



NMBAQC
The National Marine Biological Analytical Quality Control Scheme

Macrobenthic Module Summary Report

Benthic Invertebrate Component - 2014/15

MB22

1st September 2015

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MODULE / EXERCISE DETAILS

Module:	Macrobenthic
Exercises:	MB22
Type/contents	Natural marine sample from South West of England; approximately 1 litre of muddy sand (post initial sieve); 1mm sieve mesh
Data/Sample Request Circulated:	15th September 2014
Sample Submission Deadline:	31st October 2014
Number of Subscribing Laboratories:	4
Number of Macrobenthic Samples Returned:	2

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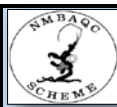
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Key: Blue text = no change, Green text = change without stats impact, Red text = change due to error

No	Identification	Participating Lab		APEM Ltd		Identification	Comment	WoRMS List Reference (07/01/15)
		Ab.	Bio.(g)	Ab.	Bio.(g)			
1	Phaxas pellicidus	34	0.4752	32	0.3995	Phaxas pellicidus		Phaxas pellicidus (Pennant, 1777)
2	Corbula gibba	8	0.1151	8	0.0898	Corbula gibba		Corbula gibba (Oliv, 1792)
3.1	Gari fervensis	2	0.1270	2	0.1204	Gari fervensis	Mixture (see below)	Gari fervensis (Gmelin, 1791)
3.2				1	-	Abra alba	Repeat taxon 4	Abra alba (W. Wood, 1802)
4	Abra alba	10	0.2160	9	0.1902	Abra alba		Abra alba (W. Wood, 1802)
5.1	Abra prismatica	4	0.0293	3	0.0278	Abra prismatica	Mixture; Taxonomic error (see below)	Abra prismatica (Montagu, 1808)
5.2				1	-	Abra alba	Repeat taxon 4	Abra alba (W. Wood, 1802)
6	Kurtiella bidentata	6	0.0024	6	0.0041	Kurtiella bidentata		Kurtiella bidentata (Montagu, 1803)
7	Moerella pygmaea	2	0.0166	2	0.0170	Moerella donacina	Taxonomic error; Additional taxon	Moerella donacina (Linnaeus, 1758)
8	Dosinia lupinus	11	0.0869	12	0.0801	Dosinia sp. (juv)	APEM identification policy	Dosinia Scopoli, 1777
9	Heteranomia squamula	3	0.0017	3	0.0010	Anomidae (juv)	APEM identification policy	Anomidae Rafinesque, 1815
10	Kellia suborbicularis (juv)	2	NA	1	-	Corbula gibba	Taxonomic error; Additional taxon	Corbula gibba (Oliv, 1792)
11	Thracia (juv)	4	NA	3	-	Thracia sp. (juv)		Thracia Blainville, 1824
12	Veneridae (juv)	1	0.0004	1	0.0007	Chamelea striatula (juv)	Over cautious identification	Chamelea striatula (da Costa, 1778)
13	Scaphander lignarius	1	0.0420	1	0.0375	Scaphander lignarius		Scaphander lignarius (Linnaeus, 1758)
14	Mytilidae (juv)	1	0.0001	1	0.0001	Mytilus edulis (juv)	Over cautious identification	Mytilus edulis Linnaeus, 1758
15	Cylichna cylindracea	2	0.0743	2	0.0729	Cylichna cylindracea		Cylichna cylindracea (Pennant, 1777)
16	Retusa truncatula	1	0.0012	1	0.0014	Retusa truncatula		Retusa truncatula (Bruguiere, 1792)
22.1	Glycinde nordmanni	4	0.0480	1	0.0344	Glycinde nordmanni	Mixture; Taxonomic error (see below)	Glycinde nordmanni (Malmgren, 1866)
22.2				2	-	Glycyra lapidum (agg)	Additional taxon	Glycyra lapidum Quatrefages, 1866
23	Nephtys (juv)	5	0.0020	5	0.0008	Nephtys sp. (juv)		Nephtys Cuvier, 1817
24	Spio decoratus	1	0.0009	1	0.0001	Spionidae	Specimen dried	Spionidae Grube, 1850
25.1	Chaetozone setosa	5	0.0034	1	0.0021	Monticellina dorsobranchialis	Taxonomic error; Additional taxon; Mixture (see below)	Monticellina dorsobranchialis (Kirkegaard, 1959)
25.2				2	-	Tharyx killariensis	Additional taxon	Tharyx killariensis (Southern, 1914)
25.3				1	-	Caulerella alata	Repeat taxon 26	Caulerella alata (Southern, 1914)
26	Caulerella alata	1	0.0001	1	0.0001	Caulerella alata		Caulerella alata (Southern, 1914)
27	Protodorvillea kefersteini	3	0.0005	3	0.0001	Protodorvillea kefersteini		Protodorvillea kefersteini (McIntosh, 1869)
28	Poecilochaetus serpens	10	0.0028	8	0.0013	Poecilochaetus serpens		Poecilochaetus serpens Allen, 1904
29	Magelona (juv)	2	0.0001	Frag.	0.0001	Magelona sp. (juv)	No heads	Magelona F. Muller, 1858
30	Spiophanes bombyx	6	0.0023	6	0.0014	Spiophanes bombyx		Spiophanes bombyx (Claparède, 1870)
31	Paradoneis fulgens	1	0.0001	1	0.0001	Paradoneis lyra	Taxonomic error; Additional taxon	Paradoneis lyra (Southern, 1914)
32	Sthenelais limicola	5	0.0345	5	0.0256	Sthenelais limicola		Sthenelais limicola (Ehlers, 1864)
33	Nothria conchylega	1	0.0213	1	0.0410	Nothria conchylega		Nothria conchylega (Sars, 1835)
34	Aurospio banyulensis	1	0.0001	1	0.0001	Aurospio banyulensis		Aurospio banyulensis (Laubier, 1966)
35	Oweniidae	1	(0.0001)	-	-	-	Empty Oweniidae tube	
36	Mediomastus fragilis	26	0.0287	26	0.0176	Mediomastus fragilis		Mediomastus fragilis Rasmussen, 1973
37.1	Aonides oxycephala	3	0.0029	1	0.0001	Aonides oxycephala	Mixture; Taxonomic error (see below)	Aonides oxycephala (Sars, 1862)
37.2				1	-	Aricidea minuta	Additional taxon	Aricidea (Aricidea) minuta Southward, 1956
37.3				1	-	Paradoneis lyra	Repeat taxon 31	Paradoneis lyra (Southern, 1914)
38	Capitella giardi	1	0.0001	1	0.0001	Capitella sp.	APEM identification policy	Capitella Blainville, 1828
39	Goniadidae (juv)	2	0.0007	2	0.0001	Glycinde nordmanni	Over cautious identification; Separate from taxon 22.1 for statistics	Glycinde nordmanni (Malmgren, 1866)
40	Pholoe baltica	1	0.0026	1	0.0020	Pholoe baltica (sensu Petersen)		Pholoe baltica Orsted, 1843
41	Phylodoce (rosea?)	1	0.0006	1	0.0001	Phylodoce rosea		Phylodoce rosea (McIntosh, 1877)
42	Lagis koreni	1	0.0004	1	0.0001	Lagis koreni		Lagis koreni Malmgren, 1866
43	Eteone cf. longa	3	0.0020	3	0.0008	Eteone longa (agg)	Keep separate for statistics	Eteone longa (Fabricius, 1780)
44	Eteoninae	4	0.0006	4	0.0006	Eteone longa (agg)	Over cautious identification	Eteone longa (Fabricius, 1780)
45	Capitellidae	1	0.0001	1	0.0001	Mediomastus fragilis	Over cautious identification	Mediomastus fragilis Rasmussen, 1973
46	Terebellides stroemii	1	0.0002	1	0.0001	Terebellides stroemii		Terebellides stroemii Sars, 1835
47	Lumbrineris latreilli	3	0.0489	4	0.0316	Lumbrineris aniana/cingulata	Taxonomic error; Additional taxon	Lumbrineris Blainville, 1828
49.1	Oligochaeta	5	0.0010	1	0.0004	Tubificidae	Mixture (see below)	Tubificidae Vejdovsky, 1884
49.2				1	-	Tubificoides benedii	Over cautious identification; Combine with taxon 49.1 for statistics	Tubificoides benedii (Udeken, 1855)
56	Urothoe elegans	2	0.0018	2	0.0007	Urothoe elegans		Urothoe elegans (Bate, 1857)
57	Ampelisca brevicornis	1	0.0282	1	0.0216	Ampelisca brevicornis		Ampelisca brevicornis (Costa, 1853)
58	Ampelisca spinipes	2	0.0337	2	0.0257	Ampelisca spinipes		Ampelisca spinipes Boeck, 1861
59	Ampelisca (juv)	2	0.0002	2	0.0001	Ampelisca (juv)		Ampelisca Krøyer, 1842
60	Apeudopsis latreilli	14	0.0064	14	0.0058	Apeudopsis latreilli		Apeudopsis latreilli (Milne-Edwards, 1828)
61	Brachyura (juv)	2	0.0022	2	0.0021	Eballa sp. (juv)	Over cautious identification	Eballa Leach, 1817
62	Carcininae (juv)	1	0.0037	1	0.0035	Liocarcinus sp. (juv)	Over cautious identification	Liocarcinus Stimpson, 1871
72	Cerianthia (juv)	2	NA	2	-	Cerianthus lloydii	Over cautious identification	Cerianthus lloydii Gosse, 1859
73	Edwardsia	4	NA	9	-	Edwardsia claparedii	Over cautious identification	Edwardsia claparedii (Panceri, 1869)
74	Scruparia chelata	(1)	NA	P	-	Scruparia chelata		Scruparia chelata (Linnaeus, 1758)
75	Crisidia cornuta	(1)	NA	P	-	Crisidia cornuta		Crisidia cornuta (Linnaeus, 1758)
76.1	Crisiidae	(1)	NA	P	-	Crisiidae	Mixture; Taxonomic error (see below)	Crisiidae Johnston, 1838
76.2				P	-	Electra pilosa	Additional taxon	Electra pilosa (Linnaeus, 1767)
76.3				(P)	-	(Animalia eggs)	Ignore - Taxonomic error; Additional taxon	
77	Desmoplagioecia amphorae	(1)	NA	P	-	Tubulipora	Taxonomic error; Additional taxon	Tubulipora Lamarck, 1816
78	Clytia gracilis	(1)	NA	P	-	Phialella quadrata	Taxonomic error; Additional taxon	Phialella quadrata (Forbes, 1848)
79	Aetea sica	(1)	NA	P	-	Aetea sp.	APEM identification policy	Aetea Lamouroux, 1812
80	Chorizopora brongiartii	(1)	NA	P	-	Chorizopora brongiartii		Chorizopora brongiartii (Audouin, 1826)
81	Crisiidae (juv)	(1)	NA	-	-	-	Not found/supplied	
82	Bugula (juv)	(1)	NA	P	-	Bugula sp.		Bugula Oken, 1815
83	Anthotheca	(1)	NA	-	-	-	Not found/supplied	
91	Holothuroidea	(0=frag?)	0.0067	1	0.0036	Cucumariidae (juv)	Over cautious identification	Cucumariidae Ludwig, 1894
92	Ophiocten affinis	3	0.0425	3	0.0355	Ophiocten affinis		Ophiocten affinis (Lütken, 1858)
93	Ophiuroidea (juv)	13	0.0064	13	0.0047	Amphiuridae (juv)	Over cautious identification	Amphiuridae Ljungman, 1867
94	Echinocyamus pusillus	3	0.0033	2	0.0032	Echinocyamus pusillus		Echinocyamus pusillus (O.F. Müller, 1776)
97	Phoronida	3	NA	3	-	Phoronis sp.	APEM identification policy	Phoronis Wright, 1856
98	Ostracoda	2	NA	1	-	Myodocopida	Includes 1 x dead Podocopida	Myodocopida Sars, 1866
99	Rhodophyta	(1)	NA	P	-	Rhodophyta		Rhodophyta Wettstein, 1901
100.1	Sipunculidae	1	NA	1	-	Tubulanus polymorphus	Taxonomic error; Additional taxon; Mixture (see below)	Tubulanus polymorphus Renier, 1804
100.2				6	-	Nemertea	Additional taxon	Nemertea
100.3				1	-	Cerebratulus sp.	Additional taxon	Cerebratulus Renier, 1804
100.4				1	-	Edwardsia claparedii	Repeat taxon 73	Edwardsia claparedii (Panceri, 1869)

RESIDUE RESORT								
NT				3	-	Grania sp.	New Taxon	Grania Southern, 1913
100.1				1	-	Tubulanus polymorphus		Tubulanus polymorphus Renier, 1804
NT				1	-	Galathowenia oculata	New Taxon	Galathowenia oculata (Zachs, 1923)
47				1	-	Lumbrineris aniana/cingulata		Lumbrineris Blainville, 1828
7				1	-	Moerella donacina		Moerella donacina (Linnaeus, 1758)
NT				1	-	Lucinoma borealis (juv)	New Taxon	Lucinoma borealis (Linnaeus, 1767)
1				1	-	Phaxas pellicidus		Phaxas pellicidus (Pennant, 1777)
8				1	-	Dosinia sp. (juv)		Dosinia Scopoli, 1777
14				1	-	Mytilus edulis (juv)		Mytilus edulis Linnaeus, 1758
NT				1	-	Nematoda	New Taxon	Nematoda
46				1	-	Terebellides stroemii		Terebellides stroemii Sars, 1835
97				1	-	Phoronis sp.		Phoronis Wright, 1856
NT				1	-	Tubificoides insularis	New taxon; Combine with taxon 49 for statistics	Tubificoides insularis (Stephenson, 1923)

AUDIT SUMMARY								
Total Individuals:		245	260	Missed Individuals (residue):		15	AUDIT SAMPLE FLAG:	
Total Biomass (g):		1.5282	1.3099	Missed Taxa (residue):		4	FAIL - BAD	
Total Taxa:		70	78	Taxonomic Errors:		12		
Counting Discrepancy:		0		Bray-Curtis Similarity Index (untrans):		84.47		

FURTHER ACTION	
Recommended: For OS audit standards the remedial actions would have been to review missed taxa & individuals and reprocess taxonomic errors	
Optional: To review over cautious identifications	



Key: Blue text = no change, Green text = change without stats impact, Red text = change due to error

No.	Participating Lab		APEM Ltd		Identification	Comment	WoRMS List Reference (13/01/15)
	Ab.	Bio.(g)	Ab.	Bio.(g)			
3	P	-	P	-	RHODOPHYTA		Rhodophyta Wetstein, 1901
4	P	-	P	-	Corallina officinalis	APEM identification policy	Corallina officinalis Linnaeus, 1758
5.1	20	0.02992	17	0.0294	Edwardsia claparedii	APEM identification policy; Mixture; Taxonomic error (see below)	Edwardsia claparedii (Panceri, 1869)
5.2			1	-	Cerianthus lloydii	Additional taxon	Cerianthus lloydii Gosse, 1859
6	1	0.01073	1	0.0097	Tubulanus polymorphus	APEM identification policy	Tubulanus polymorphus Renier, 1804
7	9	-	9	-	Nematoda		Nematoda
8	P	-	1	-	Phascolion strombus	Taxonomic error	Phascolion (Phascolion) strombus strombus (Montagu, 1804)
9	1	0.00032	1	0.0001	Nephasoma minutum		Nephasoma (Nephasoma) minutum (Keferstein, 1862)
10	1	0.00780	1	0.0033	Glycera alba		Glycera alba (O.F. Müller, 1776)
11	4	0.00045	4	0.0001	Glycera lapidum (agg)		Glycera lapidum Quatrefages, 1866
12	1	0.00436	1	0.0052	Glycinde nordmanni		Glycinde nordmanni (Malmgren, 1866)
13	4	0.00063	4	0.0020	Nephtys (juv)	APEM identification policy	Nephtys Cuvier, 1817
14	1	0.00158	1	0.0017	Pholoe baltica (sensu Petersen)		Pholoe baltica Örsted, 1843
15	1	0.00205	1	0.0028	Phyllodoce lineata	Name change	Phyllodoce lineata (Claparède, 1870)
16	4	0.00076	3	0.0006	Eteone longa (agg)	Over cautious identification	Eteone longa (Fabricius, 1780)
17	2	0.00056	2	0.0009	Eteone longa (agg)	Keep separate for statistics	Eteone longa (Fabricius, 1780)
18	1	0.01881	1	0.0223	Sthenelais boa	Taxonomic error	Sthenelais boa (Johnston, 1833)
19	2	0.00907	2	0.0090	Sthenelais limicola	Taxonomic error	Sthenelais limicola (Ehlers, 1864)
20	1	0.00221	1	0.0025	Lumbrineris aniana / cingulata	APEM identification policy	Lumbrineris aniana (Fauchald, 1974)
21	1	0.00001	1	0.0001	Paradoneis lyra		Paradoneis lyra (Southern, 1914)
22	2	0.00282	2	0.0022	Chaetozone gibber		Chaetozone gibber Woodham & Chambers, 1994
23	1	0.00111	1	0.0012	Magelona alleni		Magelona alleni Wilson, 1958
24	7	0.00188	6	0.0020	Poecilochaetus serpens		Poecilochaetus serpens Allen, 1904
25	1	0.00244	1	0.0031	Aonides oxycephala		Aonides oxycephala (Sars, 1862)
26	2	0.00289	2	0.0032	Spio symphyta	Taxonomic error	Spio symphyta Meißner, Bick & Bastrop, 2011
27	4	0.00138	3	0.0012	Spiophanes bombyx		Spiophanes bombyx (Claparède, 1870)
28	42	0.01986	40	0.0149	Mediomastus fragilis		Mediomastus fragilis Rasmussen, 1973
29.1	2	0.00193	1	0.0021	Spirobranchus lamarcki	Mixture; APEM identification policy (see below)	Spirobranchus lamarcki (Quatrefages, 1866)
29.2			1	-	Spirobranchus	APEM identification policy; no operculum	Spirobranchus Blainville, 1818
30	1	0.00010	1	0.0001	Tubificoides pseudogaster (agg)		Tubificoides pseudogaster (Dahl, 1960)
31	P	-	Frag.	-	THORACICA	Possibly dead	Thoracica Darwin, 1854
32	1	-	-	-	OSTRACODA	Not found/supplied	
33	1	0.00080	1	0.0005	Ampelisca	Head only	Ampelisca Krøyer, 1842
34	7	0.00928	7	0.0111	Ampelisca brevicornis		Ampelisca brevicornis (Costa, 1853)
35	1	0.00015	1	0.0002	Tanaopsis graciloides		Tanaopsis graciloides (Lilljeborg, 1864)
36	7	0.00640	7	0.0052	Apseudopsis latreilli		Apseudopsis latreilli (Milne-Edwards, 1828)
37	1	0.00082	1	0.0011	Crangonidae	Taxonomic error	Crangonidae Haworth, 1825
38	P	-	Frag.	-	DECAPODA		Decapoda Latreille, 1803
39	3	0.05688	3	0.0575	Nucula hanleyi	Taxonomic error	Nucula hanleyi Winckworth, 1931
40	1	(0.00084)	-	-	Mytilidae (juv)	Dead Mytilus edulis (juv) shell	
41	1	(0.00012)	-	-	Astarte (juv)	Dead Chamelea striatula (juv) shell	
42	8	0.01189	8	0.0118	Chamelea striatula (juv)	Taxonomic error	Chamelea striatula (da Costa, 1778)
43	8	0.00701	8	0.0075	Kurtiella bidentata		Kurtiella bidentata (Montagu, 1803)
44	89	1.15646	86	1.0800	Phaxas pellicudus		Phaxas pellicudus (Pennant, 1777)
45	23	0.60014	23	0.5784	Abra alba		Abra alba (W. Wood, 1802)
46	8	0.08800	9	0.0870	Abra nitida		Abra nitida (O. F. Müller, 1776)
47	1	0.00200	1	0.0024	Abra alba	Taxonomic error; Repeat taxon 45	Abra alba (W. Wood, 1802)
48	1	0.00022	1	0.0010	Thyasira flexuosa	Taxonomic error	Thyasira flexuosa (Montagu, 1803)
49	1	(0.00104)	-	-	Dosinia (juv)	Dead Dosinia (juv) shell	
50	1	0.04627	1	0.0470	Dosinia (juv)	APEM identification policy	Dosinia Scopoli, 1777
51	22	0.07089	22	0.0701	Timoclea ovata		Timoclea ovata (Pennant, 1777)
52	27	0.41271	22	0.3793	Corbula gibba	5 x dead shells	Corbula gibba (Olivier, 1792)
53	1	0.00065	1	0.0006	Hiatella arctica		Hiatella arctica (Linnaeus, 1767)
54	1	0.00904	1	0.0091	Thracia phaseolina	APEM identification policy	Thracia Blainville, 1824
55	1	0.00001	1	0.0017	Phoronis		Phoronis Wright, 1856
56	P	-	Frag.	-	Amphiuridae	Over cautious identification	Amphiuridae Ljungman, 1867
57	12	0.00377	12	0.0033	Amphiuridae (juv)	Over cautious identification	Amphiuridae Ljungman, 1867
58	1	0.00817	1	0.0020	SPATANGOIDA (juv)	Taxonomic error	Spatangoida L. Agassiz, 1840a
59.1	P	-	Frag.	-	Fragments	Additional taxa; Mixture (see below)	
59.2			1	-	Mediomastus fragilis	Repeat taxon 28	Mediomastus fragilis Rasmussen, 1973
59.3			1	-	Lumbrineris aniana/cingulata	Repeat taxon 20	Lumbrineris Blainville, 1828
59.4			1	-	Cerebratulus	Additional taxon	Cerebratulus Renier, 1804
59.5			1	-	Owenia fusiformis	Additional taxon	Owenia fusiformis Delle Chiaje, 1844
59.6			1	-	Edwardsia claparedii	Repeat taxon 5.1	Edwardsia claparedii (Panceri, 1869)
59.7			1	-	Phoronis	Repeat taxon 55	Phoronis Wright, 1856

RESIDUE RESORT							
NT			P		Bugula flabellata	New taxon	Bugula flabellata (Thompson, in Gray, 1848)
NT			P		Scruparia	New taxon	Scruparia Oken, 1815
S1			1		Timoclea ovata		Timoclea ovata (Pennant, 1777)
NT			P		Cribrilia punctata	New taxon	Cribrilia punctata (Hassall, 1841)

AUDIT SUMMARY							
Total Individuals:	344		334		Missed Individuals (residue):	1	AUDIT SAMPLE FLAG: FAIL - POOR
Total Biomass (g):	2.61523		2.4765		Missed Taxa (residue):	3	
Total Taxa:	57		56		Taxonomic Errors:	10	
Counting Discrepancy:	-11				Bray-Curtis Similarity Index (untrans.):	89.914	

FURTHER ACTION
Recommended: For OS audit standards the remedial action would have been to reprocess taxonomic errors
Optional: Biomass required to 4 d.p.

Table 1. Results from the analysis of Macroinvertebrate sample MB22 by the participating laboratories.

	Estimation of Taxa					Taxonomic errors			No. Individuals					Estimation of Biomass				Similarity Index			Sample Flag
	OD	AD	Missed	% Missed	Remedial Action	OD	%	Remedial Action	OD	AD	Missed	% Missed	Remedial Action	OD	AD	Target	Flag	BCSI %	Target	Flag	NMBAQC Sample Flag
BI_2110 MB22	70	78	4	5.13	Review	12	15.58	Reprocess	245	260	15	5.77	Review	1.5282	1.3099	1.04792 - 1.57188	PASS	84.47	90	FAIL	FAIL - BAD
BI_2111 MB22	57	56	3	5.36	Review	10	17.86	Reprocess	344	334	1	0.30	-	2.61523	2.4765	1.9812 - 2.9718	PASS	89.91	90	FAIL	FAIL - POOR

Key: OD = Original Data

AD = Audit Data

% Missed = Percentage missed in residue sorting

BCSI % = Bray-Curtis Similarity Index (untransformed)

Table 2. Comparison of the extraction efficiency by the participating laboratories for the major taxonomic groups present in sample MB22.

LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2110	AD count	8	87	2	-	25	89	19	15	245
	Missed	1	3	4	-	0	5	0	2	15
	% Missed	12.5	3.4	200.0	-	0.0	5.6	0.0	13.3	6.1
BI_2111	AD count	2	82	1	-	17	186	13	32	333
	Missed	0	0	0	-	0	1	0	0	1
	% Missed	0.0	0.0	0.0	-	0.0	0.5	0.0	0.0	0.3

Key: AD = Audit Data

Missed = numbers of individuals missed in residue sorting

% Missed = Percentage missed in residue sorting

Table 3. Comparison of the estimates of biomass by the participating laboratories for the major taxonomic groups present in sample MB22.

LabCode		Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Overall
BI_2110	OD	-	0.2039	0.0010	-	0.0762	1.1882	0.0589	-	1.5282
	AD	-	0.1605	0.0004	-	0.0595	1.0425	0.0470	-	1.3099
	%diff.	-	21.28	60.00	-	21.92	12.26	20.20	-	14.28
BI_2111	OD	0.01073	0.08260	0.00010	-	0.01745	2.46216	0.01195	0.03025	2.61524
	AD	0.0097	0.0804	0.0001	-	0.0181	2.3317	0.0053	0.0312	2.4765
	%diff.	9.60	2.66	0.00	-	-3.72	5.30	55.65	-3.14	5.3051

Key: OD - participating laboratory

AD - Audit data

"-" - No data.

Table 4. Variation in faunal content reported for the replicate samples distributed as MB22.

TAXA

LabCode	Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Total Taxa
BI_2110	3	28	4	-	8	18	4	15	80
BI_2111	2	21	1	-	7	12	2	11	56
Mean	2.5	24.5	2.5	-	7.5	15	3	13	68
Minimum	2	21	1	-	7	12	2	11	56

INDIVIDUALS

LabCode	Nemertea	Polychaeta	Oligochaeta	Chelicerata	Crustacea	Mollusca	Echinodermata	Other	Total Individuals
BI_2110	9	90	6	-	25	94	19	17	260
BI_2111	2	82	1	-	17	187	13	32	334
Mean	5.5	86	3.5	-	21	140.5	16	24.5	297
Minimum	2	82	1	-	17	94	13	17	226

*Audit data used for all faunal groups.



NMBQCC
The National Marine Biological Analytical Quality Control Scheme

Benthic Invertebrate Component - Macrobenthic exercise (MB)

Objective:

- To examine the consistency of extraction and identification of taxa from similar samples.

The macrobenthic sample is a training exercise; results are not used to assess the performance of a laboratory.

Protocol:

Each participating laboratory receives a prepared, labelled macrobenthic sample in a sealed pot with minimal alcohol as a temporary preservative. Samples may be either 'natural' (0.1m² grabs) or artificially created uniform samples. 'Natural' samples are collected on the same day and from the same location at anchor. A single unsorted sample is distributed per Scheme year. Participating laboratories are required to sort and extract all biota, identify to the most accurate taxonomic level practicable, usually species, and enumerate according to the Scheme's processing requirements protocol ([PRP](#)) and taxonomic discrimination protocol ([TDP](#)). Biomass (blotted wet-weight) values are required for all taxa.

Reporting compares extraction efficiency, identification accuracy, enumeration accuracy and biomass estimates. Participating laboratory vs. APEM Ltd. data set for each sample are compared using the Bray-Curtis similarity index.

Preparation:

Samples should be sieved (1.0 mm) and preserved (if not processed immediately) by the participating laboratory on receipt. Sorted residue and specimens should be returned to APEM Ltd., where natural samples are re-processed. All data to be sent electronically to nmbaqc@apemltd.co.uk.

Timescale:

Please send results, specimens and the sample residue to APEM Ltd. by **31st October 2014**.