NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Ring Test Bulletin – RTB#61

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RING TEST DETAILS

Ring Test #61 (Year 28)

Type/Contents – General

Circulated – 13/10/21

Results deadline – 03/12/21

Number of Subscribing Laboratories – 23

Number of Participating Laboratories – 20

Number of Results Received – 21*

*multiple data entries per laboratory permitted

Summary of differences

Specimen	Genus	Species	Condition / Size	Total differences for 21 returns	
				Genus	Species
RT6101	*Idotea*	*neglecta*	good, medium	0	3
RT6102	*Nephtys*	*paradoxa*	fair, medium	1	4
RT6103	*Ophiothrix*	*fragilis*	fair, medium	0	0
RT6104	*Janira*	*maculosa*	fair (no uropods), medium	0	0
RT6105	*Phylo*	*norvegicus*	fair, medium	1	3
RT6106	*Abietinaria*	*abietina*	good, medium portions	0	0
RT6107	*Circeis*	*spirillum*	good, medium, >5 specimens	2	3
RT6108	*Amphitrite*	*rzhavskyi*	good, medium	4	16
RT6109	*Mesopodopsis*	*slabberi*	good, medium	0	0
RT6110	*Typhlotanais*	*aequiremis*	good, medium, female	2	4
RT6111	*Hypania*	*invalida*	good, medium	7	7
RT6112	*Saxicavella*	*jeffreysi*	good, medium, 4-6mm	1	1
RT6113	*Ebalia*	*cranchii*	good, medium, male	0	2
RT6114	*Pterygocythereis*	*jonesii*	fair, medium	1	1
RT6115	*Paradoneis*	*eliasoni*	fair, medium	1	9
RT6116	*Epizoanthus*	*couchii*	fair, medium, single polyp	9	11
RT6117	*Gari*	*fervensis*	fair, small, 1-2mm	1	8
RT6118	*Ampharete*	*falcata*	fair, medium	2	5
RT6119	*Corbicula*	*fluminea*	good, medium, 15-18mm	6	6
RT6120	*Syllis*	*cornuta*	fair, medium	0	5
RT6121	*Mactra*	*stultorum*	good, medium, 7-12mm	3	3
RT6122	*Microjassa*	*cumbrensis*	fair, small, female	7	7
RT6123	*Achelia*	*echinata*	fair, medium	2	3
RT6124	*Bathyporeia*	*tenuipes*	fair, medium, female	0	6
RT6125	*Mendicula*	*ferruginosa*	good, medium, 3-4mm	0	0
			Total differences	**50**	**107**
			Average differences /lab.	**2.4**	**5.1**

Figure 1. The number of differences from the AQC identification of specimens distributed in RT61 for each of the participating laboratories. Arranged in order of increasing number of differences (by specific followed by generic errors).

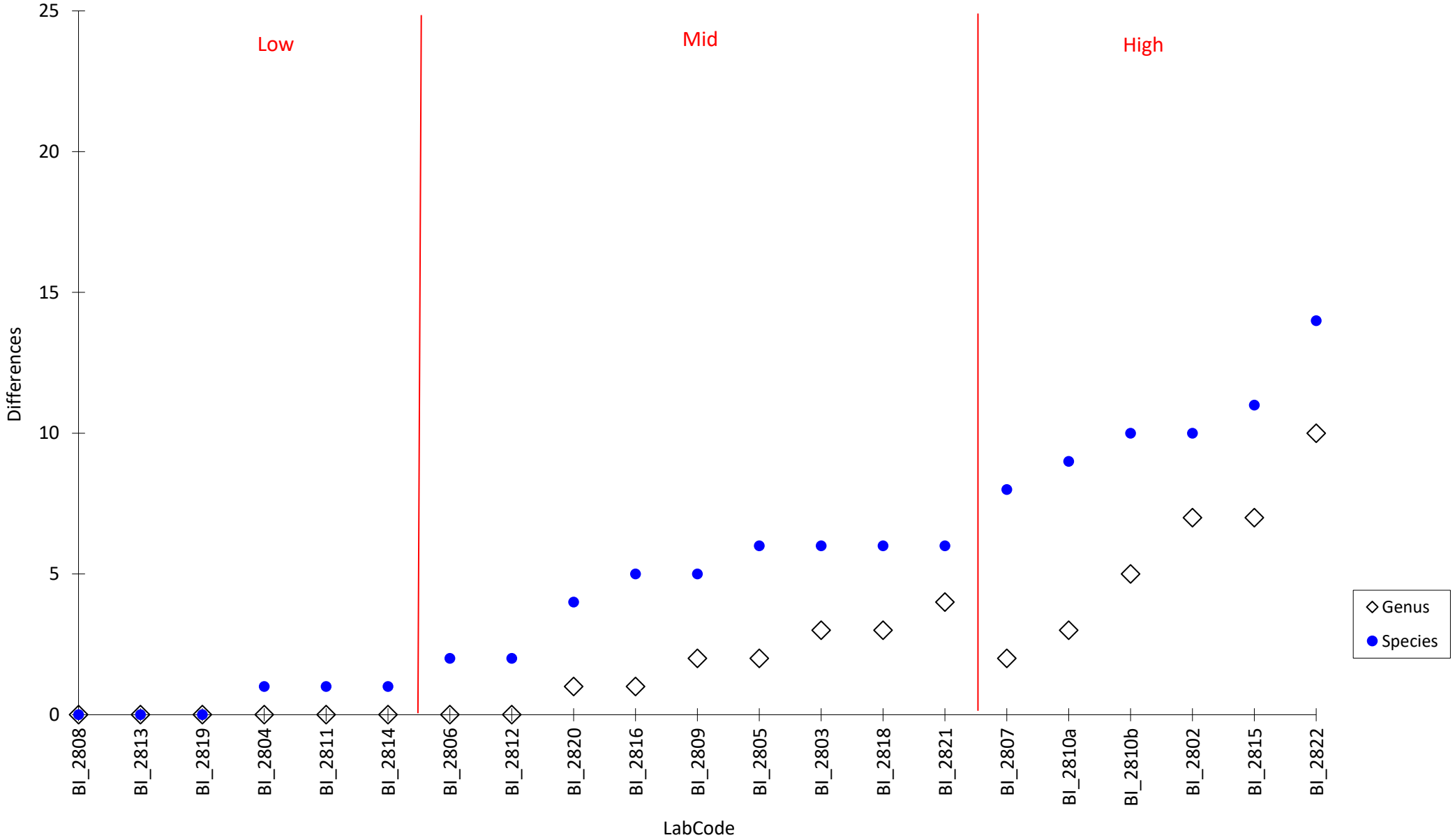


Table 1. The identification of fauna made by participating laboratories for RT61 (arranged by specimen). Names are given only where different from the AQC identification.

	RT6101	RT6102	RT6103	RT6104	RT6105	RT6106	RT6107	RT6108	RT6109	RT6110	RT6111	RT6112
Taxon	*Idotea neglecta*	*Nephtys paradoxa*	*Ophiothrix fragilis*	*Janira maculosa*	*Phylo norvegica*	*Abietinaria abietina*	*Circeis spirillum*	*Amphitrite rzhavskyi*	*Mesopodopsis slabberi*	*Typhlotanais aequiremis*	*Hypania invalida*	*Saxicavella jeffreysi*
BI_2802	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	Ampharete lindstroemi	Mya truncata
BI_2803	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- brevicornis	- -	- -
BI_2804	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2805	- granulosa	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	Alkmaria romijni	- [jeffreysii]
BI_2806	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2807	- chelipes	- -	- -	- -	- -	- -	- paguri	- -	- -	- brevicornis	- -	- -
BI_2808	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2809	- -	Aglaophamus agilis	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2810a	- -	[Nepthys] incisa	- -	- -	[Orbinia (Phylo)] -	- -	- -	- cirrata	[Mysopodopsis] -	- -	Lysippe 0	- [jeffreysii]
BI_2810b	- -	- -	- -	- -	- grubei	- -	- -	- cirrata	- -	- -	Lysippe labiata	- -
BI_2811	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2812	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2813	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2814	- -	- -	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2815	- -	- -	- -	- -	- -	- -	- -	Eupolymnia nebulosa	- -	Tanaopsis graciloides	Amphicteis sundevalli	- -
BI_2816	- -	- -	- -	- -	- grubei	- -	- -	- cirrata	- -	- -	- -	- -
BI_2818	- -	- -	- -	- -	- -	- -	- -	Neoamphitrite grayi	- -	- -	Amphicteis sundevalli	- -
BI_2819	- -	- -	- -	- -	- [norvegicus]	- -	- -	- -	- -	- -	- -	- -
BI_2820	- -	- schmitti	- -	- -	- -	- -	- -	- cirrata	- -	- -	- -	- -
BI_2821	- pelagica	- -	- -	- -	- [norvegicus]	- -	Janua heterostropha	Thelepus setosus	- -	- -	- -	- -
BI_2822	- -	[Nepthys] hombergii	- -	- -	Orbinia sertulata	- -	Skeneopsis planorbis	Pista cristata	- -	Tanaissus lilljeborgi	Amphicteis gunneri	- -

Table 1. The identification of fauna made by participating laboratories for RT61 (arranged by specimen). Names are given only where different from the AQC identification.

	RT6113	RT6114	RT6115	RT6116	RT6117	RT6118	RT6119	RT6120	RT6121	RT6122	RT6123	RT6124	RT6125
Taxon	***Ebalia cranchii***	***Pterygocythereis jonesii***	***Paradoneis eliasoni***	***Epizoanthus couchii***	***Gari fervensis***	***Ampharete falcata***	***Corbicula fluminea***	***Syllis cornuta***	***Mactra stultorum***	***Microjassa cumbrensis***	***Achelia echinata***	***Bathyporeia tenuipes***	***Mendicula ferruginosa***
BI_2802	- -	- -	- armata	Actiniaria 0	Abra alba	- -	Astarte sulcata	- -	- -	Stenula solsbergi	Ammothea hilgendorfi	- pilosa	- -
BI_2803	- -	- -	- -	Alcyonidium condylocinereum	- -	Amphicteis midas	- -	- kas	- -	- -	Ammothella longioculata	- -	- -
BI_2804	- -	- -	- -	- [couchi]	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2805	- granulosa	- -	Aricidea (Acmira) simplex	- -	- tellinella	- -	- -	- -	- -	- -	- -	- -	- -
BI_2806	- -	- -	- lyra	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2807	- -	- -	- -	Edwardsiella carnea	- costulata	- -	- -	- -	- -	Stenothoe monoculoides	- hispida	- pilosa	- -
BI_2808	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2809	- -	- -	- lyra	Cylista troglodytes	- -	- baltica	- -	- -	- -	- -	- -	- -	- -
BI_2810a	- granulosa	- -	- lyra	Sagartia ornata	- -	- 0	Astarte elliptica	- parapari	- -	- -	- -	- -	- -
BI_2810b	- -	- -	- -	Isozoanthus sulcatus	- -	- finmarchica	Spisula subtruncata	- parapari	Spisula elliptica	Cressa dubia	- -	- sarsi	- -
BI_2811	- -	- -	- -	- -	- costulata	- -	- -	- -	- -	- -	- -	- -	- -
BI_2812	- -	- -	- -	- -	- tellinella	- -	- -	- -	- -	- -	- -	- -	- -
BI_2813	- -	- [jonesi]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2814	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2815	- -	- -	- lyra	Molgula occulta	- tellinella	- -	Astarte montagui	- garciai	Spisula elliptica	0 0	- -	- pilosa	- -
BI_2816	- -	- -	- lyra	- papillosus	- -	- -	- -	- -	- -	Ischyrocerus anguipes	- -	- -	- -
BI_2818	- -	- -	- lyra	- -	- tellinella	- -	Astarte sulcata	- hyalina	- -	- -	- -	- -	- -
BI_2819	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_2820	- -	- -	- -	- papillosus	- -	- -	Astarte sulcata	- -	- -	- -	- -	- -	- -
BI_2821	- -	- -	- -	Isozoanthus sulcatus	- -	- -	- -	- -	- -	Stenothoe monoculoides	- -	- pilosa	- -
BI_2822	- -	0 0	- lyra	0 0	- costulata	0 0	[Corbula] -	- -	Spisula sp.	Metopa rubrovittata	- -	- nana	- -

Table 2. The identification of fauna made by participating laboratories for RT61 (arranged by participant). Names are given only where different from the AQC identification.

	Taxon	BI_2802	BI_2803	BI_2804	BI_2805	BI_2806	BI_2807	BI_2808	BI_2809	BI_2810a	BI_2810b	BI_2811
RT6101	*Idotea neglecta*	- -	- -	- -	- granulosa	- -	- chelipes	- -	- -	- -	- -	- -
RT6102	*Nephtys paradoxa*	- -	- -	- -	- -	- -	- -	- -	Aglaophamus agilis	[Nepthys] incisa	- -	- -
RT6103	*Ophiothrix fragilis*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6104	*Janira maculosa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6105	*Phylo norvegica*	- -	- -	- -	- -	- -	- -	- -	- -	[Orbinia (Phylo)] -	- grubei	- -
RT6106	*Abietinaria abietina*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6107	*Circeis spirillum*	- -	- -	- -	- -	- -	- paguri	- -	- -	- -	- -	- -
RT6108	*Amphitrite rzhavskyi*	- cirrata	- cirrata	- cirrata	- cirrata	- cirrata	- -	- -	- cirrata	- cirrata	- cirrata	- -
RT6109	*Mesopodopsis slabberi*	- -	- -	- -	- -	- -	- -	- -	- -	[Mysopodopsis] -	- -	- -
RT6110	*Typhlotanais aequiremis*	- -	- brevicornis	- -	- -	- -	- brevicornis	- -	- -	- -	- -	- -
RT6111	*Hypania invalida*	Ampharete lindstroemi	- -	- -	Alkmaria romijni	- -	- -	- -	- -	Lysippe 0	Lysippe labiata	- -
RT6112	*Saxicavella jeffreysi*	Mya truncata	- -	- -	- [jeffreysii]	- -	- -	- -	- -	- [jeffreysii]	- -	- -
RT6113	*Ebalia cranchii*	- -	- -	- -	- granulosa	- -	- -	- -	- -	- granulosa	- -	- -
RT6114	*Pterygocythereis jonesii*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6115	*Paradoneis eliasoni*	- armata	- -	- -	Aricidea (Acmira) simplex	- lyra	- -	- -	- lyra	- lyra	- -	- -
RT6116	*Epizoanthus couchii*	Actiniaria 0	Alcyonidium condylocinereum	- [couchi]	- -	- -	Edwardsiella carnea	- -	Cylista troglodytes	Sagartia ornata	Isozoanthus sulcatus	- -
RT6117	*Gari fervensis*	Abra alba	- -	- -	- tellinella	- -	- costulata	- -	- -	- -	- -	- costulata
RT6118	*Ampharete falcata*	- -	Amphicteis midas	- -	- -	- -	- -	- -	- baltica	- 0	- finmarchica	- -
RT6119	*Corbicula fluminea*	Astarte sulcata	- -	- -	- -	- -	- -	- -	- -	Astarte elliptica	Spisula subtruncata	- -
RT6120	*Syllis cornuta*	- -	- kas	- -	- -	- -	- -	- -	- -	- parapari	- parapari	- -
RT6121	*Mactra stultorum*	- -	- -	- -	- -	- -	- -	- -	- -	- -	Spisula elliptica	- -
RT6122	*Microjassa cumbrensis*	Stenula solsbergi	- -	- -	- -	- -	Stenothoe monoculoides	- -	- -	- -	Cressa dubia	- -
RT6123	*Achelia echinata*	Ammothea hilgendorfi	Ammothella longioculata	- -	- -	- -	- hispida	- -	- -	- -	- -	- -
RT6124	*Bathyporeia tenuipes*	- pilosa	- -	- -	- -	- -	- pilosa	- -	- -	- -	- sarsi	- -
RT6125	*Mendicula ferruginosa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Table 2. The identification of fauna made by participating laboratories for RT61 (arranged by participant). Names are given only where different from the AQC identification.

	Taxon	BI_2812	BI_2813	BI_2814	BI_2815	BI_2816	BI_2818	BI_2819	BI_2820	BI_2821	BI_2822
RT6101	*Idotea neglecta*	- -	- -	- -	- -	- -	- -	- -	- -	- pelagica	- -
RT6102	*Nephtys paradoxa*	- -	- -	- -	- -	- -	- -	- -	- schmitti	- -	[Nepthys] hombergii
RT6103	*Ophiothrix fragilis*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6104	*Janira maculosa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6105	*Phylo norvegica*	- -	- -	- -	- -	- grubei	- -	- [norvegicus]	- -	- [norvegicus]	Orbinia sertulata
RT6106	*Abietinaria abietina*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6107	*Circeis spirillum*	- -	- -	- -	- -	- -	- -	- -	- -	Janua heterostropha	Skeneopsis planorbis
RT6108	*Amphitrite rzhavskyi*	- cirrata	- -	- cirrata	Eupolymnia nebulosa	- cirrata	Neoamphitrite grayi	- -	- cirrata	Thelepus setosus	Pista cristata
RT6109	*Mesopodopsis slabberi*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6110	*Typhlotanais aequiremis*	- -	- -	- -	Tanaopsis graciloides	- -	- -	- -	- -	- -	Tanaissus lilljeborgi
RT6111	*Hypania invalida*	- -	- -	- -	Amphicteis sundevalli	- -	Amphicteis sundevalli	- -	- -	- -	Amphicteis gunneri
RT6112	*Saxicavella jeffreysi*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6113	*Ebalia cranchii*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6114	*Pterygocythereis jonesii*	- -	- [jonesi]	- -	- -	- -	- -	- -	- -	- -	0 0
RT6115	*Paradoneis eliasoni*	- -	- -	- -	- lyra	- lyra	- lyra	- -	- -	- -	- lyra
RT6116	*Epizoanthus couchii*	- -	- -	- -	Molgula occulta	- papillosus	- -	- -	- papillosus	Isozoanthus sulcatus	0 0
RT6117	*Gari fervensis*	- tellinella	- -	- -	- tellinella	- -	- tellinella	- -	- -	- -	- costulata
RT6118	*Amphare te falcata*	- -	- -	- -	- -	- -	- -	- -	- -	- -	0 0
RT6119	*Corbicula fluminea*	- -	- -	- -	Astarte montagui	- -	Astarte sulcata	- -	Astarte sulcata	- -	[Corbula] -
RT6120	*Syllis cornuta*	- -	- -	- -	- garciai	- -	- hyalina	- -	- -	- -	- -
RT6121	*Mactra stultorum*	- -	- -	- -	Spisula elliptica	- -	- -	- -	- -	- -	Spisula sp.
RT6122	*Microjassa cumbrensis*	- -	- -	- -	0 0	Ischyrocerus anguipes	- -	- -	- -	Stenothoe monoculoides	Metopa rubrovittata
RT6123	*Achelia echinata*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6124	*Bathyporeia tenuipes*	- -	- -	- -	- pilosa	- -	- -	- -	- -	- pilosa	- nana
RT6125	*Mendicula ferruginosa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Specimen Images and Detailed Breakdown of Identifications

RT61 included fifteen species never previously sent and one for which the previous circulation is likely to have been a different species. There were also several species anticipated to change our understanding of the fauna. These included insights to help with the development of a taxonomic discrimination protocol, as detailed under family headings in the discussion section below.

LabCodes are abbreviated in this report to exclude the Scheme year, *e.g.* BI_2801 = Lab 01. An additional terminal character has been added within each LabCode (small case sequential letters) to permit multiple data entries from each laboratory, *i.e.* two participants from laboratory 01 would be coded as Lab 01a & Lab 01b. For details of your LabCode please contact your Scheme representative or APEM Ltd.
(Figure codes: A=anterior; P=posterior; L=lateral; D=dorsal; V=ventral)

RT6101 – *Idotea neglecta* G.O. Sars, 1897 (Figure 1a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: western Scotland. Condition: Good. Size: Medium. All specimens from one sample.

Fig. 1a. *Idotea neglecta* (RT6101, 66857) – D

Three specific differences: Lab 05 identified as *Idotea granulosa* (Figure 1b) (which has concave sides to the pleotelson); Lab 21 identified as *Idotea pelagica* (Figure 1c) (which has the antennal flagellum much shorter than the peduncle); Lab 07 identified as *Idotea chelipes* (Figure 1d) (which has a narrower outline).

Fig. 1b. *Idotea granulosa* (P529, 58897) – D

Fig. 1c. *Idotea pelagica* (P2188.3, 63453) – D

Fig. 1d. *Idotea chelipes* (414247, 56011) – D

RT6102 – *Nephtys paradoxa* Malm, 1874 (Figure 2a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Fair. Size: Medium. Specimens from twelve samples.

Fig. 2a. *Nephtys paradoxa* (RT6102, 63746) – L

One generic and four specific differences: Lab 09 identified as *Aglaophamus agilis* (Figure 2b) (which has recurved branchiae); Lab 10a identified as *Nephtys incisa* (Figure 2c) (which has conical acicular lobes and well-developed pre-chaetal lamellae); Lab 22 identified as *Nephtys hombergii* (Figure 2d) (which has branchiae beginning at chaetiger 4, occasionally 5 or 6); Lab 20 identified as *Nephtys schmitti* (no material available) (which has a tapering midrib within its branchiae).

Labs 10a and 22 added the subgenus name '(*Nephtys*)'.

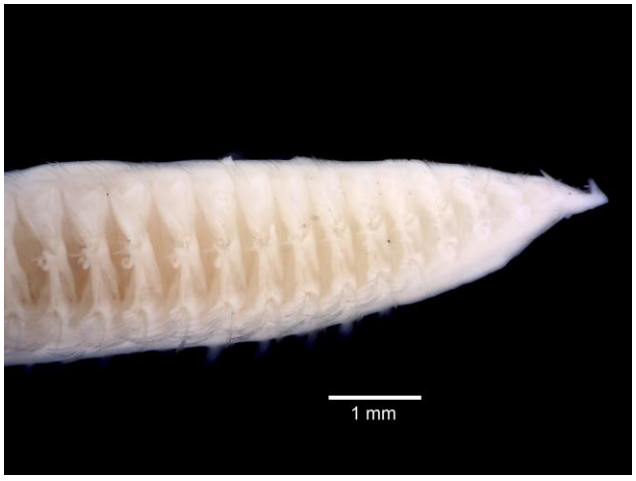


Fig. 2b. *Aglaophamus agilis* (414075_55073) – L

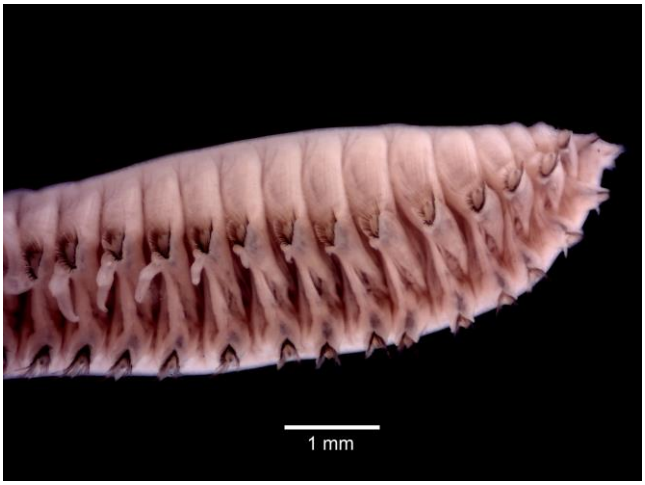


Fig. 2c. *Nephtys incisa* (P3827, 63374) – L

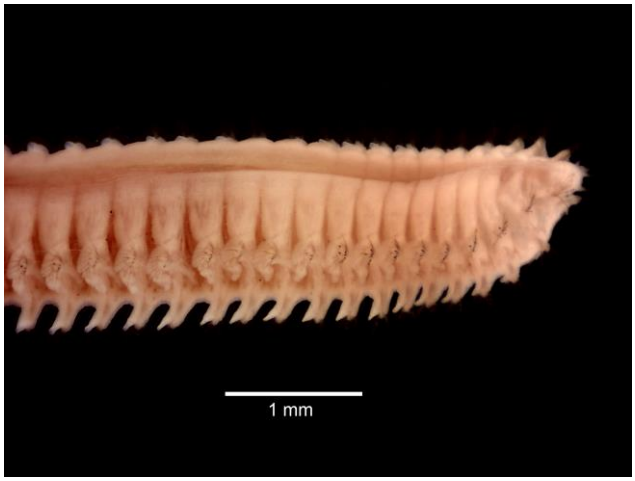
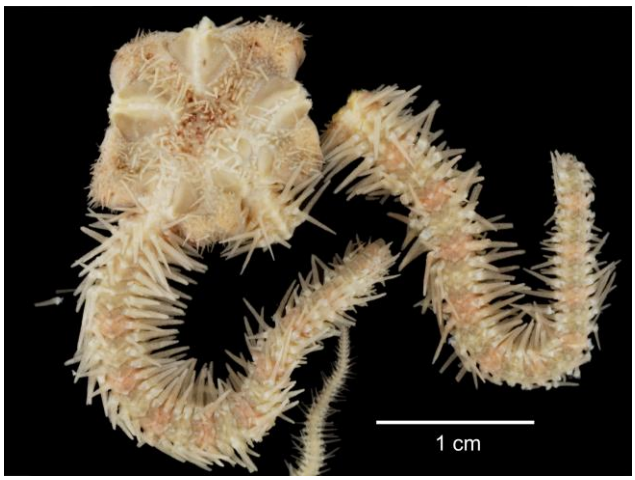


Fig. 2d. *Nephtys hombergii* (P3064.3, 61770) – L

RT6103 – *Ophiothrix fragilis* (Abildgaard in O.F. Müller, 1789) (Figures 3a-b)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southeast England. Condition: Fair. Size: Medium. Specimens from three samples.



No generic or specific differences recorded.

Fig. 3a. *Ophiothrix fragilis* (RT6103, 10183) – D

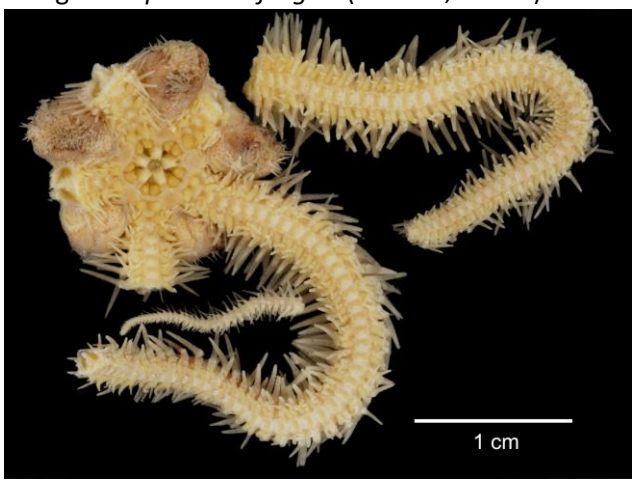


Fig. 3b. *Ophiothrix fragilis* (RT6103, 10183) – V

RT6104 – *Janira maculosa* Leach, 1814 (Figure 4a)

Substratum: Floral turf. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: northern Scotland. Condition: Fair, no uropods. Size: Medium. All specimens from one sample.

Fig. 4a. *Janira maculosa* (RT6104, 63696) – D

No generic or specific differences recorded.

RT6105 – *Phylo norvegica* (M. Sars in G.O. Sars, 1872) (Figure 5a, 5d)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Fair. Size: Medium. Specimens from seven samples.

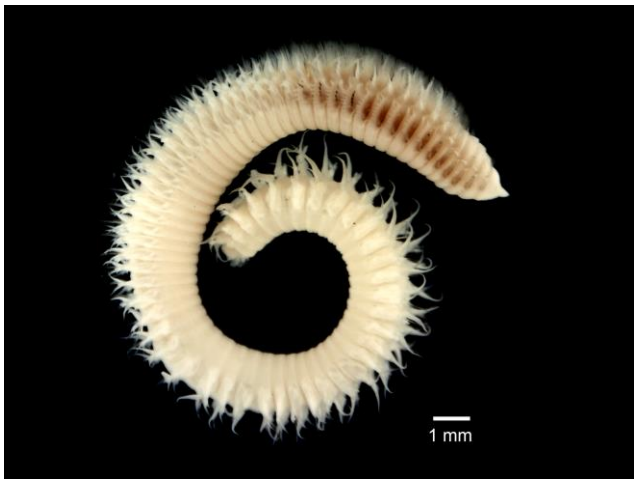


Fig. 5a. *Phylo norvegica* (RT6105, 64138) – L

One generic and three specific difference: Lab 22 identified as *Orbinia sertulata* (Figure 5b) (which lacks additional enlarged chaetae in its thoracic neuropodia); Labs 10b and 16 identified as *Phylo grubei* (Figures 5c, 5e) (which has inter-ramal cirri).

Lab 10a recorded the generic name as '*Orbinia* (*Phylo*)'. Labs 19 and 21 recorded the specific name as '*norvegicus*'. The name was recently edited on WoRMS in order to match the gender.

Fig. 5b. *Orbinia sertulata* (P6800, 69203) – L

Fig. 5c. *Phylo grubei* (P1223, 58209) – L

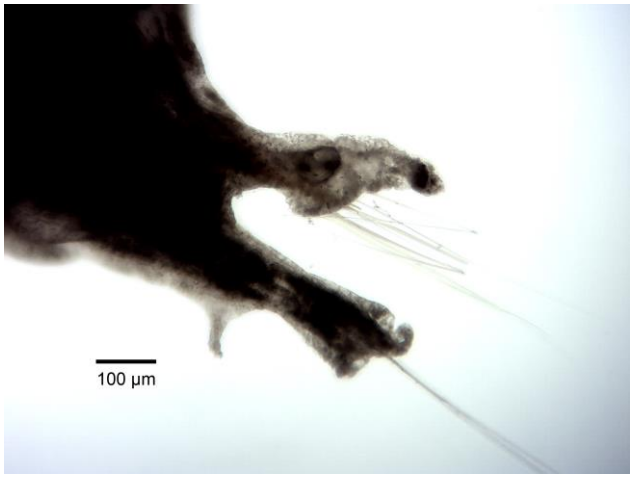


Fig. 5d. *Phylo norvegica* (RT6105, 64138) – Posterior parapodium

Fig. 5e. *Phylo grubei* (P1223, 58209) – Posterior parapodium

RT6106 – *Abietinaria abietina* (Linnaeus, 1758) (Figures 6a, b)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southeast England. Condition: Good. Size: Medium portions. All specimens from one sample.

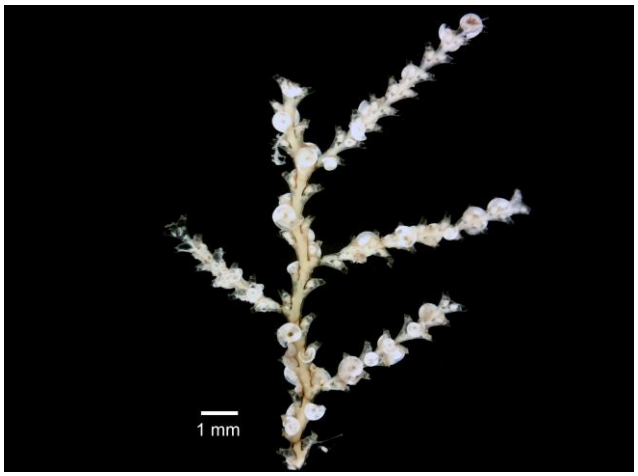


Fig. 6a. *Abietinaria abietina* (RT6106, 11347)) – Colony

No generic or specific differences recorded.

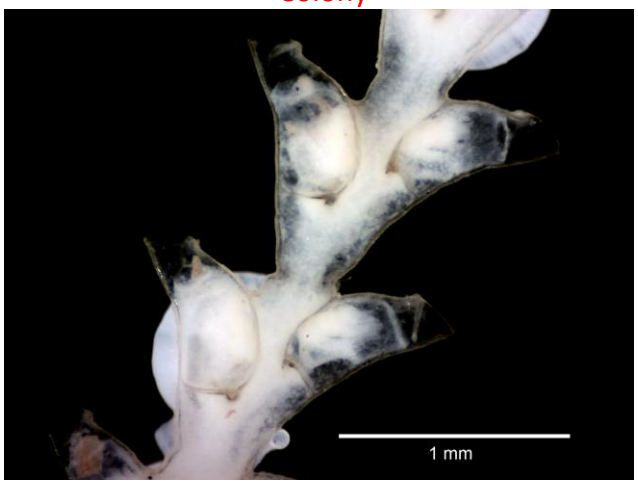


Fig. 6a. *Abietinaria abietina* (RT6106, 11347) – 4 polyps

RT6107 – *Circeis spirillum* (Linnaeus, 1758) (Figure 7a)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southeast England. Condition: Good. Size: Medium, >5 specimens. All specimens from one sample (attached to Specimen 6).

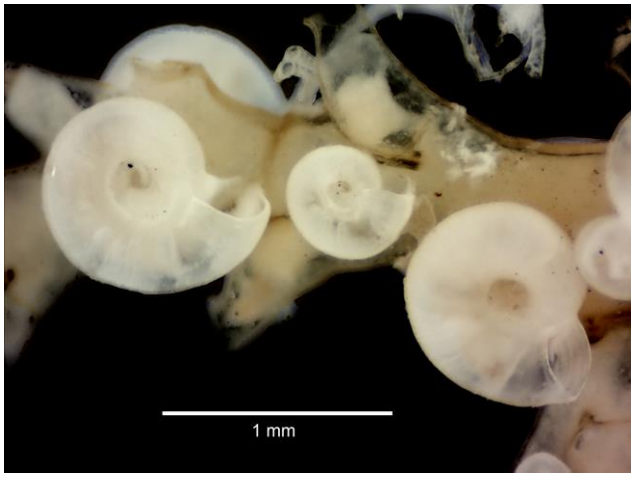


Fig. 7a. *Circeis spirillum* (RT6107, 11347) – D

Two generic and three specific difference: Lab 22 identified as *Skeneopsis planorbis* (Figure 7b) (which is free-living, with a dark shell); Lab 21 identified as *Janua heterostropha* (Figure 7c shows a *Janua* sp.) (which has embryos incubated alongside the opercular ampulla); Lab 07 identified as *Circeis paguri* (no material available) (which is only found attached to hermit crabs).

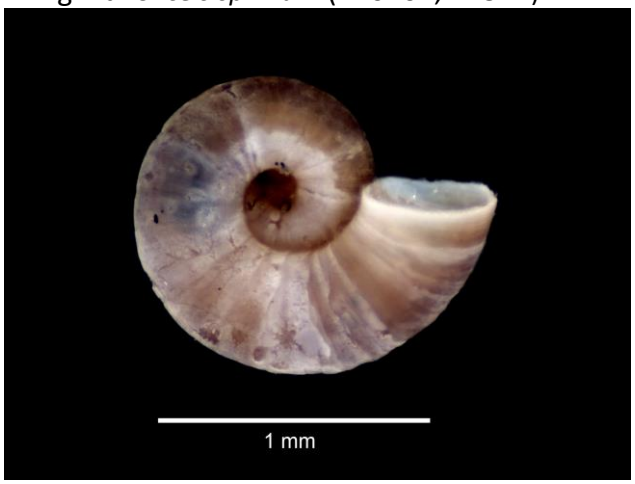


Fig. 7b. *Skeneopsis planorbis* (RT5920) – Umbilical

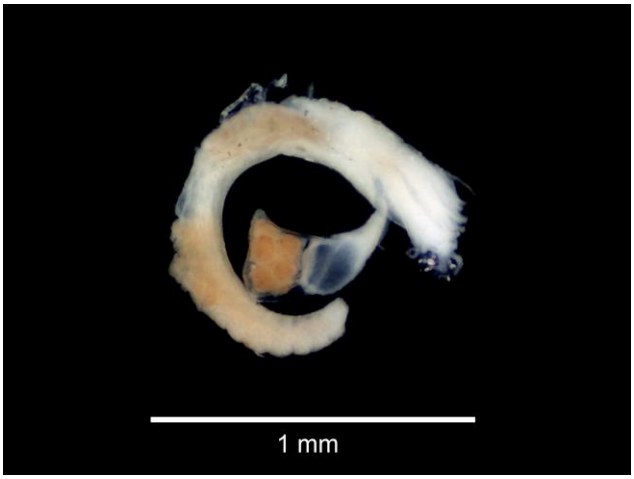


Fig. 7c. *Janua* sp. (414268, 55627) – L

RT6108 – *Amphitrite rzhavskyi* Jirkov, 2020 (Figure 8a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: western Scotland. Condition: Good. Size: Medium. Specimens from nine samples.

Fig. 8a. *Amphitrite rzhavskyi* (RT6108, 69815) – L

Four generic and sixteen specific differences: Lab 15 identified as *Eupolymnia nebulosa* (Figure 8b); Lab 22 identified as *Pista cristata* (Figure 8c) (both of which have long branchial stems and well-developed lateral lobes); Lab 21 identified as *Thelepus setosus* (Figure 8d) (which has >30 thoracic chaetigers); Lab 18 identified as *Neoamphitrite grayi* (included in *Amphitrite* by Jirkov, 2020; no material available) (which has 21 thoracic chaetigers); Labs 02, 03, 04, 05, 06, 09, 10a, 10b, 12, 14, 16 and 20 identified as *Amphitrite cirrata* (from which *Amphitrite rzhavskyi* was recently separated by Jirkov, 2020; Figure 8e) (in which the branchial filaments arise directly from the body wall or from an inconspicuous stem).

Fig. 8b. *Eupolymnia nebulosa* (412686, 6774) – L

Fig. 8c. *Pista cristata* (P4831, 65675) - L

Fig. 8d. *Thelepus setosus* (413668_11325) - L

Fig. 8e. *Amphitrite cirrata* (P1647, 58978) – L

RT6109 – *Mesopodopsis slabberi* (Van Beneden, 1861) (Figures 9a, b)

Substratum: Diamicton. Salinity: Variable (Euryhaline). Depth: Infralittoral. Geography: southeast England. Condition: Good. Size: Medium. All specimens from one sample.

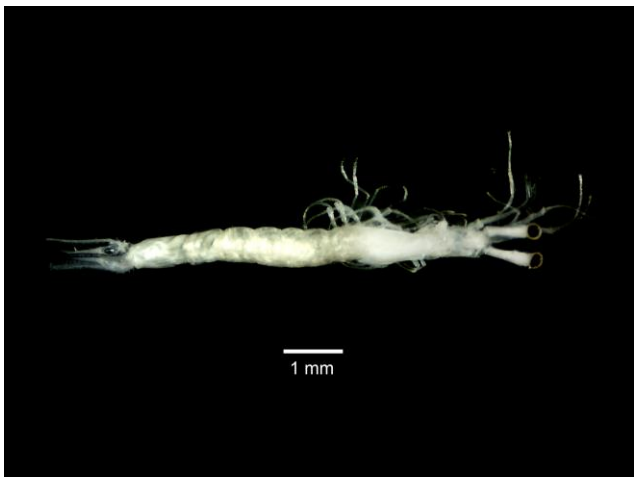


Fig. 9a. *Mesopodopsis slabberi* (RT6109, 66674) – D

No generic or specific differences recorded.

Labs 10a and 22 spelled the generic name '*Mysopodopsis*'.

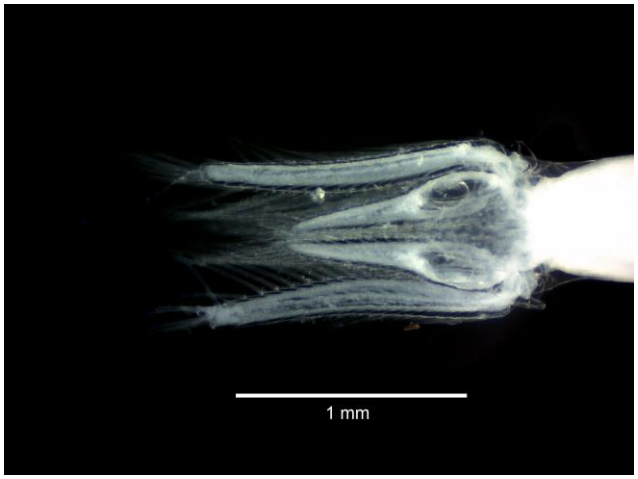


Fig. 9b. *Mesopodopsis slabberi* (RT6109, 66674) – D (posterior detail)

RT6110 – *Typhlotanais aequiremis* (Lilljeborg, 1864) (Figure 10a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Good, female. Size: Medium. Specimens from six samples.

Fig. 10a. *Typhlotanais aequiremis* (RT6110, 63874) – L

Two generic and four specific differences: Lab 15 identified as *Tanaopsis graciloides* (Figure 10b) (which has two teeth on the cheliped propodus between which the dactylus fits); Lab 22 identified as *Tanaissus lilljeborgi* (Figure 10c) (which has longer uropods); Labs 03 and 07 identified as *Typhlotanais brevicornis* (no material available) (which has narrower bases to pereopods 4-6).

Fig. 10b. *Tanaopsis graciloides* (412693_7053) – L

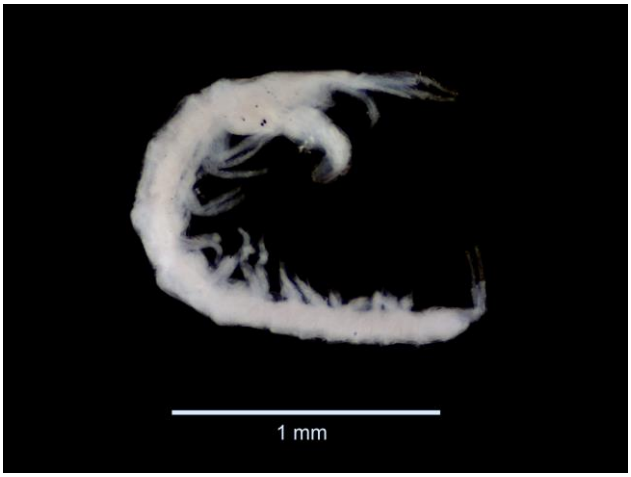


Fig. 10c. *Tanaissus lilljeborgi* (413273, 9579) – L

RT6111 – *Hypania invalida* (Grube, 1860) (Figure 11a)

Substratum: Diamicton. Salinity: Low (Oligohaline). Depth: Infralittoral. Geography: southeast England. Condition: Good. Size: Medium. All specimens from one sample.

Fig. 11a. *Hypania invalida* (RT6111, 65636) – D

Seven generic and specific differences: Labs 10a and 10b identified as *Lysippe labiata* (Figures 11b-c) (in which the ventral surface of the buccal segment has longitudinal folds); Lab 02 identified as *Ampharete lindstroemi* (Figure 11d) (which has 14 thoracic chaetigers, excluding paleae); Lab 22 identified as *Amphicteis gunneri* (Figure 11e); Labs 15 and 18 identified as *Amphicteis sundevalli* (no material available; Figure 11e shows *A. gunneri*) (both of which have 17 thoracic chaetigers, excluding paleae); Lab 05 identified as *Alkmaria romijni* (included in *Hypania* by Jirkov & Leontovich, 2013; Figure 11f) (which lacks paleae).

Fig. 11b. *Lysippe labiata* (P3367_62652) – L

Fig. 11c. *Lysippe labiata* (P3367, 62649) – V

Fig. 11d. *Ampharete lindstroemi* (413200, 8600) – L

Fig. 11e. *Amphicteis gunneri* (P2173, 60652) – L

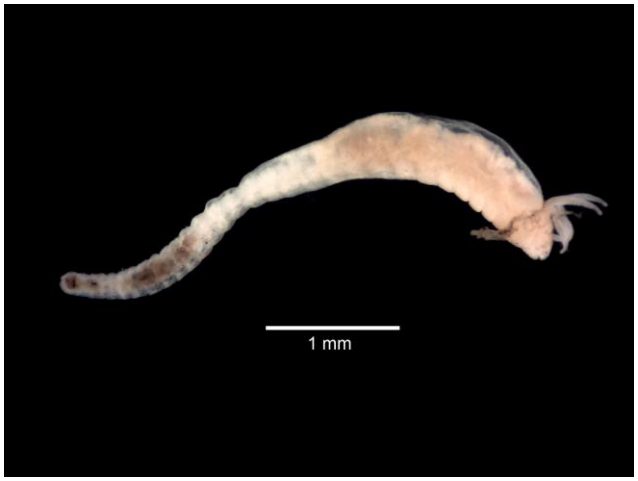


Fig. 11e. *Alkmaria romijni* (RT59, Fowey) – L

RT6112 – *Saxicavella jeffreysi* Winckworth, 1930 (Figure 12a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southeast England. Condition: Good. Size: Medium, 4-6mm. All specimens from one sample.

Fig. 12a. *Saxicavella jeffreysi* (RT6112; 69957) – L

One generic and specific difference: Lab 02 identified as *Mya truncata* (Figure 12b) (which lacks a truncate margin at this size).

Labs 5 and 10a spelled the specific name '*jeffreysii*'.

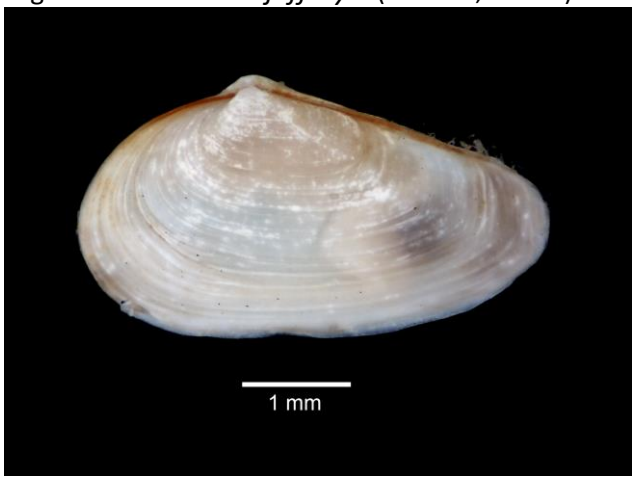


Fig. 12b. *Mya truncata* (414082, 55024) – L

RT6113 – *Ebalia cranchii* Leach, 1817 [in Leach, 1815-1875] (Figures 13a, b)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southwest England. Condition: Good, male. Size: Medium. All specimens from one sample.

Fig. 13a. *Ebalia cranchii* (RT6113) – D

Fig. 13b. *Ebalia cranchii* (RT6113) – V

Two specific differences: Labs 5 and 10a identified as *Ebalia granulosa* (no material available) (which has more strongly cristate margins to the cheliped merus, with weaker tubercles).

RT6114 – *Pterygocythereis jonesii* (Baird, 1850) (Figure 14a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: north of Ireland. Condition: Fair. Size: Medium. All specimens from one sample.

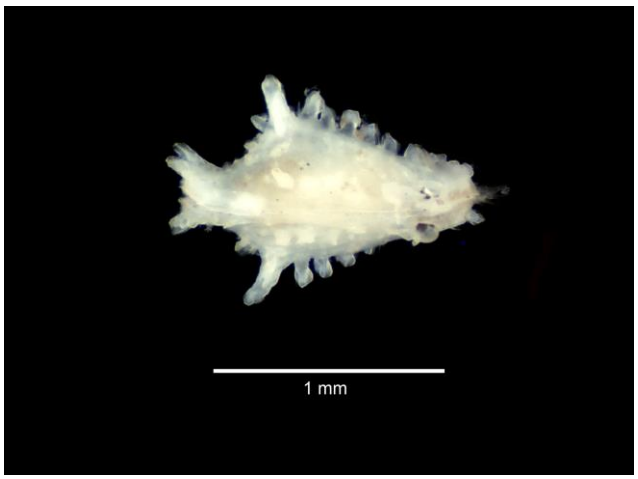


Fig. 14a. *Pterygocythereis jonesii* (RT6114, 61743) – D

One generic and specific difference.

Lab 22 did not identify Specimen 14. It is recommended that laboratories attempt identification of all specimens.

Lab 13 spelled the specific name '*jonesi*'.

RT6115 – *Paradoneis eliasoni* Mackie, 1991 (Figures 15a, b)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Fair. Size: Medium. Specimens from six samples.

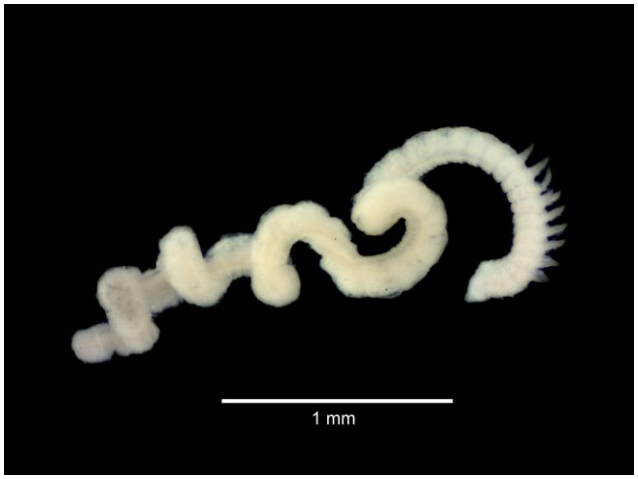


Fig. 15a. *Paradoneis eliasoni* (RT6115, 64137) – L

One generic and nine specific differences: Lab 05 identified as *Aricidea (Acmira) simplex* (Figure 15c) (which has a median antenna); Lab 02 identified as *Paradoneis armata* (Figure 15d) (which has acicular chaetae with subterminal aristae in posterior notopodia); Labs 06, 09, 10a, 15, 16, 18 and 22 identified as *Paradoneis lyra* (Figure 15e) (which lacks acicular chaetae in posterior neuropodia).

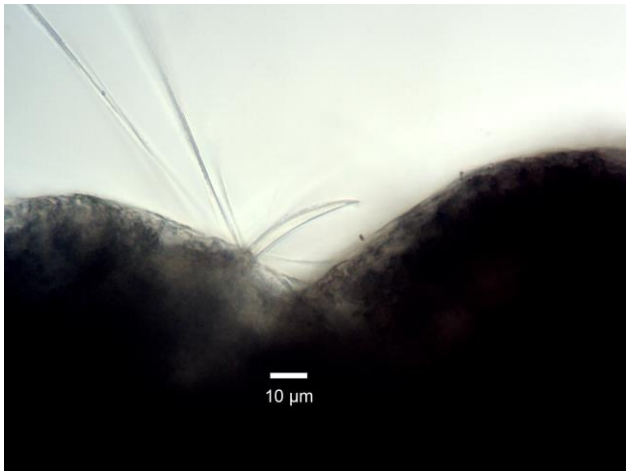


Fig. 15b. *Paradoneis eliasoni* (RT6115, 64137) – Posterior chaetae

Fig. 15c. *Aricidea simplex* (P6065, 66971) – L

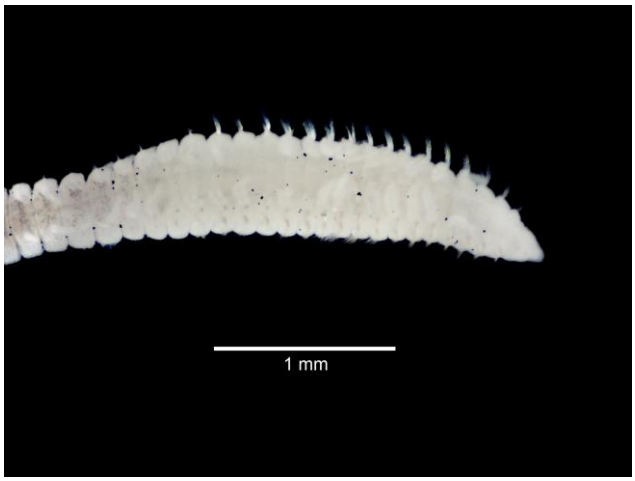


Fig. 15d. *Paradoneis armata* (412877, 7342) – D

Fig. 15e. *Paradoneis lyra* (P1883, 59279) – L

RT6116 – *Epizoanthus couchii* (Johnston in Couch, 1844) (Figure 16a)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: southeast England. Condition: Fair, single polyp. Size: Medium. All specimens from one sample.

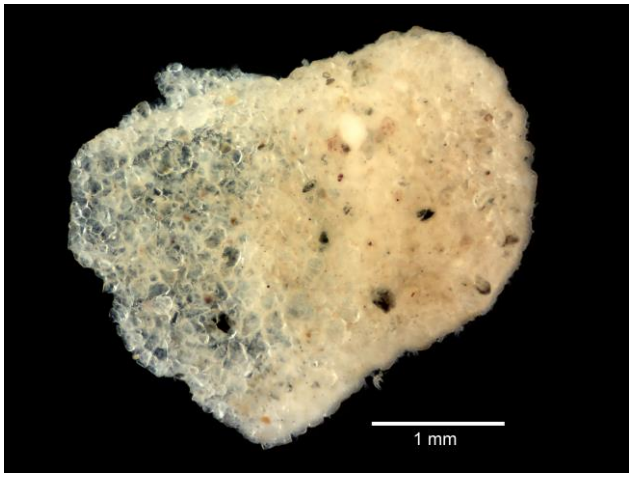


Fig. 16a. *Epizoanthus couchii* (RT6116, 69981) – L

Eleven generic and nine specific differences: Lab 15 identified as *Molgula occulta* (Figures 16b-c) (which has an internal branchial sac); Lab 03 identified as *Alcyonidium condylocinereum* (part of the *A. diaphanum* complex, Figure 16d) (which forms erect colonies of small zooids); Lab 07 identified as *Edwardsiella carnea* (Figure 16e shows an edwardsiid that may be *E. carnea*) (which is elongate with a rounded distal end, or physa); Lab 09 identified as *Cylista troglodytes*); Lab 10a identified as *Sagartia ornata*; Lab 02 identified as Actiniaria) (Figure 16f shows an Actiniaria that may be *C. troglodytes*) (all of which have a defined basal disc and lack encrusting sand grains); Lab 10b identified as *Isozoanthus sulcatus* (no material available) (which has darker polyps and finer sand grains); Labs 16 and 20 identified as *Epizoanthus papillosus* (Figure 16g) (which has more elongate polyps with finer sand grains).

Lab 22 did not identify Specimen 16. It is recommended that laboratories attempt identification of all specimens.
Lab 04 spelled the specific name '*couchi*'.

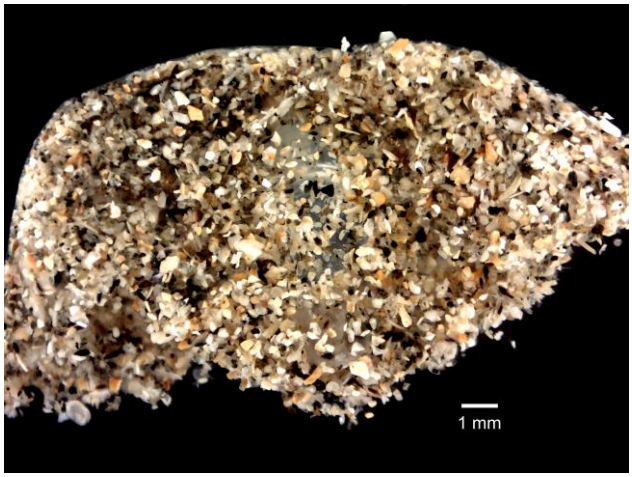


Fig. 16b. *Molgula occulta* (P1987, 59320) – L, test

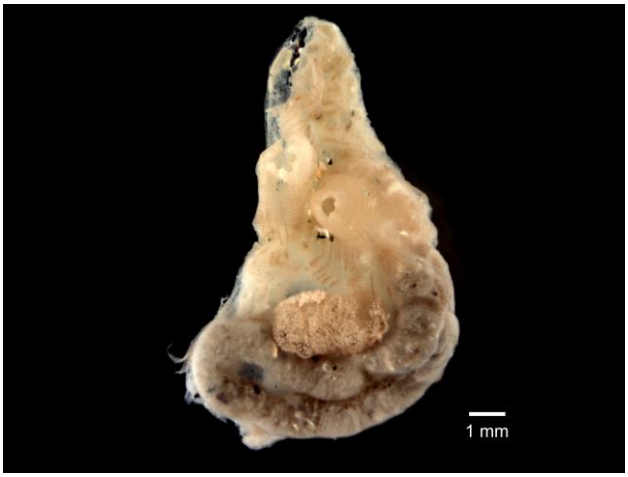


Fig. 16c. *Molgula occulta* (P1987, 59320) – L internal

Fig. 16d. *Alcyonidium diaphanum* agg. (P2217.2, 60295) – L

Fig. 16e. *Edwardsiella carnea* ? (P6907, 70324) – L

Fig. 16f. Actiniaria (P4354.3, 66322) – L

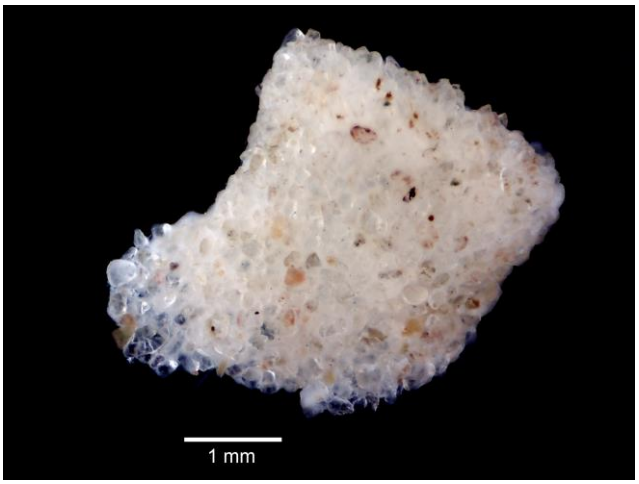


Fig. 16g. *Epizoanthus papillosus* (P2636, 62817) – L

RT6117 – *Gari fervensis* (Gmelin, 1791) (Figure 17a)

Substratum: Sand. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: Southeast England. Condition: Fair. Size: small, 1-2mm. Specimens from six samples.

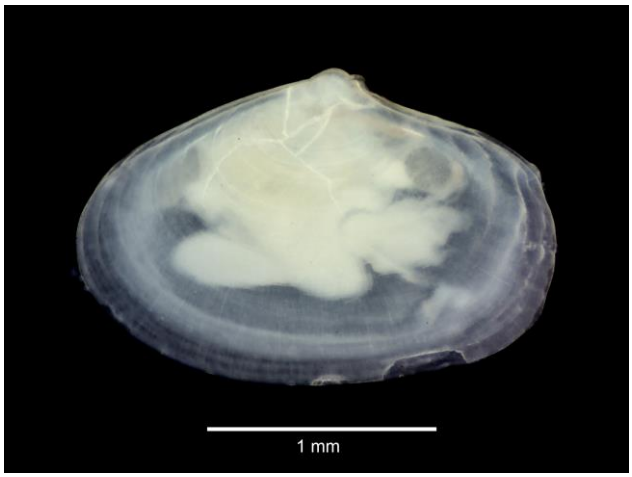


Fig. 17a. *Gari fervensis* (RT6117, 66625) – L

One generic and eight specific differences: Lab 02 identified as *Abra alba* (Figure 17b); Labs 05, 12, 15 and 18 identified as *Gari tellinella* (Figure 17c); Labs 07, 11 and 22 identified as *Gari costulata* (Figure 17d) (all of which are inequilateral at this size).

Fig. 17b. *Abra alba* (P589_57521) – L

Fig. 17c. *Gari tellinella* (414120, 55226) – L

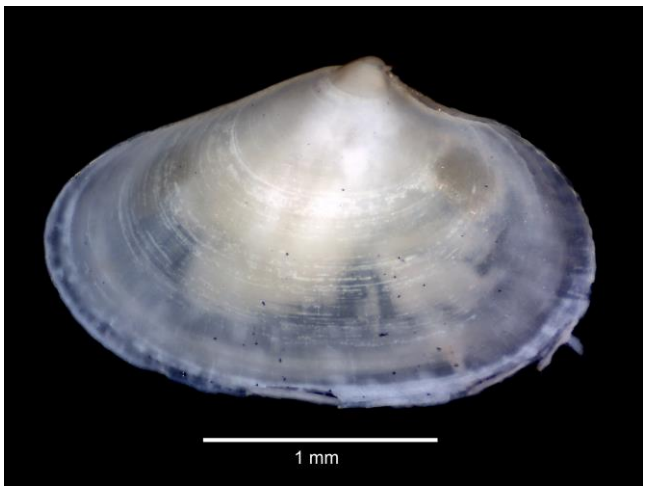


Fig. 17d. *Gari costulata* (414490, 57058) – L

RT6118 – *Ampharete falcata* Eliason, 1955 (Figure 18a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Fair. Size: Medium. All specimens from one sample.

Fig. 18a. *Ampharete falcata* (RT6118, 64650) – D

Three generic and five specific differences: Lab 03 identified as *Amphicteis midas* (Figure 18b) (which has 17 thoracic chaetigers, excluding paleae); Lab 10b identified as *Ampharete finmarchica* (Figure 18c); Lab 09 identified as *Ampharete baltica* (Figure 18d) (both of which have paleae that are longer than the distance between the two groups of branchiae).

Lab 22 did not identify Specimen 18; Lab 10a identified only as *Ampharete*. It is recommended that laboratories attempt identification of all specimens.

Fig. 18b. *Amphicteis midas* (413668, 11306) – D

Fig. 18c. *Ampharete finmarchica* (I. Jirkov) – D

Fig. 18d. *Ampharete* c.f. *baltica* (P1469, 58908) – D

RT6119 – *Corbicula fluminea* (O.F. Müller, 1774) (Figure 19a)

Substratum: Diamicton. Salinity: Low (Oligohaline). Depth: Infralittoral. Geography: southeast England. Condition: Good. Size: Medium, 15-18mm. All specimens from one sample.

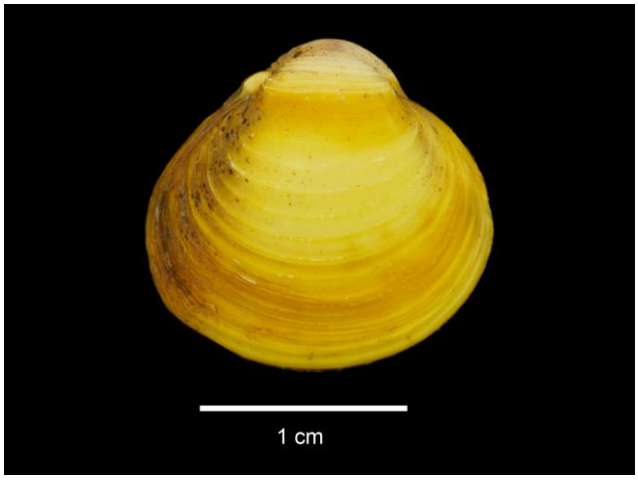


Fig. 19a. *Corbicula fluminea* (RT6119, 65636) – L

Six generic and specific differences: Lab 10b identified as *Spisula subtruncata* (Figure 19b) (which lacks concentric sculpture); Lab 10a identified as *Astarte elliptica* (Figure 19c); Labs 02, 18 and 20 identified as *Astarte sulcata* (Figure 19c); Lab 15 identified as *Astarte montagui* (Figure 19c) (all of which have narrower umbones, less tumid valves and granular periostracum; and are found in higher salinity habitats).

Lab 22 recorded the generic name as '*Corbula*'.

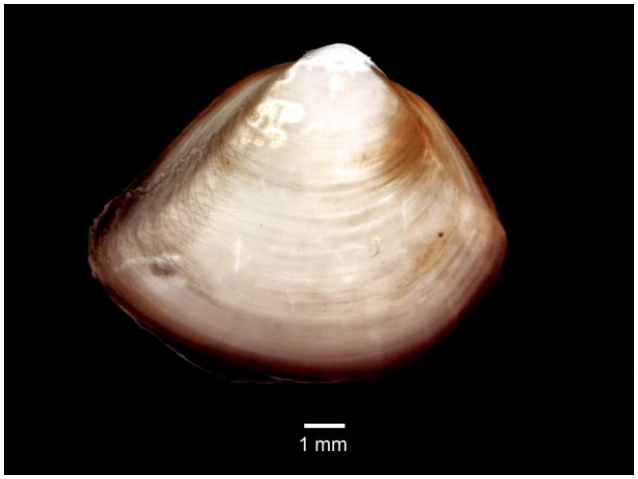


Fig. 19b. *Spisula subtruncata* (P2188, 63443) – L

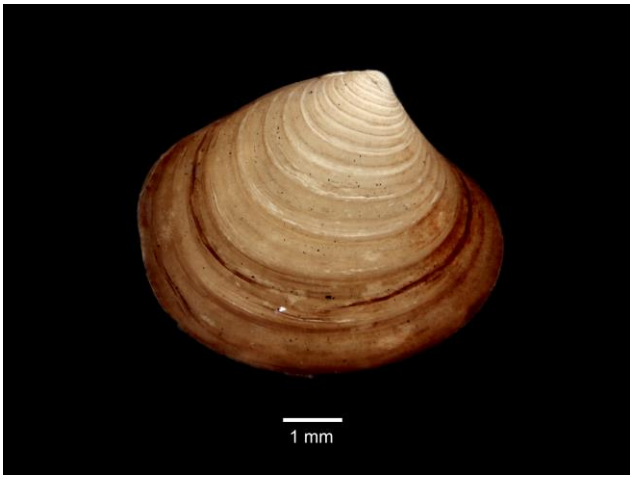


Fig. 19c. *Astarte elliptica* (412400, 6100) – L

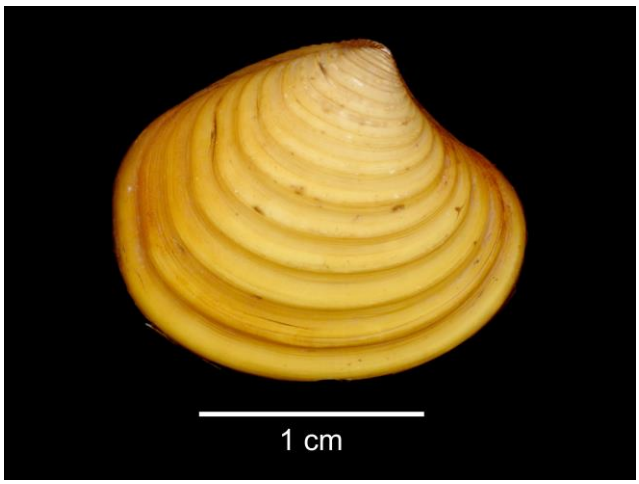


Fig. 19d. *Astarte sulcata* (P2165, 60170) – L

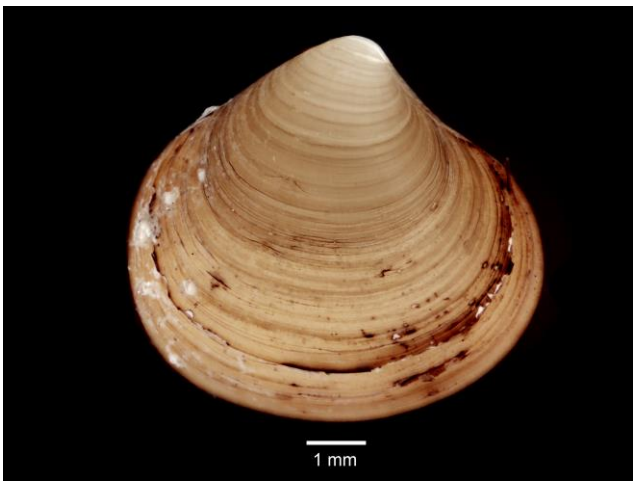


Fig. 19e. *Astarte montagui* (P1903, 59893) – L

RT6120 – *Syllis cornuta* Rathke, 1843 (Figures 20a, b)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: Norway. Condition: Fair. Size: Medium. Specimens from five samples.

Fig. 20a. *Syllis cornuta* (RT6120, 62755) – D

Five generic and specific differences: Lab 18 identified as *Syllis hyalina* (Figures 20c-d) (which has short, broad dorsal cirri and lacks pseudospinigers); Labs 10a and 10b identified as *Syllis parapari* (Figure 20e) (which has short, broad dorsal cirri); Lab 15 identified as *Syllis garciai* (Figure 20f-g); Lab 03 identified as *Syllis kas* (no material available) (both of which lack strongly projecting aciculae in posterior chaetigers).

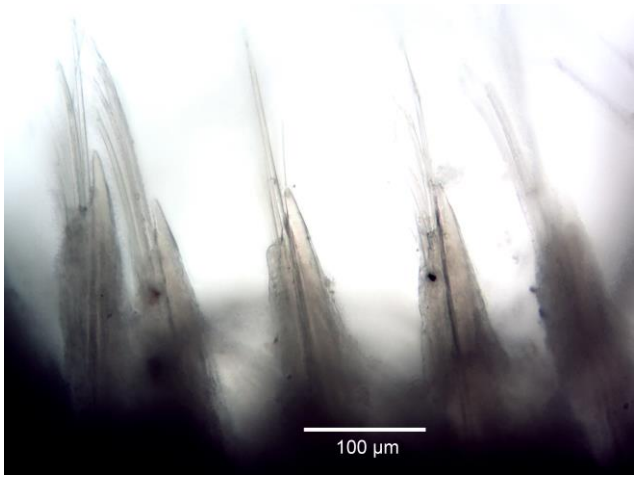


Fig. 20b. *Syllis cornuta* (RT6120, 62755) – Posterior chaetae and aciculae

Fig. 20c. *Syllis hyalina* (RT48, 04) – D

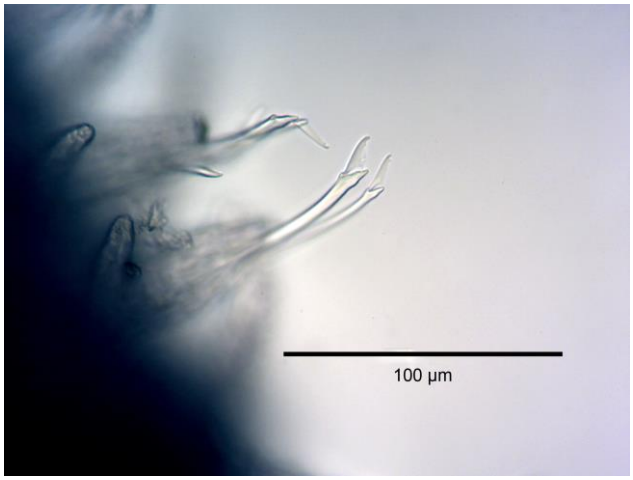


Fig. 20d. *Syllis hyalina* (RT48, 04) – Posterior chaetae

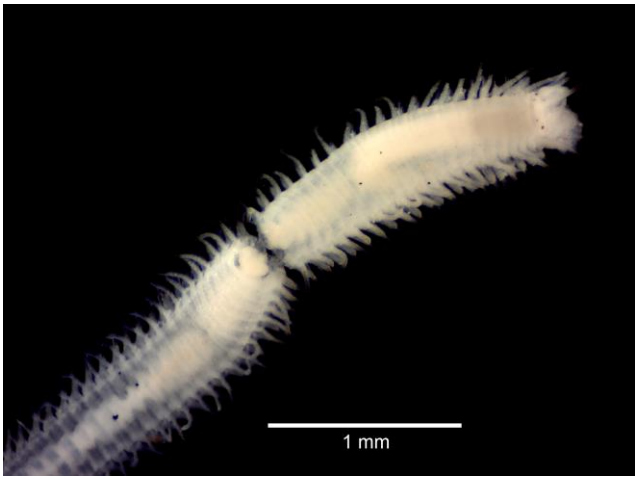


Fig. 20e. *Syllis parapari* (413150, 8530) – D

Fig. 20f. *Syllis garciai* (BI2107, 06) – D

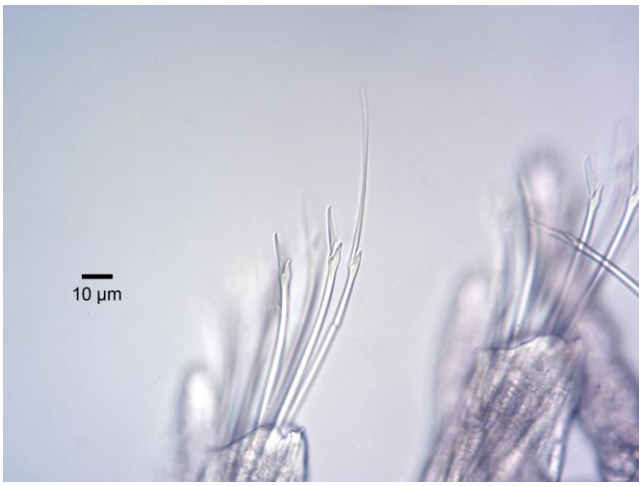


Fig. 20g. *Syllis garciai* (BI2107, 06) – Posterior chaetae

RT6121 – *Mactra stultorum* (Linnaeus, 1758) (Figure 21a)

Substratum: Sand. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: southeast England. Condition: Good. Size: Medium, 7-12mm. Specimens from three samples.

Fig. 21a. *Mactra stultorum* (RT6121, 57016) – L

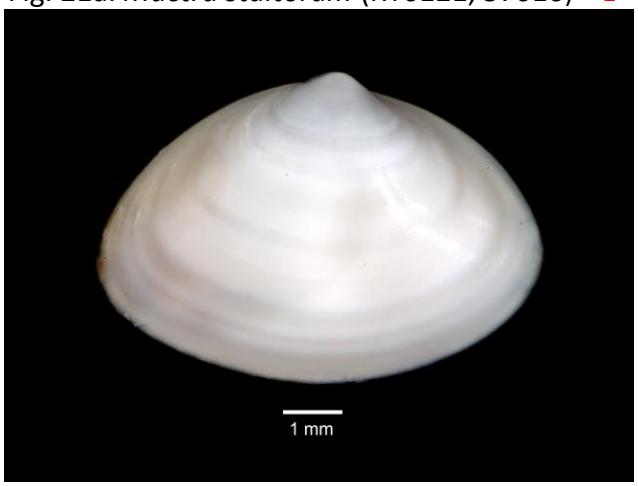


Fig. 21b. *Spisula elliptica* (P330_57399) – L

Three generic and specific differences: Labs 10b and 15 identified as *Spisula elliptica* (which lacks colour pattern and flanges across the lunule and escutcheon).

Lab 22 identified only as *Spisula*. It is recommended that laboratories attempt identification of all specimens.

RT6122 – *Microjassa cumbrensis* (Stebbing & Robertson, 1891) (Figure 22a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: north of Ireland. Condition: Fair, female. Size: small. Specimens from two samples.

Fig. 22a. *Microjassa cumbrensis* (RT6122, 61725) – L

Seven generic and specific differences: Lab 10b identified as *Cressa dubia* (Figure 23b); Labs 07 and 21 identified as *Stenothoe monoculoides* (Figure 23c); Lab 23 identified as *Metopa rubrovittata* (Figure 23d); Lab 02 identified as *Stenula solsbergi* (Figure 23e shows a possible *Stenula* species) (all of which have uropod 3 uniramous with an elongate biarticulated ramus); Lab 16 identified as *Ischyrocerus anguipes* (Figure 23f shows an *Ischyrocerus* species) (which has coxal plate 1 at least three quarters the length of plate 2).

Lab 15 did not identify Specimen 22. It is recommended that laboratories attempt identification of all specimens.

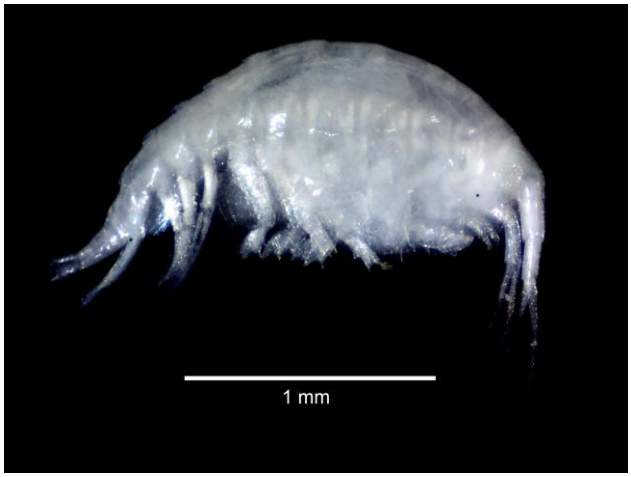


Fig. 22b. *Cressa dubia* (414024, 54827) – L

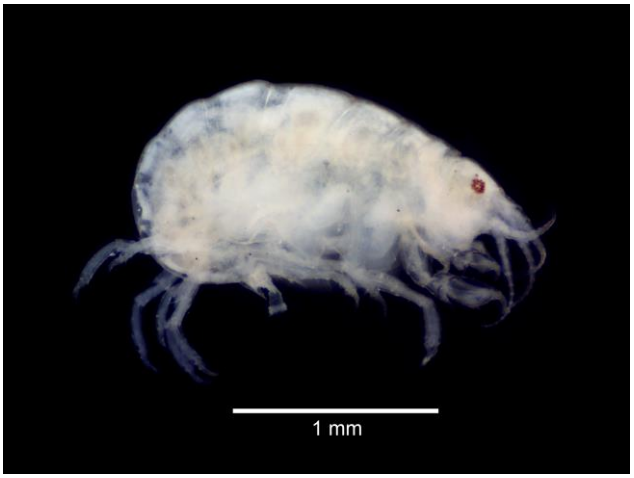


Fig. 22c. *Stenothoe monoculoides* (RT50,16; 413446) – L

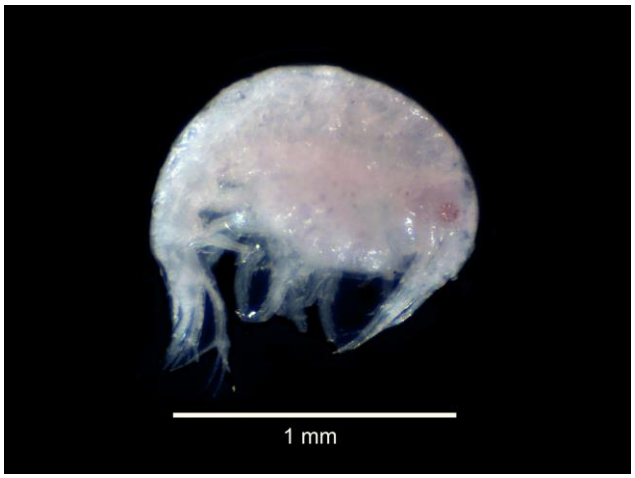


Fig. 22d. *Metopa rubrovittata* (412399, 5947) – L

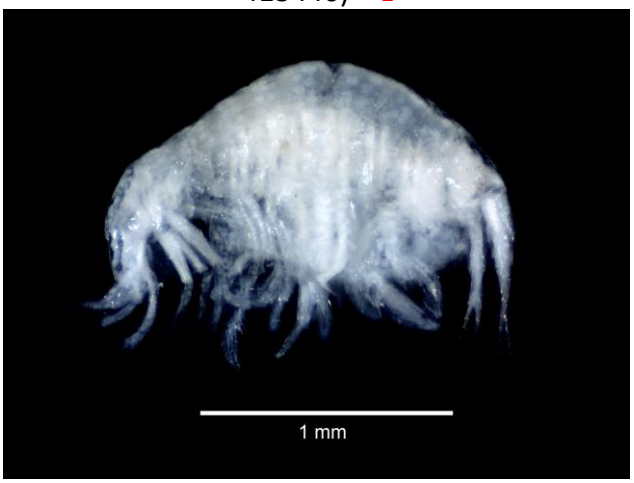


Fig. 22e. *Stenula* species (P4267, 64605) – L

Fig. 23f. *Ischyrocerus* species (412003, 36754) – L

RT6123 – *Achelia echinata* Hodge, 1864 (Figure 23a)

Substratum: Diamicton. Salinity: Variable (Euryhaline). Depth: Infralittoral. Geography: southeast England. Condition: Fair. Size: Medium. All specimens from one sample.

Fig. 23a. *Achelia echinata* (RT6123, 10385) – D

Two generic and three specific differences: Lab 02 identified as *Ammothea hilgendorfi* (Figure 23b) (which lacks spines on the lateral processes); Lab 03 identified as *Ammothella longioculata* (Figure 23c shows an *Ammothella* sp.) (which has lateral processes with single, fleshy dorsodistal tubercles); Lab 07 identified as *Achelia hispida* (which is a probable synonym of *A. longioculata*; see Bamber, 2010).

Fig. 23b. *Ammothea hilgendorfi* (P848, 58033) – D

Fig. 23c. *Ammothella* sp. (P3115, 62404) – D

RT6124 – *Bathyporeia tenuipes* Meinert, 1877 (Figure 24a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: southwest England. Condition: Fair, female. Size: Medium. Specimens from four samples.

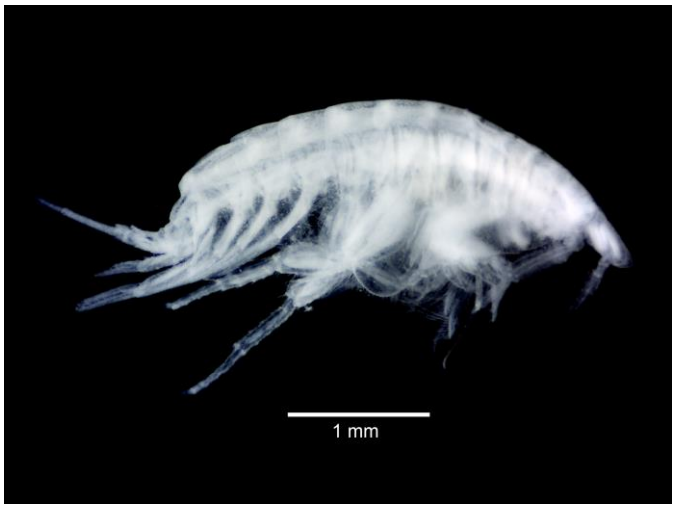


Fig. 24a. *Bathyporeia tenuipes* (RT6124; 57455) – L

Six specific differences: Labs 02, 07, 15 and 21 identified as *Bathyporeia pilosa* (Figure 24b); Lab 10b identified as *Bathyporeia sarsi* (Figure 24c) (both of which lack posteriorly directed spines on the dorsal surface of pleon segment 4); Lab 22 identified as *Bathyporeia nana* (Figure 24d) (which has only one spine group on epimeral plate 3).

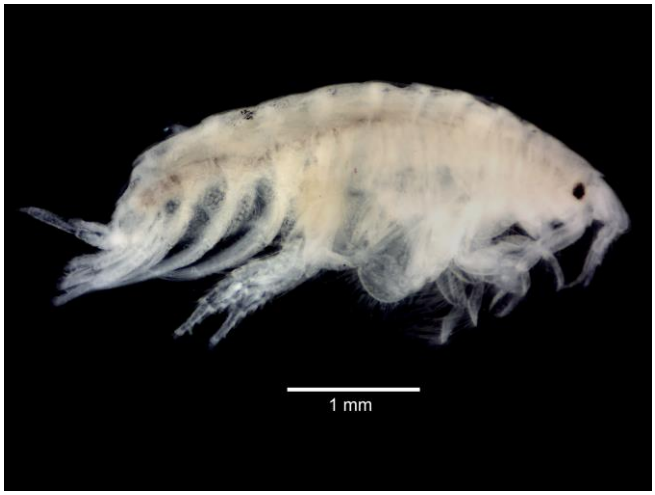


Fig. 24b. *Bathyporeia pilosa* (RT60; 414293, 57153) – L

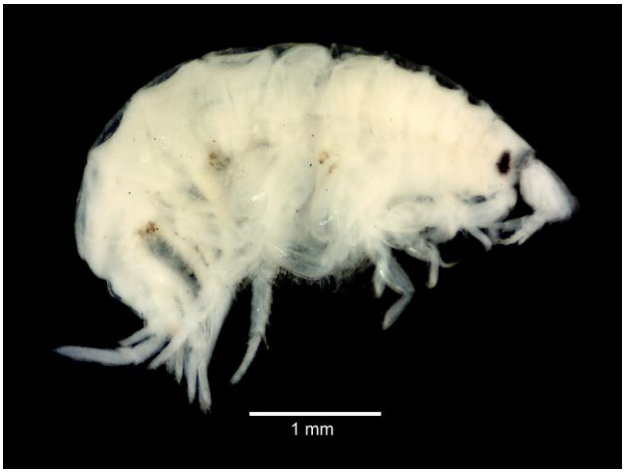


Fig. 24c. *Bathyporeia sarsi* (P2982, 61956) – L

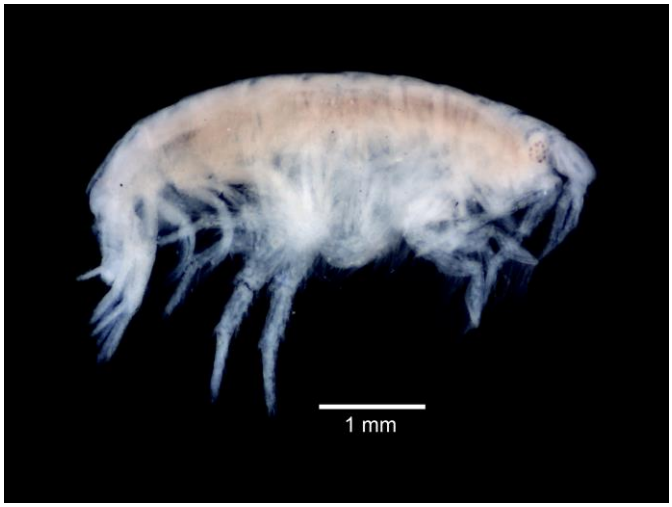


Fig. 24d. *Bathyporeia nana* (P2217.2, 60290) – L

RT6125 – *Mendicula ferruginosa* (Forbes, 1844) (Figure 25a)

Substratum: Mud. Salinity: Reduced (Mesohaline). Depth: Circalittoral (Lower Shelf). Geography: North Sea. Condition: Good. Size: Medium, 3-4mm. Specimens from two samples.

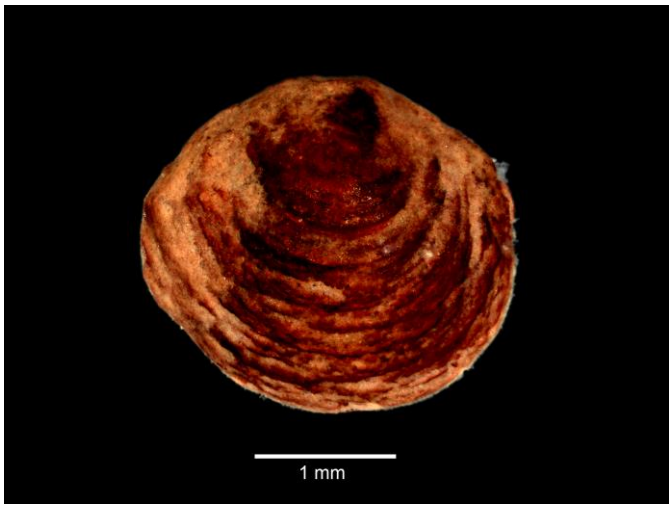


Fig. 25a. *Mendicula ferruginosa* (RT6125, 64650) – L

No generic or specific differences recorded.

Taxonomic and Identification policy considerations highlighted by RT61

An important purpose for the ring test exercises is to highlight areas for further work in identification standardisation and taxonomic research. Several identification problems were highlighted through this exercise, discussed above. Some notes for discussion of progress towards a taxonomic discrimination protocol are included below.

Cnidaria

Sertulariidae (Specimen 06). The draft TDP flags this family for further work, due to the different taxonomic levels currently used for different taxa by different labs. APEM leave *Sertularia*, *Diphasia* and *Sertularella* at genus and record others at species. RT61 results suggest species level is achievable at least for *Abietinaria*.

Epizoanthidae (Specimen 16). The draft TDP suggests counting and species identifications for epizoanthids, as currently done at APEM. There were many alternative names in RT61, some from different phyla. However, there were also many correct identifications and some of the problems would have been due to unfamiliarity with epibiota identification for certain laboratories and that a single polyp was circulated for a species usually present as several conjoined polyps.

Annelida

Syllidae (Specimen 20). The draft TDP flags this large family for further work, due to taxonomic flux (changes in species recognised over time) and the different taxonomic levels used for different taxa by different labs. APEM identify *Syllis* to species but acknowledge that there are several complexes with taxonomic problems (see RT48) and add 'agg.' to some. Records of *Syllis cornuta* in older data have been confused with *S. parapari* and *S. garciai*. However, many problems were resolved through the Scheme workshop (2012) and key (San Martín & Worsfold, 2015; also, see more recent papers in Scheme literature list), as well as through RT48; most labs identified the specimen correctly for RT61.

Nephtyidae (Specimen 02). The draft TDP suggests species identifications for nephtyids over 17mm, as currently done at APEM. There were some alternative names in RT61, but more correct identifications, for a relatively uncommon species. The policy may need review only for standardisation of juvenile sizes, due to difficulties with determining sizes of damaged specimens.

Orbiniidae (Specimen 05). The draft TDP flags Orbiniidae for further work, due to different taxonomic levels currently used for different taxa by different labs. APEM identify *Phylo* and *Orbinia* to species if the thorax is over 5mm; 'Orbiniidae juv.' If it's under 5mm, with different policies for other genera. Most labs identified this (large) specimen correctly.

Paraonidae (Specimen 15). The draft TDP suggests species identifications for paraonids, as currently done at APEM, although there are sometimes specimens that need qualification as there may still be some taxonomic flux. There were some alternative names in RT61, but more correct identifications, for a difficult species. Some discussion may be needed for taxonomically uncertain specimens.

Ampharetidae (Specimens 11, 18). The draft TDP flags Ampharetidae for further work, due to different taxonomic levels currently used for different taxa by different labs. APEM identify most to species but leave occasional small damaged specimens at higher levels. The two ampharetids sent in RT61 would always be identified to species. Most labs identified both specimens correctly but there were several alternatives given for each. For *Hypania invalida*, this may have been due to use of literature that excluded the species (recently introduced in Britain and western Europe but included in Jirkov & Leontovich, 2013). The differences were more surprising for *Ampharete falcata* but specimens would usually be more numerous, with some larger, in a real sample.

Terebellidae (Specimen 08). The draft TDP flags Terebellidae for further work, due to different taxonomic levels currently used for different taxa by different labs. APEM identify most to species

but leave occasional small damaged specimens at higher levels. *Amphitrite rzhavskyi*, sent in RT61, would have been identified as *A. cirrata* prior to the recent (Jirkov, 2020) review and most labs either used this name (a literature update lag) or identified the specimen correctly. There were several other alternatives given but most only by a single lab each, suggesting species level identification would be practicable.

Serpulidae (Specimen 07). The draft TDP flags Serpulidae for further work, due to different taxonomic levels currently used for different taxa by different labs. APEM identify most non-spirorbins to species for specimens that retain an operculum but leave Spirorbinae (such as the circulated specimen) recorded as 'present' and at subfamily level. As most labs identified specimen 07 correctly, identification at species may be practicable (at least for this and a few other species). However, enumeration is the main problem for Spirorbinae, as the tubes may be found in large numbers and it is difficult to determine the number of live-collected individuals without destroying the tubes. This is also a problem for some other serpulids, such as *Salmacina*. Further discussion is needed.

Arthropoda

Ammotheidae (Specimen 23). The draft TDP flags Ammotheidae for further work, due to different taxonomic levels currently used for different taxa by different labs. APEM identify adults (juvenile Pynogonida, with six legs, at class) to species or species complexes. The genus *Ammothella* was previously included in *Achelia* and earlier literature used species level features that required fully mature specimens. Consequently, APEM policy was to record *A. echinata* and '*A*.' *longipes* as aggregates. Now that they are in different genera, the policy could be to leave them at genus level but RT61 results and the additional features in updated literature (Bamber, 2010) suggest that species level may be achievable.

Podocopida (Specimen 14). The draft TDP suggests leaving Podocopida at order level, as there are many species that are difficult to identify, many of which would pass through a 0.5mm sieve. However, APEM identify certain distinctive species, including *Pterygocythereis jonesii*. Most labs identified this correctly, suggesting that a list of ostracods to be identified at species level could be developed.

Mysidae (Specimen 09). The draft TDP suggests species identifications for adult (excluding those with larval features) mysids, as currently done at APEM, although there are often occasional specimens that must be left at family, due to missing uropods or antennal scales. As all labs correctly identified the specimen, the policy seems reasonable.

Bathyporeiidae (Specimen 24).

The draft TDP suggests species identifications for *Bathyporeia*, as currently done at APEM, without separation of juveniles, although there may be occasional specimens that must be left at genus, if only the anterior of the body is present. As most labs correctly identified the specimen, the policy seems reasonable.

Ischyroceridae (Specimen 22). The draft TDP suggests species identifications for adult, male ischyrocerids, with qualifiers for females and juveniles. This is the current APEM policy for most genera but *Microjassa cumbrensis* is identifiable at any stage, as shown by the majority correct identifications. All specimens are typically damaged in samples but features important for recognition are usually present. Most of the identification differences were for other families.

Idoteidae (Specimen 01). The draft TDP suggests species identifications for idoteids, without qualifiers for juveniles, as currently done at APEM. The circulated specimen was large and most labs identified correctly but discussion may be needed for juveniles.

Janiridae (Specimen 04). The draft TDP suggests species identifications for janirids, without qualifiers for juveniles, as currently done at APEM. Most labs correctly identified the circulated specimen, although it lacked antennae and uropods. However, there are very similar species, one of them non-native, that may not have been considered by all.

Typhlotanaidae (Specimen 10). The draft TDP suggests species identifications for typhlotanaids, as currently done at APEM, although there remains some taxonomic flux, particularly for deeper water species. Most labs correctly identified the circulated specimen.
Leucosiidae (Specimen 13). The draft TDP suggests species identifications for leucosiids (all *Ebalia* in UK waters) over 5mm (carapace width), as currently done at APEM. Most labs correctly identified the circulated specimen despite it being very similar to another. The policy could be retained unless discussion is needed on the size criterion.

Mollusca

Thyasiridae (Specimen 25). The draft TDP suggests species identifications for thyasirids without separation of juveniles, as currently done at APEM. All labs correctly identified the circulated specimen, but problems remain for other species in the family that may require discussion.
Cyrenidae (Specimen 19). The draft TDP suggests species identifications for the only currently recorded UK cyrenid (a non-native mainly freshwater species that reaches low salinity regions of estuaries), with separation of juveniles (identified at species) at 5mm, as currently done at APEM. Most labs correctly identified the circulated specimen; the alternative names were for fully marine species (in other families) and may not have been a problem in a real sample with more immediate knowledge of provenance.
Mactridae (Specimen 21). The draft TDP flags Mactridae for further work, due to different taxonomic levels currently used for different taxa by different labs, particularly in the recognition of juvenile sizes. APEM identify adults (over 5mm; over 40mm for *Lutraria*) to species, with separation of juveniles at 10mm (species level as juvenile at 5-10mm). The circulated specimen was small but over 10mm and most labs identified it correctly. More discussion will be needed to establish juvenile policies for this family.
Basterotiidae (Specimen 12). The draft TDP suggests species identifications for Basterotiidae (there are 2 UK species; one restricted to deep offshore waters but confusion with other families is possible), without separation of juveniles, as currently done at APEM. Most labs correctly identified the circulated specimen. *Saxicavella jeffreysi* may be commensal with the echiuran *Maxmuelleria lankesteri* (see Oliver, 2013) and an indicator of habitats of conservation importance.
Psammobiidae (Specimen 17). The draft TDP suggests species identifications for psammobiids (all *Gari* in UK waters), with separation of juveniles (identified at species level) at 5mm, as currently done at APEM. Most labs correctly identified the circulated specimen and nearly all identified the genus, although it was very small. However, more discussion may be needed to establish juvenile policies for this family.

Echinodermata

Ophiotrichidae (Specimen 03). The draft TDP suggests species identifications for ophiotrichids, with separation of juveniles (identified at species level) at 3mm, as currently done at APEM. All labs correctly identified the circulated specimen. However, most consistency problems with echinoderms are for juveniles and more discussion may be needed to standardise policies.

Acknowledgements
We are grateful to Peter Barry, Matthew Curtis and Paul McIlwaine (CEFAS) for supply of samples that contained Specimen 13.

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Typhlotanais aequiremis 9a

Ring Test Specimen Return Instructions

Please return all ring test specimens by 25th March 2022. These are reference collection specimens and must be returned to our museum. Your laboratory will be ineligible for future ring tests if specimens are not returned.

Return address: David Hall, APEM Ltd., 7a Diamond Centre,
Works Road, Letchworth, Hertfordshire SG6 1LW, UK