



# NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

## Own Sample Module Summary Report

Benthic Invertebrate Component - 2017/18

OS65, 66 and 67

06 July 2018

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## **MODULE / EXERCISE DETAILS**

Module:	Own Sample (OS)
Exercises:	OS65, 66 and 67
Data/Sample Request Circulated:	10 July 2017
Sample Submission Deadline:	31 August 2017
Number of Subscribing Laboratories:	32
Number of Own Samples Received:	79

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Table 1. Summary of the performance of participating laboratories in the Own Sample (OS) exercises with respect to the NMBAQC standards.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Estimation of Taxa								Taxonomic errors			No. Individuals						Estimation of Biomass				Similarity Index			Sample Flag	
OD	AD	Target	Pass / Fail	Missed Taxa	% Missed	Remedial Action	OD	%	Remedial Action	OD	AD	Target	Pass / Fail	Missed Ind.	% Missed	Remedial Action	OD	AD	Target	Pass / Fail	BCSI %	Target	Pass / Fail	NMBAQC Sample Flag	
BI_2434 OS65	29	30	27 - 33	PASS	1	3.33	-	1	3.33	-	101	103	92.7 - 113.3	PASS	2	1.94	-	-	-	-	-	98.039	90	PASS	PASS - GOOD
BI_2434 OS66	44	44	39.6 - 48.4	PASS	1	2.27	-	3	6.82	-	181	187	168.3 - 205.7	PASS	6	3.21	-	-	-	-	-	94.906	90	PASS	PASS - ACCEPTABLE
BI_2434 OS67	35	36	32.4 - 39.6	PASS	0	0.00	-	1	2.78	-	117	120	108 - 132	PASS	3	2.50	-	-	-	-	-	97.908	90	PASS	PASS - GOOD
BI_2435 OS65	69	72	64.8 - 79.2	PASS	2	2.78	-	6	8.33	Review	283	288	259.2 - 316.8	PASS	5	1.74	-	4.2678	3.9453	3.15624 - 4.73436	PASS	89.608	90	FAIL	FAIL - POOR
BI_2435 OS66	149	176	158.4 - 193.6	FAIL	20	11.36	Reprocess	14	7.95	Review	742	814	732.6 - 895.4	PASS	71	8.72	Review	43.3748	44.5324	35.62592 - 53.43888	PASS	87.461	90	FAIL	FAIL - POOR
BI_2435 OS67	42	40	36 - 44	PASS	2	5.00	Review	3	7.50	Review	540	545	490.5 - 599.5	PASS	12	2.20	-	10.4599	10.3232	8.25856 - 12.38784	PASS	71.832	90	FAIL	FAIL - BAD
BI_2437 OS65	32	33	29.7 - 36.3	PASS	1	3.03	-	1	3.03	-	90	99	89.1 - 108.9	PASS	9	9.09	-	-	-	-	-	94.18	90	PASS	PASS - ACCEPTABLE
BI_2437 OS66	17	17	15.3 - 18.7	PASS	0	0.00	-	1	5.88	-	37	37	33.3 - 40.7	PASS	0	0.00	-	-	-	-	-	94.595	90	PASS	PASS - ACCEPTABLE
BI_2437 OS67	24	25	22.5 - 27.5	PASS	1	4.00	-	0	0.00	-	209	206	185.4 - 226.6	PASS	7	3.40	-	-	-	-	-	97.831	90	PASS	PASS - GOOD
BI_2438 OS65	27	29	26.1 - 31.9	PASS	2	6.90	-	1	3.45	-	214	232	208.8 - 255.2	PASS	16	6.90	-	1.1822	1.0457	0.83656 - 1.25484	PASS	94.9	90	PASS	PASS - ACCEPTABLE
BI_2438 OS66	18	18	16.2 - 19.8	PASS	0	0.00	-	3	16.67	-	40	40	36 - 44	PASS	0	0.00	-	0.51	0.5012	0.40096 - 0.60144	PASS	90.698	90	PASS	PASS - ACCEPTABLE
BI_2438 OS67	14	16	14.4 - 17.6	FAIL	2	12.50	-	0	0.00	-	53	56	50.4 - 61.6	PASS	4	7.14	-	6.6852	6.4027	5.12216 - 7.68324	PASS	95.575	90	PASS	PASS - GOOD
BI_2439 OS65	7	7	6.3 - 7.7	PASS	0	0.00	-	0	0.00	-	13	13	11.7 - 14.3	PASS	0	0.00	-	0.0664	0.0611	0.04888 - 0.07332	PASS	100	90	PASS	PASS - EXCELLENT
BI_2439 OS66	19	19	17.1 - 20.9	PASS	0	0.00	-	0	0.00	-	25	25	22.5 - 27.5	PASS	0	0.00	-	0.1895	0.2702	0.21616 - 0.32424	FAIL	100	90	PASS	PASS - EXCELLENT
BI_2439 OS67	20	20	18 - 22	PASS	0	0.00	-	0	0.00	-	94	94	84.6 - 103.4	PASS	0	0.00	-	1.0658	1.1893	0.95144 - 1.42716	PASS	100	90	PASS	PASS - EXCELLENT
BI_2440 OS65	11	11	9.9 - 12.1	PASS	0	0.00	-	1	9.09	-	99	100	90 - 110	PASS	0	0.00	-	-	-	-	-	97.487	90	PASS	PASS - GOOD
BI_2440 OS66	32	32	28.8 - 35.2	PASS	0	0.00	-	3	9.38	-	169	168	151.2 - 184.8	PASS	1	0.60	-	-	-	-	-	96.736	90	PASS	PASS - GOOD
BI_2440 OS67	7	7	6.3 - 7.7	PASS	0	0.00	-	1	14.29	-	21	21	18.9 - 23.1	PASS	0	0.00	-	0.2499	0.2553	0.20424 - 0.30636	PASS	95.238	90	PASS	PASS - GOOD
BI_2441 OS65	15	15	13.5 - 16.5	PASS	0	0.00	-	0	0.00	-	1628	1613	1451.7 - 1774.3	PASS	0	0.00	-	-	-	-	-	99.48	90	PASS	PASS - GOOD
BI_2441 OS66	11	11	9.9 - 12.1	PASS	0	0.00	-	0	0.00	-	554	582	523.8 - 640.2	PASS	4	0.69	-	-	-	-	-	97.54	90	PASS	PASS - GOOD
BI_2441 OS67	13	13	11.7 - 14.3	PASS	0	0.00	-	1	7.69	Review	214	213	191.7 - 234.3	PASS	2	0.94	-	-	-	-	-	42.424	90	FAIL	FAIL - BAD
BI_2442 OS65	19	24	21.6 - 26.4	FAIL	3	12.50	-	2	8.33	-	1116	1141	1026.9 - 1255.1	PASS	29	2.54	-	-	-	-	-	98.674	90	PASS	PASS - GOOD
BI_2442 OS66	1	1	0.9 - 1.1	PASS	0	0.00	-	0	0.00	-	1	1	0.9 - 1.1	PASS	0	0.00	-	-	-	-	-	100	90	PASS	PASS - EXCELLENT
BI_2442 OS67	12	13	11.7 - 14.3	PASS	1	7.69	-	1	7.69	-	826	828	745.2 - 910.8	PASS	6	0.72	-	-	-	-	-	97.767	90	PASS	PASS - GOOD
BI_2443 OS65	6	6	5.4 - 6.6	PASS	0	0.00	-	0	0.00	-	17	18	16.2 - 19.8	PASS	1	5.56	-	-	-	-	-	97.143	90	PASS	PASS - GOOD
BI_2443 OS66	8	11	9.9 - 12.1	FAIL	3	27.27	-	0	0.00	-	28	32	28.8 - 35.2	FAIL	4	12.50	-	-	-	-	-	93.939	90	PASS	PASS - ACCEPTABLE
BI_2443 OS67	14	14	12.6 - 15.4	PASS	0	0.00	-	1	7.14	-	706	698	628.2 - 767.8	PASS	2	0.29	-	-	-	-	-	99.291	90	PASS	PASS - GOOD
BI_2444 OS65	29	29	26.1 - 31.9	PASS	1	3.45	-	2	6.90	-	961	991	891.9 - 1090.1	PASS	29	2.93	-	6.416	4.1802	3.34416 - 5.01624	FAIL	98.312	90	PASS	PASS - GOOD
BI_2449 OS65	55	55	49.5 - 60.5	PASS	2	3.64	-	0	0.00	-	614	629	566.1 - 691.9	PASS	18	2.86	-	63.968	58.3805	46.7044 - 70.0566	PASS	98.101	90	PASS	PASS - GOOD
BI_2449 OS66	16	16	14.4 - 17.6	PASS	1	6.25	Review	2	12.50	Review	33	34	30.6 - 37.4	PASS	1	2.94	-	0.1537	0.1176	0.09408 - 0.14112	FAIL	88.571	90	FAIL	FAIL - POOR
BI_2449 OS67	39	40	36 - 44	PASS	1	2.50	-	4	10.00	-	229	235	211.5 - 258.5	PASS	5	2.13	-	0.4633	0.402	0.3216 - 0.4824	PASS	95.798	90	PASS	PASS - GOOD

Key: OD = Original Data (participant), AD = Auditor Data, Target for Estimation of Taxa and No. Individuals is +/- 10% AD, Target for Estimation of Biomass is +/- 20% AD, BCSI = Bray Curtis Similarity Index.

Table 2. Comparison of the extraction efficiency by the participating laboratories for the major taxonomic groups present in Own Samples (OS65-67).

LabCode			Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2401	OS65	AD count	17	579	24	4	813	1360	43	140	2980
		Missed	0	0	0	0	0	11	0	0	11
		%missed	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.4
	OS66	AD count	-	36	-	-	11	233	156	1	437
		Missed	-	0	-	-	0	2	0	0	2
		%missed	-	0.0	-	-	0.0	0.9	0.0	0.0	0.5
	OS67	AD count	5	323	2	-	1007	500	35	79	1951
		Missed	0	0	0	-	1	1	0	1	3
		%missed	0.0	0.0	0.0	-	0.1	0.2	0.0	1.3	0.2
BI_2402	OS65	AD count	1	38	-	-	9	82	18	12	160
		Missed	0	0	-	-	0	1	0	0	1
		%missed	0.0	0.0	-	-	0.0	1.2	0.0	0.0	0.6
	OS66	AD count	1	18	-	-	3	31	5	9	67
		Missed	0	0	-	-	0	0	0	1	1
		%missed	0.0	0.0	-	-	0.0	0.0	0.0	11.1	1.5
	OS67	AD count	1	30	-	-	3	38	3	1	76
		Missed	0	0	-	-	0	0	0	0	0
		%missed	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0
BI_2403	OS65	AD count	-	122	-	-	9	7	-	-	138
		Missed	-	0	-	-	0	3	-	-	3
		%missed	-	0.0	-	-	0.0	42.9	-	-	2.2
	OS66	AD count	-	383	12	-	20	5	-	-	420
		Missed	-	3	0	-	0	2	-	-	5
		%missed	-	0.8	0.0	-	0.0	40.0	-	-	1.2
	OS67	AD count	-	214	10	-	24	10	4	2	264
		Missed	-	0	0	-	0	0	0	0	0
		%missed	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
BI_2404	OS65	AD count	1	48	-	-	4	9	1	-	63
		Missed	0	0	-	-	0	0	0	-	0
		%missed	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0
	OS66	AD count	-	1	-	-	3	4	-	-	8
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS67	AD count	2	8	-	-	35	7	7	-	59
		Missed	0	0	-	-	1	0	1	-	2
		%missed	0.0	0.0	-	-	2.9	0.0	14.3	-	3.4
BI_2405	OS65	AD count	-	7	-	-	4	1	-	-	12
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS66	AD count	-	5	-	-	1	1	-	-	7
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS67	AD count	-	118	-	1	9	17	33	107	285
		Missed	-	0	-	0	0	0	0	0	0
		%missed	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0
BI_2406	OS65	AD count	-	5	-	-	11	23	11	-	50
		Missed	-	0	-	-	0	1	0	-	1
		%missed	-	0.0	-	-	0.0	4.3	0.0	-	2.0
	OS66	AD count	-	8	-	-	2	22	7	-	39
		Missed	-	0	-	-	0	2	0	-	2
		%missed	-	0.0	-	-	0.0	9.1	0.0	-	5.1
	OS67	AD count	-	17	-	-	1	31	7	-	56
		Missed	-	0	-	-	0	1	0	-	1
		%missed	-	0.0	-	-	0.0	3.2	0.0	-	1.8
BI_2407	OS65	AD count	5	1468	5	-	48	52	89	9	1676
		Missed	0	0	0	-	0	0	0	3	3
		%missed	0.0	0.0	0.0	-	0.0	0.0	0.0	33.3	0.2
	OS66	AD count	9	1800	9	1	57	68	136	10	2090
		Missed	0	0	0	0	1	3	0	1	5
		%missed	0.0	0.0	0.0	0.0	1.8	4.4	0.0	10.0	0.2
	OS67	AD count	7	1282	9	-	53	50	190	5	1596
		Missed	0	1	0	-	0	0	0	0	1
		%missed	0.0	0.1	0.0	-	0.0	0.0	0.0	0.0	0.1

Table 2. Comparison of the extraction efficiency by the participating laboratories for the major taxonomic groups present in Own Samples (OS65-67).

LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall	
BI_2409	OS65	AD count	-	66	-	-	3	18	-	-	87
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS66	AD count	-	7	-	-	-	11	-	1	19
		Missed	-	0	-	-	-	0	-	0	0
		%missed	-	0.0	-	-	-	0.0	-	0.0	0.0
	OS67	AD count	-	3	-	-	-	9	1	-	13
		Missed	-	0	-	-	-	0	0	-	0
		%missed	-	0.0	-	-	-	0.0	0.0	-	0.0
BI_2417	OS65	AD count	-	8	-	-	3	8	-	-	19
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS66	AD count	-	43	-	-	27	6	-	-	76
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS67	AD count	-	57	1	-	81	15	2	20	176
		Missed	-	0	0	-	0	0	0	0	0
		%missed	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
BI_2418	OS65	AD count	-	33	-	-	1	93	1	8	136
		Missed	-	1	-	-	0	5	0	0	6
		%missed	-	3.0	-	-	0.0	5.4	0.0	0.0	4.4
	OS66	AD count	-	8	-	-	1	3	2	-	14
		Missed	-	0	-	-	0	0	0	-	0
		%missed	-	0.0	-	-	0.0	0.0	0.0	-	0.0
	OS67	AD count	-	23	-	-	6	10	5	6	50
		Missed	-	0	-	-	0	0	0	0	0
		%missed	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0
BI_2419	OS65	AD count	1	30	-	-	3	49	89	4	176
		Missed	0	0	-	-	0	0	4	0	4
		%missed	0.0	0.0	-	-	0.0	0.0	4.5	0.0	2.3
	OS66	AD count	1	16	-	-	2	11	24	5	59
		Missed	0	0	-	-	0	2	1	0	3
		%missed	0.0	0.0	-	-	0.0	18.2	4.2	0.0	5.1
	OS67	AD count	-	31	-	-	1	7	68	6	113
		Missed	-	1	-	-	0	1	0	0	2
		%missed	-	3.2	-	-	0.0	14.3	0.0	0.0	1.8
BI_2422	OS65	AD count	1	10	-	-	-	10	-	-	21
		Missed	0	0	-	-	-	4	-	-	4
		%missed	0.0	0.0	-	-	-	40.0	-	-	19.0
	OS66	AD count	1	23	-	-	-	6	5	-	35
		Missed	0	0	-	-	-	0	0	-	0
		%missed	0.0	0.0	-	-	-	0.0	0.0	-	0.0
	OS67	AD count	-	11	-	-	1	18	11	-	41
		Missed	-	0	-	-	0	0	0	-	0
		%missed	-	0.0	-	-	0.0	0.0	0.0	-	0.0
BI_2423	OS65	AD count	11	230	12	-	5	20	3	2	283
		Missed	0	1	0	-	1	0	0	0	2
		%missed	0.0	0.4	0.0	-	20.0	0.0	0.0	0.0	0.7
	OS66	AD count	-	22	-	-	-	13	4	3	42
		Missed	-	0	-	-	-	0	0	0	0
		%missed	-	0.0	-	-	-	0.0	0.0	0.0	0.0
	OS67	AD count	2	36	-	-	-	15	6	3	62
		Missed	1	0	-	-	-	0	0	0	1
		%missed	50.0	0.0	-	-	-	0.0	0.0	0.0	1.6
BI_2425	OS65	AD count	2	27	-	-	9	81	2	12	133
		Missed	0	0	-	-	0	9	0	0	9
		%missed	0.0	0.0	-	-	0.0	11.1	0.0	0.0	6.8
	OS66	AD count	-	26	-	-	14	32	1	1	74
		Missed	-	0	-	-	1	3	0	1	5
		%missed	-	0.0	-	-	7.1	9.4	0.0	100.0	6.8
	OS67	AD count	-	11	-	-	9	11	5	5	41
		Missed	-	0	-	-	0	1	0	0	1
		%missed	-	0.0	-	-	0.0	9.1	0.0	0.0	2.4

Table 2. Comparison of the extraction efficiency by the participating laboratories for the major taxonomic groups present in Own Samples (OS65-67).

LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall	
BI_2432	OS65	AD count	1	18	-	-	-	44	14	4	81
		Missed	0	0	-	-	-	0	0	0	0
		%missed	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0
	OS66	AD count	-	16	-	-	-	21	17	1	55
		Missed	-	0	-	-	-	0	0	0	0
		%missed	-	0.0	-	-	-	0.0	0.0	0.0	0.0
	OS67	AD count	-	30	-	-	1	45	62	8	146
		Missed	-	0	-	-	0	0	0	0	0
		%missed	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0
BI_2433	OS65	AD count	2	273	-	-	2	43	-	-	320
		Missed	0	0	-	-	0	0	-	-	0
		%missed	0.0	0.0	-	-	0.0	0.0	-	-	0.0
	OS66	AD count	2	227	1	-	23	12	4	-	269
		Missed	0	0	0	-	0	0	0	-	0
		%missed	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0
	OS67	AD count	1	96	-	-	30	28	-	5	160
		Missed	0	1	-	-	0	1	-	5	7
		%missed	0.0	1.0	-	-	0.0	3.6	-	100.0	4.4
BI_2434	OS65	AD count	2	65	-	-	3	16	13	4	103
		Missed	0	1	-	-	0	0	1	0	2
		%missed	0.0	1.5	-	-	0.0	0.0	7.7	0.0	1.9
	OS66	AD count	-	108	-	-	10	15	47	7	187
		Missed	-	5	-	-	0	1	0	0	6
		%missed	-	4.6	-	-	0.0	6.7	0.0	0.0	3.2
	OS67	AD count	2	54	-	-	11	14	32	7	120
		Missed	0	2	-	-	0	0	1	0	3
		%missed	0.0	3.7	-	-	0.0	0.0	3.1	0.0	2.5
BI_2435	OS65	AD count	9	86	2	-	121	45	18	7	288
		Missed	0	0	0	-	2	2	0	1	5
		%missed	0.0	0.0	0.0	-	1.7	4.4	0.0	14.3	1.7
	OS66	AD count	14	431	3	9	139	106	68	44	814
		Missed	4	35	0	2	0	14	3	13	71
		%missed	28.6	8.1	0.0	22.2	0.0	13.2	4.4	29.5	8.7
	OS67	AD count	50	219	42	-	43	190	1	-	545
		Missed	0	8	2	-	1	1	0	-	12
		%missed	0.0	3.7	4.8	-	2.3	0.5	0.0	-	2.2
BI_2437	OS65	AD count	2	78	2	-	4	6	3	4	99
		Missed	0	7	0	-	2	0	0	0	9
		%missed	0.0	9.0	0.0	-	50.0	0.0	0.0	0.0	9.1
	OS66	AD count	4	22	-	-	-	10	-	1	37
		Missed	0	0	-	-	-	0	-	0	0
		%missed	0.0	0.0	-	-	-	0.0	-	0.0	0.0
	OS67	AD count	-	49	1	-	2	120	33	1	206
		Missed	-	2	0	-	0	5	0	0	7
		%missed	-	4.1	0.0	-	0.0	4.2	0.0	0.0	3.4
BI_2438	OS65	AD count	-	77	84	-	51	19	-	1	232
		Missed	-	2	7	-	3	4	-	0	16
		%missed	-	2.6	8.3	-	5.9	21.1	-	0.0	6.9
	OS66	AD count	-	13	1	-	6	20	-	-	40
		Missed	-	0	0	-	0	0	-	-	0
		%missed	-	0.0	0.0	-	0.0	0.0	-	-	0.0
	OS67	AD count	-	14	-	-	17	25	-	-	56
		Missed	-	0	-	-	0	4	-	-	4
		%missed	-	0.0	-	-	0.0	16.0	-	-	7.1
BI_2439	OS65	AD count	-	5	-	-	1	1	-	6	13
		Missed	-	0	-	-	0	0	-	0	0
		%missed	-	0.0	-	-	0.0	0.0	-	0.0	0.0
	OS66	AD count	-	16	-	-	4	5	-	-	25
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
	OS67	AD count	1	19	-	-	-	51	-	23	94
		Missed	0	0	-	-	-	0	-	0	0
		%missed	0.0	0.0	-	-	-	0.0	-	0.0	0.0

Table 2. Comparison of the extraction efficiency by the participating laboratories for the major taxonomic groups present in Own Samples (OS65-67).

LabCode			Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2440	OS65	AD count	-	32	2	-	60	6	-	-	100
		Missed	-	0	0	-	0	0	-	-	0
		%missed	-	0.0	0.0	-	0.0	0.0	-	-	0.0
	OS66	AD count	13	57	-	-	55	41	-	2	168
		Missed	0	0	-	-	1	0	-	0	1
		%missed	0.0	0.0	-	-	1.8	0.0	-	0.0	0.6
	OS67	AD count	-	5	-	-	15	1	-	-	21
		Missed	-	0	-	-	0	0	-	-	0
		%missed	-	0.0	-	-	0.0	0.0	-	-	0.0
BI_2441	OS65	AD count	-	292	911	-	137	37	-	236	1613
		Missed	-	0	0	-	0	0	-	0	0
		%missed	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0
	OS66	AD count	-	30	535	-	14	-	-	3	582
		Missed	-	0	4	-	0	-	-	0	4
		%missed	-	0.0	0.7	-	0.0	-	-	0.0	0.7
	OS67	AD count	-	8	176	-	28	1	-	-	213
		Missed	-	0	2	-	0	0	-	-	2
		%missed	-	0.0	1.1	-	0.0	0.0	-	-	0.9
BI_2442	OS65	AD count	-	89	1	-	36	1015	-	-	1141
		Missed	-	3	1	-	1	24	-	-	29
		%missed	-	3.4	100.0	-	2.8	2.4	-	-	2.5
	OS66	AD count	-	1	-	-	-	-	-	-	1
		Missed	-	0	-	-	-	-	-	-	0
		%missed	-	0.0	-	-	-	-	-	-	0.0
	OS67	AD count	-	34	10	-	765	5	-	14	828
		Missed	-	2	0	-	3	0	-	1	6
		%missed	-	5.9	0.0	-	0.4	0.0	-	7.1	0.7
BI_2443	OS65	AD count	-	8	-	-	2	8	-	-	18
		Missed	-	0	-	-	0	1	-	-	1
		%missed	-	0.0	-	-	0.0	12.5	-	-	5.6
	OS66	AD count	-	6	-	-	2	24	-	-	32
		Missed	-	1	-	-	0	3	-	-	4
		%missed	-	16.7	-	-	0.0	12.5	-	-	12.5
	OS67	AD count	-	426	-	-	223	49	-	-	698
		Missed	-	2	-	-	0	0	-	-	2
		%missed	-	0.5	-	-	0.0	0.0	-	-	0.3
BI_2444	OS65	AD count	-	447	102	-	388	3	-	51	991
	Missed	-	21	3	-	4	0	-	1	29	
	%missed	-	4.7	2.9	-	1.0	0.0	-	2.0	2.9	
BI_2449	OS65	AD count	6	148	343	-	22	105	1	4	629
		Missed	0	6	2	-	0	9	1	0	18
		%missed	0.0	4.1	0.6	-	0.0	8.6	100.0	0.0	2.9
	OS66	AD count	1	19	-	-	13	-	-	1	34
		Missed	0	1	-	-	0	-	-	0	1
		%missed	0.0	5.3	-	-	0.0	-	-	0.0	2.9
	OS67	AD count	2	21	1	-	15	193	1	2	235
		Missed	0	0	0	-	0	5	0	0	5
		%missed	0.0	0.0	0.0	-	0.0	2.6	0.0	0.0	2.1

Key: AD = Audit Data

Missed = numbers of individuals missed in residue sorting

% Missed = Percentage missed in residue sorting



Table 3. Summary of mis-identified taxa in the Own Sample Module (OS65 - 67) (erroneous identifications in brackets).

LabCode / Smp.	Taxonomic Errors	Major Taxonomic Group					
		Polychaeta	Oligochaeta	Crustacea	Mollusca	Echinodermata	Other
BI_2401	OS65	1	-	-	-	-	Porifera ( <i>Dysidea fragilis</i> )
	OS66	1	-	-	<i>Bathyporeia gracilis/Bathyporeia tenuipes (Bathyporeia elegans)</i>	-	-
	OS67	1	-	-	<i>Harpinia antennaria (Harpinia crenulata)</i>	-	-
BI_2402	OS65	1	-	-	-	<i>Abra prismatica (Abra nitida)</i>	-
	OS66	0	-	-	-	-	-
	OS67	1	<i>Kirkegaardia (Kirkegaardia dorsobranchialis)</i>	-	-	-	-
BI_2403	OS65	0	-	-	-	-	-
	OS66	1	-	-	-	<i>Ensis ensis (Ensis directus)</i>	-
	OS67	0	-	-	-	-	-
BI_2404	OS65	1	-	-	-	<i>Ensis juv. (Phaxas pellucidus)</i>	-
	OS66	0	-	-	-	-	-
	OS67	2	-	-	<i>Diastylis rathkei (Diastylis cornuta)</i>	<i>Abra nitida (Abra alba)</i>	-
BI_2405	OS65	0	-	-	-	-	-
	OS66	0	-	-	-	-	-
	OS67	2	<i>Eumida arctica (Eteone longa aggregate)</i> <i>Phisidia aurea (Lanassa venusta)</i>	-	-	-	-
BI_2406	OS65	0	-	-	-	-	-
	OS66	0	-	-	-	-	-
	OS67	0	-	-	-	-	-
BI_2407	OS65	0	-	-	-	-	-
	OS66	0	-	-	-	-	-
	OS67	1	-	-	-	<i>Ensis juv. (Phaxas pellucidus)</i>	-
BI_2409	OS65	2	-	-	<i>Monacrophium acherusicum (Corophium sp)</i>	<i>Thyasira gouldi (Thyasira flexuosa)</i>	-
	OS66	0	-	-	-	-	-
	OS67	0	-	-	-	-	-
BI_2417	OS65	0	-	-	-	-	-
	OS66	0	-	-	-	-	-
	OS67	0	-	-	-	-	-
BI_2418	OS65	0	-	-	-	-	-
	OS66	2	<i>Glycera tridactyla (Glycera oxycephala)</i>	-	-	<i>Abra prismatica (Abra alba)</i>	-
	OS67	1	-	-	-	<i>Abra prismatica (Abra alba)</i>	-
BI_2419	OS65	0	-	-	-	-	-
	OS66	0	-	-	-	-	-
	OS67	2	<i>Amphictene auricoma (Lagis koreni)</i> <i>Streblosoma bairdi (Streblosoma intestinale)</i>	-	-	-	-
BI_2422	OS65	0	-	-	-	-	-
	OS66	2	<i>Pholoe baltica (Pholoe inornata)</i>	-	-	-	<i>Ophiura ophiura (Ophiura albida)</i>
	OS67	0	-	-	-	-	-
BI_2423	OS65	1	-	-	-	<i>Mya truncata juv. (Mya arenaria)</i>	-
	OS66	2	-	-	-	<i>Brachystomia (Spiralinella spiralis)</i> <i>Abra nitida (Abra alba)</i>	-
	OS67	3	<i>Leiochone (Clymenura sp)</i> <i>Pista mediterranea (Pista bansei)</i>	-	-	<i>Nucula nucleus (Nucula sulcata)</i>	-
BI_2425	OS65	1	-	-	-	<i>Abra nitida/Fabulina fabula (Abra alba)</i>	-
	OS66	1	-	-	-	<i>Cochlodesma praetenuae (Thracia)</i>	-
	OS67	1	<i>Spio cf. symphyta/Spio cf. decorata (Spio filicornis)</i>	-	-	-	-
BI_2432	OS65	1	-	-	-	-	<i>Phascolion strombus (Nephasoma minutum)</i>
	OS66	3	<i>Galathowenia (Myriochele sp)</i>	-	-	-	-
			<i>Abyssoninoe hibernica (Scoletoma fragilis)</i> <i>Aphelochaeta (Cirriformia tentaculata)</i>	-	-	-	-
OS67	4	<i>Prionospio cirrifera agg. (Prionospio fallax)</i>	-	<i>Ampelisca brevicornis (Ampelisca typica)</i>	<i>Philine quadripartita (Philine aperta)</i>	-	Edwardsiidae ( <i>Halcampoides sp</i> )
BI_2433	OS65	0	-	-	-	-	-
	OS66	1	-	-	<i>Synchelidium sp. A (Synchelidium haplocheles)</i>	-	-
	OS67	1	<i>Leiochone (Microclymene tricirrata)</i>	-	-	-	-

Table 3. Summary of mis-identified taxa in the Own Sample Module (OS65 - 67) (erroneous identifications in brackets).

LabCode / Smp.	Taxonomic Errors	Major Taxonomic Group						
		Polychaeta	Oligochaeta	Crustacea	Mollusca	Echinodermata	Other	
BI_2434	OS65	1	-	-	<i>Pontocrates</i> sp. A ( <i>Pontocrates altamarinus</i> )	-	-	-
	OS66	3	<i>Nephtys caeca</i> ( <i>Nephtys cirrosa</i> )	-	-	-	-	-
			<i>Prionospio fallax</i> ( <i>Prionospio</i> cf. <i>cirrifera</i> )	-	-	-	-	-
OS67	1	<i>Terebellidae</i> juv. ( <i>Streptosoma</i> spp juv.)	-	-	-	-	-	
BI_2435	OS65	6	-	-	<i>Bathyporeia elegans</i> ( <i>Bathyporeia gracilis</i> )	<i>Bela nebula</i> ( <i>Typhlomangelia nivalis</i> )	-	PROTOZOA (ENTOPROCTA)
			-	-	<i>Bathyporeia elegans</i> ( <i>Bathyporeia tenuipes</i> )	<i>Nucula nitidosa</i> ( <i>Nucula hanleyi</i> )	-	-
			-	-	<i>Centraloecetes</i> ( <i>Siphonoecetes</i> )	-	-	-
	OS66	14	<i>Fimbriosthenelais zetlandica</i> ( <i>Sthenelais baa</i> )	-	<i>Kroyera carinata</i> ( <i>Monoculodes</i> )	<i>Jujubinus montagui</i> ( <i>Gibbula</i> )	-	<i>Escharella ventricosa</i> ( <i>Escharella variolosa</i> )
			<i>Ephesiella abyssorum</i> ( <i>Sphaerodorum gracilis</i> )	-	<i>Cressa dubia</i> ( <i>Stenothoidae</i> )	<i>Spiralinella spiralis</i> ( <i>Chrysalida</i> )	-	<i>Microporella ciliata</i> ( <i>Haplopoma</i> )
			<i>Prosphaerosyllis chauseyensis</i> ( <i>Sphaerosyllis pyrifer</i> )	-	<i>Parametopa</i> ( <i>Stenula rubrovittata</i> )	-	-	-
			<i>Sphaerosyllis bulbosa</i> ( <i>Sphaerosyllis taylora</i> cf)	-	-	-	-	-
			<i>Paradoneis ilvana</i> ( <i>Paradoneis lyra</i> )	-	-	-	-	-
			<i>Praxillella affinis</i> ( <i>Euclymene oerstedii</i> agg)	-	-	-	-	-
			<i>Ampharete octocirrata</i> ( <i>Ampharete lindstroemi</i> agg)	-	-	-	-	-
OS67	3	<i>Spiophanes kroyeri</i> ( <i>Spiophanes wigleyi</i> )	-	-	<i>Nucula nitidosa</i> ( <i>Nucula hanleyi</i> )	-	PROTOZOA (ENTOPROCTA)	
BI_2437	OS65	1	-	-	-	<i>Mangelia costulata</i> ( <i>Mangelia costata</i> )	-	-
	OS66	1	-	-	-	<i>Philine quadripartita</i> ( <i>Philine aperta</i> )	-	-
	OS67	0	-	-	-	-	-	-
BI_2438	OS65	1	<i>Glycera alba</i> ( <i>Glycera tridactyla</i> )	-	-	-	-	-
	OS66	3	<i>Tharyx</i> sp. A ( <i>Tharyx killariensis</i> )	-	-	-	-	<i>Ensis leei</i> ( <i>Phaxas pellucidus</i> )
	OS67	0	-	-	-	-	-	-
BI_2439	OS65	0	-	-	-	-	-	-
	OS66	0	-	-	-	-	-	-
	OS67	0	-	-	-	-	-	-
BI_2440	OS65	1	-	<i>Tubificoides diazi</i> agg. ( <i>Tubificoides pseudogaster</i> )	-	-	-	-
	OS66	3	<i>Fimbriosthenelais minor</i> ( <i>Sthenelais limicola</i> )	-	<i>Pontocrates arcticus</i> ( <i>Pontocrates altamarinus</i> )	<i>Euspira catena</i> juv. ( <i>Euspira nitida</i> )	-	-
	OS67	1	-	-	<i>Pontocrates arcticus</i> ( <i>Pontocrates altamarinus</i> )	-	-	-
BI_2441	OS65	0	-	-	-	-	-	-
	OS66	0	-	-	-	-	-	-
	OS67	1	-	<i>Baltidrilus costatus</i> ( <i>Tubificoides diazi</i> agg.)	-	-	-	-
BI_2442	OS65	2	-	-	-	<i>Scrobicularia plana</i> juv. ( <i>Limecola balthica</i> )	-	-
			-	-	-	<i>Abra tenuis</i> ( <i>Limecola balthica</i> )	-	-
	OS67	1	-	-	<i>Corophium arenarium</i> ( <i>Corophium volutator</i> )	-	-	-
BI_2443	OS65	0	-	-	-	-	-	-
	OS66	0	-	-	-	-	-	-
	OS67	1	-	-	-	-	-	CILIOPHORA (ENTOPROCTA)
BI_2444	OS65	2	-	-	-	-	-	Anthropogenic foam (ANIMALIA)
			-	-	-	-	-	CILIOPHORA ( <i>Loxosomella</i> )
BI_2449	OS65	0	-	-	-	-	-	-
	OS66	2	<i>Travisia forbesi</i> ( <i>Opheliidae</i> )	-	<i>Tanaissus danica</i> ( <i>Akanthoporeus gracilis</i> )	-	-	-
	OS67	4	<i>Glycera oxycephala</i> ( <i>Glycera lapidum</i> )	-	<i>Bathyporeia guilliamsoniana</i> ( <i>Bathyporeia pelagica</i> )	<i>Obtusella intersecta</i> ( <i>Rissoella opalina</i> )	-	FILIFERA (ENTOPROCTA)
<b>TOTAL</b>		<b>92</b>	31	2	18	28	1	12
<b>% Error</b>			34	2	20	30	1	13

NB: % errors for taxonomic groups are percentages of the total errors generated by each taxon (not percentages of errors within each taxon)

Table 4. Comparison of the estimates of biomass made by the participating laboratories with those made by APEM Ltd. for the major taxonomic groups present in samples OS65-OS67.

		OS65								
LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2401	OD	0.0454	4.3117	0.0055	0.0007	0.6176	21.8067	2.1571	4.1820	33.1267
	AD	0.0400	4.2919	0.0049	0.0005	0.6078	20.0281	2.1038	3.8351	30.9121
	%diff.	11.89	0.46	10.91	28.57	1.59	8.16	2.47	8.30	6.69
BI_2403	OD	-	0.2550	-	-	0.0833	0.0016	-	0.0001	0.3400
	AD	-	0.1667	-	-	0.0563	0.0001	-	0.0001	0.2232
	%diff.	-	34.63	-	-	32.41	93.75	-	0.00	34.35
BI_2405	OD	-	0.1468	-	-	0.7200	0.0023	0.0107	-	0.8798
	AD	-	0.1459	-	-	0.7101	0.0024	0.0097	-	0.8681
	%diff.	-	0.61	-	-	1.38	-4.35	9.35	-	1.33
BI_2417	OD	-	0.0012	-	-	0.0009	0.1571	-	-	0.1592
	AD	-	0.0011	-	-	0.0009	0.1603	-	-	0.1623
	%diff.	-	8.3333	-	-	0.0000	-2.0369	-	-	-1.9472
BI_2435	OD	0.0079	0.2776	0.0001	-	0.0588	2.8098	1.1065	0.0071	4.2678
	AD	0.0052	0.2093	0.0001	-	0.0402	2.7257	0.9589	0.0059	3.9453
	%diff.	34.1772	24.6037	0.0000	-	31.6327	2.9931	13.3394	16.9014	7.56
BI_2438	OD	-	0.7816	0.0055	-	0.1152	0.2799	-	-	1.1822
	AD	-	0.6960	0.0053	-	0.0772	0.2672	-	-	1.0457
	%diff.	-	10.95	3.64	-	32.99	4.54	-	-	11.55
BI_2439	OD	-	0.0136	-	-	0.0063	0.0003	-	0.0462	0.0664
	AD	-	0.0103	-	-	0.0059	0.0005	-	0.0444	0.0611
	%diff.	-	24.26	-	-	6.35	-66.67	-	3.90	7.98
BI_2440	OD	-	-	-	-	-	-	-	-	0.0000
	AD	-	-	-	-	-	-	-	-	0.0000
	%diff.	-	-	-	-	-	-	-	-	-
BI_2444	OD	-	4.9540	0.0190	-	1.1000	0.0189	-	0.3241	6.4160
	AD	-	3.3893	0.0074	-	0.6609	0.0166	-	0.1060	4.1802
	%diff.	-	31.58	61.05	-	39.92	12.17	-	67.29	34.85
BI_2449	OD	0.0032	0.3756	0.0770	-	0.0524	63.4525	0.0069	0.0004	63.9680
	AD	0.0012	0.2571	0.0444	-	0.0129	58.0573	0.0074	0.0003	58.3806
	%diff.	62.50	31.55	42.34	-	75.38	8.50	-7.25	25.00	8.73

Key: OD - Own data, participating laboratory  
 AD - Audit data  
 "-" - No data.

Table 4. Comparison of the estimates of biomass made by the participating laboratories with those made by APEM Ltd. for the major taxonomic groups present in samples OS65-OS67.

		OS66								
LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2401	OD	-	0.0458	-	-	0.0022	0.3435	0.0820	0.0001	0.4736
	AD	-	0.0500	-	-	0.0025	0.3279	0.0913	0.0001	0.4718
	%diff.	-	-9.17	-	-	-13.64	4.54	-11.34	0.00	0.38
BI_2403	OD	0.0098	1.8643	0.0020	-	0.2177	7.7130	-	0.0001	9.8069
	AD	0.0057	1.1599	0.0003	-	0.1416	7.0294	-	0.0001	8.3370
	%diff.	41.84	37.78	85.00	-	34.96	8.86	-	0.00	14.99
BI_2405	OD	-	0.2353	-	-	0.6405	0.4658	-	-	1.3416
	AD	-	0.2772	-	-	0.6175	0.4756	-	-	1.3703
	%diff.	-	-17.81	-	-	3.59	-2.10	-	-	-2.14
BI_2417	OD	-	0.5249	-	-	0.0636	0.0737	-	-	0.6622
	AD	-	0.5737	-	-	0.0691	0.0745	-	-	0.7173
	%diff.	-	-9.30	-	-	-8.65	-1.09	-	-	-8.3207
BI_2435	OD	0.0197	0.5867	0.0002	0.0009	0.2838	42.3060	0.1766	0.0009	43.3748
	AD	0.0198	0.6409	0.0002	0.0014	0.2801	43.4128	0.1746	0.0026	44.5324
	%diff.	-0.5076	-9.2381	0.0000	-55.5556	1.3037	-2.6162	1.1325	-188.8889	-2.67
BI_2438	OD	-	0.1814	0.0001	-	0.0006	0.3279	-	-	0.5100
	AD	-	0.2286	0.0001	-	0.0006	0.2719	-	-	0.5012
	%diff.	-	-26.02	0.00	-	0.00	17.08	-	-	1.73
BI_2439	OD	-	0.1714	-	-	0.0117	0.0064	-	-	0.1895
	AD	-	0.2450	-	-	0.0180	0.0072	-	-	0.2702
	%diff.	-	-42.94	-	-	-53.85	-12.50	-	-	-42.59
BI_2440	OD	-	-	-	-	-	-	-	-	0.0000
	AD	-	-	-	-	-	-	-	-	0.0000
	%diff.	-	-	-	-	-	-	-	-	-
BI_2444	OD	-	-	-	-	-	-	-	-	0.0000
	AD	-	-	-	-	-	-	-	-	0.0000
	%diff.	-	-	-	-	-	-	-	-	-
BI_2449	OD	0.0001	0.1435	-	-	0.0100	-	-	0.0001	0.1537
	AD	0.0001	0.1126	-	-	0.0048	-	-	0.0001	0.1176
	%diff.	0.00	21.53	-	-	52.00	-	-	0.00	23.49

Key: OD - Own data, participating laboratory  
AD - Audit data  
"-" - No data.

Table 4. Comparison of the estimates of biomass made by the participating laboratories with those made by APEM Ltd. for the major taxonomic groups present in samples OS65-OS67.

		OS67								
LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2401	OD	0.0064	1.2605	0.0002	-	0.3577	1.3046	0.2264	0.0979	3.2537
	AD	0.0061	1.2749	0.0002	-	0.3067	1.2875	0.2281	0.0946	3.1981
	%diff.	4.69	-1.14	0.00	-	14.26	1.31	-0.75	3.37	1.71
BI_2403	OD	0.0055	1.8371	0.0016	-	0.0509	0.6419	2.0497	0.0073	4.5940
	AD	0.0383	1.1800	0.0001	-	0.0379	0.5267	2.7024	0.0053	4.4907
	%diff.	-596.36	35.77	93.75	-	25.54	17.95	-31.84	27.40	2.25
BI_2405	OD	-	0.7760	-	0.0001	0.0070	1.0397	1.1513	0.0032	2.9773
	AD	-	0.8955	-	0.0001	0.0057	1.0303	1.1010	0.0036	3.0362
	%diff.	-	-15.40	-	0.00	18.57	0.90	4.37	-12.50	-1.98
BI_2417	OD	-	0.0636	0.0001	-	0.0478	0.0168	0.0007	0.0009	0.1299
	AD	-	0.0855	0.0001	-	0.0883	0.0159	0.0013	0.0009	0.1920
	%diff.	-	-34.43	0.00	-	-84.73	5.36	-85.71	0.00	-47.8060
BI_2435	OD	0.0072	0.2500	0.0035	-	0.0071	10.1327	0.0594	-	10.4599
	AD	0.0044	0.2725	0.0042	-	0.0059	9.9816	0.0546	-	10.3232
	%diff.	38.8889	-9.0000	-20.0000	-	16.9014	1.4912	8.0808	-	1.31
BI_2438	OD	-	0.5239	-	-	0.0083	6.1530	-	-	6.6852
	AD	-	0.4467	-	-	0.0074	5.9486	-	-	6.4027
	%diff.	-	14.74	-	-	10.84	3.32	-	-	4.23
BI_2439	OD	0.0049	0.5735	-	-	-	0.2465	-	0.2409	1.0658
	AD	0.0039	0.6785	-	-	-	0.2608	-	0.2461	1.1893
	%diff.	20.41	-18.31	-	-	-	-5.80	-	-2.16	-11.59
BI_2440	OD	-	0.0148	-	-	0.2350	0.0001	-	-	0.2499
	AD	-	0.0202	-	-	0.2350	0.0001	-	-	0.2553
	%diff.	-	-36.49	-	-	0.00	0.00	-	-	-2.16
BI_2444	OD	-	-	-	-	-	-	-	-	0.0000
	AD	-	-	-	-	-	-	-	-	0.0000
	%diff.	-	-	-	-	-	-	-	-	-
BI_2449	OD	0.0035	0.0573	0.0001	-	0.0303	0.3631	0.0013	0.0077	0.4633
	AD	0.0026	0.0349	0.0001	-	0.0177	0.3415	0.0008	0.0044	0.4020
	%diff.	25.71	39.09	0.00	-	41.58	5.95	38.46	42.86	13.23

Key: OD - Own data, participating laboratory  
 AD - Audit data  
 "-" - No data.

Table 5. Comparison of the overall performance of laboratories in the Own Sample exercises from 1995/96 to 2017/18 (OS01-67).

Scheme Year	Exercise	Number of samples		% Pass
		Pass (>90% BCSI)	Fail (<90% BCSI)	
02 (1995/96)	01	14	0	100
03 (1996/97)	02, 03, 04	27	11	71
04 (1997/98)	05, 06, 07	33	7	83
05 (1998/99)	08, 09, 10	30	12	71
06 (1999/00)	11, 12, 13	37	14	73
07 (2000/01)	14, 15, 16	30	15	67
08 (2001/02)*	17, 18, 19	35	10	78
09 (2002/03)*	20, 21, 22	33	11	75
10 (2003/04)*	23, 24, 25	43	8	84
11 (2004/05)*	26, 27, 28	51	3	94
12 (2005/06)*	29, 30, 31	50	4	93
13 (2006/07)*	32, 33, 34	63	6	91
14 (2007/08)*	35, 36, 37	69	12	85
15 (2008/09)*	38, 39, 40	67	24	74
16 (2009/10)*	41, 42, 43	75	18	81
17 (2010/11)*	44, 45, 46	85	14	86
18 (2011/12)*	47, 48, 49	95	4	96
19 (2012/13)*	50, 51, 52	102	6	94
20 (2013/14)*	53, 54, 55	73	29	72
2014/15 (21)*	56, 57, 58	71	22	76
2015/16 (22)*	59, 60, 61	81	15	84
2016/17 (23)*	62, 63, 64	72	12	86
2017/18 (24)*	65, 66, 67	70	9	89
	<b>Total</b>	<b>1306</b>	<b>266</b>	<b>83</b>

\* - Own Samples selected from completed data matrices  
 BCSI - Bray Curtis Similarity Index (untransformed)