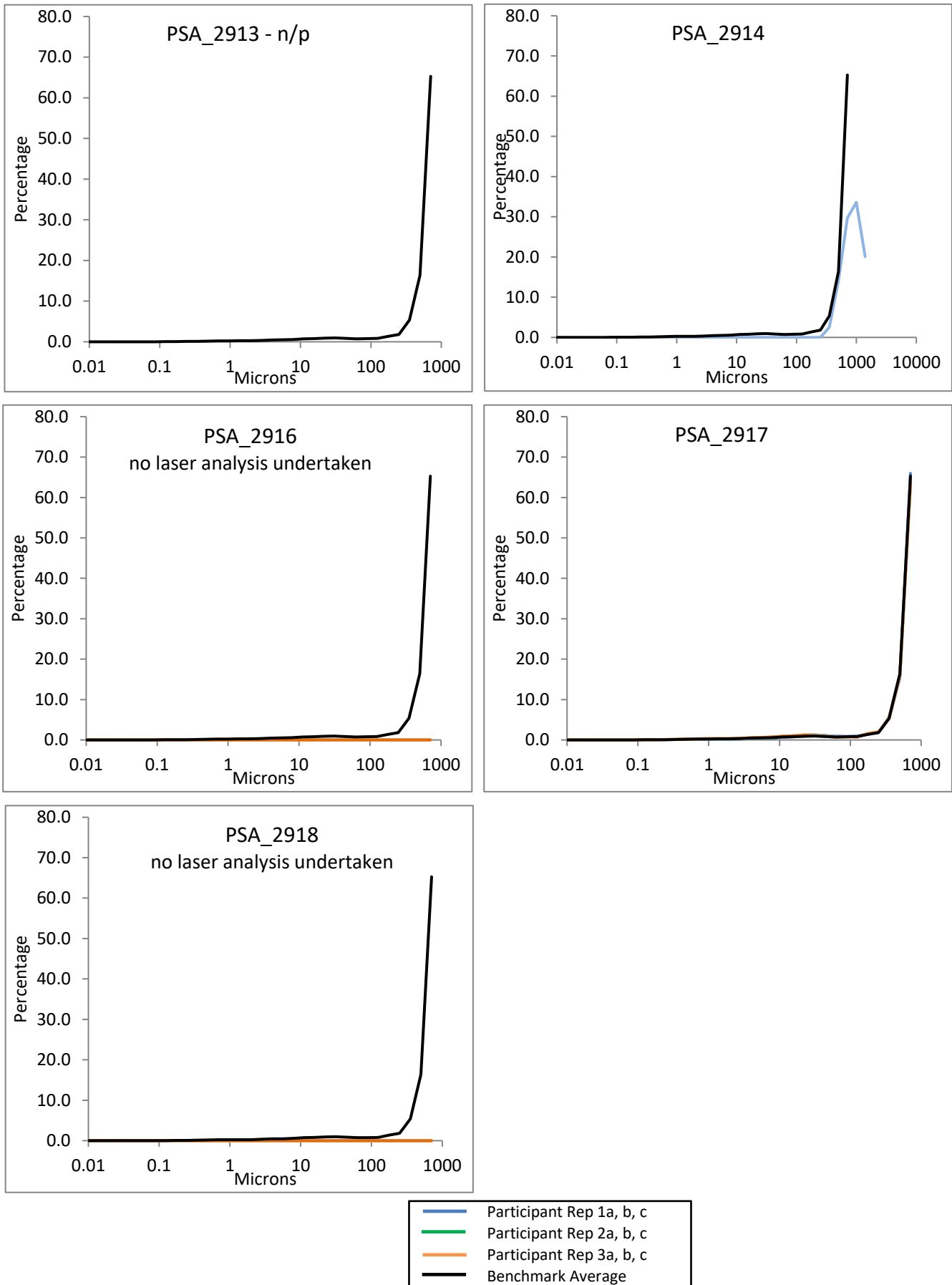


Figure 8. Comparison of participant laser replicate data with the Benchmark Average for sediment distributed as PS86.



APPENDICES

APPENDIX 1. Benchmark laser replicate data for sediment distributed as PS86.

Microns	Replicate Sample 1								
	Subsample 1			Subsample 2			Subsample 3		
	Run 1a	Run 1b	Run 1c	Run 2a	Run 2b	Run 2c	Run 3a	Run 3b	Run 3c
710 - 1000	65.49	64.35	64.35	64.19	64.13	64.11	63.09	61.86	62.80
500 - 710	15.25	15.76	15.71	15.81	15.70	15.87	15.98	15.91	15.62
355 - 500	5.56	5.61	5.49	5.58	5.52	5.57	5.54	5.66	5.46
250 - 355	1.99	2.07	2.02	2.01	1.93	1.86	1.97	2.02	1.93
180 - 250	1.72	1.63	1.59	1.52	1.53	1.53	1.55	1.62	1.61
125 - 180	1.36	1.20	1.10	1.07	1.06	1.02	1.06	1.15	1.05
90 - 125	1.29	1.25	1.16	1.03	0.95	0.89	0.93	0.94	0.91
63 - 90	1.12	1.11	1.08	1.05	1.05	0.97	1.00	1.03	0.96
44.19 - 63	1.03	1.11	1.12	1.10	1.09	1.05	1.10	1.18	1.11
31.25 - 44.19	0.90	1.00	1.03	1.06	1.11	1.09	1.16	1.26	1.20
22.097 - 31.25	0.75	0.86	0.91	0.92	0.97	0.95	1.03	1.14	1.12
15.625 - 22.097	0.60	0.69	0.73	0.76	0.82	0.82	0.88	0.97	0.95
11.049 - 15.625	0.53	0.62	0.69	0.71	0.75	0.76	0.84	0.95	0.94
7.813 - 11.049	0.43	0.51	0.54	0.56	0.60	0.60	0.65	0.74	0.73
5.524 - 7.813	0.36	0.44	0.46	0.49	0.54	0.53	0.58	0.66	0.66
3.906 - 5.524	0.31	0.36	0.41	0.43	0.47	0.48	0.54	0.62	0.62
2.762 - 3.906	0.24	0.27	0.31	0.32	0.34	0.36	0.40	0.45	0.46
1.953 - 2.762	0.18	0.21	0.24	0.25	0.27	0.28	0.32	0.35	0.36
1.381 - 1.953	0.17	0.20	0.22	0.24	0.27	0.28	0.32	0.36	0.37
0.977 - 1.381	0.16	0.19	0.21	0.23	0.26	0.27	0.31	0.36	0.36
0.691 - .0977	0.14	0.16	0.18	0.20	0.21	0.23	0.25	0.29	0.29
0.488 - 0.691	0.12	0.12	0.14	0.15	0.16	0.17	0.19	0.20	0.21
0.345 - 0.488	0.09	0.09	0.11	0.11	0.11	0.12	0.13	0.13	0.13
0.244 - 0.345	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.173 - 0.244	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.04	0.04
0.122 - 0.173	0.04	0.03	0.04	0.04	0.03	0.03	0.03	0.02	0.02
0.086 - 0.122	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

d10	177.20	149.45	135.45	132.74	119.38	122.98	92.30	66.83	70.66
d50	767.43	763.83	763.84	763.34	763.12	763.06	759.75	755.61	758.79
d90	948.43	947.54	947.55	947.42	947.37	947.35	946.53	945.49	946.29

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	154.04	21.25	13.80	125.03	6.91	5.53	76.60	13.73	17.93
d50	765.03	2.07	0.27	763.17	0.14	0.02	758.05	2.17	0.29
d90	947.84	0.51	0.05	947.38	0.04	0.00	946.10	0.54	0.06

APPENDIX 1. Benchmark laser replicate data for sediment distributed as PS86.

Microns	Replicate Sample 2								
	Subsample 1			Subsample 2			Subsample 3		
	Run 1a	Run 1b	Run 1c	Run 2a	Run 2b	Run 2c	Run 3a	Run 3b	Run 3c
710 - 1000	68.86	68.61	67.95	68.00	67.20	66.74	67.19	66.32	65.38
500 - 710	16.06	15.93	16.41	16.20	16.39	16.33	16.31	16.58	16.97
355 - 500	5.33	5.31	5.35	5.17	5.27	5.23	5.15	5.15	5.28
250 - 355	1.62	1.62	1.63	1.64	1.62	1.66	1.67	1.71	1.75
180 - 250	1.10	1.08	1.08	1.13	1.17	1.20	1.15	1.18	1.22
125 - 180	0.69	0.60	0.56	0.55	0.55	0.53	0.45	0.44	0.42
90 - 125	0.62	0.59	0.55	0.54	0.54	0.57	0.58	0.63	0.66
63 - 90	0.67	0.65	0.61	0.60	0.61	0.63	0.57	0.59	0.59
44.19 - 63	0.69	0.71	0.69	0.68	0.70	0.71	0.65	0.65	0.67
31.25 - 44.19	0.69	0.74	0.74	0.77	0.81	0.85	0.79	0.84	0.86
22.097 - 31.25	0.65	0.71	0.73	0.75	0.80	0.84	0.82	0.86	0.88
15.625 - 22.097	0.52	0.58	0.60	0.63	0.69	0.74	0.71	0.75	0.78
11.049 - 15.625	0.46	0.52	0.56	0.59	0.65	0.70	0.68	0.74	0.78
7.813 - 11.049	0.37	0.42	0.45	0.48	0.52	0.56	0.55	0.59	0.62
5.524 - 7.813	0.31	0.35	0.38	0.41	0.45	0.49	0.48	0.52	0.56
3.906 - 5.524	0.25	0.30	0.32	0.35	0.40	0.44	0.44	0.48	0.51
2.762 - 3.906	0.19	0.23	0.25	0.27	0.30	0.33	0.33	0.36	0.39
1.953 - 2.762	0.15	0.18	0.19	0.21	0.24	0.26	0.26	0.29	0.31
1.381 - 1.953	0.14	0.16	0.18	0.20	0.23	0.26	0.26	0.29	0.31
0.977 - 1.381	0.13	0.16	0.17	0.19	0.22	0.25	0.25	0.28	0.31
0.691 - .0977	0.12	0.14	0.15	0.17	0.19	0.21	0.21	0.24	0.26
0.488 - 0.691	0.10	0.11	0.12	0.13	0.15	0.16	0.16	0.18	0.19
0.345 - 0.488	0.08	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.13
0.244 - 0.345	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.173 - 0.244	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.05
0.122 - 0.173	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
0.086 - 0.122	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

d10	359.52	343.05	332.60	309.84	276.91	247.03	267.12	233.38	209.30
d50	777.43	776.73	774.81	774.97	772.60	771.23	772.59	769.97	767.08
d90	950.89	950.72	950.25	950.29	949.71	949.37	949.71	949.06	948.35

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	345.06	13.57	3.93	277.93	31.42	11.30	236.60	29.05	12.28
d50	776.32	1.36	0.17	772.93	1.89	0.24	769.88	2.76	0.36
d90	950.62	0.33	0.04	949.79	0.47	0.05	949.04	0.68	0.07

APPENDIX 1. Benchmark laser replicate data for sediment distributed as PS86.

Microns	Replicate Sample 3								
	Subsample 1			Subsample 2			Subsample 3		
	Run 1a	Run 1b	Run 1c	Run 2a	Run 2b	Run 2c	Run 3a	Run 3b	Run 3c
710 - 1000	66.32	65.66	64.72	64.03	63.26	63.08	62.22	62.35	62.20
500 - 710	15.67	16.09	15.94	16.15	16.19	16.41	16.64	16.51	16.70
355 - 500	5.17	5.30	5.33	5.15	5.33	5.24	5.24	5.18	5.02
250 - 355	1.80	1.73	1.76	1.73	1.78	1.76	1.75	1.70	1.74
180 - 250	1.39	1.35	1.38	1.37	1.41	1.43	1.47	1.42	1.38
125 - 180	1.02	0.87	0.89	0.92	0.90	0.86	0.86	0.84	0.85
90 - 125	0.94	0.84	0.87	0.87	0.87	0.89	0.92	0.93	0.94
63 - 90	0.97	0.88	0.88	0.85	0.82	0.76	0.75	0.68	0.67
44.19 - 63	1.06	1.03	1.07	1.08	1.08	1.05	1.07	1.06	1.04
31.25 - 44.19	1.04	1.08	1.17	1.23	1.26	1.22	1.26	1.24	1.21
22.097 - 31.25	0.90	0.97	1.09	1.17	1.22	1.22	1.28	1.29	1.30
15.625 - 22.097	0.72	0.80	0.91	0.98	1.04	1.06	1.11	1.12	1.12
11.049 - 15.625	0.59	0.66	0.78	0.87	0.94	0.97	1.04	1.07	1.10
7.813 - 11.049	0.44	0.50	0.59	0.66	0.71	0.73	0.79	0.81	0.83
5.524 - 7.813	0.36	0.41	0.49	0.55	0.60	0.62	0.68	0.70	0.73
3.906 - 5.524	0.29	0.34	0.42	0.48	0.53	0.56	0.61	0.64	0.67
2.762 - 3.906	0.22	0.26	0.31	0.36	0.39	0.41	0.45	0.47	0.49
1.953 - 2.762	0.17	0.20	0.24	0.28	0.30	0.32	0.35	0.37	0.39
1.381 - 1.953	0.16	0.19	0.23	0.27	0.30	0.32	0.36	0.38	0.41
0.977 - 1.381	0.16	0.18	0.23	0.26	0.30	0.32	0.36	0.38	0.40
0.691 - .0977	0.14	0.16	0.20	0.22	0.25	0.26	0.29	0.31	0.33
0.488 - 0.691	0.12	0.14	0.16	0.17	0.19	0.19	0.21	0.22	0.23
0.345 - 0.488	0.10	0.11	0.12	0.12	0.13	0.13	0.13	0.14	0.14
0.244 - 0.345	0.08	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.08
0.173 - 0.244	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03
0.122 - 0.173	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.01
0.086 - 0.122	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.00
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

d10	192.98	182.90	126.06	96.57	79.12	76.15	59.39	55.11	52.79
d50	769.99	767.95	765.01	762.81	760.31	759.71	756.82	757.25	756.75
d90	949.07	948.57	947.84	947.29	946.67	946.52	945.80	945.91	945.78

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	167.31	36.08	21.56	83.95	11.03	13.14	55.77	3.35	6.00
d50	767.65	2.50	0.33	760.95	1.64	0.22	756.94	0.27	0.04
d90	948.49	0.62	0.07	946.83	0.41	0.04	945.83	0.07	0.01

APPENDIX 1. Benchmark laser replicate data for sediment distributed as PS86.

Microns	Replicate Sample 4								
	Subsample 1			Subsample 2			Subsample 3		
	Run 1a	Run 1b	Run 1c	Run 2a	Run 2b	Run 2c	Run 3a	Run 3b	Run 3c
710 - 1000	67.76	67.47	67.19	66.78	65.97	65.51	63.85	64.59	64.13
500 - 710	16.46	16.79	16.57	16.57	16.94	16.98	17.32	17.14	17.47
355 - 500	5.29	5.46	5.45	5.54	5.44	5.49	5.32	5.30	5.23
250 - 355	1.80	1.65	1.74	1.73	1.76	1.81	1.96	1.90	1.89
180 - 250	1.20	1.16	1.22	1.22	1.23	1.22	1.29	1.25	1.21
125 - 180	0.78	0.80	0.69	0.72	0.78	0.79	0.85	0.81	0.82
90 - 125	0.63	0.56	0.52	0.50	0.51	0.51	0.59	0.54	0.51
63 - 90	0.68	0.60	0.62	0.59	0.60	0.61	0.68	0.64	0.64
44.19 - 63	0.71	0.65	0.66	0.66	0.68	0.66	0.73	0.68	0.69
31.25 - 44.19	0.74	0.72	0.76	0.78	0.82	0.84	0.94	0.88	0.89
22.097 - 31.25	0.68	0.68	0.73	0.76	0.81	0.82	0.94	0.89	0.90
15.625 - 22.097	0.58	0.58	0.65	0.69	0.74	0.76	0.86	0.82	0.83
11.049 - 15.625	0.50	0.52	0.58	0.61	0.67	0.70	0.81	0.79	0.82
7.813 - 11.049	0.39	0.41	0.46	0.49	0.53	0.55	0.63	0.62	0.64
5.524 - 7.813	0.33	0.35	0.40	0.43	0.46	0.49	0.57	0.56	0.59
3.906 - 5.524	0.28	0.30	0.34	0.38	0.42	0.45	0.53	0.52	0.55
2.762 - 3.906	0.21	0.23	0.26	0.29	0.31	0.34	0.40	0.39	0.41
1.953 - 2.762	0.16	0.18	0.20	0.22	0.25	0.27	0.32	0.31	0.33
1.381 - 1.953	0.15	0.17	0.19	0.21	0.24	0.26	0.33	0.32	0.34
0.977 - 1.381	0.14	0.16	0.18	0.21	0.23	0.26	0.32	0.31	0.34
0.691 - .0977	0.13	0.14	0.16	0.18	0.20	0.22	0.26	0.26	0.28
0.488 - 0.691	0.11	0.11	0.13	0.14	0.15	0.16	0.19	0.19	0.20
0.345 - 0.488	0.09	0.09	0.10	0.11	0.11	0.12	0.13	0.13	0.13
0.244 - 0.345	0.07	0.07	0.07	0.08	0.07	0.08	0.08	0.08	0.08
0.173 - 0.244	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
0.122 - 0.173	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.02
0.086 - 0.122	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

d10	321.64	333.52	302.10	282.63	255.23	235.62	158.58	185.44	171.92
d50	774.26	773.42	772.58	771.34	768.89	767.48	762.23	764.60	763.13
d90	950.12	949.91	949.70	949.40	948.80	948.45	947.15	947.73	947.37

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	319.09	15.86	4.97	257.83	23.61	9.16	171.98	13.43	7.81
d50	773.42	0.84	0.11	769.24	1.95	0.25	763.32	1.20	0.16
d90	949.91	0.21	0.02	948.88	0.48	0.05	947.42	0.30	0.03

APPENDIX 1. Benchmark laser replicate data for sediment distributed as PS86.

Microns	Replicate Sample 5								
	Subsample 1			Subsample 2			Subsample 3		
	Run 1a	Run 1b	Run 1c	Run 2a	Run 2b	Run 2c	Run 3a	Run 3b	Run 3c
710 - 1000	67.61	66.82	64.86	65.96	65.71	64.44	65.02	65.07	64.47
500 - 710	16.25	16.20	16.77	16.58	16.95	16.79	16.89	16.61	16.87
355 - 500	5.42	5.38	5.49	5.57	5.47	5.61	5.41	5.15	5.38
250 - 355	1.88	1.86	1.82	1.83	1.75	1.85	1.77	1.79	1.80
180 - 250	1.29	1.36	1.46	1.37	1.36	1.44	1.41	1.43	1.41
125 - 180	0.90	0.91	0.91	0.80	0.75	0.82	0.73	0.69	0.73
90 - 125	0.71	0.70	0.80	0.71	0.71	0.80	0.79	0.83	0.81
63 - 90	0.72	0.73	0.74	0.64	0.60	0.64	0.57	0.57	0.56
44.19 - 63	0.76	0.78	0.88	0.74	0.71	0.79	0.74	0.78	0.74
31.25 - 44.19	0.76	0.85	0.98	0.87	0.86	0.94	0.88	0.89	0.89
22.097 - 31.25	0.67	0.77	0.92	0.82	0.81	0.93	0.89	0.92	0.92
15.625 - 22.097	0.54	0.64	0.76	0.69	0.70	0.79	0.76	0.79	0.80
11.049 - 15.625	0.45	0.55	0.68	0.63	0.63	0.73	0.71	0.76	0.77
7.813 - 11.049	0.36	0.43	0.52	0.49	0.50	0.58	0.56	0.59	0.61
5.524 - 7.813	0.29	0.36	0.44	0.41	0.43	0.50	0.50	0.53	0.55
3.906 - 5.524	0.24	0.31	0.39	0.35	0.38	0.45	0.45	0.49	0.51
2.762 - 3.906	0.19	0.23	0.29	0.27	0.29	0.35	0.34	0.37	0.39
1.953 - 2.762	0.15	0.19	0.23	0.22	0.23	0.28	0.28	0.31	0.31
1.381 - 1.953	0.14	0.17	0.22	0.21	0.23	0.27	0.28	0.31	0.32
0.977 - 1.381	0.13	0.17	0.21	0.20	0.22	0.27	0.27	0.30	0.32
0.691 - .0977	0.12	0.15	0.18	0.17	0.19	0.23	0.23	0.26	0.27
0.488 - 0.691	0.11	0.12	0.14	0.14	0.15	0.17	0.18	0.19	0.20
0.345 - 0.488	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.14	0.14
0.244 - 0.345	0.07	0.08	0.07	0.08	0.09	0.09	0.09	0.10	0.09
0.173 - 0.244	0.06	0.06	0.05	0.06	0.06	0.05	0.06	0.06	0.06
0.122 - 0.173	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04
0.086 - 0.122	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.02
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

d10	309.31	262.28	194.66	246.28	242.43	182.20	199.65	178.77	171.61
d50	773.81	771.49	765.46	768.89	768.10	764.12	765.96	766.12	764.23
d90	950.01	949.44	947.95	948.79	948.60	947.62	948.07	948.11	947.64

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	255.42	57.63	22.56	223.64	35.94	16.07	183.34	14.57	7.95
d50	770.25	4.31	0.56	767.04	2.55	0.33	765.43	1.05	0.14
d90	949.13	1.06	0.11	948.34	0.63	0.07	947.94	0.26	0.03

APPENDIX 2. Gradistat output of size categories based on final merged data provided by each participant and the Benchmark Average for sediment distributed as PS86 (used to create Figure 7).

	BM Average	PSA_2901	PSA_2902	PSA_2903	PSA_2904	PSA_2905	PSA_2906	PSA_2907	PSA_2908	PSA_2909	PSA_2910
VERY COARSE GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
COARSE GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
MEDIUM GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	n/p*	0.00	0.00
FINE GRAVEL	33.61	29.16	32.55	34.50	30.07	30.01	n/p	31.48	n/p*	31.59	31.36
VERY FINE GRAVEL	12.80	17.17	13.56	11.77	15.99	16.47	n/p	14.76	n/p*	16.58	15.06
VERY COARSE SAND	45.42	45.18	42.49	44.29	49.20	41.87	n/p	49.24	n/p*	41.35	44.36
COARSE SAND	6.67	7.80	9.19	8.57	4.73	10.30	n/p	4.52	n/p*	8.30	9.21
MEDIUM SAND	0.59	0.45	0.53	0.11	0.00	0.30	n/p	0.00	n/p*	0.68	0.00
FINE SAND	0.18	0.11	0.47	0.06	0.00	0.85	n/p	0.00	n/p*	0.33	0.00
VERY FINE SAND	0.12	0.03	0.38	0.03	0.00	0.17	n/p	0.00	n/p*	0.26	0.00
VERY COARSE SILT	0.15	0.03	0.22	0.10	0.00	0.02	n/p	0.00	n/p*	0.25	0.00
COARSE SILT	0.14	0.02	0.22	0.18	0.00	0.00	n/p	0.00	n/p*	0.20	0.00
MEDIUM SILT	0.10	0.01	0.14	0.16	0.00	0.00	n/p	0.00	n/p*	0.14	0.00
FINE SILT	0.08	0.01	0.13	0.14	0.00	0.00	n/p	0.00	n/p*	0.11	0.00
VERY FINE SILT	0.05	0.01	0.09	0.08	0.00	0.00	n/p	0.00	n/p*	0.06	0.00
CLAY	0.10	0.02	0.03	0.02	0.00	0.00	n/p	0.00	n/p*	0.15	0.00
GRAVEL	46.42	46.33	46.11	46.27	46.07	46.48	n/p	46.24	a/d	48.17	46.43
SAND	52.97	53.56	53.06	53.06	53.93	53.49	n/p	53.76	a/d	50.92	53.57
SILT	0.51	0.08	0.80	0.65	0.00	0.02	n/p	0.00	a/d	0.77	0.00
CLAY	0.10	0.02	0.03	0.02	0.00	0.00	n/p	0.00	n/p*	0.15	0.00

APPENDIX 2. Gradistat output of size categories based on final merged data provided by each participant and the Benchmark Average for sediment distributed as PS86 (used to create Figure 7).

	BM Average	PSA_2911	PSA_2912	PSA_2913	PSA_2914	PSA_2916	PSA_2917	PSA_2918
VERY COARSE GRAVEL	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
COARSE GRAVEL	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
MEDIUM GRAVEL	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
FINE GRAVEL	33.61	n/p*	30.26	n/p	0.00	29.81	31.45	28.49
VERY FINE GRAVEL	12.80	n/p*	15.88	n/p	55.07	15.94	14.87	17.44
VERY COARSE SAND	45.42	n/p*	41.73	n/p	43.47	50.23	45.93	46.66
COARSE SAND	6.67	n/p*	9.28	n/p	1.38	4.02	6.19	7.41
MEDIUM SAND	0.59	n/p*	0.23	n/p	0.08	0.00	0.58	0.00
FINE SAND	0.18	n/p*	0.66	n/p	0.00	0.00	0.19	0.00
VERY FINE SAND	0.12	n/p*	0.53	n/p	0.00	0.00	0.12	0.00
VERY COARSE SILT	0.15	n/p*	0.42	n/p	0.00	0.00	0.17	0.00
COARSE SILT	0.14	n/p*	0.40	n/p	0.00	0.00	0.16	0.00
MEDIUM SILT	0.10	n/p*	0.29	n/p	0.00	0.00	0.11	0.00
FINE SILT	0.08	n/p*	0.19	n/p	0.00	0.00	0.08	0.00
VERY FINE SILT	0.05	n/p*	0.12	n/p	0.00	0.00	0.05	0.00
CLAY	0.10	n/p*	0.02	n/p	0.00	0.00	0.10	0.00
GRAVEL	46.42	n/p*	46.13	n/p	55.07	45.75	46.32	45.93
SAND	52.97	n/p*	52.43	n/p	44.93	54.25	53.01	54.07
SILT	0.51	n/p*	1.41	n/p	0.00	0.00	0.57	0.00
CLAY	0.10	n/p*	0.02	n/p	0.00	0.00	0.10	0.00

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2901 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000									
1000 - 1400									
710 - 1000	74.81	73.99	74.18	73.37	73.26	73.39	72.64	73.29	72.89
500 - 710	18.42	18.41	18.33	18.57	17.71	18.67	18.76	18.13	18.18
355 - 500	3.02	3.28	3.12	3.57	4.34	3.42	3.64	3.58	3.71
250 - 355	1.52	1.70	1.59	1.65	1.53	1.84	1.95	1.94	1.94
180 - 250	0.62	0.74	0.74	0.67	0.71	0.89	0.90	0.84	0.88
125 - 180	0.40	0.48	0.51	0.51	0.61	0.50	0.56	0.60	0.64
90 - 125	0.21	0.23	0.22	0.19	0.13	0.24	0.29	0.26	0.25
63 - 90	0.06	0.07	0.08	0.11	0.15	0.08	0.10	0.11	0.13
44.19 - 63	0.09	0.11	0.13	0.17	0.20	0.12	0.13	0.17	0.19
31.25 - 44.19	0.14	0.16	0.18	0.20	0.23	0.14	0.16	0.17	0.19
22.097 - 31.25	0.10	0.12	0.14	0.15	0.18	0.10	0.13	0.14	0.15
15.625 - 22.097	0.07	0.09	0.11	0.11	0.13	0.07	0.10	0.11	0.12
11.049 - 15.625	0.07	0.08	0.10	0.11	0.13	0.06	0.09	0.09	0.11
7.813 - 11.049	0.06	0.07	0.08	0.10	0.12	0.05	0.07	0.08	0.09
5.524 - 7.813	0.05	0.06	0.07	0.08	0.09	0.05	0.06	0.06	0.07
3.906 - 5.524	0.04	0.05	0.05	0.06	0.07	0.04	0.05	0.05	0.06
2.762 - 3.906	0.04	0.04	0.04	0.05	0.06	0.04	0.04	0.04	0.05
1.953 - 2.762	0.03	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.04
1.381 - 1.953	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04
0.977 - 1.381	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.04	0.04
0.691 - .0977	0.03	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04
0.488 - 0.691	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.345 - 0.488	0.03	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04
0.244 - 0.345	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04
0.173 - 0.244	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.122 - 0.173	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.086 - 0.122	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	531.30	523.11	524.32	518.46	509.57	519.55	513.06	513.74	510.38
d50	793.16	791.13	791.59	789.56	789.27	789.62	787.67	789.35	788.34
d90	954.71	954.22	954.33	953.84	953.77	953.86	953.39	953.79	953.55

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	526.24	4.42	0.84	515.86	5.47	1.06	512.39	1.78	0.35
d50	791.96	1.06	0.13	789.48	0.19	0.02	788.45	0.85	0.11
d90	954.42	0.26	0.03	953.82	0.05	0.00	953.58	0.20	0.02

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2902 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000	14.29	14.13	13.89	15.52	15.45	15.47	15.25	15.54	15.50
1000 - 1400	30.51	29.78	29.37	31.26	31.18	30.88	30.65	31.05	31.02
710 - 1000	30.79	30.03	29.74	29.81	29.81	29.20	29.38	29.42	29.56
500 - 710	14.88	14.82	14.90	13.71	13.79	13.43	13.82	13.54	13.74
355 - 500	2.47	2.87	3.04	2.24	2.36	2.37	2.53	2.34	2.39
250 - 355	0.00	0.03	0.06	0.00	0.00	0.02	0.03	0.01	0.01
180 - 250	0.47	0.80	0.87	0.63	0.71	0.85	0.76	0.79	0.72
125 - 180	1.43	1.71	1.78	1.39	1.43	1.54	1.50	1.50	1.47
90 - 125	1.14	1.37	1.45	1.02	1.04	1.13	1.15	1.11	1.09
63 - 90	0.55	0.72	0.81	0.52	0.54	0.64	0.65	0.60	0.58
44.19 - 63	0.35	0.47	0.54	0.45	0.45	0.56	0.54	0.51	0.49
31.25 - 44.19	0.41	0.50	0.55	0.56	0.55	0.66	0.64	0.61	0.59
22.097 - 31.25	0.44	0.51	0.55	0.57	0.55	0.65	0.63	0.61	0.59
15.625 - 22.097	0.38	0.43	0.47	0.46	0.44	0.52	0.50	0.48	0.47
11.049 - 15.625	0.33	0.35	0.38	0.35	0.34	0.40	0.39	0.37	0.36
7.813 - 11.049	0.31	0.32	0.34	0.32	0.30	0.36	0.34	0.33	0.32
5.524 - 7.813	0.32	0.30	0.32	0.31	0.29	0.34	0.33	0.31	0.31
3.906 - 5.524	0.30	0.28	0.30	0.29	0.27	0.31	0.30	0.29	0.28
2.762 - 3.906	0.26	0.24	0.26	0.25	0.23	0.27	0.26	0.25	0.24
1.953 - 2.762	0.21	0.20	0.21	0.20	0.18	0.21	0.21	0.20	0.19
1.381 - 1.953	0.16	0.15	0.15	0.15	0.08	0.16	0.15	0.15	0.08
0.977 - 1.381	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.691 - .0977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.488 - 0.691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.345 - 0.488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.244 - 0.345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.173 - 0.244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.122 - 0.173	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.086 - 0.122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.061 - 0.086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	55.20	56.09	56.74	53.22	53.37	53.65	54.10	53.41	53.48

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	505.56	430.15	393.49	503.70	502.96	430.90	442.01	467.77	486.63
d50	943.16	932.08	924.43	963.21	961.57	957.63	952.73	960.58	959.97
d90	1558.32	1553.91	1547.14	1589.40	1587.64	1588.27	1582.79	1589.82	1588.87

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	443.07	57.14	12.90	479.18	41.82	8.73	465.47	22.40	4.81
d50	933.22	9.42	1.01	960.80	2.87	0.30	957.76	4.37	0.46
d90	1553.12	5.63	0.36	1588.44	0.89	0.06	1587.16	3.81	0.24

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2903 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000									
1000 - 1400									
710 - 1000	71.68	67.64	68.37	66.56	67.86	67.85	75.41	73.85	73.71
500 - 710	22.10	24.26	23.84	20.30	17.21	17.62	18.79	20.01	20.20
355 - 500	1.06	2.13	1.88	1.34	0.75	0.81	0.59	0.79	0.89
250 - 355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180 - 250	0.00	0.00	0.00	0.00	0.97	0.92	0.00	0.00	0.00
125 - 180	0.00	0.00	0.00	0.00	2.03	2.05	0.00	0.00	0.00
90 - 125	0.00	0.00	0.00	0.00	1.04	1.03	0.00	0.00	0.00
63 - 90	0.00	0.00	0.00	0.13	0.36	0.34	0.00	0.00	0.00
44.19 - 63	0.02	0.02	0.02	0.80	0.68	0.61	0.03	0.03	0.03
31.25 - 44.19	0.55	0.56	0.55	1.39	1.13	1.08	0.64	0.61	0.69
22.097 - 31.25	0.72	0.77	0.79	1.54	1.26	1.21	0.75	0.74	0.79
15.625 - 22.097	0.69	0.80	0.79	1.41	1.17	1.15	0.70	0.69	0.71
11.049 - 15.625	0.67	0.77	0.76	1.29	1.08	1.06	0.67	0.67	0.66
7.813 - 11.049	0.67	0.77	0.76	1.21	1.04	0.99	0.70	0.69	0.66
5.524 - 7.813	0.62	0.73	0.72	1.11	0.95	0.90	0.70	0.69	0.61
3.906 - 5.524	0.53	0.63	0.62	0.95	0.79	0.76	0.62	0.61	0.54
2.762 - 3.906	0.44	0.49	0.50	0.77	0.66	0.63	0.40	0.54	0.43
1.953 - 2.762	0.23	0.40	0.38	0.59	0.50	0.49	0.00	0.08	0.08
1.381 - 1.953	0.00	0.02	0.02	0.46	0.38	0.38	0.00	0.00	0.00
0.977 - 1.381	0.00	0.00	0.00	0.15	0.14	0.11	0.00	0.00	0.00
0.691 - .0977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.488 - 0.691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.345 - 0.488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.244 - 0.345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.173 - 0.244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.122 - 0.173									
0.086 - 0.122									
0.061 - 0.086									
0.043 - 0.061									
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	530.54	513.78	516.28	35.46	77.11	97.12	540.22	534.49	534.68
d50	785.18	773.91	776.02	770.68	774.54	774.53	794.62	790.76	790.41
d90	952.78	950.03	950.55	949.24	950.19	950.18	955.06	954.13	954.05

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	520.20	9.04	1.74	69.90	31.46	45.00	536.46	3.25	0.61
d50	778.37	5.99	0.77	773.25	2.22	0.29	791.93	2.33	0.29
d90	951.12	1.46	0.15	949.87	0.55	0.06	954.41	0.56	0.06

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2905 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000 - 1400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710 - 1000	68.54	69.66	68.93	66.79	66.87	65.54	72.59	70.49	70.03
500 - 710	20.61	20.82	21.24	17.88	19.68	18.25	17.93	19.68	20.40
355 - 500	1.16	1.09	1.23	0.85	1.08	1.20	0.62	0.91	1.05
250 - 355	2.35	1.90	1.80	1.81	1.29	2.38	1.16	0.83	0.72
180 - 250	4.28	3.68	3.64	4.79	3.84	4.59	3.41	3.12	2.90
125 - 180	2.67	2.45	2.48	4.89	4.33	3.61	3.51	3.96	3.86
90 - 125	0.39	0.39	0.68	2.83	2.75	1.69	0.78	1.00	1.03
63 - 90	0.00	0.00	0.00	0.16	0.17	1.11	0.00	0.00	0.00
44.19 - 63	0.00	0.00	0.00	0.00	0.00	1.27	0.00	0.00	0.00
31.25 - 44.19	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00
22.097 - 31.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.625 - 22.097	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11.049 - 15.625	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.813 - 11.049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.524 - 7.813	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.906 - 5.524	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.762 - 3.906	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.953 - 2.762	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.381 - 1.953	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.977 - 1.381	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.691 - .0977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.488 - 0.691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.345 - 0.488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.244 - 0.345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.173 - 0.244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.122 - 0.173	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.086 - 0.122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.061 - 0.086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	387.74	504.07	501.41	206.11	226.79	205.07	505.08	501.57	503.72
d50	776.52	779.69	777.63	771.39	771.63	767.59	787.56	781.98	780.72
d90	950.67	951.45	950.94	949.41	949.47	948.47	953.36	952.00	951.70

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	464.40	66.41	14.30	212.66	12.25	5.76	503.46	1.77	0.35
d50	777.95	1.61	0.21	770.20	2.27	0.29	783.42	3.64	0.47
d90	951.02	0.39	0.04	949.12	0.56	0.06	952.35	0.88	0.09

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2909 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000	51.15	51.01	50.22	53.93	54.13	53.98	50.15	49.30	49.09
1000 - 1400	30.72	30.19	30.44	29.89	29.73	29.51	32.74	33.28	32.93
710 - 1000	11.05	11.05	11.13	10.67	10.46	10.45	12.34	12.19	12.20
500 - 710	2.60	2.66	2.71	2.54	2.47	2.57	2.61	2.85	2.80
355 - 500	0.79	0.81	0.84	0.75	0.74	0.76	0.87	0.88	0.93
250 - 355	0.34	0.38	0.40	0.32	0.32	0.33	0.27	0.24	0.35
180 - 250	0.37	0.40	0.42	0.30	0.31	0.33	0.22	0.23	0.31
125 - 180	0.26	0.30	0.32	0.19	0.21	0.23	0.11	0.12	0.18
90 - 125	0.28	0.32	0.33	0.18	0.19	0.21	0.09	0.11	0.14
63 - 90	0.30	0.34	0.36	0.17	0.18	0.20	0.08	0.10	0.13
44.19 - 63	0.32	0.37	0.41	0.16	0.19	0.21	0.07	0.09	0.12
31.25 - 44.19	0.29	0.34	0.37	0.13	0.16	0.18	0.05	0.07	0.10
22.097 - 31.25	0.30	0.36	0.40	0.13	0.16	0.18	0.06	0.08	0.11
15.625 - 22.097	0.21	0.25	0.28	0.09	0.10	0.12	0.04	0.05	0.07
11.049 - 15.625	0.18	0.22	0.24	0.07	0.09	0.11	0.03	0.04	0.06
7.813 - 11.049	0.18	0.21	0.23	0.08	0.09	0.11	0.04	0.05	0.07
5.524 - 7.813	0.14	0.17	0.19	0.07	0.08	0.09	0.04	0.05	0.07
3.906 - 5.524	0.10	0.12	0.13	0.06	0.06	0.07	0.03	0.04	0.05
2.762 - 3.906	0.07	0.08	0.09	0.04	0.05	0.06	0.03	0.03	0.04
1.953 - 2.762	0.05	0.07	0.07	0.03	0.04	0.05	0.02	0.03	0.04
1.381 - 1.953	0.05	0.06	0.07	0.03	0.04	0.04	0.02	0.03	0.03
0.977 - 1.381	0.04	0.05	0.06	0.03	0.03	0.04	0.02	0.02	0.03
0.691 - .0977	0.04	0.05	0.06	0.03	0.03	0.04	0.02	0.02	0.03
0.488 - 0.691	0.04	0.05	0.05	0.02	0.03	0.03	0.02	0.02	0.03
0.345 - 0.488	0.03	0.04	0.05	0.02	0.02	0.03	0.01	0.02	0.02
0.244 - 0.345	0.03	0.04	0.04	0.02	0.02	0.02	0.01	0.02	0.02
0.173 - 0.244	0.02	0.03	0.03	0.01	0.02	0.02	0.01	0.01	0.02
0.122 - 0.173	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01
0.086 - 0.122	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
0.061 - 0.086	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	774.75	758.81	747.64	818.18	815.84	805.71	818.86	809.75	797.10
d50	1411.23	1409.92	1402.16	1436.88	1438.64	1437.28	1401.51	1390.14	1387.03
d90	1865.28	1864.93	1862.87	1872.01	1872.47	1872.11	1862.70	1860.42	1859.84

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	760.40	13.62	1.79	813.25	6.63	0.82	808.57	10.93	1.35
d50	1407.77	4.90	0.35	1437.60	0.92	0.06	1392.90	7.62	0.55
d90	1864.36	1.30	0.07	1872.20	0.24	0.01	1860.99	1.51	0.08

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2912 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000									
1000 - 1400									
710 - 1000	57.48	57.18	58.05	-	-	-	-	-	-
500 - 710	18.88	19.24	18.47	-	-	-	-	-	-
355 - 500	1.76	2.11	1.64	-	-	-	-	-	-
250 - 355	0.00	0.17	0.08	-	-	-	-	-	-
180 - 250	1.92	2.09	2.12	-	-	-	-	-	-
125 - 180	3.46	3.21	3.42	-	-	-	-	-	-
90 - 125	2.75	2.52	2.61	-	-	-	-	-	-
63 - 90	1.83	1.75	1.74	-	-	-	-	-	-
44.19 - 63	1.66	1.66	1.64	-	-	-	-	-	-
31.25 - 44.19	1.82	1.80	1.82	-	-	-	-	-	-
22.097 - 31.25	1.79	1.76	1.79	-	-	-	-	-	-
15.625 - 22.097	1.57	1.53	1.56	-	-	-	-	-	-
11.049 - 15.625	1.30	1.28	1.29	-	-	-	-	-	-
7.813 - 11.049	1.07	1.05	1.06	-	-	-	-	-	-
5.524 - 7.813	0.87	0.85	0.87	-	-	-	-	-	-
3.906 - 5.524	0.70	0.68	0.69	-	-	-	-	-	-
2.762 - 3.906	0.55	0.54	0.54	-	-	-	-	-	-
1.953 - 2.762	0.42	0.41	0.42	-	-	-	-	-	-
1.381 - 1.953	0.18	0.18	0.18	-	-	-	-	-	-
0.977 - 1.381	0.00	0.00	0.00	-	-	-	-	-	-
0.691 - .0977	0.00	0.00	0.00	-	-	-	-	-	-
0.488 - 0.691	0.00	0.00	0.00	-	-	-	-	-	-
0.345 - 0.488	0.00	0.00	0.00	-	-	-	-	-	-
0.244 - 0.345	0.00	0.00	0.00	-	-	-	-	-	-
0.173 - 0.244	0.00	0.00	0.00	-	-	-	-	-	-
0.122 - 0.173	0.00	0.00	0.00	-	-	-	-	-	-
0.086 - 0.122	0.00	0.00	0.00	-	-	-	-	-	-
0.061 - 0.086	0.00	0.00	0.00	-	-	-	-	-	-
0.043 - 0.061	0.00	0.00	0.00	-	-	-	-	-	-
Total	100.00	100.00	100.00	-	-	-	-	-	-

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	42.13	43.55	42.37	-	-	-	-	-	-
d50	739.62	738.47	741.84	-	-	-	-	-	-
d90	941.46	941.17	942.02	-	-	-	-	-	-

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	42.68	0.76	1.78	-	-	-	-	-	-
d50	739.98	1.71	0.23	-	-	-	-	-	-
d90	941.55	0.44	0.05	-	-	-	-	-	-

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2914 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000	20.11	-	-	-	-	-	-	-	-
1000 - 1400	33.60	-	-	-	-	-	-	-	-
710 - 1000	29.75	-	-	-	-	-	-	-	-
500 - 710	14.04	-	-	-	-	-	-	-	-
355 - 500	2.49	-	-	-	-	-	-	-	-
250 - 355	0.00	-	-	-	-	-	-	-	-
180 - 250	0.00	-	-	-	-	-	-	-	-
125 - 180	0.00	-	-	-	-	-	-	-	-
90 - 125	0.00	-	-	-	-	-	-	-	-
63 - 90	0.00	-	-	-	-	-	-	-	-
44.19 - 63	0.00	-	-	-	-	-	-	-	-
31.25 - 44.19	0.00	-	-	-	-	-	-	-	-
22.097 - 31.25	0.00	-	-	-	-	-	-	-	-
15.625 - 22.097	0.00	-	-	-	-	-	-	-	-
11.049 - 15.625	0.00	-	-	-	-	-	-	-	-
7.813 - 11.049	0.00	-	-	-	-	-	-	-	-
5.524 - 7.813	0.00	-	-	-	-	-	-	-	-
3.906 - 5.524	0.00	-	-	-	-	-	-	-	-
2.762 - 3.906	0.00	-	-	-	-	-	-	-	-
1.953 - 2.762	0.00	-	-	-	-	-	-	-	-
1.381 - 1.953	0.00	-	-	-	-	-	-	-	-
0.977 - 1.381	0.00	-	-	-	-	-	-	-	-
0.691 - .0977	0.00	-	-	-	-	-	-	-	-
0.488 - 0.691	0.00	-	-	-	-	-	-	-	-
0.345 - 0.488	0.00	-	-	-	-	-	-	-	-
0.244 - 0.345	0.00	-	-	-	-	-	-	-	-
0.173 - 0.244	0.00	-	-	-	-	-	-	-	-
0.122 - 0.173	0.00	-	-	-	-	-	-	-	-
0.086 - 0.122	0.00	-	-	-	-	-	-	-	-
0.061 - 0.086	0.00	-	-	-	-	-	-	-	-
0.043 - 0.061	0.00	-	-	-	-	-	-	-	-
Total	100.00	-	-	-	-	-	-	-	-

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	601.72	-	-	-	-	-	-	-	-
d50	1037.88	-	-	-	-	-	-	-	-
d90	1674.94	-	-	-	-	-	-	-	-

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	601.72	-	-	-	-	-	-	-	-
d50	1037.88	-	-	-	-	-	-	-	-
d90	1674.94	-	-	-	-	-	-	-	-

APPENDIX 3. Participant laser replicate data for sediment distributed as PS86.

PSA_2917 LASER DATA

Microns	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
1400 - 2000									
1000 - 1400									
710 - 1000	65.97	64.62	63.32	64.13	64.05	63.65	63.53	64.03	63.81
500 - 710	15.27	15.65	16.03	15.80	15.86	15.80	15.85	15.87	16.05
355 - 500	5.49	5.58	5.64	5.64	5.46	5.44	5.41	5.31	5.23
250 - 355	1.98	1.99	2.00	2.02	2.00	1.99	2.02	2.03	1.93
180 - 250	1.45	1.51	1.60	1.55	1.55	1.58	1.60	1.53	1.53
125 - 180	0.97	0.92	0.95	0.88	0.86	0.84	0.76	0.74	0.72
90 - 125	0.85	0.80	0.82	0.76	0.78	0.81	0.84	0.80	0.76
63 - 90	0.92	0.91	0.91	0.80	0.77	0.73	0.72	0.67	0.70
44.19 - 63	1.09	1.08	1.09	0.98	0.97	1.00	0.97	0.92	0.89
31.25 - 44.19	1.16	1.26	1.31	1.21	1.20	1.20	1.16	1.07	1.09
22.097 - 31.25	0.97	1.10	1.20	1.14	1.16	1.21	1.22	1.16	1.18
15.625 - 22.097	0.77	0.90	1.00	0.96	0.99	1.04	1.04	1.01	1.04
11.049 - 15.625	0.61	0.72	0.81	0.79	0.83	0.89	0.91	0.89	0.93
7.813 - 11.049	0.46	0.54	0.61	0.60	0.63	0.68	0.70	0.68	0.71
5.524 - 7.813	0.37	0.45	0.51	0.50	0.54	0.58	0.60	0.59	0.62
3.906 - 5.524	0.31	0.38	0.43	0.43	0.46	0.51	0.53	0.53	0.56
2.762 - 3.906	0.23	0.28	0.32	0.32	0.35	0.38	0.40	0.40	0.42
1.953 - 2.762	0.18	0.22	0.26	0.26	0.28	0.30	0.32	0.32	0.34
1.381 - 1.953	0.17	0.21	0.25	0.25	0.27	0.30	0.32	0.32	0.35
0.977 - 1.381	0.17	0.21	0.24	0.25	0.27	0.30	0.32	0.32	0.34
0.691 - .0977	0.15	0.18	0.21	0.21	0.23	0.25	0.26	0.27	0.28
0.488 - 0.691	0.13	0.15	0.16	0.16	0.17	0.19	0.20	0.20	0.21
0.345 - 0.488	0.10	0.11	0.12	0.12	0.12	0.13	0.14	0.14	0.14
0.244 - 0.345	0.08	0.09	0.08	0.09	0.08	0.09	0.09	0.09	0.09
0.173 - 0.244	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05
0.122 - 0.173	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03
0.086 - 0.122	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.061 - 0.086	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	Run 1 - a	Run 1 - b	Run 1 - c	Run 2 - a	Run 2 - b	Run 2 - c	Run 3 - a	Run 3 - b	Run 3 - c
d10	183.68	138.17	103.18	126.25	113.26	92.53	88.50	101.07	89.68
d50	768.90	764.68	760.51	763.14	762.87	761.57	761.17	762.82	762.08
d90	948.80	947.76	946.72	947.37	947.31	946.98	946.88	947.29	947.11

	Subsample 1			Subsample 2			Subsample 3		
	Mean	StDev	COV	Mean	StDev	COV	Mean	StDev	COV
d10	141.68	40.37	28.49	110.68	17.01	15.37	93.08	6.94	7.46
d50	764.70	4.20	0.55	762.52	0.84	0.11	762.02	0.83	0.11
d90	947.76	1.04	0.11	947.22	0.21	0.02	947.09	0.21	0.02

APPENDIX 4. Final Merged Data as supplied by participating laboratories (in percentages) and the Benchmark Replicates for sediment distributed as PS86.

Phi interval	Microns	Benchmark Samples					Participant data							
		PSA 2936	PSA 2937	PSA 2938	PSA 2939	PSA 2940	PSA 2901	PSA 2902	PSA 2903	PSA 2904	PSA 2905	PSA 2906	PSA 2907	
-6.50 to -6.00	>63000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-6.00 to -5.50	45000 - 63000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-5.50 to -5.00	31500 - 45000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-5.00 to -4.50	22400 - 31500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-4.50 to -4.00	16000 - 22400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-4.00 to -3.50	11200 - 16000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-3.50 to -3.00	8000 - 11200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00
-3.00 to -2.50	5600 - 8000	5.51	6.29	4.86	6.70	5.28	6.24	5.52	7.00	9.02	6.37	n/p	6.77	
-2.50 to -2.00	4000 - 5600	27.78	25.13	30.06	27.97	28.50	22.92	27.03	27.50	21.05	23.65	n/p	24.70	
-2.00 to -1.50	2800 - 4000	13.44	14.86	11.19	11.03	11.93	16.68	13.17	11.07	15.49	15.77	n/p	14.51	
-1.50 to -1.00	2000 - 2800	0.26	0.27	0.32	0.37	0.34	0.49	0.40	0.70	0.51	0.70	n/p	0.25	
-1.00 to -0.50	1400 - 2000	14.28	14.62	15.57	15.38	15.70	11.17	11.64	11.54	14.48	11.57	n/p	17.03	
-0.50 to 0.00	1000 - 1400	30.57	30.60	29.94	30.38	30.08	34.01	30.86	32.75	34.72	30.30	n/p	32.20	
0.00 to 0.50	710 - 1000	5.21	5.55	5.14	5.39	5.36	6.24	6.24	6.64	4.73	8.01	n/p	4.52	
0.50 to 1.00	500 - 710	1.28	1.35	1.31	1.38	1.36	1.56	2.95	1.93	0.00	2.28	n/p	0.00	
1.00 to 1.50	355 - 500	0.45	0.43	0.42	0.44	0.44	0.30	0.53	0.11	0.00	0.12	n/p	0.00	
1.50 to 2.00	250 - 355	0.16	0.14	0.14	0.15	0.15	0.15	0.00	0.00	0.00	0.18	n/p	0.00	
2.00 to 2.50	180 - 250	0.13	0.09	0.11	0.10	0.11	0.07	0.15	0.02	0.00	0.44	n/p	0.00	
2.50 to 3.00	125 - 180	0.09	0.04	0.07	0.06	0.07	0.05	0.32	0.04	0.00	0.41	n/p	0.00	
3.00 to 3.50	90 - 125	0.08	0.05	0.07	0.04	0.06	0.02	0.24	0.02	0.00	0.15	n/p	0.00	
3.50 to 4.00	63 - 90	0.08	0.05	0.07	0.05	0.05	0.01	0.13	0.01	0.00	0.02	n/p	0.00	
4.00 to 4.50	44.19 - 63	0.09	0.06	0.09	0.06	0.06	0.01	0.10	0.02	0.00	0.02	n/p	0.00	
4.50 to 5.00	31.25 - 44.19	0.09	0.06	0.10	0.07	0.07	0.01	0.12	0.08	0.00	0.00	n/p	0.00	
5.00 to 5.50	22.097 - 31.25	0.08	0.06	0.09	0.07	0.07	0.01	0.12	0.09	0.00	0.00	n/p	0.00	
5.50 to 6.00	15.625 - 22.097	0.07	0.05	0.08	0.06	0.06	0.01	0.10	0.09	0.00	0.00	n/p	0.00	
6.00 to 6.50	11.049 - 15.625	0.06	0.05	0.07	0.05	0.05	0.01	0.08	0.08	0.00	0.00	n/p	0.00	
6.50 to 7.00	7.813 - 11.049	0.05	0.04	0.05	0.04	0.04	0.01	0.07	0.08	0.00	0.00	n/p	0.00	
7.00 to 7.50	5.524 - 7.813	0.04	0.04	0.05	0.04	0.04	0.01	0.07	0.07	0.00	0.00	n/p	0.00	
7.50 to 8.00	3.906 - 5.524	0.04	0.03	0.04	0.03	0.03	0.00	0.06	0.06	0.00	0.00	n/p	0.00	
8.00 to 8.50	2.762 - 3.906	0.03	0.02	0.03	0.03	0.02	0.00	0.05	0.05	0.00	0.00	n/p	0.00	
8.50 to 9.00	1.953 - 2.762	0.02	0.02	0.02	0.02	0.02	0.00	0.04	0.03	0.00	0.00	n/p	0.00	
9.00 to 9.50	1.381 - 1.953	0.02	0.02	0.02	0.02	0.02	0.00	0.03	0.01	0.00	0.00	n/p	0.00	
9.50 to 10.00	0.977 - 1.381	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
10.00 to 10.50	0.691 - 0.977	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
10.50 to 11.00	0.488 - 0.691	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
11.00 to 11.50	0.345 - 0.488	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
11.50 to 12.00	0.244 - 0.345	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
12.00 to 12.50	0.173 - 0.244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
12.50 to 13.00	0.122 - 0.173	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
13.00 to 13.50	0.086 - 0.122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
13.50 to 14.00	0.061 - 0.086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
14.00 to 14.50	0.043 - 0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	
> 14.50	0.01 - 0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/p	0.00	

APPENDIX 4. Final Merged Data as supplied by participating laboratories (in percentages) and the Benchmark Replicates for sediment distributed as PS86.

Phi interval	Microns	Participant Data									
		PSA 2908	PSA 2909	PSA 2910	PSA 2911	PSA 2912	PSA 2913	PSA 2914	PSA 2916	PSA 2917	PSA 2918
-6.50 to -6.00	>63000	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-6.00 to -5.50	45000 - 63000	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-5.50 to -5.00	31500 - 45000	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-5.00 to -4.50	22400 - 31500	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-4.50 to -4.00	16000 - 22400	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-4.00 to -3.50	11200 - 16000	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-3.50 to -3.00	8000 - 11200	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
-3.00 to -2.50	5600 - 8000	n/p*	6.56	9.56	n/p*	7.56	n/p	0.00	8.50	5.61	7.09
-2.50 to -2.00	4000 - 5600	n/p*	25.03	21.80	n/p*	22.70	n/p	0.00	21.31	25.84	21.39
-2.00 to -1.50	2800 - 4000	n/p*	15.94	14.50	n/p*	15.61	n/p	0.00	15.59	14.59	16.39
-1.50 to -1.00	2000 - 2800	n/p*	0.64	0.57	n/p*	0.26	n/p	55.07	0.34	0.28	1.05
-1.00 to -0.50	1400 - 2000	n/p*	12.12	12.65	n/p*	11.07	n/p	0.64	14.14	15.76	13.02
-0.50 to 0.00	1000 - 1400	n/p*	29.23	31.71	n/p*	30.67	n/p	42.84	36.09	30.17	33.64
0.00 to 0.50	710 - 1000	n/p*	6.73	9.21	n/p*	6.99	n/p	0.94	4.02	4.96	7.41
0.50 to 1.00	500 - 710	n/p*	1.57	0.00	n/p*	2.29	n/p	0.44	0.00	1.22	0.00
1.00 to 1.50	355 - 500	n/p*	0.48	0.00	n/p*	0.22	n/p	0.08	0.00	0.42	0.00
1.50 to 2.00	250 - 355	n/p*	0.20	0.00	n/p*	0.01	n/p	0.00	0.00	0.15	0.00
2.00 to 2.50	180 - 250	n/p*	0.20	0.00	n/p*	0.25	n/p	0.00	0.00	0.12	0.00
2.50 to 3.00	125 - 180	n/p*	0.13	0.00	n/p*	0.41	n/p	0.00	0.00	0.07	0.00
3.00 to 3.50	90 - 125	n/p*	0.13	0.00	n/p*	0.32	n/p	0.00	0.00	0.06	0.00
3.50 to 4.00	63 - 90	n/p*	0.13	0.00	n/p*	0.22	n/p	0.00	0.00	0.06	0.00
4.00 to 4.50	44.19 - 63	n/p*	0.13	0.00	n/p*	0.20	n/p	0.00	0.00	0.08	0.00
4.50 to 5.00	31.25 - 44.19	n/p*	0.12	0.00	n/p*	0.22	n/p	0.00	0.00	0.09	0.00
5.00 to 5.50	22.097 - 31.25	n/p*	0.12	0.00	n/p*	0.22	n/p	0.00	0.00	0.09	0.00
5.50 to 6.00	15.625 - 22.097	n/p*	0.08	0.00	n/p*	0.19	n/p	0.00	0.00	0.08	0.00
6.00 to 6.50	11.049 - 15.625	n/p*	0.07	0.00	n/p*	0.16	n/p	0.00	0.00	0.06	0.00
6.50 to 7.00	7.813 - 11.049	n/p*	0.07	0.00	n/p*	0.13	n/p	0.00	0.00	0.05	0.00
7.00 to 7.50	5.524 - 7.813	n/p*	0.06	0.00	n/p*	0.10	n/p	0.00	0.00	0.04	0.00
7.50 to 8.00	3.906 - 5.524	n/p*	0.05	0.00	n/p*	0.08	n/p	0.00	0.00	0.04	0.00
8.00 to 8.50	2.762 - 3.906	n/p*	0.03	0.00	n/p*	0.07	n/p	0.00	0.00	0.03	0.00
8.50 to 9.00	1.953 - 2.762	n/p*	0.03	0.00	n/p*	0.05	n/p	0.00	0.00	0.02	0.00
9.00 to 9.50	1.381 - 1.953	n/p*	0.02	0.00	n/p*	0.02	n/p	0.00	0.00	0.02	0.00
9.50 to 10.00	0.977 - 1.381	n/p*	0.02	0.00	n/p*	0.00	n/p	0.00	0.00	0.02	0.00
10.00 to 10.50	0.691 - .977	n/p*	0.02	0.00	n/p*	0.00	n/p	0.00	0.00	0.02	0.00
10.50 to 11.00	0.488 - 0.691	n/p*	0.02	0.00	n/p*	0.00	n/p	0.00	0.00	0.01	0.00
11.00 to 11.50	0.345 - 0.488	n/p*	0.02	0.00	n/p*	0.00	n/p	0.00	0.00	0.01	0.00
11.50 to 12.00	0.244 - 0.345	n/p*	0.01	0.00	n/p*	0.00	n/p	0.00	0.00	0.01	0.00
12.00 to 12.50	0.173 - 0.244	n/p*	0.01	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
12.50 to 13.00	0.122 - 0.173	n/p*	0.01	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
13.00 to 13.50	0.086 - 0.122	n/p*	0.01	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
13.50 to 14.00	0.061 - 0.086	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
14.00 to 14.50	0.043 - 0.061	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00
> 14.50	0.01 - 0.043	n/p*	0.00	0.00	n/p*	0.00	n/p	0.00	0.00	0.00	0.00