NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Ring Test Bulletin – RTB#65

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RING TEST DETAILS

Ring Test #65 (Year 30)

Type/Contents –General

Circulated – 01/12/23

Results deadline – 02/02/24

Number of Subscribing Laboratories – 21

Number of Participating Laboratories – 19

Number of Results Received – 19*

*multiple data entries per laboratory permitted

Summary of differences

Specimen	Genus	Species	Condition / Size	Total differences for 19 returns	
				Genus	Species
RT6501	*Scoloplos*	*armiger*	fair, small	2	2
RT6502	*Crisularia*	*plumosa*	fair, small portions	0	0
RT6503	*Anadara*	*kagoshimensis*	good, small, 8-10 mm	1	14
RT6504	*Paradoneis*	*mikeli*	fair, medium	2	10
RT6505	*Lucinoma*	*borealis*	good, small, 1.5-2 mm	8	8
RT6506	*Euchone*	*incolor*	fair, medium	8	10
RT6507	*Hydrobia*	*acuta neglecta*	fair, medium, 2 mm	7	7
RT6508	*Ensis*	*ensis*	fair, small, 10-15 mm	1	7
RT6509	*Jassa*	*herdmani*	fair, medium, male	0	5
RT6510	*Actaedrilus*	*polyonyx*	fair, medium	4	4
RT6511	*Magelona*	*alleni*	fair, medium	0	0
RT6512	*Bathyporeia*	*guilliamsoniana*	good, medium, female	0	3
RT6513	*Nephtys*	*hystricis*	fair, medium	1	5
RT6514	*Escharella*	*ventricosa*	fair, small portions	1	3
RT6515	*Laonice*	*irinae*	fair, medium	0	6
RT6516	*Falcidens*	*crossotus*	good, small	2	2
RT6517	*Escharella*	*immersa*	fair, small portions	0	0
RT6518	*Lucinella*	*divaricata*	good, small, 1.5-2 mm	2	3
RT6519	*Ampelisca*	*tenuicornis*	good, medium, female	0	1
RT6520	*Magelona*	*minuta*	fair, medium	0	2
RT6521	*Scoloplos*	*armiger*	fair, medium	3	3
RT6522	*Phylo*	*grubei*	fair, medium	0	7
RT6523	*Pyripora*	*catenularia*	fair, small portions	3	3
RT6524	*Praxillella*	*affinis*	fair, medium	1	1
RT6525	*Paradiopatra*	*quadricuspis*	fair, medium	3	3
			Total differences	49	109
			Average differences /lab.	2.6	5.7

Figure 1. The number of differences from the AQC identification of specimens distributed in RT65 for each of the participating laboratories. Arranged in order of increasing number of differences (by specific followed by generic errors).

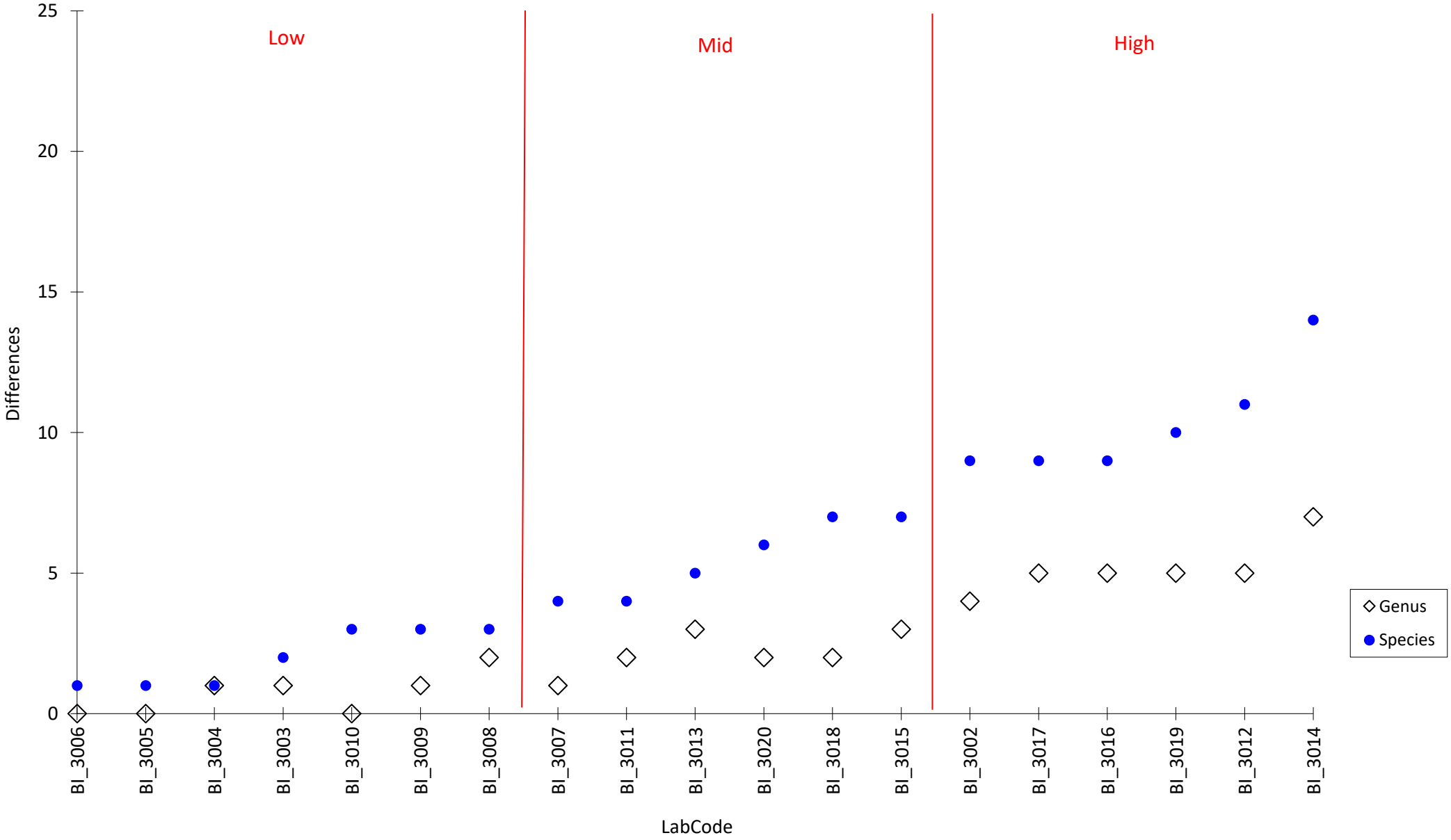

Table 1. The identification of fauna made by participating laboratories for RT65 (arranged by specimen). Names are given only where different from the AQC identification.

	RT6501	RT6502	RT6503	RT6504	RT6505	RT6506	RT6507	RT6508	RT6509	RT6510
Taxon	*Scoloplos armiger*	*Crisularia plumosa*	*Anadara kagoshimensis*	*Paradoneis mikeli*	*Lucinoma borealis*	*Euchone incolor*	*Hydrobia acuta neglecta*	*Ensis ensis*	*Jassa herdmani*	*Actaedrilus polyonyx*
BI_3002	- -	- -	- inaequivalvis	- -	Coracuta obliquata	- pseudolimnicola	- -	- leei	- -	- -
BI_3003	- -	- -	- transversa	- -	- -	- -	Peringia ulvae	- -	- -	- -
BI_3004	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3005	- -	- -	- transversa	- -	- -	- -	- -	- -	- -	- -
BI_3006	- -	- -	- transversa	- -	- -	- -	- -	- -	- -	- -
BI_3007	Leitoscoloplos mammosus	- -	- transversa	- -	- -	- -	- -	- magnus	- falcata	- -
BI_3008	- -	- -	- transversa	- -	Myrtea spinifera	Dialychone longiseta	- -	- -	- -	- -
BI_3009	- -	- -	- transversa	- -	- -	[Dialychone] [dunerificta]	- -	- -	- falcata	- -
BI_3010	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3011	- -	- -	- -	- lyra	- -	Litocorsa stremma	Peringia ulvae	- -	- -	- -
BI_3012	- -	- -	- transversa	- lyra	- -	0 0	Peringia ulvae	- leei	- -	Flabelligena gascognensis
BI_3013	- -	- -	- transversa	Cirrophorus furcatus	- -	- -	Peringia ulvae	- -	- -	Macrochaeta clavicornis
BI_3014	- -	- -	- transversa	- armata	Mya truncata	Maldanidae 0	Rissoella diaphana	- leei	- Falcata	Macrochaeta 0
BI_3015	- -	- -	- inaequivalvis	- lyra	- -	Chone duneri	Ecrobia ventrosa	- leei	- -	- -
BI_3016	- -	- -	Bathyarca pectunculoides	- lyra	Adontorhina similis	Amphicorina armandi	- -	Solen marginatus	- -	Macrochaeta clavicornis
BI_3017	- -	- -	- -	Levinsenia gracilis	Adontorhina similis	- southerni	- [acuta]	- -	- falcata	- -
BI_3018	- -	- -	- inaequivalvis	- lyra	Loripes orbiculatus	Jamineira schaudinni	- -	- -	- falcata	- -
BI_3019	Leitoscoloplos mammosus	- -	- -	- ilvana	Devonia perrieri	Limnodriloides scandinavicus	Ecrobia ventrosa	- -	- -	[Macrochaeta] [polyonix]
BI_3020	- -	- -	- inaequivalvis	- lyra	Loripes orbiculatus	- -	- -	- leei	- -	- -

Table 1. The identification of fauna made by participating laboratories for RT65 (arranged by specimen). Names are given only where different from the AQC identification.

	RT6511	RT6512	RT6513	RT6514	RT6515	RT6516	RT6517	RT6518	RT6519	RT6520
Taxon	*Magelona alleni*	*Bathyporeia guilliamsoniana*	*Nephtys hystricis*	*Escharella ventricosa*	*Laonice irinae*	*Falcidens crossotus*	*Escharella immersa*	*Lucinella divaricata*	*Ampelisca tenuicornis*	*Magelona minuta*
BI_3002	- -	- pelagica	Alglaophamus pulcher	- variolosa	- -	- -	- -	Loripes orbiculatus	- -	- -
BI_3003	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3004	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3005	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3006	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3007	- -	- [gulliamsoniana]	- [hystrics]	- -	- -	- -	- -	- -	- -	- -
BI_3008	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3009	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BI_3010	- -	- -	- -	- -	- -	- -	- -	- -	- provincialis	- filiformis
BI_3011	- -	- -	- -	- -	- bahusiensis	- -	- -	- -	- -	- -
BI_3012	- -	- -	- incisa	- -	- bahusiensis	- -	- -	- -	- -	- -
BI_3013	- -	- -	- -	- -	- -	- -	- -	- legouxi	- -	- -
BI_3014	- -	- -	- cirrosa	- -	- bahusiensis	- -	- -	Dosinia exoleta	- -	- -
BI_3015	- -	- -	- -	- -	- bahusiensis	Chaetoderma nitidulum	- -	- -	- -	- -
BI_3016	- -	- elegans	- incisa	- -	- -	- -	- -	- -	- -	- -
BI_3017	- -	- elegans	- -	- -	- bahusiensis	Chaetoderma nitidulum	- -	- -	- -	- -
BI_3018	- -	- -	- -	- labiosa	- -	- -	- -	- -	- -	- -
BI_3019	- -	- -	- kersivalensis	Smittoidea prolifica	- sarsi	- -	- -	- -	- -	- filiformis
BI_3020	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Table 1. The identification of fauna made by participating laboratories for RT65 (arranged by specimen). Names are given only where different from the AQC identification.

	RT6521	RT6522	RT6523	RT6524	RT6525
Taxon	***Scoloplos armiger***	***Phylo grubei***	***Pyripora catenularia***	***Praxillella affinis***	***Paradiopatra quadricuspis***
BI_3002	- -	- -	Conopeum reticulum	- -	- -
BI_3003	- -	- -	- -	- -	- -
BI_3004	Leitoscoloplos mammosus	- -	- -	- -	- -
BI_3005	- -	- -	- -	- -	- -
BI_3006	- -	- -	- -	- -	- -
BI_3007	- -	- -	- -	- -	- -
BI_3008	- -	- -	- -	- [praetermissa]	- -
BI_3009	Leitoscoloplos mammosus	- -	- -	- [praetermissa]	- -
BI_3010	- -	- norvegica	- -	- -	- -
BI_3011	- -	- -	- -	- -	- -
BI_3012	Leitoscoloplos mammosus	- norvegicus	- -	- -	Onuphis eremita
BI_3013	- -	- -	- -	- -	- -
BI_3014	- -	- norvegica	Biflustra tenuis	- [praetermissa]	Nothria conchylega
BI_3015	- -	- -	- -	- -	- -
BI_3016	- -	- kupfferi	- -	- [praetermissa]	- -
BI_3017	- -	- -	Electra pilosa	Euclymene droebachiensis	- -
BI_3018	- -	- kupfferi	- -	- -	- -
BI_3019	- -	- kupfferi	- -	- [praetermissa]	- -
BI_3020	- -	- kupfferi	- -	- -	Eunice pennata

Table 2. The identification of fauna made by participating laboratories for RT65 (arranged by participant). Names are given only where different from the AQC identification.

	Taxon	BI_3002	BI_3003	BI_3004	BI_3005	BI_3006	BI_3007	BI_3008	BI_3009	BI_3010	BI_3011	BI_3012	BI_3013	BI_3014	BI_3015
RT6501	*Scoloplos armiger*	- -	- -	- -	- -	- -	Leitoscoloplos mammosus	- -	- -	- -	- -	- -	- -	- -	- -
RT6502	*Crisularia plumosa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6503	*Anadara kagoshimensis*	- inaequivalvis	- transversa	- -	- transversa	- transversa	- transversa	- transversa	- transversa	- -	- -	- transversa	- transversa	- transversa	- inaequivalvis
RT6504	*Paradoneis mikeli*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- lyra	- lyra	Cirrophorus furcatus	- armata	- lyra
RT6505	*Lucinoma borealis*	Coracuta obliquata	- -	- -	- -	- -	- -	Myrtea spinifera	- -	- -	- -	- -	- -	Mya truncata	- -
RT6506	*Euchone incolor*	- pseudolimnicola	- -	- -	- -	- -	- -	Dialychone longiseta	[Dialychone] [dunerificta]	- -	Litocorsa stremma	0 0	- -	Maldanidae 0	Chone duneri
RT6507	*Hydrobia acuta neglecta*	- -	Peringia ulvae	- -	- -	- -	- -	- -	- -	- -	Peringia ulvae	Peringia ulvae	Peringia ulvae	Rissoella diaphana	Ecrobia ventrosa
RT6508	*Ensis ensis*	- leei	- -	- -	- -	- -	- magnus	- -	- -	- -	- -	- leei	- -	- leei	- leei
RT6509	*Jassa herdmani*	- -	- -	- -	- -	- -	- falcata	- -	- falcata	- -	- -	- -	- -	- Falcata	- -
RT6510	*Actaedrilus polyonyx*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	Flabelligena gascognensis	Macrochaeta clavicornis	Macrochaeta 0	- -
RT6511	*Magelona alleni*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6512	*Bathyporeia guilliamsoniana*	- pelagica	- -	- -	- -	- -	- [gulliamsoniana]	- -	- -	- -	- -	- -	- -	- -	- -
RT6513	*Nephtys hystricis*	Alglaophamus pulcher	- -	- -	- -	- -	- [hystrics]	- -	- -	- -	- -	- incisa	- -	- cirrosa	- -
RT6514	*Escharella ventricosa*	- variolosa	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6515	*Laonice irinae*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- bahusiensis	- bahusiensis	- -	- bahusiensis	- bahusiensis
RT6516	*Falcidens crossotus*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	Chaetoderma nitidulum
RT6517	*Escharella immersa*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
RT6518	*Lucinella divaricata*	Loripes orbiculatus	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- legouxi	Dosinia exoleta	- -
RT6519	*Ampelisca tenuicornis*	- -	- -	- -	- -	- -	- -	- -	- -	- provincialis	- -	- -	- -	- -	- -
RT6520	*Magelona minuta*	- -	- -	- -	- -	- -	- -	- -	- -	- filiformis	- -	- -	- -	- -	- -
RT6521	*Scoloplos armiger*	- -	- -	Leitoscoloplos mammosus	- -	- -	- -	- -	Leitoscoloplos mammosus	- -	- -	Leitoscoloplos mammosus	- -	- -	- -
RT6522	*Phylo grubei*	- -	- -	- -	- -	- -	- -	- -	- -	- norvegica	- -	- norvegicus	- -	- norvegica	- -
RT6523	*Pyripora catenularia*	Conopeum reticulum	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	Biflustra tenuis	- -
RT6524	*Praxillella affinis*	- -	- -	- -	- -	- -	- -	- [praetermissa]	- [praetermissa]	- -	- -	- -	- -	- [praetermissa]	- -
RT6525	*Paradiopatra quadricuspis*	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	Onuphis eremita	- -	Nothria conchylega	- -

Table 2. The identification of fauna made by participating laboratories for RT65 (arranged by participant). Names are given only where different from the AQC identification.

	Taxon	BI_3016	BI_3017	BI_3018	BI_3019	BI_3020
RT6501	*Scoloplos armiger*	- -	- -	- -	Leitoscoloplos mammosus	- -
RT6502	*Crisularia plumosa*	- -	- -	- -	- -	- -
RT6503	*Anadara kagoshimensis*	Bathyarca pectunculoides	- -	- inaequivalvis	- -	- inaequivalvis
RT6504	*Paradoneis mikeli*	- lyra	Levinsenia gracilis	- lyra	- ilvana	- lyra
RT6505	*Lucinoma borealis*	Adontorhina similis	Adontorhina similis	Loripes orbiculatus	Devonia perrieri	Loripes orbiculatus
RT6506	*Euchone incolor*	Amphicorina armandi	- southerni	Jamineira schaudinni	Limnodriloides scandinavicus	- -
RT6507	*Hydrobia acuta neglecta*	- -	- [acuta]	- -	Ecrobia ventrosa	- -
RT6508	*Ensis ensis*	Solen marginatus	- -	- -	- -	- leei
RT6509	*Jassa herdmani*	- -	- falcata	- falcata	- -	- -
RT6510	*Actaedrilus polyonyx*	Macrochaeta clavicornis	- -	- -	[Macrochaeta] [polyonix]	- -
RT6511	*Magelona alleni*	- -	- -	- -	- -	- -
RT6512	*Bathyporeia guilliamsoniana*	- elegans	- elegans	- -	- -	- -
RT6513	*Nephtys hystricis*	- incisa	- -	- -	- kersivalensis	- -
RT6514	*Escharella ventricosa*	- -	- -	- labiosa	Smittoidea prolifica	- -
RT6515	*Laonice irinae*	- -	- bahusiensis	- -	- sarsi	- -
RT6516	*Falcidens crossotus*	- -	Chaetoderma nitidulum	- -	- -	- -
RT6517	*Escharella immersa*	- -	- -	- -	- -	- -
RT6518	*Lucinella divaricata*	- -	- -	- -	- -	- -
RT6519	*Ampelisca tenuicornis*	- -	- -	- -	- -	- -
RT6520	*Magelona minuta*	- -	- -	- -	- filiformis	- -
RT6521	*Scoloplos armiger*	- -	- -	- -	- -	- -
RT6522	*Phylo grubei*	- kupfferi	- -	- kupfferi	- kupfferi	- kupfferi
RT6523	*Pyripora catenularia*	- -	Electra pilosa	- -	- -	- -
RT6524	*Praxillella affinis*	- [praetermissa]	Euclymene droebachiensis	- -	- [praetermissa]	- -
RT6525	*Paradiopatra quadricuspis*	- -	- -	- -	- -	Eunice pennata

Introduction to Ring Test 65

The aims of the Ring Test (RT) exercises are to examine consistency of species identifications, to highlight identification problems and literature updates and to familiarise participants with species that they may not have previously encountered (Worsfold & Hall, 2017). The results are not used to assess the performance of a laboratory and the graph with categories for numbers of identification differences is provided for interest only. Species are selected to improve our understanding of the fauna. This may be through inclusion of species not previously sent: RT65 included fourteen species never previously sent and two that are likely to have been given different names in previous circulations. Species not yet photographed according to current protocols are also selected. Recently, species have also been selected to provide insights to help with the development of a taxonomic discrimination protocol, as detailed under family headings in the discussion section below. The geographical scope was originally British waters. It is now expanded to include northern Europe and specimens may be included from further afield if the species is known from northern Europe or likely to be found there in future.

LabCodes are abbreviated in this report to exclude the Scheme year, *e.g.* BI_3001 = 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.

Worsfold, T.M. & Hall, D.J., 2017. *Benthic Invertebrate component - Ring Test Protocol*. Report to the NMBAQC Scheme participants. 6pp, August 2017.

Specimen Images and Detailed Breakdown of Identifications

(Figure codes: A=anterior; P=posterior; L=lateral; D=dorsal; V=ventral)

RT6501 – *Scoloplos armiger* (Müller, 1776) (Figure 1a)

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

Fig. 1a. *Scoloplos armiger* (RT6501, 10376) – L

Two generic and specific differences: Labs 07 and 19 identified as *Leitoscoloplos mammosus* (Figure 1b) (which has a shorter prostomium and a more rounded cross-section to the thoracic region) but noted that they sometimes see *S. armiger* without sub-podial papillae.

Lab 03 added 'agg.' In the notes. Lab 07 noted the existence of worms with intermediate *Scoloplos armiger* / *Leitoscoloplos mammosus* features.

Fig. 1b. *Leitoscoloplos mammosus* (P3064.1, 61777) – L

RT6502 – *Crisularia plumosa* (Pallas, 1766) (Figure 2a)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: North Sea. Condition: Fair. Size: Small portions. All specimens from one sample.

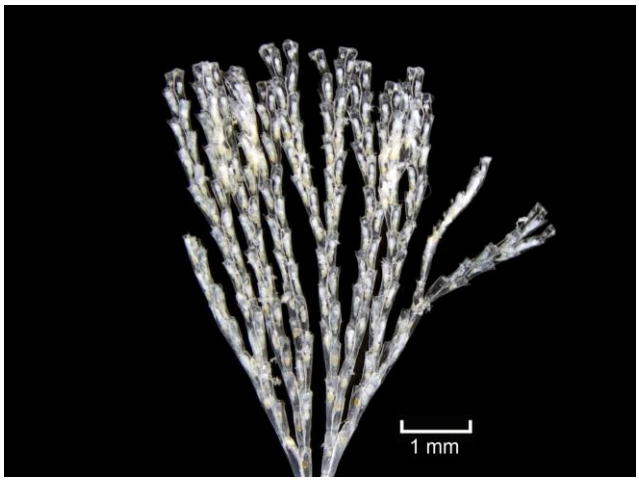

Fig. 2a. *Crisularia plumosa* (RT6502, 74907) – Colony

No generic or specific differences recorded.

RT6503 – *Anadara kagoshimensis* (Tokunaga, 1906) (Figure 3a)

Substratum: Sand. Salinity: Reduced (Mesohaline). Depth: Infralittoral. Geography: Romania. Condition: Good. Size: Small, 8-10mm. All specimens from one sample.

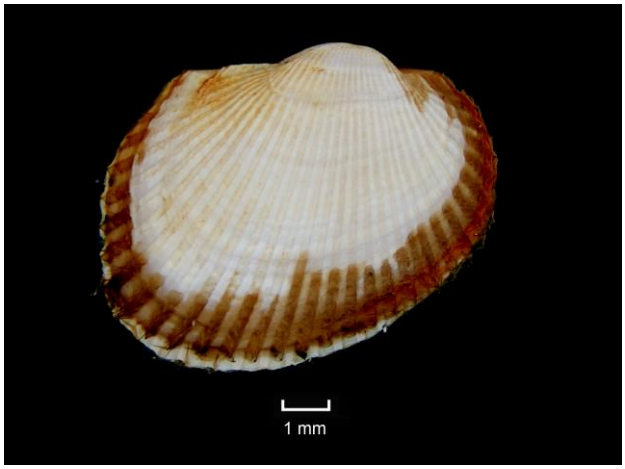

Fig. 3a. *Anadara kagoshimensis* (RT6503, BI2949_OS8218) – L

One generic and fourteen specific differences: Lab 16 identified as *Bathyarca pectunculoides* (Figures 3b, 3c) (which has less distinct radial ribs); Labs 03, 05, 06, 07, 08, 09, 12, 13 and 14 identified as *Anadara transversa* (no material available) (which has a more elongate shell); Labs 02, 15, 18 and 20 identified as *Anadara inaequivalvis* (no material available) (which has more ribs).

Fig. 3b. *Bathyarca pectunculoides* (OS55207112) – L

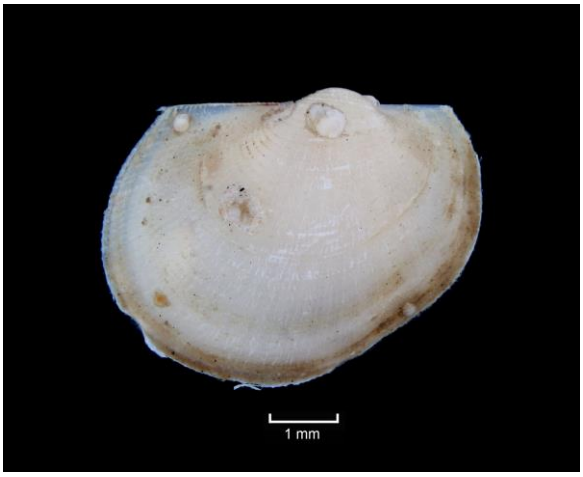

Fig. 3c. *Bathyarca pectunculoides* (P863, SN13.5) – L

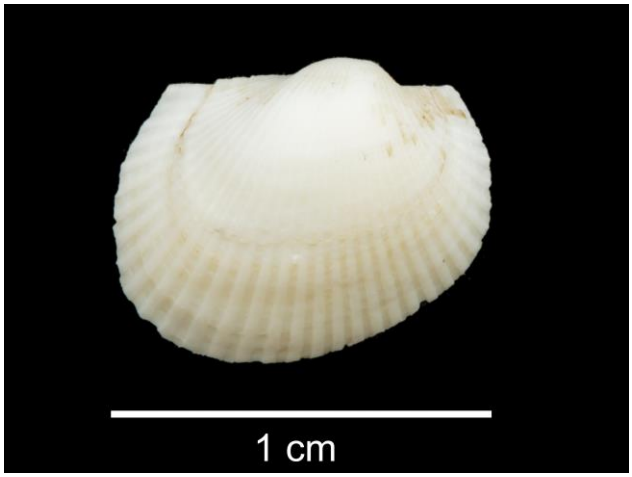

Fig. 3d. *Anadara kagoshimensis* (BI2949_OS8218) – L

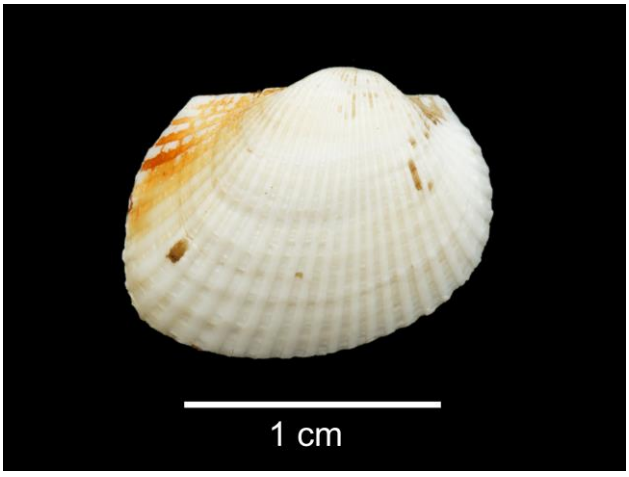

Fig. 3e. *Anadara kagoshimensis* (BI2949_OS8218) – L

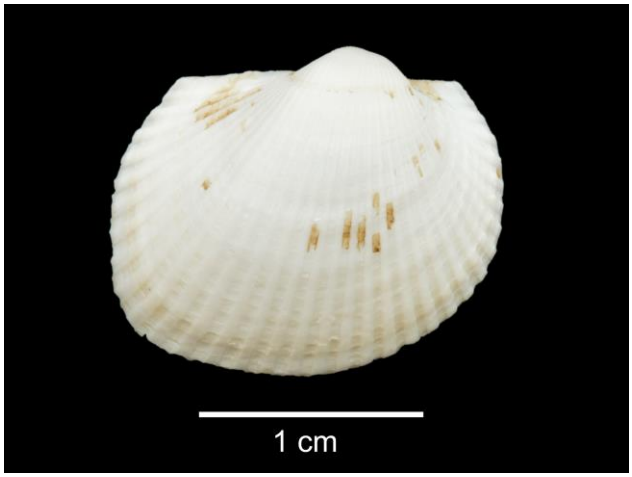

Fig. 3f. *Anadara kagoshimensis* (BI2949_OS8218) – L

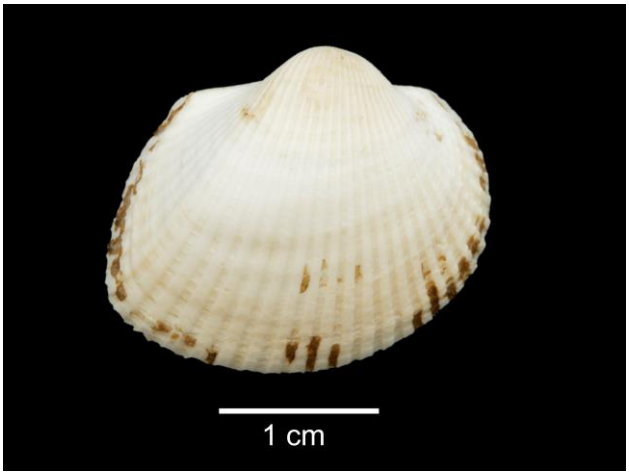

Fig. 3g. *Anadara kagoshimensis* (BI2949_OS8218) – L

RT6504 – *Paradoneis mikeli* Aguirrezabalaga & Gil, 2009 (Figures 4a, 4b)

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

Fig. 4a. *Paradoneis mikeli* (RT6504, 71693) – L

Two generic and ten specific differences: Lab 13 identified as *Cirrophorus furcatus* (Figure 4c) (which has a median antenna); Lab 17 identified as *Levinsenia gracilis* (Figure 4d) (which has modified neurochaetae); Lab 14 identified as *Paradoneis armata* (Figure 4e) (which has acicular modified notochaetae); Labs 11, 12, 15, 16, 18 and 20 identified as *Paradoneis lyra* (Figure 4f); Lab 17 identified as *Paradoneis ilvana* (Figure 4g) (both of which have only three prebranchial chaetigers).

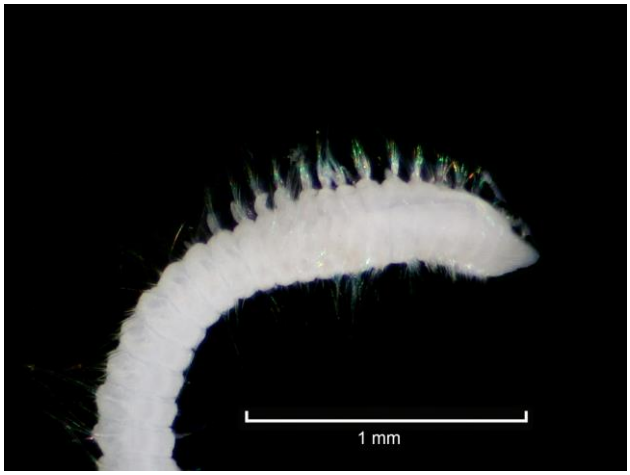

Fig. 4b. *Paradoneis mikeli* (RT6504, 71693) – L

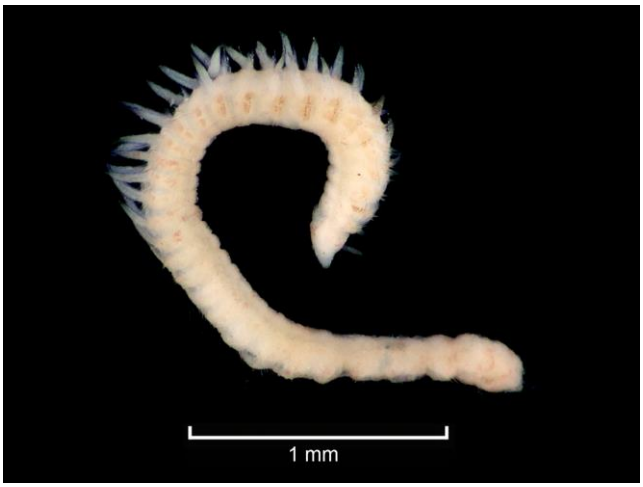

Fig. 4c. *Cirrophorus furcatus* (P4267, 64625) – L

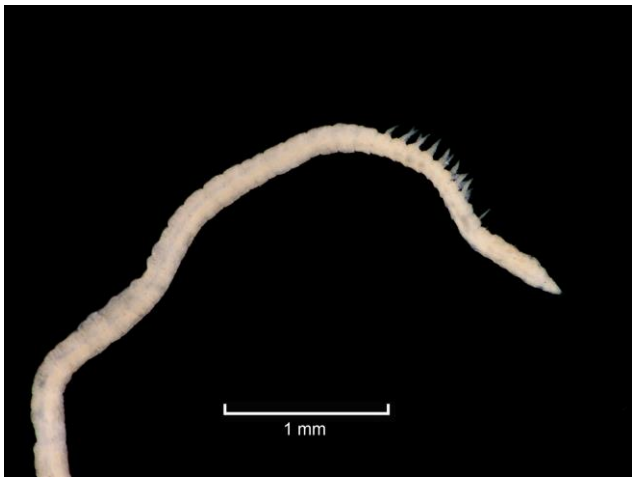

Fig. 4d. *Levinsenia gracilis* (P3064.1, 61675) – L

Fig. 4e. *Paradoneis armata* (412877, 39775) – L

Fig. 4f. *Paradoneis lyra* (P1883, 59279) – L

Fig. 4g. *Paradoneis ilvana* (P803, 58385) – L

RT6505 – *Lucinoma borealis* (Linnaeus, 1767) (Figure 5a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: north of Ireland. Condition: Good. Size: Small, 1-2mm. Specimens from five samples.

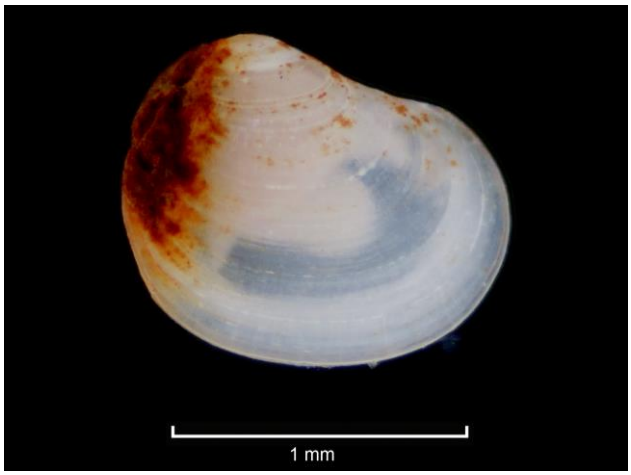

Fig. 5a. *Lucinoma borealis* (RT6505, 65332) – L

Eight generic and specific differences: Lab 14 identified as *Mya truncata* (Figure 5b) (which has a posterior gape); Labs 16 and 17 identified as *Adontorhina similis* (Figure 5c); Lab 19 identified as *Devonia perrieri* (Figure 5d) (both of which lack concentric sculpture); Lab 02 identified as *Coracuta obliquata* (Figure 5e) (which has finer concentric sculpture); Labs 18 and 20 identified as *Loripes orbiculatus* (Figure 5f) (which has finer concentric sculpture); Lab 08 identified as *Myrtea spinifera* (Figure 5g) (which has stronger concentric sculpture).

Fig. 5b. *Mya truncata* (412400, 38670) – L

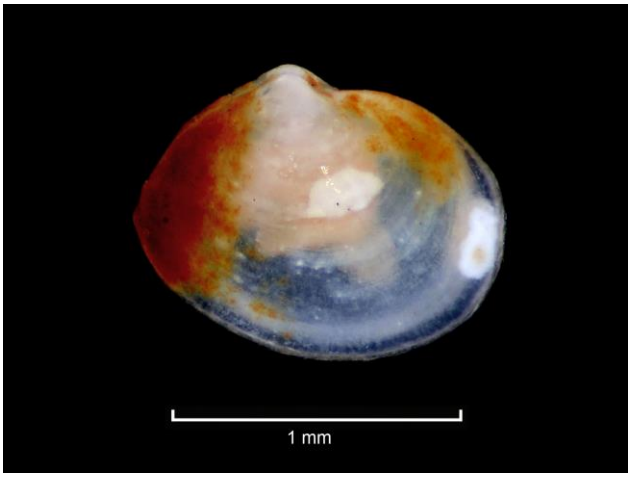

Fig. 5c. *Adontorhina similis* (413646, 42945) – L

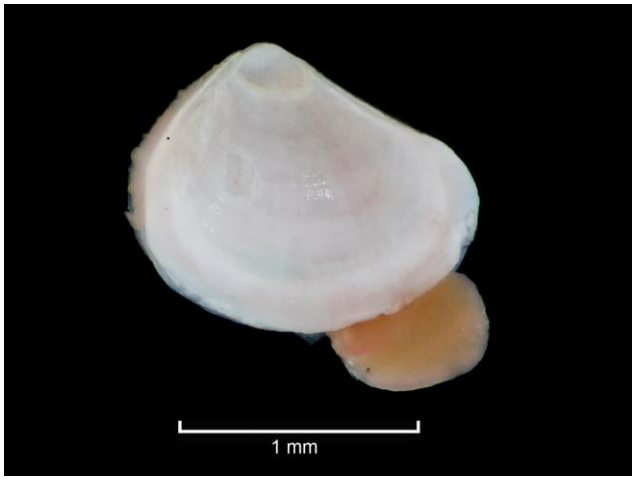

Fig. 5d. *Devonia perrieri* (413379, 41983) – L

Fig. 5e. *Coracuta obliquata* (P7797, 70568) – L

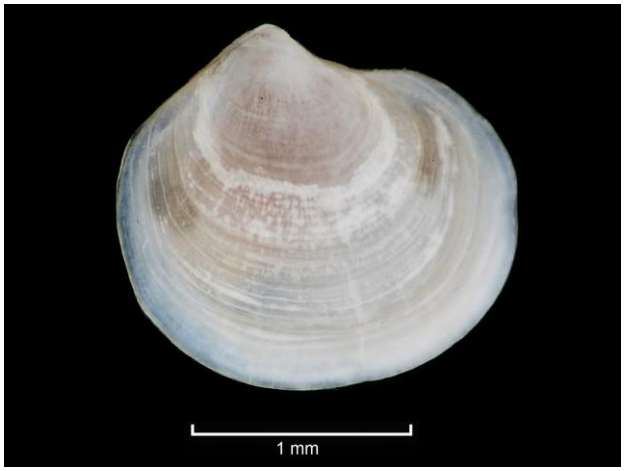

Fig. 5f. *Loripes orbiculatus* (BI2952, OS8206) – L

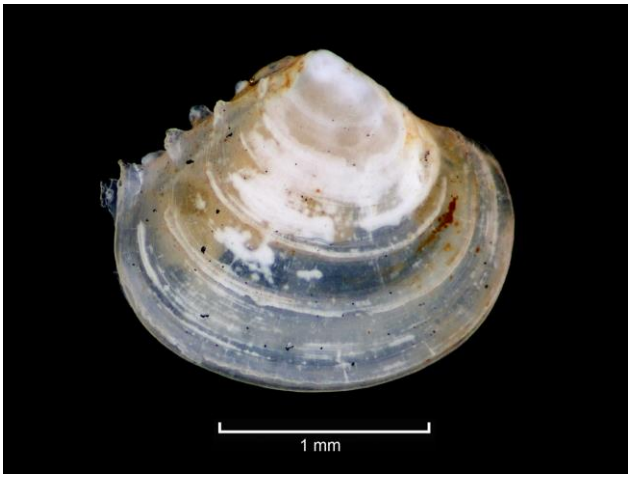

Fig. 5g. *Myrtea spinifera* (414340, 55887) – L

RT6506 – *Euchone incolor* Hartman, 1965 (Figure 6a)

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

Fig. 6a. *Euchone incolor* (RT6506, 71694) – L

Eight generic and ten specific differences: Lab 14 identified as Maldanidae (Figure 24a) (in which uncini are neuropodial throughout the body); Lab 19 identified as *Limnodriloides scandinavicus* (Figure 6b); Lab 11 identified as *Litocorsa stremma* (Figure 6c) (both of which lack uncini); Lab 08 identified as *Dialychone longiseta* (Figure 6d); Lab 15 identified as *Chone duneri* (Figure 6f); Lab 18 identified as *Jasmineira schaudinni* (Figure 6g shows a *Jasmineira* species); Lab 16 identified as *Amphicorina armandi* (Figure 6h shows an *Amphicorina* sp.) (all of which lack an anal funnel); Lab 02 identified as *Euchone pseudolimnicola* (Figure 6i) (which has reduced lateral wings to its anal funnel); Lab 17 identified as *Euchone southerni* (Figure 6j) (which has five chaetigers in its anal funnel.

Lab 09 identified as *Dialychone dunerificta* (Figure 6e); their specimen was found to have had a regenerated tail and the record scored as correct for lab comparison purposes. Lab 12 did not identify Specimen 06. It is recommended that laboratories attempt identification of all specimens.

Fig. 6b. *Limnodriloides scandinavicus* (P2217.1, 60212) – L

Fig. 6c. *Litocorsa stremma* (P6587, 67541) – L

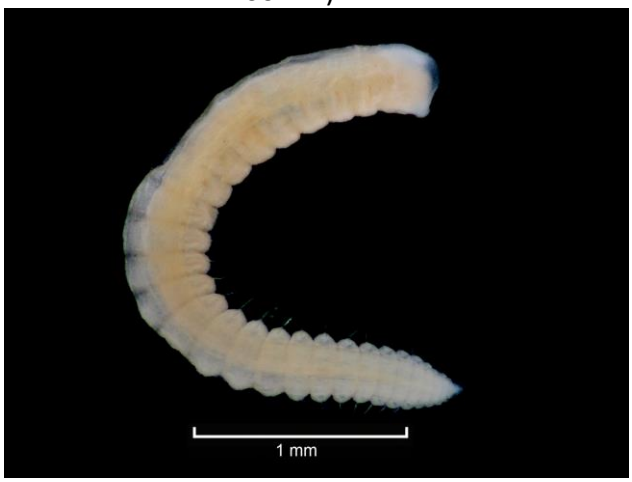

Fig. 6d. *Dialychone longiseta* (413646, 42961) – L

Fig. 6e. *Dialychone dunerifica* (P1322, 58462) – L

Fig. 6f. *Chone duneri* (410826, 33535) – L

Fig. 6g. *Jasmineira schaudinni* (413646, 42958) – L

Fig. 6h. *Amphicorina* (P7323.1, 70415) – L

Fig. 6i. *Euchone pseudolimnicola* (P2081, 60040) – L

Fig. 6j. *Euchone southerni* (P4264_64069) – L

RT6507 – *Hydrobia acuta neglecta* Muus, 1963 (Figure 7a)

Substratum: Floral turf. Salinity: Low (Oligohaline). Depth: Infralittoral. Geography: western Scotland. Condition: Fair. Size: Medium, 2mm. All specimens from one sample.

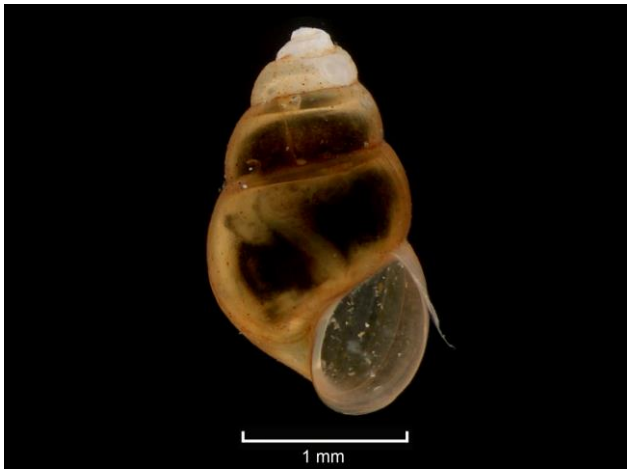

Fig. 7a. *Hydrobia acuta neglecta* (RT6507, LC13a) – V

Seven generic and specific differences: Lab 14 identified as *Rissoella diaphana* (Figure 7b) (which has deeper sutures); Labs 03, 11, 12 and 13 identified as *Peringia ulvae* (Figure 7c) (which has less convex sutures); Lab 15 and 19 identified as *Ecrobia ventrosa* (Figure 7d) (which has deeper sutures).

Labs 16 and 17 excluded the subspecies from their identifications. Lab 13 gave correct identification in notes.

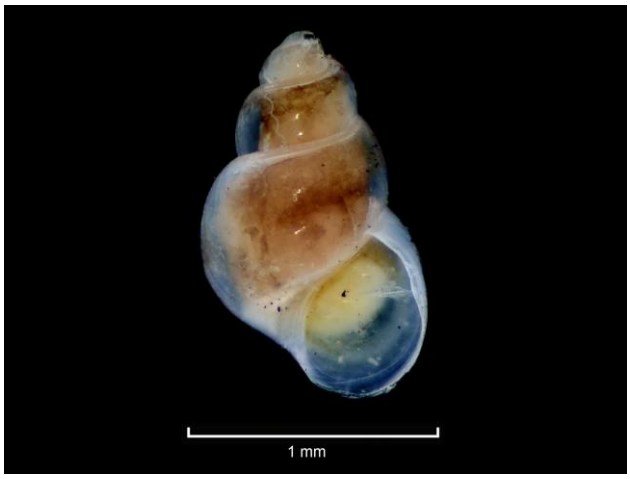

Fig. 7b. *Rissoella diaphana* (P529, 59870) – V

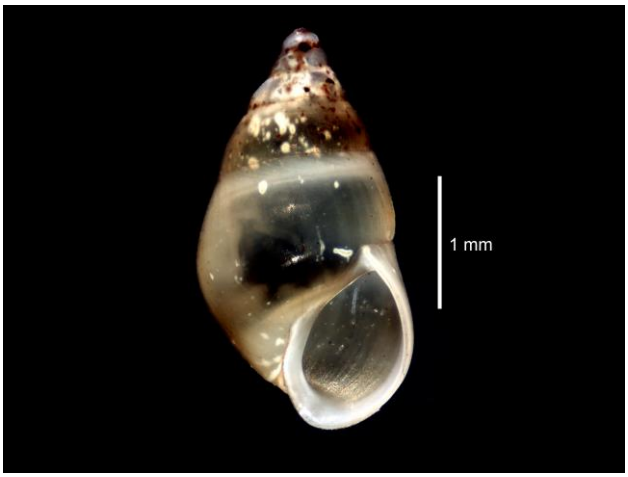

Fig. 7c. *Peringia ulvae* (RT6204; 414293, 57206) – V

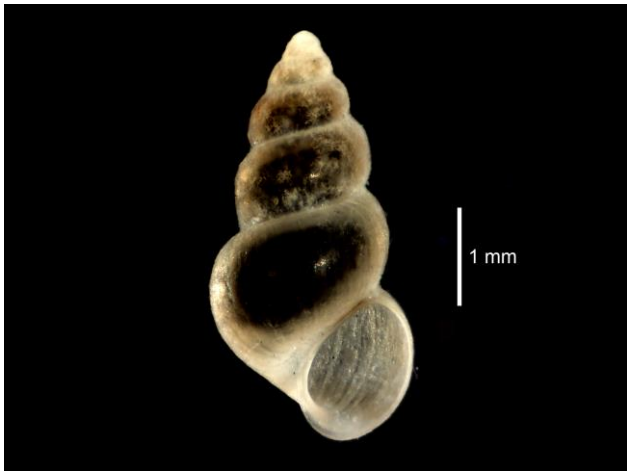

Fig. 7d. *Ecrobia ventrosa* (RT6212; 414342, 55817) – V

RT6508 – *Ensis ensis* (Linnaeus, 1758) (Figure 8a)

Substratum: Sand. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: southeast England. Condition: Condition: Fair. Size: Small, 10-15mm. Specimens from six samples.

Fig. 8a. *Ensis ensis* (RT6508, 62606) – L

One generic and seven specific differences: Lab 16 identified as *Solen marginatus* (Figure 8b); (which has a straight shell at all sizes); Lab 07 identified as *Ensis magnus* (no material available near this size); Labs 02, 12, 14, 15 and 20 identified as *Ensis leei* (Figure 8c) (both of which have less curved dorsal margins).

Fig. 8b. *Solen marginatus* (P7508, 70870) – L

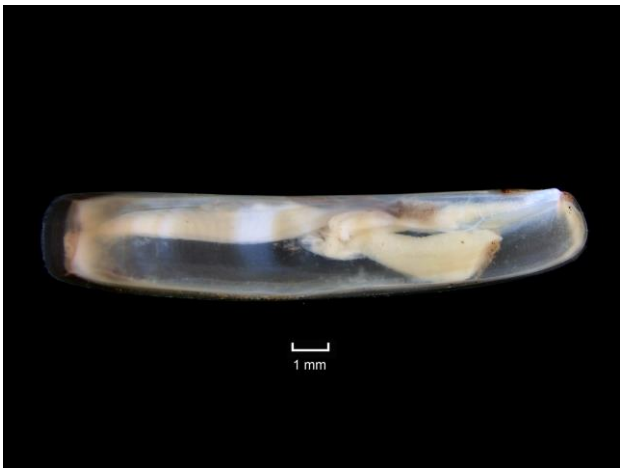

Fig. 8c. *Ensis leei* (P6193, 70532) - L

RT6509 – *Jassa herdmani* (Walker, 1893) (Figures 9a, b)

Substratum: Faunal turf. Salinity: Full (Euhaline). Depth: Infralittoral. Geography: northern Scotland. Condition: Fair. Size: Medium. Sex: Male. All specimens from one sample.

Fig. 9a. *Jassa herdmani* (RT6509, 66365) – L

Five specific differences: Labs 07 09, 14, 17 and 18 identified as *Jassa falcata* (Figures 9c, d); (which has lateral spines on the inner ramus of uropod 3).

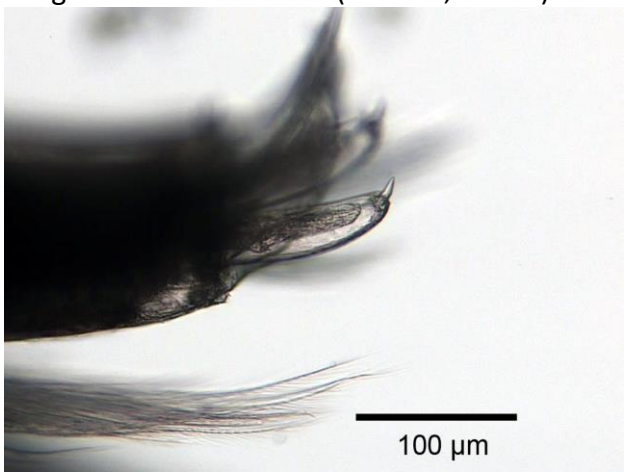

Fig. 9b. *Jassa herdmani* (RT6509, 66365) – uropods (inner ramus of U3 in focus)

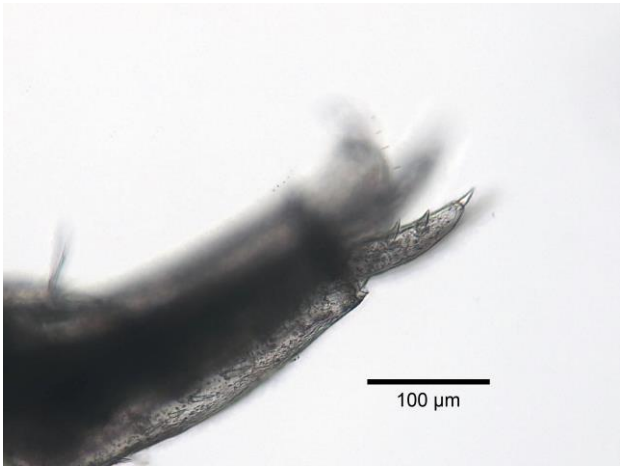

Fig. 9c. *Jassa falcata* (413446, 56116) – uropods (inner ramus of U3 in focus)

Fig. 9d. *Jassa falcata* (413446, 56116) – L

RT6510 – *Actaedrilus polyonyx* (Eliason, 1962) (Figure 10a)

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

Fig. 10a. *Actaedrilus polyonyx* (RT6510, 54131) – D

Four generic and specific differences: Lab 12 identified as *Flabelligena gascognensis* (Figure 10b shows a *Flabelligena* species) (which has elongated papillae); Lab 14 identified as *Macrochaeta*; Labs 13 and 16 identified as *Macrochaeta clavicornis* (Figure 10c) (which have only one or two neurochaetae per bundle; also, *M. clavicornis* has eyespots).

Lab 19 used the former generic assignment: *Macrochaeta*, and mis-spelled the specific name: *polyonix*.

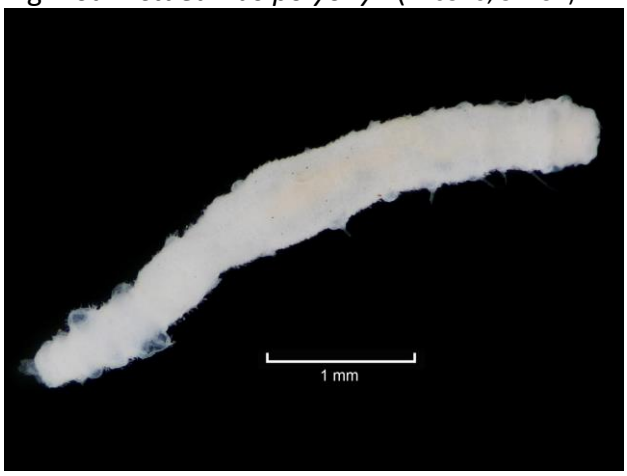

Fig. 10b. *Flabelligena* (414087_55166) – D

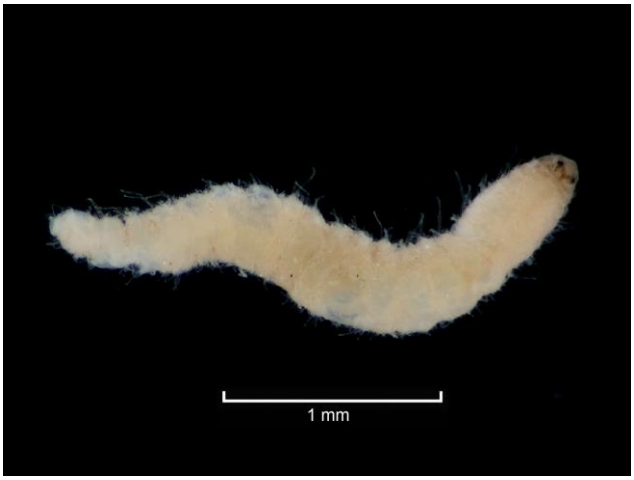

Fig. 10c. *Macrochaeta clavicornis* (P3411, 62945) – D

RT6511 – *Magelona alleni* Wilson, 1958 (Figure 11a)

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

Fig. 11a. *Magelona alleni* (RT6511, 72320) – D

No generic or specific differences recorded.

RT6512 – *Bathyporeia guilliamsoniana* (Spence Bate, 1857) (Figure 12a)

Substratum: Sand. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: North Sea. Condition: Good. Size: Medium. Sex: Female. Specimens from four samples.

Fig. 12a. *Bathyporeia guilliamsoniana* (RT6512; 71912) – L

Three specific differences: Lab 02 identified as *Bathyporeia pelagica* (Figure 12b); Labs 16 and 17 identified as *Bathyporeia elegans* (Figure 12c) (both of which lack a tooth on the posterodistal margin of epimeral plate 3).

Fig. 12b. *Bathyporeia pelagica* (413533, 42107) – L

Fig. 12c. *Bathyporeia elegans* (P8703, 72009) – L

RT6513 – *Nephtys hystricis* McIntosh, 1900 (Figures 13a, f, k)

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

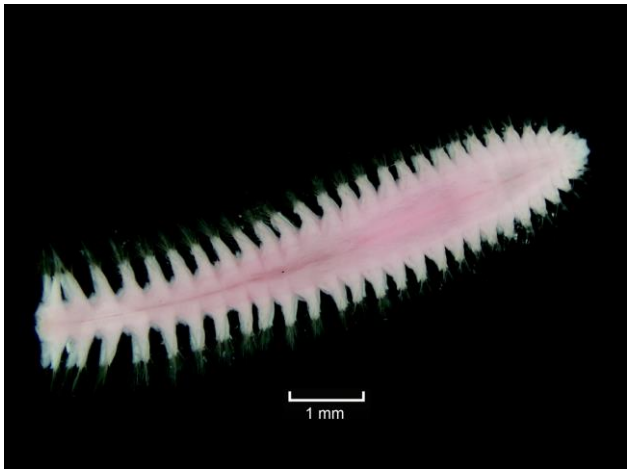

Fig. 13a. *Nephtys hystricis* (RT6513; 71706) – D

One generic and five specific differences: Lab 02 identified as *Aglaophamus pulcher* (Figures 13b, g, l) (which has neuropodial superior lobes); Lab 14 identified as *Nephtys cirrosa* (Figures 13c, h, m); Lab 19 identified as *Nephtys kersivalensis* (Figure 13d, I, n) (both of which have branchiae beginning on chaetiger 4); Labs 12 and 16 identified as *Nephtys incisa* (Figure 13e, j, o) (which has branchiae beginning on chaetiger 9 or 10).

Fig. 13b. *Aglaophamus pulcher* (P1802, 59452) – D

Fig. 13c. *Nephtys cirrosa* (414389, 56725) – D

Fig. 13d. *Nephtys kersivalensis* (P2258, 61002) – D

Fig. 13e. *Nephtys incisa* (P3767, 63330) – D

Fig. 13f. *Nephtys hystricis* (RT6513; 71706) – L

Fig. 13g. *Aglaophamus pulcher* (P1802, 59470) – L

Fig. 13h. *Nephtys cirrosa* (414389, 56725) – L

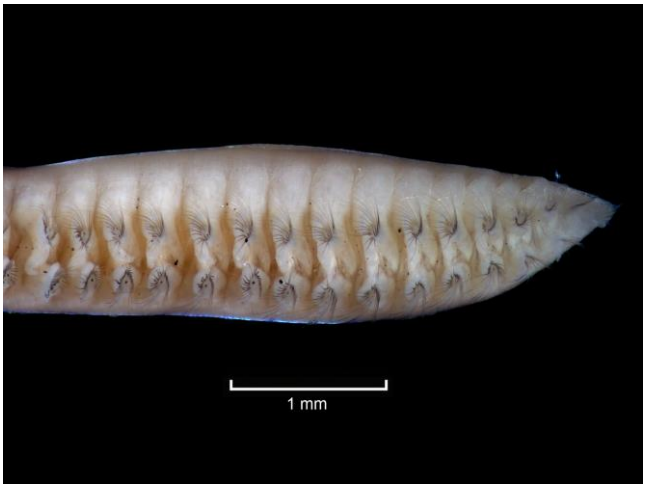

Fig. 13i. *Nephtys kersivalensis* (P2258, 61002) – L

Fig. 13j. *Nephtys incisa* (P3767, 63330) – L

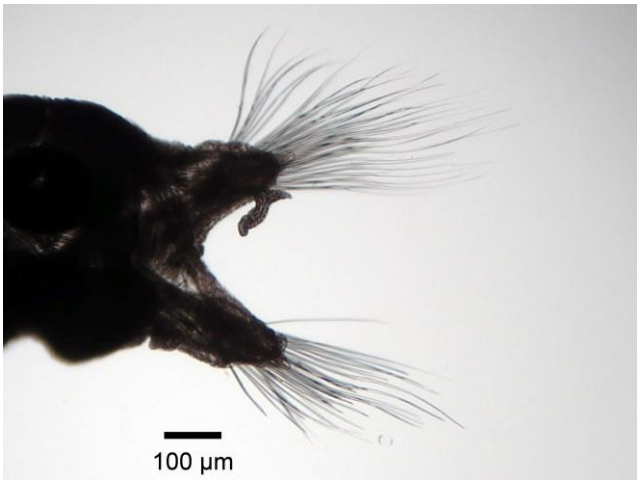

Fig. 13k. *Nephtys hystricis* (RT6513; 71706) – Parapodium

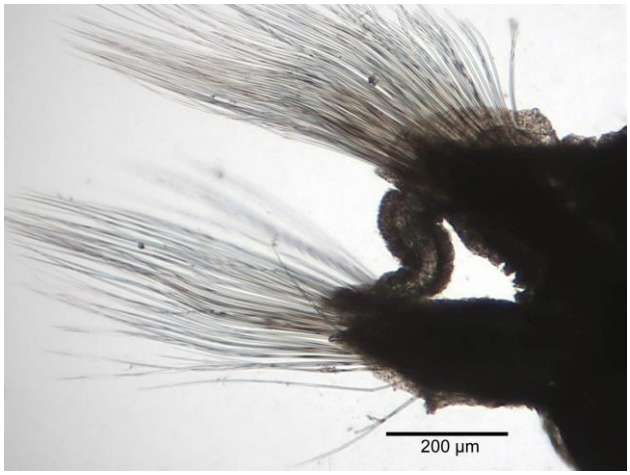

Fig. 13l. *Aglaophamus pulcher* (P1802, 59470) – Parapodium

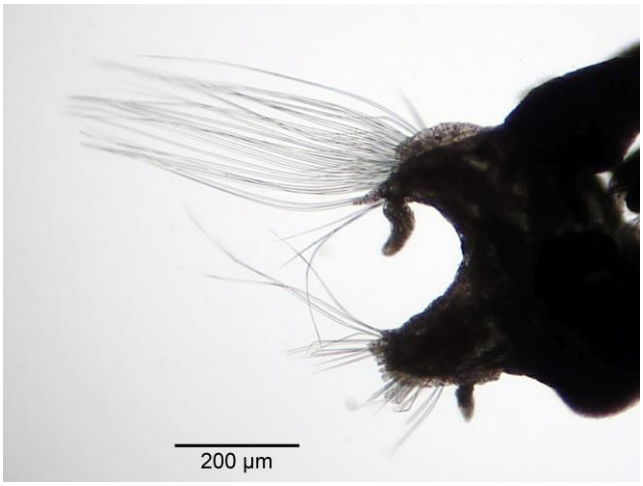

Fig. 13m. *Nephtys cirrosa* (414389, 56725) – Parapodium

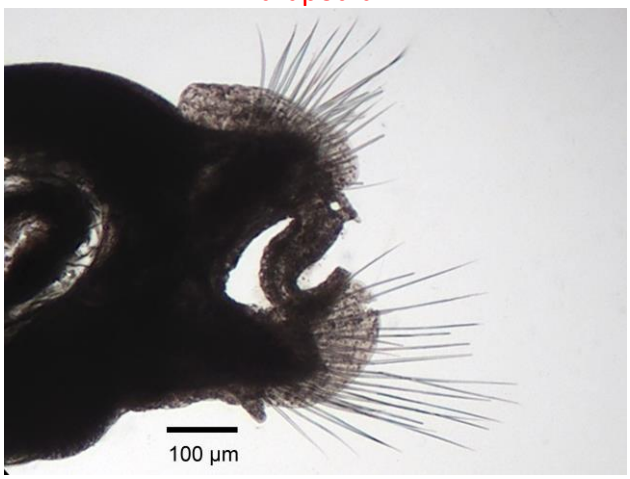

Fig. 13n. *Nephtys kersivalensis* (P2258, 61002) – Parapodium

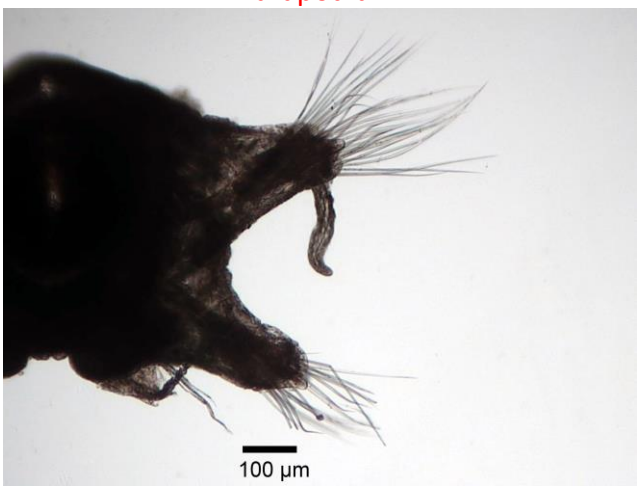

Fig. 13o. *Nephtys incisa* (P3767, 63330) – Parapodium

RT6514 – *Escharella ventricosa* (Hassall, 1842) (Figure 14a)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: North Sea. Condition: Fair. Size: Small portions. Specimens from three samples.

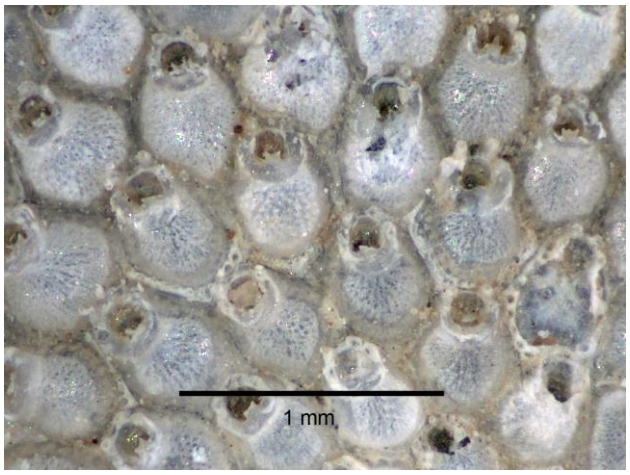

Fig. 14a. *Escharella ventricosa* (RT6514, 74345) – Zooids

One generic and three specific differences: Lab 19 identified as *Smittoidea prolifica* (no material available, Figure 14b shows *S. reticulata*) (which has suboral avicularia); Lab 02 identified as *Escharella variolosa* (Figure 14c) (which has less convex zooids and fewer oral spines); Lab 18 identified as *Escharella labiosa* (Figure 14d) (which has smaller zooids).

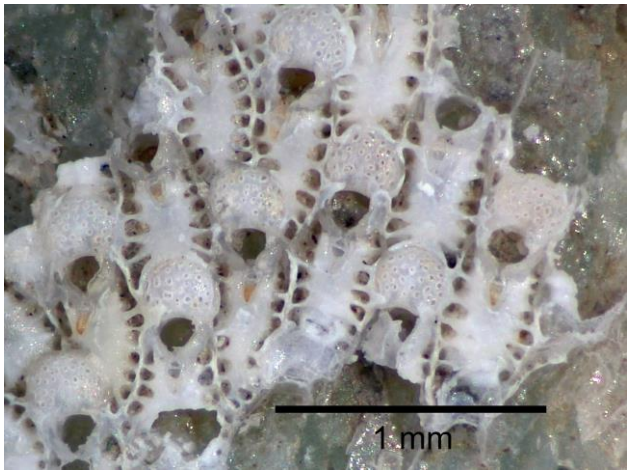

Fig. 14b. *Smittoidea reticulata* (P2171, 60433) – Zooids

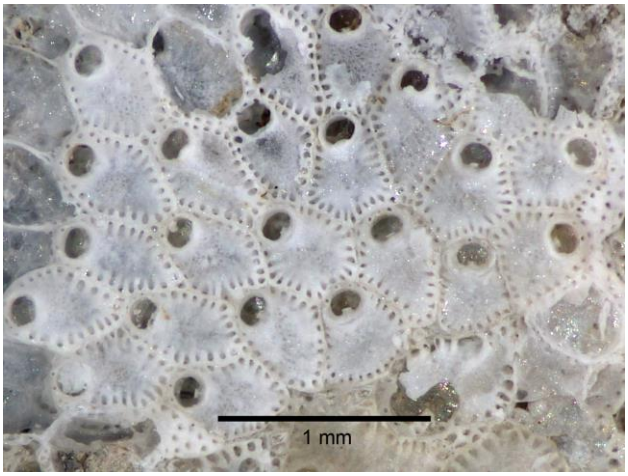

Fig. 14c. *Escharella variolosa* (413169, 40837) – Zooids

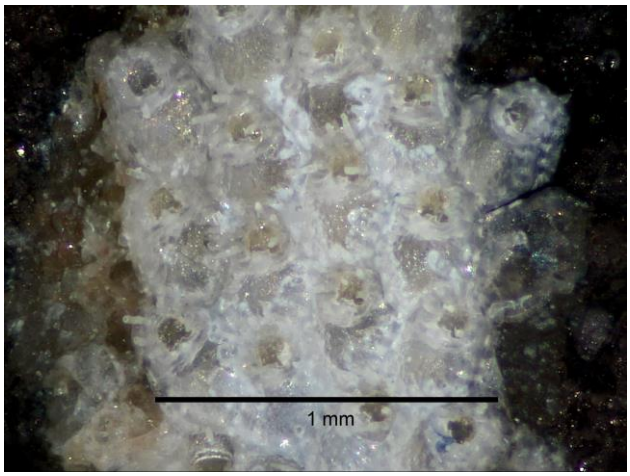

Fig. 14d. *Escharella labiosa* (P6907, 70238) – Zooids

RT6515 – *Laonice irinae* Radashevsky & Nygren in Sikorski et al, 2021 (Figures 15a, b, f)

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

Fig. 15a. *Laonice irinae* (RT6515, 71887) – D

Six specific differences: Lab 19 identified as *Laonice sarsi* (Figure 15c) (which has the prostomium not fused with the peristomium and nuchal organs reaching only to anterior segments); Labs 11, 12, 14, 15 and 17 identified as *Laonice bahusiensis* (Figures 15d, e) (which lacks dorsal crests on chaetigers with nuchal organs).

Lab 11 noted their identification as 'aggregate, probably *L. irinae*'. It is recommended that laboratories attempt identification of all specimens.

Fig. 15b. *Laonice irinae* (RT6515, 71887) – D

Fig. 15c. *Laonice sarsi* (P1223_58203) – D

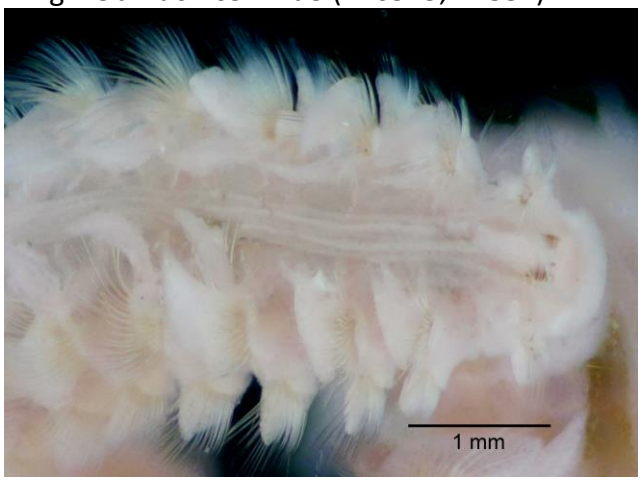

Fig. 15d. *Laonice bahusiensis* (P5984.9, 71523) – D

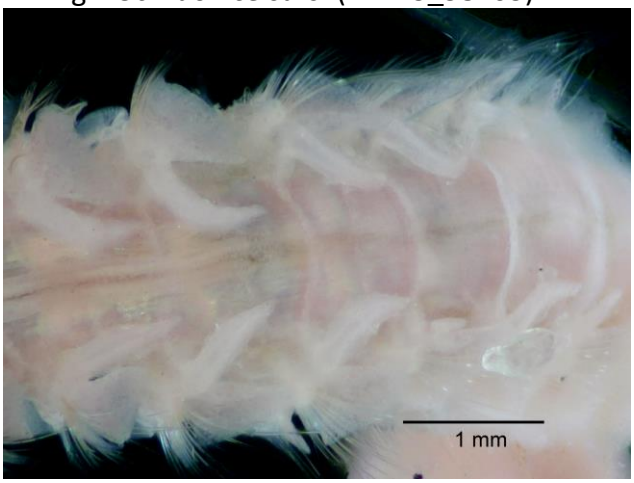

Fig. 15e. *Laonice bahusiensis* (P5984.9, 71523) – D

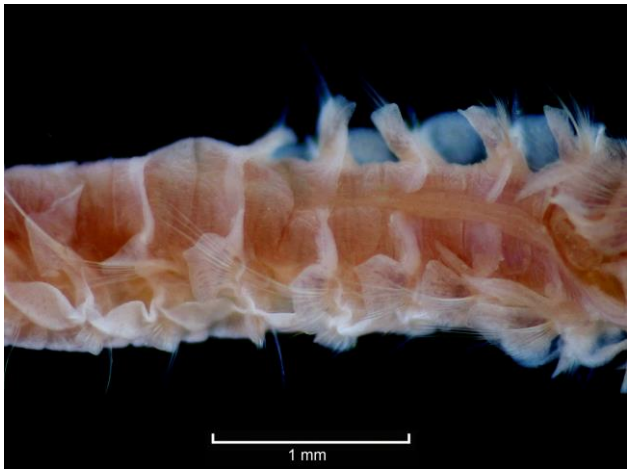

Fig. 15f. *Laonice irinae* (RT6515, 71887) – D

RT6516 – *Falcidens crossotus* Salvini-Plawen, 1968 (Figure 16a)

Substratum: Mud. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: north of Ireland. Condition: Good. Size: Small. Specimens from two samples.

Fig. 16a. *Falcidens crossotus* (RT6516, 65374) – L

Two generic and specific differences: Labs 15 and 17 identified as *Chaetoderma nitidulum* (Figure 16b) (which has more elongate spicules and a posterior region of about the same diameter as the head).

Fig. 16b. *Chaetoderma nitidulum* (P6993, 69817) – L

RT6517 – *Escharella immersa* (Fleming, 1828) (Figure 17a)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: North Sea. Condition: Fair. Size: Small portions. All specimens from one sample.

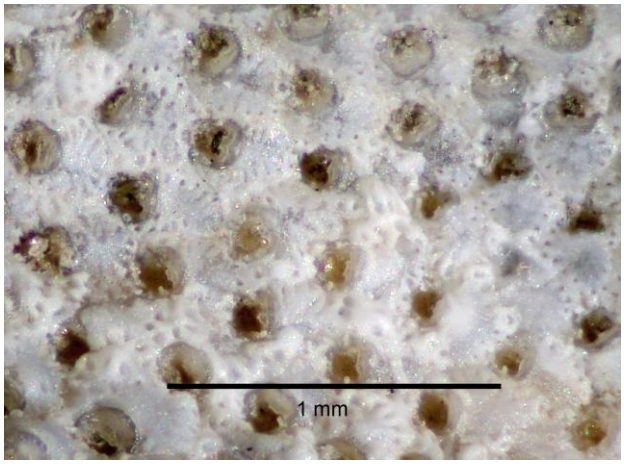

Fig. 17a. *Escharella immersa* (RT6517, 74401) – Zooids

No generic or specific differences recorded.

RT6518 – *Lucinella divaricata* (Linnaeus, 1758) (Figure 18a)

Substratum: Sand. Salinity: Reduced (Mesohaline). Depth: Infralittoral. Geography: Georgia (Black Sea). Condition: Good. Size: Small, 1.5-2mm. All specimens from one sample.

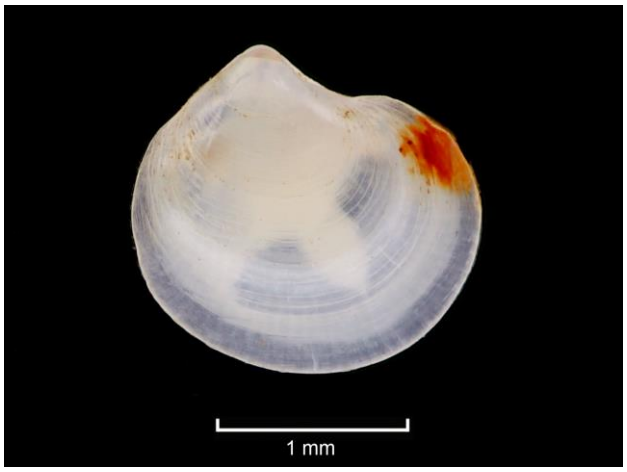

Fig. 18a. *Lucinella divaricata* (RT6518, BI2953_OS8016) – L

Two generic and three specific differences: Lab 14 identified as *Dosinia exoleta* (Figure 18b) (which is more equilateral at this size and has stronger sculpture); Lab 02 identified as *Loripes orbiculatus* (Figure 5f); Lab 13 identified as *Lucinella legouxi* (no material available) (both of which lack divaricate sculpture) but Lab 13 noted '*Lucinella divaricata*?' in notes.

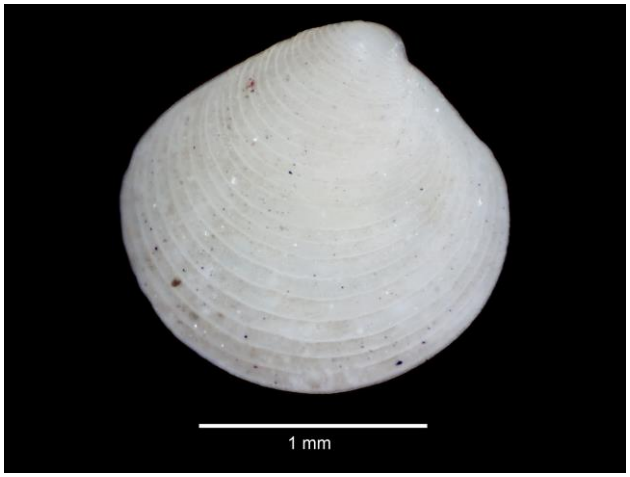

Fig. 18b. *Dosinia exoleta* (414490, 57091) – L

RT6519 – *Ampelisca tenuicornis* Liljeborg, 1856 (Figure 19a)

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

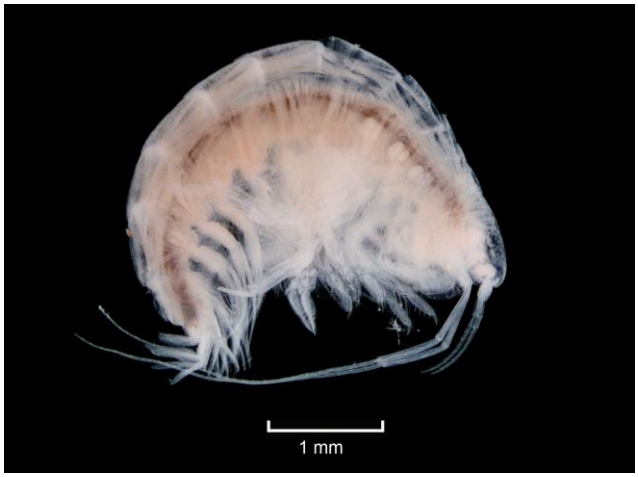

Fig. 19a. *Ampelisca tenuicornis* (RT6519, 65210) – L

Fig. 19b. *Ampelisca provincialis* (P12697, 75446) – L

One specific difference: Lab 10 identified as *Ampelisca provincialis* (Figure 19b) (which has Antenna 1 as long as or slightly longer than the peduncle of Antenna 2 and a high anterodorsal margin to the head).

RT6520 – *Magelona minuta* sensu Eliason, 1962 (Figures 20a, b)

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

Fig. 20a. *Magelona minuta* (RT6520, 9711) – L

Two specific differences: Labs 10 and 19 identified as *Magelona filiformis* (Figures 20c) (which has a longer prostomium with prostomial horns).

Lab 10 noted that their reason for naming as *M. filiformis* was due to its disputed nomenclatural status on WoRMS, also noted by labs 03, 09, 12, 15, 17, 18 and 20 (see below).

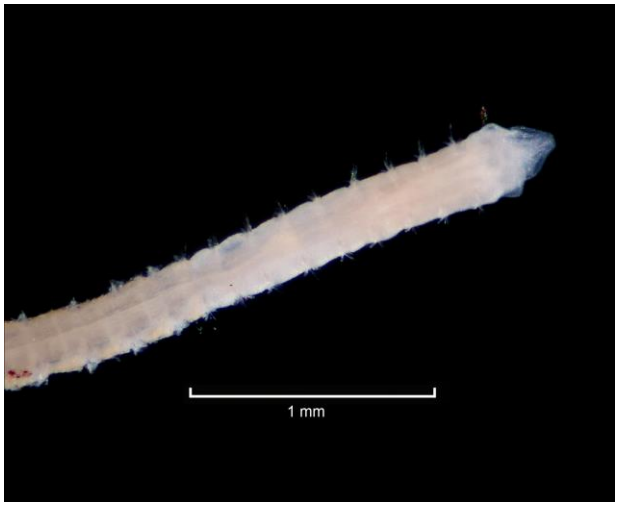

Fig. 20b. *Magelona minuta* (RT6520, 9711) – D

Fig. 20c. *Magelona filiformis* (P2730, 61411) – D

RT6521 – *Scoloplos armiger* (Müller, 1776) (Figure 21a, b)

Substratum: Mud. Salinity: Variable (Euryhaline). Depth: Infralittoral. Geography: southeast England. Condition: Fair. Size: Medium. Specimens from two samples.

Fig. 21a. *Scoloplos armiger* (RT6521, 10376) – L

Three generic and specific differences: Labs 04, 09 and 12 identified as *Leitoscoloplos mammosus* (Figures 21c, d) (which lacks sub-podial papillae on posterior thoracic segments).

Lab 03 added 'agg.' In the notes.

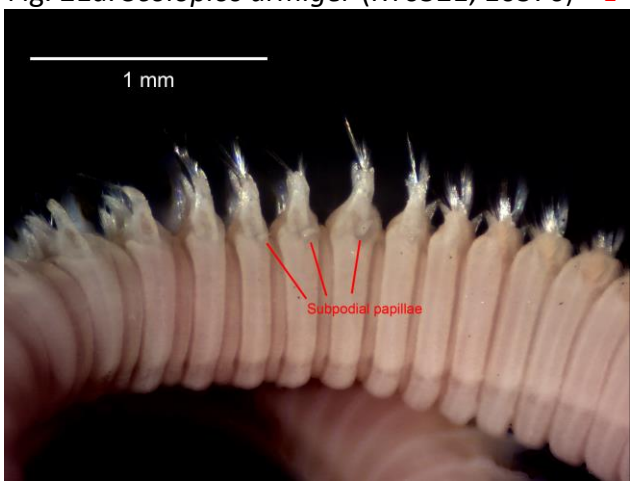

Fig. 21b. *Scoloplos armiger* (RT6521, 10376) – L (sub-podial papillae)

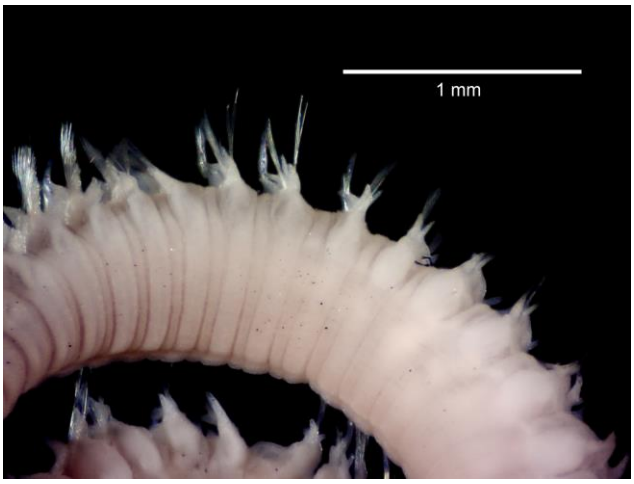

Fig. 21c. *Leitoscoloplos mammosus* (RT5723; 1341, 58733) – L (no sub-podial papillae)

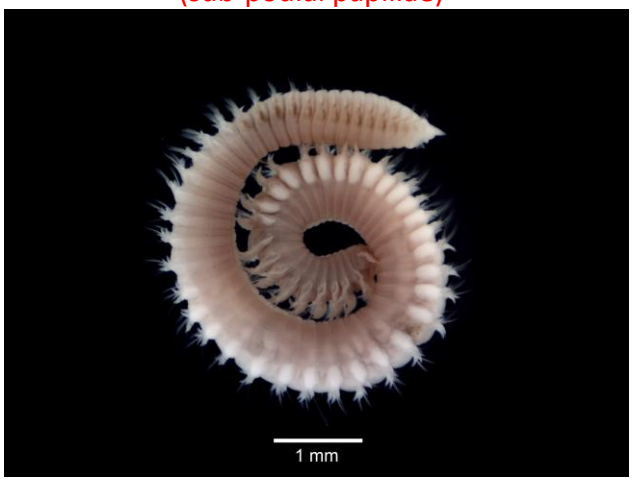

Fig. 21d. *Leitoscoloplos mammosus* (RT5723; 1341, 58733) – L

RT6522 – *Phylo grubei* (McIntosh, 1910) (Figures 22a, b)

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

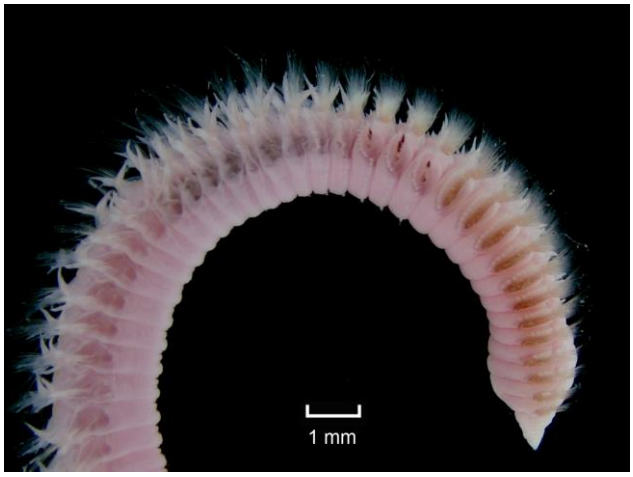

Fig. 22a. *Phylo grubei* (RT6522, 71335) – L

Seven specific differences: Labs 10 and 12 identified as *Phylo norvegica* (Lab 12 spelled as *Phylo norvegicus*) (Figure 23c, d); Labs 14, 16, 18, 19 and 20 identified as *Phylo kupffferi* (Figure 23e) (both of which lack inter-ramal cirri in abdominal segments).

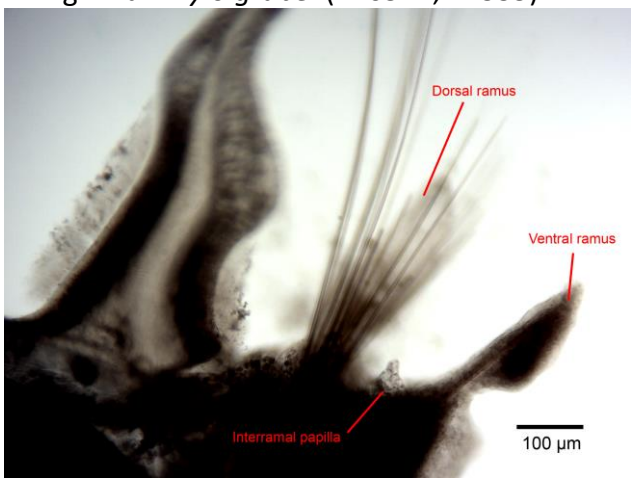

Fig. 22b. *Phylo grubei* (P1223, 58299) – abdominal parapodium

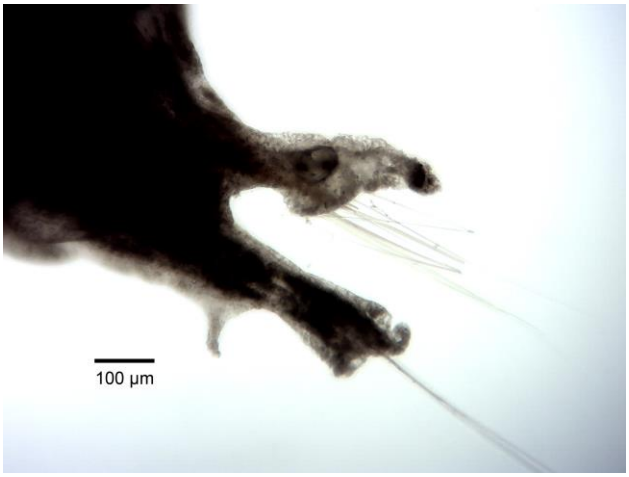

Fig. 22c. *Phylo norvegica* (RT6105; 4264, 64138) – abdominal parapodium

Fig. 22d. *Phylo norvegica* (412613_38754) – L

Fig. 22e. *Phylo kupffferi* (413251_41845) – L

RT6523 – *Pyripora catenularia* (Fleming, 1828) (Figure 23a, b)

Substratum: Diamicton. Salinity: Full (Euhaline). Depth: Circalittoral (Upper Shelf). Geography: North Sea. Condition: Fair. Size: Small portions. Specimens from eight samples.

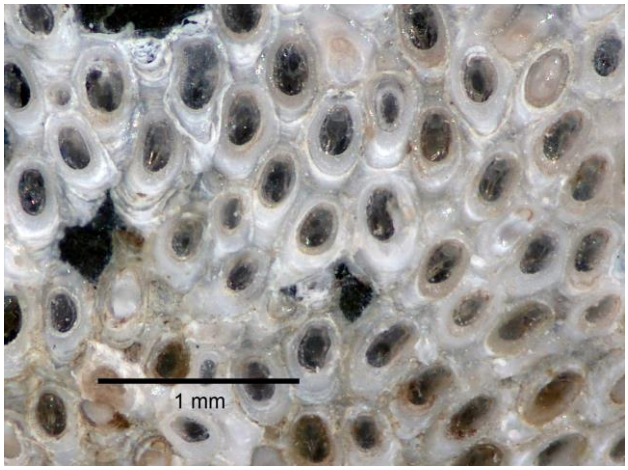

Fig. 23a. *Pyripora catenularia* (RT6523, 74362) – Colony

Three generic and specific differences: Lab 14 identified as *Biflustra tenuis* (Figure 23c) (which has serrated opesia); Lab 02 identified as *Conopeum reticulum* (Figure 23d) (which has a less extensive gymnocyst); Lab 17 identified as *Electra pilosa* (Figure 23e) (which has oral spines).

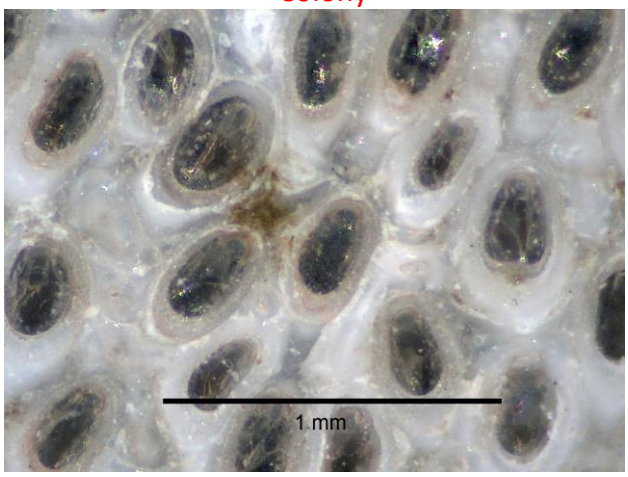

Fig. 23b. *Pyripora catenularia* (RT6523, 74362) – Zooids

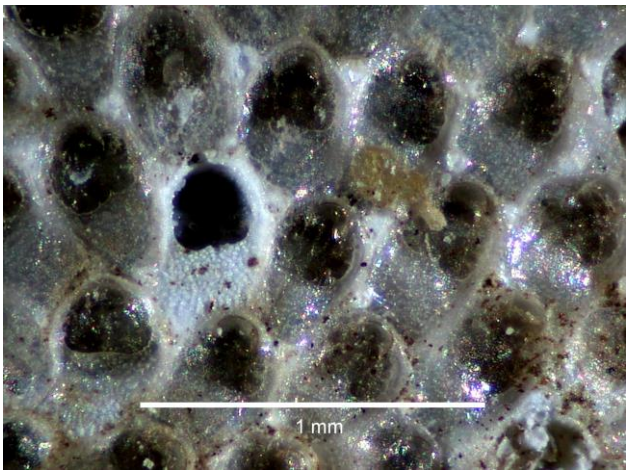

Fig. 23c. *Biflustra tenuis* (P3593.3, 64345) – Zooids

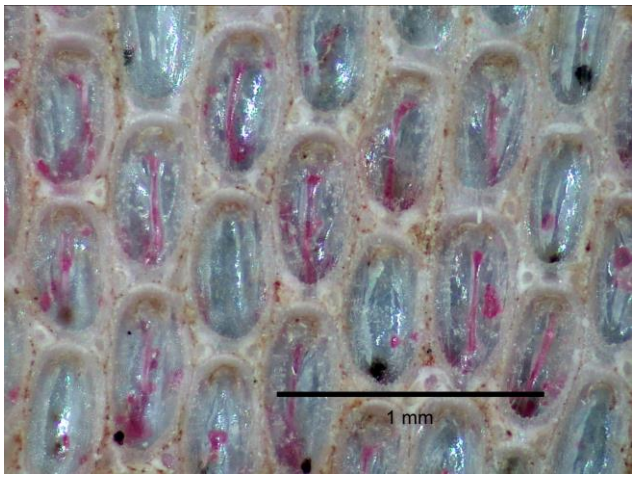

Fig. 23d. *Conopeum reticulum* (413154, 40714) – Zooids

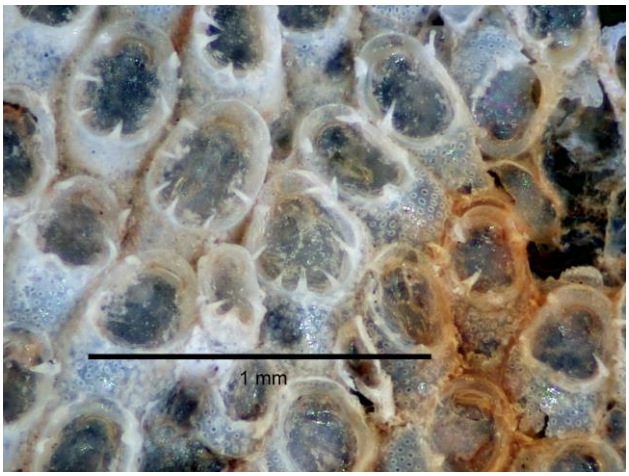

Fig. 23e. *Electra pilosa* (P2218, 60486) – Zooids

RT6524 – *Praxillella affinis* (M Sars in GO Sars, 1872) (Figure 24a, b)

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

Fig. 24a. *Praxillella affinis* (RT6524; 9463) – L

One generic and specific difference: Lab 17 identified as *Euclymene droebachiensis* (Figure 24c) (which has lateral notches).

Labs 08, 09, 14, 16 and 19 identified as *Praxillella praetermissa* (no definitive material available. A review of available literature showed little consistency in the distinctions between the species (see below) and these identifications have been accepted as correct for lab comparison purposes.

Fig. 24b. *Praxillella affinis* (RT6524; 9463) – L

Fig. 24c. *Euclymene droebachiensis* (412686_39207) – L

RT6525 – *Paradiopatra quadricuspis* (M Sars in GO Sars, 1872) (Figures 25a, b)

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

Fig. 25a. *Paradiopatra quadricuspis* (RT6525, 71683) – D

Three generic and specific differences: Lab 20 identified as *Eunice pennata* (Figure 25c) (which has antennae in a row, without basal annulations); Lab 14 identified as *Nothria conchilega* (Figure 25d shows a *Nothria* species) (which has more strongly enlarged parapodia on chaetiger 1); Lab 12 identified as *Onuphis eremita* (no material available) (which has subacicular hooks and gills beginning from chaetiger 1).

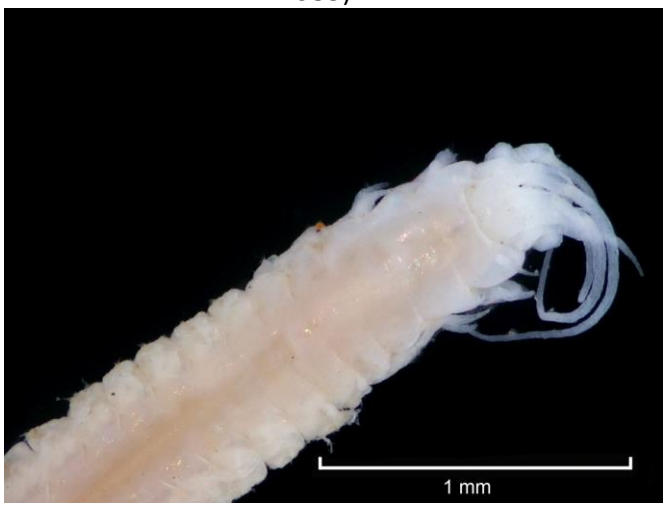

Fig. 25b. *Paradiopatra quadricuspis* (RT6525, 71683) – D

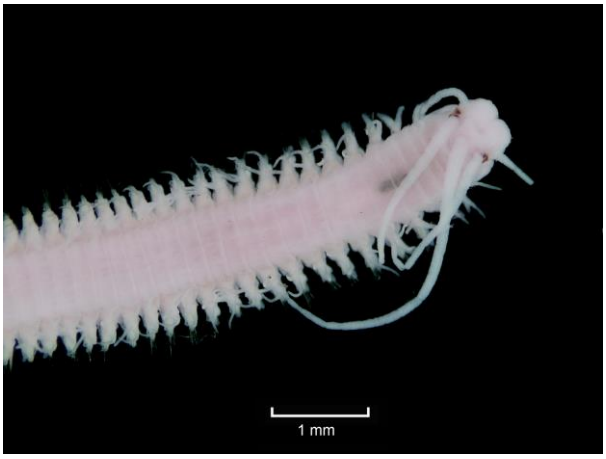

Fig. 25c. *Eunice pennata* (P5984.16, 71728) – D

Fig. 25d. *Nothria* (P4255, 64256) – D

Taxonomic and Identification policy considerations highlighted by RT65

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.

Since RT61, more detailed notes have been provided for each of the families represented in the ring test, as progress towards a Taxonomic Discrimination Protocol (TDP) to standardise future data and help with the interpretation of past and current data. A draft TDP was published last year (Worsfold *et al.*, 2023). It is intended that future RT bulletins include full discussions (TDP implications, with notes from all previous RTs) and literature reviews (updates to the bibliography document, including recommendations and historical data implications) for the families included. Time has not allowed for this for RT65 but it is done for Arcidae (below). Notes progressed by RT65 for other families are included below.

Worsfold, T.M., Hall, D.J. & O'Reilly, M. (Ed.), 2023. *Development of standard recording policies for laboratory analysis of north-east Atlantic macrobenthos samples, including a draft Taxonomic Discrimination Protocol (TDP) down to Family level*. Report to the NMBAQC Scheme participants. 48pp, August 2023.

Annelida

Nephtyidae (RT6513). The draft TDP suggests species identifications for nephtyids over 17mm, as currently done at APEM, with genus level identifications below 17mm. Most labs correctly identified **RT6513** (*Nephtys hystricis*), a relatively uncommon species circulated at a small size, but there were a few differences. *Aglaophamus pulcher* was previously placed in *Nephtys* and is very similar to *Nephtys hystricis* (RT6513); the neuropodial superior lobes may be the most useful distinguishing feature. Nephtyid policies still need discussion for standardisation of juvenile sizes, due to difficulties with determining sizes of damaged specimens.

Onuphidae (RT6525). The draft TDP flags Onuphidae for further work, due to taxonomic flux, different taxonomic levels currently used for different taxa by different labs and difficulties with juveniles and incomplete specimens. APEM currently attempt identification of *Paradiopatra* (RT6525) to species following Budaeva & Fauchald (2011). The genus was previously included in *Onuphis* and Fauchald (1982) gives a key to the related genera. APEM leave very small onuphids (<5mm) at family level. Most labs identified **RT6525** (*Paradiopatra quadricuspis*) correctly.

Budaeva, N. & Fauchald, K., 2011. Phylogeny of the *Diopatra* generic complex with a revision of *Paradiopatra* Ehlers, 1887 (Polychaeta: Onuphidae). *Zoological Journal of the Linnean Society*, 2011, 163, 319-436.

Fauchald, K., 1982. Revision of *Onuphis, Northria* and *Paradiopatra* (Polycheata: Onuphidae) based of type material. *Smithsonian Contributions to Zoology*, 365, 1-109.

Orbiniidae (RT6501, RT6521, RT6522). 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. Most labs identified **RT6522** (large *Phylo grubei*) correctly. APEM identify *Scoloplos* and *Leitoscoloplos* at species without separation of juveniles. However, there has been confusion between these species. The most consistent diagnostic feature may be the presence of sub-podial papillae in *S. armiger* but small specimens of both species seem to lack them. **RT6501** and **RT6521** (both *Scoloplos armiger*) were selected from the same sample, as small specimens without papillae and

large ones with papillae, respectively. Neuropodial acicular chaetae are given by Mackie (1987) as a distinguishing feature for *Scoloplos*; however, these can be difficult to confirm as absent in small specimens. Most labs identified both specimens correctly, with, surprisingly, one more difference for the larger **RT6521**. Lab 03 noted *S. armiger* as an aggregate, which may be necessary due to unpublished species (Bleidorn *et al.*, 2006; Kruse *et al.*, 2003; 2004).

Bleidorn, C., Kruse, I., Albrecht, S., Bartolomaeus, T., 2006. Mitochondrial sequence data expose the putative cosmopolitan polychaete *Scoloplos armiger* (Annelida, Orbiniidae) as a species complex. *BMC Evolutionary Biology*, 6, 47. doi: 10.1186/1471-2148-6-47.

Kruse, I., Reusch, T.B.H. & Schneider, M.V., 2003. Sibling species or poecilogony in the polychaete Scoloplos armiger? *Marine Biology,* 142, 937-947.

Kruse, I., Strasser, M. & Thiermann, F., 2004. The role of ecological divergence in speciation between intertidal and subtidal *Scoloplos armiger* (Polychaeta, Orbiniidae). *Journal of Sea Research*, 51, 53-62.

Mackie, A.S.Y., 1987. A review of species currently assigned to the genus *Leitoscoloplos* Day, 1977 (Polycheata: Orbiniidae), with descriptions of species newly referred to *Scoloplos* de Blainville, 1828. *Sarsia*, 72, 1-28.

Paraonidae (RT6504). 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 several alternative names for **RT6504** (*Paradoneis mikeli*), but more correct identifications, for a difficult species. Most differences were for other *Paradoneis* species and may have resulted from lack of access to literature that describes *Paradoneis mikeli* (Aguirrezabalaga & Gil, 2009; López & Sikorski, 2017). Discussion may be needed for taxonomically uncertain specimens.

Aguirrezabalaga, F. & Gil, J., 2009. Paraonidae (Polychaeta) from the Capbreton Canyon (Bay of Biscay, NE Atlantic) with the description of eight new species. *Scientia Marina*, 73(4), 631-666.

López, E., & Sikorski, A., 2017. The Paraonidae (Annelida: Sedentaria) from Norway and adjacent seas, with two new species, four new records, and a redescription of *Paraonides nordica* Strelzov, 1968 based on type material. *Zootaxa,* 4320(1), 41-67.

Magelonidae (RT6511, RT6520). The draft TDP suggests species identifications for magelonids, as currently done at APEM. All labs identified **RT6511** (*Magelona alleni*) correctly and most identified **RT6520** (*Magelona minuta* sensu Eliason 1962) correctly, with the only errors resulting from misinterpretation of nomenclature problems described in WoRMS. *Magelona minuta* Eliason 1962 is listed as 'nomen dubium' on WoRMS, as it is a homonym of *M. filiformis minuta* Wilson 1959. The WoRMS editors suggest that a replacement name is required for *M. minuta* Eliason 1962, while Mortimer & Mills (2020) applied to the ICZN for the suppression of *M. filiformis minuta* Wilson 1959, to allow continued use of Eliason's name. No replacement name has been given and no decision has yet been made on suppression of the rarely used variety name, which leaves **RT6520** without a valid name. However, they are not *M. filiformis* or *M. filiformis minuta* Wilson 1959; WoRMS directs the name *Magelona minuta* to the oldest use of that name, which belongs to a different species from **RT6520**. The correct identification was *Magelona minuta* Eliason 1962. It is necessary to clarify the author in all data using the name to avoid confusion; but use of *M. filiformis* for the species would be inaccurate and cause greater confusion. Species level identifications should be achievable.

Mortimer, K. & Mills, K, 2020. Case 3804 – *Magelona minuta* Eliason, 1962 (Annelida, Magelonidae): proposed conservation by suppression of *Magelona filiformis minuta* Wilson, 1959. *The Bulletin of Zoological Nomenclature,* 77(1), 115-122. https://www.biotaxa.org/bzn/article/view/66027

Spionidae (RT6515). 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. Many problems were resolved through the Scheme workshops (2008, 2016), as well as through RT54, but an update to the key is still required. APEM currently identify *Laonice* to species but may leave small specimens at genus, if more than one adult sp. has been recorded. Most labs correctly identified **RT6515** (*Laonice irinae*), with the majority of errors identified as *L. bahusiensis*, from which it was only recently separated (Sikorski *et al.*, 2021). We have seen true *L. bahusiensis* only rarely since the review; it may be a deeper water species.

Sikorski, A.V., Radashevsky, V.I., Castelli, A., Pavlova, L.V., Nygren, A., Malyar, V.V., Borisova, P.B., Mikac, B., Rousou, M., Martin, D. & Gil, J., 2021. Revision of the *Laonice bahusiensis* complex (Annelida: Spionidae) with a description of three new species. *Zootaxa*, 4996(2), 253-283. https://doi.org/10.11646/zootaxa.4996.2.2

Acrocirridae (RT6510). Acrorcirridae were mistakenly excluded from the last circulated TDP version. APEM previously identified *Macrochaeta* at genus level but one species has since been moved to a different genus (Jimi *et al.*, 2020). Since RT65, APEM identify *Actaedrilus polyonyx* at species level and it was circulated as **RT6510**; most labs identified it correctly.

Jimi, N., Fujimoto, S. & Imura, S., 2020. A new interstitial genus and species of Acrocirridae from Okinawa-jima island, Japan. *Zoosymposia*, 19(1), 164-172.
https://www.mapress.com/j/zs/article/view/zoosymposia.19.1.17

Maldanidae (RT6524). The draft TDP flags Maldanidae for further work, due to taxonomic flux, different taxonomic levels currently used for different taxa by different labs and difficulties with juveniles and incomplete specimens. APEM currently attempt identification of *Praxillella* (RT6524) to species following the 2006 workshop key (Garwood, 2007). Most labs identified **RT6524** as *Praxillella affinis* but several used the name *P. praetermissa*. Garwood (2007) separates *P. affinis* as having ocelli (without for *P. praetermissa*) but gives no source; most **RT6524** specimens had ocelli. El-Haddad & Capacciano-Azzati (2018) mention the same feature in the descriptions but use segment number for their key. Imajima & Shiraki (1982) separate *P. praetermissa* as lacking lateral incisions to the cephalic rim, a feature that includes UK material with or without ocelli, and state that it lacks ocelli but do not mention them for *P. affinis*. Fauvel (1927) also mentions ocelli in the descriptions for both species but states that both species have lateral incisions to the cephalic rim and uses segment number and glandular bands as to separate them in the key. APEM have used the name *P. affinis* for maldanids with folded but not notched lateral margins to the cephalic rim, usually with ocelli. The number of uncini in chaetigers 1-3, used by Garwood (2007) to separate some Euclymene (few) from Praxillella (many) seems to apply only to the largest specimens, with small '*P. affinis*' fitting Garwood's (2007) concept of the species using other features. It seems that the features used to separate *P. affinis* from *P. praetermissa* are inconsistent in the literature and do not match the material well. As such, we have allowed both names as correct and consider that data should be treated as an aggregate until further taxonomic revision.

El-Haddad, M. & Capacciano-Azzati, R., 2018. *Familia Maldanidae* Malmgren, 1867. In: *Annelida Polychaeta V*. Parapar, J., Adarraga, I., Aguado, M.T., Aguirrezabalaga, F., Arias, A., Besteiro, C., Bleidorn, C., Capa, M., Capacciano-Azzati, R., El-Haddad, M., Fernández-Álamo, M.A., López, E., Martínez, A., Martínez-Ansemil, E., Moreira, J., Núñez, J. & Ravara, A. *Annelida Polychaeta V*.

Fauna Ibérica, 45. Ramos Sánchez, M.A. *et al.* (Eds). Museo Nacional de Ciencias Naturales. CSIC. Madrid, 316-426.

Fauvel, P., 1927. *Polychetes sedentaires*. Addenda aux errantes, archiannelides, myzostomaires. Faune de France, 16, 494 pp.

Garwood, P.R., 2007. *Family Maldanidae. A guide to species in waters around the British Isles*. (Updated from NMBAQC 2006 Taxonomic Workshop, Dove Marine Lab), 24pp., (unpublished).

Imajima, M. & Shiraki, Y., 1982. Maldanidae (Annelida: Polychaeta) from Japan. Part 2. *Bulletin of the National Science Museum, Tokyo, Series A (Zoology).* 8(2), 47-88. http://ci.nii.ac.jp/naid/110004311972/en

Sabellidae (RT6506). The draft TDP flags Sabellidae for further work, due to taxonomic flux, different taxonomic levels currently used for different taxa by different labs and difficulties with juveniles and incomplete specimens. APEM currently attempt identification of *Euchone* to species following the 2014 workshop key (Giangrande *et al.*, 2015) and published key to the Chonea group of sabellids (Giangrande *et al.*, 2017). About half of the labs identified **RT6506** (*Euchone incolor*) correctly; one specimen had a damaged tail and all were small and without radioles (typical for the species. Identification at species level seems difficult and future taxonomic changes are likely. Further discussion is needed.

Giangrande, A., Licciano, M. & Wasson, B., 2015. *Guide to Identification of Sabellidae and Fabriciidae (Polychaeta) in north east Atlantic and Mediterranean waters*. NMBAQC 2014 taxonomic workshop, Dove Marine Laboratory, 91pp. (unpublished).

Giangrande, A., Wasson, B., Lezzi, M. & Licciano, M., 2017. Description of *Euchone anceps* sp. nov. (Annelida: Sabellidae) from the Mediterranean Sea and northeast Atlantic, with remarks on the difficulty of generic definition. *The European Zoological Journal*, 84(1), 193-207.

Arthropoda

Ampeliscidae (RT6519). The draft TDP flags Ampeliscidae for further work, due to taxonomic flux, different taxonomic levels currently used for different taxa by different labs and difficulties with juveniles and incomplete specimens. APEM currently attempt identification of *Ampelisca* to species but separate juveniles (passing through a 1mm mesh) at genus. As for most amphipods, identifications begin with Lincoln (1979) but many species have been described or recognised from UK waters, since. Most labs correctly identified *Ampelisca tenuicornis* (**RT6519**), a species included in Lincoln (1979).

Lincoln, R., 1979. *British marine Amphipoda: Gammaridea*. British Museum (Natural History), London, 658 pp.

Bathyporeiidae (RT6512). 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. Some laboratories leave large numbers at genus level. No new UK species have been recognised since Lincoln (1979) but updated descriptions are provided by Udekem d'Acoz (2004). Most labs correctly identified **RT6512** (*Bathyporeia guilliamsoniana*). The species identification policy remains reasonable.

Lincoln, R., 1979. *British marine Amphipoda: Gammaridea*. British Museum (Natural History), London, 658 pp.

Udekem d'Acoz, C., d', 2004. The genus *Bathyporeia* Lindstrom in western Europe (Crustacea, Amphipoda, Pontoporeiidae). *Zoologische Verhandelingen*, Leiden, 348, 180pp. APEM:PDF

Ischyroceridae (RT6509). 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. Specimens are typically damaged in samples but features important for recognition are usually present. Adult males were circulated as **RT6509** (*Jassa herdmani*), which can be identified using Conlan (1990) or Conlan *et al.* (2021). Most labs identified them correctly, with all errors as *J. falcata*, the species that would be reached following Lincoln (1979). An additional non-native species is included by Faasse & Ligthart (2020).

Conlan, K.E., 1990. A revision of the Crustacean Amphipod Genus *Jassa* Leach (Corophioidea: Ischyroceridae). *Canadian Journal of Zoology*, 68, 2031-2075.

Conlan, K.E., Desiderato, A. & Beermann, J., 2021. *Jassa* (Crustacea: Amphipoda): a new morphological and molecular assessment of the genus. *Zootaxa*, 4939(1), 1-191. https://doi.org/10.11646/zootaxa.4939.1.1

Faasse, M. & Ligthart, M., 2020. Eerste waarnemingen van de vlokreeft *Jassa slatteryi* Conlan, 1990 in Nederland. *Macrofaunanieuwsmail*, 149, 9-10.

Lincoln, R., 1979. *British marine Amphipoda: Gammaridea*. British Museum (Natural History), London, 658 pp.

Mollusca

Chaetodermatidae (RT6516). The draft TDP suggests species identifications for chaetodermatids, without separation of juveniles, as currently done at APEM, following Jones & Baxter (1987). Most labs correctly identified **RT6516** (*Falcidens crossotus*), but potential for confusion remains for those species not yet recorded from UK waters (e.g. Ivanov *et al*., 2009; Mikkelsen & Todt, 2014; Salvini-Plawen, 1975; Salvini-Plawen & García-Álvarez, 2014; Señarís *et al*., 2016) that may have been missed due to assumptions of absence.

Ivanov, D.L., Mikkelsen, N.T., Schander, C., 2009. *Falcidens sagittiferus* Salvini-Plawen, 1968: additional data on morphology and distribution (Mollusca, Aplacophora, Caudofoveata). *Fauna Norvegica*, 29, 3-9.

Jones, A. & Baxter, J., 1987. *Molluscs: Caudofauveata, Solenogastres, Polyplacophora and Scaphopoda*. Synopses of the British Fauna (NS), No. 37. Published for The Linnean Society of London and The Estuarine and Brackish Water Sciences Association by E. J. Brill/ Dr. W. Backhuys, 123 pp.

Mikkelsen, N.T. & Todt, C., 2014. Diversity of Caudofoveata (Mollusca) around Iceland and description of *Psilodens balduri* sp. n. *Polish Polar Research*, 35(2), 279-290. https://journals.pan.pl/dlibra/publication/114525/edition/99578/content

Salvini-Plawen, L. von, 1975. *Mollusca Caudofoveata*. Marine Invertebrates of Scandinavia. 4. Oslo: Scandinavian University, 55 pp.

Salvini-Plawen, L. von & García-Álvarez, O., 2014. *Mollusca, Caudofoveata*. In: García-Álvarez, O., Salvini-Plawen, L. von, Urgorri, V. & Troncoso, J.S. *Mollusca, Solenogastres, Caudofoveata,*

Monoplacophora. *Fauna Ibérica*, 38. Ramos Sánchez, M.A. *et al.* (Eds). Museo Nacional de Ciencias Naturales. CSIC. Madrid, 165-220.

Señarís, M.P. García-Álvarez, Ó. & Urgorri, V., 2016. Four new species of Chaetodermatidae (Mollusca, Caudofoveata) from bathyal bottoms of the NW Iberian Peninsula. *Helgoland Marine Research*, 70, 28, 1-23. https://doi.org/10.1186/s10152-016-0475-6

Hydrobiidae (RT6507). The draft TDP suggests species identifications for hydrobiids without separation of juveniles, as currently done at APEM. The circulated specimens of *Hydrobia acuta neglecta* (**RT6507**) were near full size and generated few discrepancies. Smaller hydrobioids have previously caused many problems. It is likely that there are fewer problems in real samples, as they usually include many more specimens to allow size comparisons and occasional extraction of animals from shells, for confirmation. Hydrobiids are important for conservation assessments and salinity indication. some former hydrobiid species have recently been moved into other families: Cochliopidae and Tateidae (see RTB62).

Arcidae (RT5309, RT6503). The draft TDP suggests species identifications for arcids, with separation of juveniles (at species level) at 5mm; at APEM, this only applies to those species that grow large, so updates are required. Tebble (1966) included only three UK species, one of which (*Striarca lactea*) is now considered to belong to a different family (Noetiidae). Oliver *et al.* (2016) list eleven species for UK waters. The only native shallow water species (*Arca tetragona*) has not yet been found in quantities to allow ring test circulation but should not be too problematic. Of the seven offshore species covered by Oliver *et al.* (2016), the most abundant (*Bathyarca pectunculoides*) was circulated as **RT5309** and caused some confusion, mainly with other offshore Arcidae. Three of the species covered by Oliver *et al.* (2016) are non-native and known only from occasional, possibly vagrant, records in the area. One of these, *Anadara transversa* is established on the Atlantic coast of Europe. The identification of *Anadara* species found in Europe has been confused for many years. Two non-native species have been recognised. One, originally found in Turkey, was identified as *A. amygdalum* in the 1970s (Demir, 1977), then renamed *A. demiri* and assumed to be a Lessepsian introduction of Asian origin, reaching Italy by 2000 (Morello & Solustri, 2001; Crocetta *et al*., 2009). it was then synonymised with *A. transversa* and recognised as having originated in eastern North America (Albano *et al.*, 2009), by which time it had spread through most of the eastern Mediterranean (Albano *et al.*, 2009; Lodola *et al.*, 2011; Nerlović *et al.*, 2012). It had spread throughout the Mediterranean and reached the Bay of Biscay (northern Spain) by 2011 (Fernández-Rodríguez *et al.*, 2016). The other was originally recorded as *Scapharca cf. cornea* from Italy in 1969, then assigned to *A. inaequivalvis*; they spread throughout the Mediterranean and reached Brittany in 2003 (Nolf, 2010). Huber (2010) suggested that the Mediterranean non-native was closer to *A. kagoshimensis*; this was confirmed genetically for the Black Sea (Krapal *et al.*, 2014), Galicia (Bañón *et al*., 2015) and Adriatic (Strafella *et al.*, 2017). Albano *et al.* (2009) give detailed descriptions of *A. demiri/transversa* and illustrate adults (28mm) but make no direct comparisons with *A. kagoshimensis* and consider no Asian species to be similar, describing the more elongate shape of *A. transversa*, with beaks in the anterior third. Crocetta *et al.* (2009) illustrate *A. transversa* at 15mm; Nerlović *et al.* (2012) at about 6mm. Morello & Solustri (2001) illustrate both species at about 18mm, noting that the shapes are distinctive but not the rib count. Bañón *et al.* (2015) also distinguish *A. transversa* as more elongate and less tumid than *A. kagoshimensis*, which they illustrate at about 26mm. Despalatović *et al.* (2013) and Nerlović *et al.* (2018) discuss populations of the species but give no distinguishing features. Fernández-Rodríguez *et al.* (2016) illustrate large (>20mm) specimens of both species and use the same outline and timidity features, together with regular nodules and more equilateral and equivalve shells, to distinguish *A. kagoshimensis*. Strafella *et al.* (2017) illustrate large *A. kagoshimensis*. Partial growth series have been published for *A. transversa* (Scaperrotta *et al.*, 2014) and *A. kagoshimensis*

(Scaperrotta *et al.*, 2018) but not all of the juveniles seem to fit with the adults in the series; adults of both species are illustrated by Giannuzzi-Savelli *et al.* (2001) and by Trigo *et al.* (2018). Most labs correctly identified RT6503 as a non-native *Anadara* but species level identifications were divided between *A. kagoshimensis*, *A. inaequivalvis* and *A. transversa*. An unpublished report recently recorded *A. inaequivalvis* from Turkey but most RT identifications are likely to refer to the species now considered to be *A. kagoshimensis*. We consider **RT6503** to be *A. kagoshimensis* but recognise that there is much confusion over the most reliable features to separate it from *A. transversa* and hope to find growth series material in future. Both *A. kagoshimensis* and *A. transversa* should be considered 'Horizon Species' for establishment in UK waters.

Albano, P.G., Rinaldi, E., Evangelisti, F., Kuan, M. & Sabelli, B., 2009. On the identity and origin of *Anadara demiri* (Bivalvia: Arcidae). *Journal of the Marine Biological Association of the United Kingdom*, 89(6), 1289-1298.

Bañón, R., Fernández, J., Trigo, J.E., Pérez-Dieste, J., Barros-García, D. & De Carlos, A., 2015. Range expansion, biometric features and molecular identification of the exotic ark shell *Anadara kagoshimensis* from Galician waters, NW Spain. *Journal of the Marine Biological Association of the United Kingdom*, 95(3), 545-550.

Crocetta, F., Renda, W. & Colamonaco, G., 2009. New distributional and ecological data of some marine alien molluscs along the southern Italian coasts. *Marine Biodiversity Records*, 2, p.e23.

Demir, M., 1977. On the presence of *Arca (Scapharca) amygdalum* Philippi, 1847 (Mollusca: Bivalvia) in the harbour of Izmir, Turkey. *Istanbul Universitesi Fen Fakultesi Mecmuasi Series B*, 42, 197-202.

Despalatović, M., Cvitković, I., Scarcella, G. & Isajlović, I., 2013. Spreading of invasive bivalves *Anadara kagoshimensis* and *Anadara transversa* in the northern and central Adriatic Sea. *Acta Adriatica*, 54(2), 221-228.

Fernández-Rodríguez, I., Bañón, R., Anadón, N. & Arias, A., 2016. First record of *Anadara transversa* (Say, 1822) (Bivalvia: Arcidae) in the Bay of Biscay. *Cahiers de Biologie Marine*, 57(3), 277-280.

Giannuzzi-Savelli, R., Pusateri, F., Palmeri, A. & Ebreo, C., 2001. *Atlante delle Conchıglie Marine del Mediterraneo. Vol. 7 (Bivalvia: Protobranchia - Pteriomorpha)*. Edizioni Evolver, Rome, 246pp.

Huber, M., 2010. *Compendium of bivalves. A full-color guide to 3,300 of the world's marine bivalves. A status on Bivalvia after 250 years of research*. ConchBooks, Hackenheim, 901 pp.

Krapal, A.M., Popa, O.P., Levarda, A.F., Iorgu, E.I., Costache, M., Crocetta, F. & Popa, L.O., 2014. Molecular confirmation on the presence of *Anadara kagoshimensis* (Tokunaga, 1906) (Mollusca: Bivalvia: Arcidae) in the Black Sea. *Travaux du Museum National d'Histoire Naturelle "Grigore Antipa*, 57(1), 9-12.

Lodola, A., Savini, D., Mazziotti, C. & Occhipinti-Ambrogi, A., 2011. First record of *Anadara transversa* (Say, 1822) (Bivalvia: Arcidae) in Sardinian waters (NW Tyrrhenian Sea). *Biologia Marina Mediterranea*, 18(1), 256-257.

Morello, E. & Solustri, C., 2001. First record of *Anadara demiri* (Piani, 1981) (Bivalvia: Arcidae). *Bolletino Malacologico*, 37, 231-234.

Nerlović, V., Doğan, A. & Perić, L., 2012. First record of *Anadara transversa* (Mollusca: Bivalvia: Arcidae) in Croatian waters (Adriatic Sea). *Acta Adriatica*, 53(1), 139-144.

Nerlović, V., Perić, L., Slišković, M. & Jelić Mrčelić, G., 2018. The invasive *Anadara transversa* (Say, 1822) (Mollusca: Bivalvia) in the biofouling community of northern Adriatic mariculture areas. *Management of Biological Invasions*, 9(3), 239-251.

Nolf, F., 2010. *Anadara inaequivalvis* (Bruguiere, 1789) (Mollusca: Bivalvia: Arcidae) a new invasive species in the eastern Atlantic waters of W France. *Neptunea*, 9(2), 7-13.

Oliver, P.G., Holmes, A.M., Killeen, I.J. & Turner, J.A., 2016. *Marine Bivalve Shells of the British Isles*. Amgueddfa Cymru - National Museum Wales. Available from: http://naturalhistory.museumwales.ac.uk/britishbivalves [Accessed: 22 March 2024].

Scaperrotta, M., Bartolini, S. & Bogi, C., 2014. *Accrescimenti. Stadi di Accrescimento dei Molluschi Marini del Mediterraneo. Stages of growth of marine molluscs of the Mediterrranean Sea*. Vol. VI. L'Informatore Piceno Ed., Ancona, 192 pp.

Scaperrotta, M., Bartolini, S. & Bogi, C., 2018. *Accrescimenti. Stadi di Accrescimento dei Molluschi Marini del Mediterraneo. Stages of growth of marine molluscs of the Mediterrranean Sea*. Vol. IX. L'Informatore Piceno Ed., Ancona, 192 pp.

Strafella, P., Ferrari, A., Fabi, G., Salvalaggio, V., Punzo, E., Cuicchi, C., Santelli, A., Cariani, A., Tinti, F., Tassetti, A.N. & Scarcella, G., 2017. *Anadara kagoshimensis* (Mollusca: Bivalvia: Arcidae) in the Adriatic Sea: morphological analysis, molecular taxonomy, spatial distribution, and prediction. *Mediterranean Marine Science*, 18(3), 443-453.

Tebble, N., 1966. *British bivalve seashells. A handbook for identification*. Trustees of the British Museum (Natural History), 212pp.

Trigo, J.E., Agras, G.J.D., Álvarez, Ó.L.G., Sierra, Á.G., da Rocha, J.M., Dieste, J.P., Rolán Mosquera, E., Troncoso, J.S. & Urgorri, V., 2018. *Guía de los Moluscos Marinos de Galicia*. Troncoso, J.S., Trigo, J.E. & Rolán Mosquera, E. (Eds). Servicio de Publicacións da Universidade de Vigo, 836 pp.

Lucinidae (RT6505, RT6518). The draft TDP suggests species identifications for Lucinidae, as currently done at APEM, with separation of juveniles at 5mm (at species level). Just over half of the labs correctly identified **RT6505** (1-2mm *Lucinoma borealis*). Most of the differences were for other families but some recorded other lucinids. Lab08 noted that the dentition of **RT6505** resembled that described for *Myrtea spinifera*; growth series separate these species on sculpture but more research may be needed to establish whether dentition varies with size. Most labs correctly identified **RT6518** (*Lucinella divaricata*) despite its being a small specimen with only small traces of divaricate sculpture and being a rare species in Britain.

Pharidae (RT6508). The draft TDP flags Pharidae for further work, mainly due to difficulties with juveniles. APEM currently identify adults to species, with separation of juveniles at 17mm for *Ensis* (at genus level) and *Pharus* (at species level); without separation of juveniles for *Phaxas*. The circulated specimens were a little below 17mm and most labs identified it correctly. However, we had difficulty establishing convincing growth series for juvenile *Ensis*. More discussion will be needed to establish juvenile policies for this family.

Bugulidae (RT6502). The draft TDP flags Bugulidae for further work, due to different taxonomic levels currently used for different taxa by different labs and difficulties with fragmentary colonies. APEM currently attempt identification at species level, as presence/absence, unless very small and damaged. All labs correctly identified **RT6502** (*Crisularia plumosa*), suggesting species level identification is possible, at least for this species.

Electridae (RT6523). The draft TDP suggests species level identifications for Electridae, to be recorded as presence/absence, as currently done at APEM. Most labs correctly identified **RT6523** (*Pyripora catenularia*), despite it being of a more compact growth form than described by Hayward & Ryland (1998), suggesting no need for change.

Hayward, P.J. & Ryland, J.S., 1998. *Cheilostomatous Bryozoa Part 1: Aeteoidea – Cribilinoidea*. Synopses of the British Fauna (NS), 10. Published for the Linnean Society of London and The Estuarine and Brackish Water Sciences Association by E.J. Brill/ Dr. W. Backhuys, 366pp.

Escharellidae (RT6514, RT6517). The draft TDP suggests species level identifications for Escharellidae, to be recorded as presence/absence, as currently done at APEM. All labs correctly identified **RT6517** (*Escharella immersa*), and most correctly identified **RT6514** (*Escharella ventricosa*), suggesting no need for change.

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Index (Figures)

Ring Test Specimen Return Instructions

Please return all ring test specimens by 26th April 2024. 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