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## Ring Test Bulletin 44 – final version

Year 19

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## RING TEST 44 DETAILS

Type/Contents:	General
Circulated:	04/02/2013
Completion Date:	01/05/2013
Number of Subscribing Laboratories:	23
Number of Participating Laboratories:	20
Number of Results Received:	27 (multiple data entries per laboratory permitted)

### General remarks

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 Lab1901a & Lab1901b. For details of your LabCode please contact your Scheme representative or Thomson Unicmarine Ltd.

RTB44 issued in August 2013 was a draft version and meant to allow discussion of characters with participants. Some came back to us with queries and comments and we re-identified several specimens upon their return or discussed taxonomical characters with specialists. The results for RT4402, RT4403, RT4407, RT4411, RT4413 and RT4423 have been amended accordingly.

## SUMMARY OF DIFFERENCES PER SPECIMEN

(For details see Table 1)

Specimen	Genus	Species	Total differences for 27 returns	
			Genus	Species
RT4401	<i>Perioculodes</i>	<i>longimanus</i>	2	2
RT4402	<i>Tubificoides</i>	<i>insularis</i>	1	4
RT4403	<i>Odostomia</i>	<i>acuta</i>	1	19
RT4404	<i>Sabellaria</i>	<i>alveolata</i>	1	1
RT4405	<i>Amphiura</i>	<i>chiajei</i>	1	2
RT4406	<i>Spisula</i>	<i>subtruncata</i>	0	5
RT4407	<i>Psamathe</i>	<i>fusca</i>	0	0
RT4408	<i>Leitoscoloplos</i>	<i>mammosus</i>	2	2
RT4409	<i>Ampelisca</i>	<i>spinipes</i>	0	8
RT4410	<i>Ophelia</i>	<i>borealis</i>	0	0
RT4411	<i>Dipolydora</i>	<i>quadrilobata</i>	7	10
RT4412	<i>Eusyllis</i>	<i>blomstrandii</i>	6	7
RT4413	<i>Ampharete</i>	<i>lindstroemi</i> agg.	0	16
RT4414	<i>Perioculodes</i>	<i>longimanus</i>	3	3
RT4415	<i>Scoloplos</i>	<i>armiger</i>	2	2
RT4416	<i>Paranais</i>	<i>litoralis</i>	8	9
RT4417	<i>Parexogone</i>	<i>hebes</i>	3	3
RT4418	<i>Syllidia</i>	<i>armata</i>	2	2
RT4419	<i>Pseudocuma</i>	<i>longicorne</i>	4	4
RT4420	<i>Nototropis</i>	<i>guttatus</i>	1	5
RT4421	<i>Monopseudocuma</i>	<i>gilsoni</i>	2	2
RT4422	<i>Pleurobrachia</i>	<i>pileus</i>	11	11
RT4423	<i>Sphaerosyllis</i>	<i>hystrix</i>	2	20
RT4424	<i>Boccardiella</i>	<i>ligerica</i>	7	7
RT4425	<i>Pygospio</i>	<i>elegans</i>	1	1
<b>Total differences</b>			<b>67</b>	<b>145</b>
<b>Average diff. / data return</b>			<b>2.48</b>	<b>5.37</b>

**Table 1. Identifications made by participating laboratories for RT 44 (arranged by specimen). Names are given only where different from AQC identification.**

	RT4401 <i>Periocolodes longimanus</i>	RT4402 <i>Tubificoides insularis</i>	RT4403 <i>Odostomia acuta</i>	RT4404 <i>Sabellaria alveolata</i>	RT4405 <i>Amphiura chiajei</i>	RT4406 <i>Spisula subtruncata</i>
LB1901	--	[- cf. <i>galiciensis</i> ]	- <i>umbilicaris</i>	--	--	- <i>elliptica</i>
LB1902a	--	[- cf. <i>galiciensis</i> ]	--	--	--	--
LB1902b	--	[- <i>swirencoides</i> ]	--	--	--	- <i>elliptica</i>
LB1902c	--	[- <i>swirencowi</i> ]	--	--	--	--
LB1902d	--	--	--	--	--	--
LB1902e	--	--	--	--	--	--
LB1902f	--	[- <i>swirencoides</i> ]	--	--	--	--
LB1902g	--	[- <i>swirencoides</i> ]	--	--	--	--
LB1904a	<i>Monoculodes borealis</i>	[- <i>swirencoides</i> ]	- <i>unidentata</i>	--	--	--
LB1904b	<i>Monoculodes borealis</i>	[- <i>galiciensis</i> ]	- <i>turrita</i>	--	--	--
LB1905	--	[- <i>galiciensis</i> ]	- <i>turrita</i>	--	--	--
LB1907	--	--	- <i>unidentata</i>	--	--	--
LB1908	--	[- <i>swirencoides</i> ]	- <i>turrita</i>	--	--	--
LB1909	--	- <i>benedii</i>	- <i>turrita</i>	--	--	--
LB1910	--	[- cf. <i>galiciensis</i> ]	- <i>unidentata</i>	--	--	--
LB1911	--	[- cf. <i>galiciensis</i> ]	- <i>turrita</i>	--	--	--
LB1912	--	[- <i>swirencoides</i> ]	- <i>turrita</i>	--	--	--
LB1913	--	- <i>benedii</i>	- <i>unidentata</i>	--	--	- <i>elliptica</i>
LB1914	--	[- <i>galiciensis</i> ]	--	--	--	--
LB1916	--	[- <i>swirencoides</i> ]	- <i>plicata</i>	--	--	- <i>elliptica</i>
LB1918	--	--	- <i>unidentata</i>	<i>Hydroides dianthus</i>	--	--
LB1919	--	[- <i>galiciensis</i> ]	- <i>plicata</i>	--	--	- <i>elliptica</i>
LB1922	--	[- <i>swirencoides</i> ]	- <i>unidentata</i>	--	--	--
LB1926	--	[- <i>galiciensis</i> ]	- <i>plicata</i>	--	--	--
LB1950	--	<i>Capitella giardi</i>	- <i>conoidea</i>	--	- <i>filiformis</i>	--
LB1956	--	- 0	<i>Peringia ulvae</i>	--	<i>Ophiura</i> 0	--
LB1961	--	[- <i>swirencoides</i> ]	- <i>unidentata</i>	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 1. Identifications made by participating laboratories for RT 44 (arranged by specimen). Names are given only where different from AQC identification (continued).**

	RT4407 <i>Psamathe fusca</i>	RT4408 <i>Leitoscoloplos mammosus</i>	RT4409 <i>Ampelisca spinipes</i>	RT4410 <i>Ophelia borealis</i>	RT4411 <i>Dipolydora quadrilobata</i>
LB1901	--	--	--	--	--
LB1902a	--	--	- diadema	--	--
LB1902b	--	--	--	--	--
LB1902c	--	--	- diadema	--	- blakei
LB1902d	--	--	--	--	--
LB1902e	--	--	--	--	--
LB1902f	--	--	--	--	--
LB1902g	--	--	--	--	--
LB1904a	--	--	- eschrichtii	--	--
LB1904b	--	--	- diadema	--	- caulleryi
LB1905	[ <i>Kefersteinia cirrata</i> ]	--	--	--	--
LB1907	--	--	--	--	--
LB1908	--	--	--	--	--
LB1909	--	--	--	--	<i>Polydora ciliata</i>
LB1910	--	--	--	--	--
LB1911	[ <i>Kefersteinia cirrata</i> ]	<i>Scoloplos armiger</i>	--	--	<i>Pseudopolydora antennata</i>
LB1912	--	--	- diadema	--	--
LB1913	[ <i>Kefersteinia cirrata</i> ]	--	--	--	<i>Pseudopolydora paucibranchiata</i>
LB1914	--	--	--	--	<i>Pseudopolydora paucibranchiata</i>
LB1916	--	--	--	--	--
LB1918	[ <i>Kefersteinia cirrata</i> ]	--	- tenuicornis	--	- 0
LB1919	[ <i>Kefersteinia cirrata</i> ]	--	- diadema	--	--
LB1922	[ <i>Kefersteinia cirrata</i> ]	--	--	--	<i>Pseudopolydora paucibranchiata</i>
LB1926	--	--	--	--	<i>Pseudopolydora antennata</i>
LB1950	[ <i>Kefersteinia cirrata</i> ]	--	--	--	--
LB1956	[ <i>Kefersteinia cirrata</i> ]	--	- brevicornis	--	--
LB1961	--	<i>Schroederella berkeleyi</i>	--	--	<i>Polydora ciliata</i>

Identifications in brackets not counted as differences, see comments.

**Table 1. Identifications made by participating laboratories for RT 44 (arranged by specimen). Names are given only where different from AQC identification (continued).**

	RT4412 <i>Eusyllis blomstrandii</i>	RT4413 <i>Ampharete lindstroemi</i> agg.	RT4414 <i>Perioculodes longimanus</i>	RT4415 <i>Scoloplos armiger</i>	RT4416 <i>Paranais litoralis</i>
LB1901	<i>Odontosyllis fulgurans</i>	[- <i>grubei</i> ]	--	--	--
LB1902a	--	- <i>acutifrons</i>	--	--	--
LB1902b	--	[- <i>grubei</i> ]	--	--	--
LB1902c	--	[- <i>baltica</i> ]	--	--	- <i>frici</i>
LB1902d	--	- <i>acutifrons</i>	--	--	--
LB1902e	--	- <i>acutifrons</i>	--	--	--
LB1902f	--	- <i>acutifrons</i>	--	--	--
LB1902g	--	- <i>acutifrons</i>	--	--	--
LB1904a	--	[- <i>baltica</i> ]	<i>Monoculodes borealis</i>	<i>Leitoscoloplos mammosus</i>	--
LB1904b	--	[- <i>lindstroemi</i> ]	<i>Monoculodes borealis</i>	<i>Leitoscoloplos mammosus</i>	--
LB1905	--	- <i>acutifrons</i>	--	--	--
LB1907	--	- <i>acutifrons</i>	--	--	--
LB1908	--	- <i>acutifrons</i>	--	--	--
LB1909	<i>Syllis armillaris</i>	--	--	--	<i>Tubificoides pseudogaster</i>
LB1910	--	- <i>acutifrons</i>	--	--	--
LB1911	<i>Odontosyllis ctenostoma</i>	- <i>acutifrons</i>	--	--	<i>Grania</i> spp.
LB1912	--	[- <i>grubei</i> ]	--	--	--
LB1913	- <i>lamelligera</i>	[- <i>baltica</i> ]	<i>Monoculodes carinatus</i>	--	<i>Tubificoides pseudogaster</i>
LB1914	--	[- <i>lindstroemi</i> ]	--	--	<i>Tubificoides heterochaetus</i>
LB1916	--	- <i>acutifrons</i>	--	--	--
LB1918	Syllidae	- <i>finmarchica</i>	--	--	--
LB1919	--	- <i>finmarchica</i>	--	--	<i>Ctenodrilus serratus</i>
LB1922	<i>Dioplosyllis? cirrosa?</i>	- <i>acutifrons</i>	--	--	<i>Tubificoides pseudogaster</i> agg.
LB1926	--	[- <i>lindstroemi</i> ]	--	--	--
LB1950	<i>Syllis hyalina</i>	- <i>acutifrons</i>	--	--	<i>Limnodrilus hoffmeisteri</i>
LB1956	--	- 0	--	--	Tubificidae
LB1961	--	[- <i>baltica</i> ]	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 1. Identifications made by participating laboratories for RT 44 (arranged by specimen). Names are given only where different from AQC identification (continued).**

	RT4417 <i>Parexogone hebes</i>	RT4418 <i>Syllidia armata</i>	RT4419 <i>Pseudocuma longicorne</i>	RT4420 <i>Nototropis guttatus</i>	RT4421 <i>Monopseudocuma gilsoni</i>
LB1901	--	--	--	[Atylus -]	--
LB1902a	--	--	--	[Atylus -]	--
LB1902b	--	--	--	[Atylus -]	--
LB1902c	--	--	--	[Atylus -]	--
LB1902d	--	--	--	[Atylus -]	--
LB1902e	--	--	--	[Atylus -]	--
LB1902f	--	--	--	[Atylus -]	--
LB1902g	--	--	--	[Atylus -]	--
LB1904a	--	--	--	<i>Dexamine spinosa</i>	<i>Pseudocuma longicorne</i>
LB1904b	--	--	--	[Atylus] <i>vedlomensis</i>	--
LB1905	--	--	--	[Atylus -]	--
LB1907	--	--	--	[Atylus -]	--
LB1908	--	--	--	[Atylus -]	--
LB1909	--	--	<i>Petalosarsia declivis</i>	[Atylus -]	--
LB1910	--	--	--	[Atylus -]	--
LB1911	--	--	--	[Atylus -]	--
LB1912	--	--	--	[Atylus -]	--
LB1913	--	--	<i>Cyclaspis longicaudata</i>	[Atylus] <i>vedlomensis</i>	<i>Pseudocuma longicorne</i>
LB1914	<i>Exogone verrugera</i>	--	--	[Atylus -]	--
LB1916	--	--	--	[Atylus -]	--
LB1918	--	<i>Kefersteinia cirrata</i>	<i>Monopseudocuma gilsoni</i>	[Atylus] <i>vedlomensis</i>	--
LB1919	--	<i>Nereimyra punctata</i>	--	[Atylus -]	--
LB1922	<i>Exogone verrugera</i>	--	--	[Atylus -]	--
LB1926	--	--	--	[Atylus] <i>vedlomensis</i>	--
LB1950	--	--	--	[Atylus -]	--
LB1956	<i>Exogone sp.</i>	--	--	[Atylus -]	--
LB1961	--	--	<i>Monopseudocuma gilsoni</i>	[Atylus -]	--

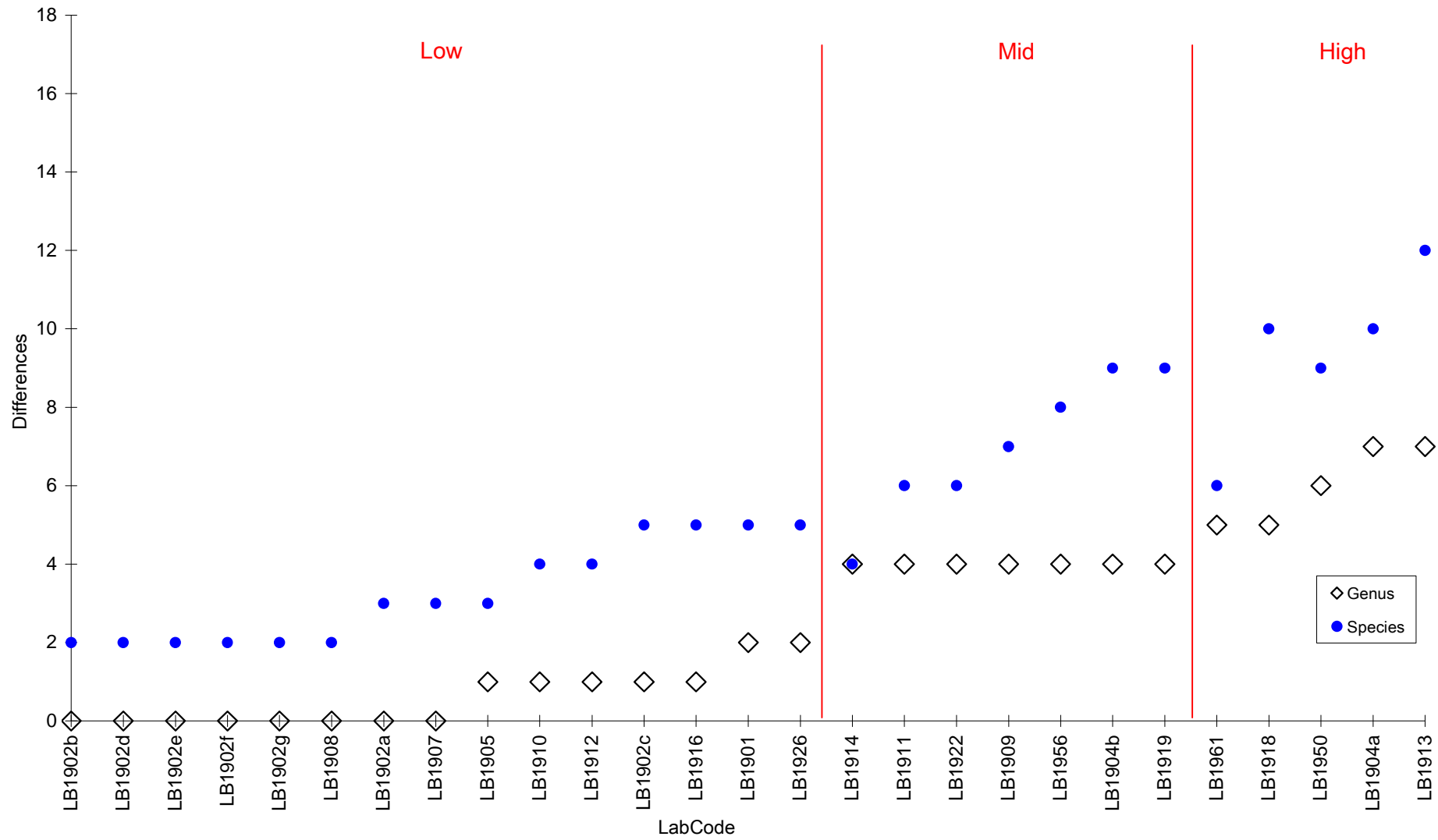
Identifications in brackets not counted as differences, see comments.

**Table 1. Identifications made by participating laboratories for RT 44 (arranged by specimen). Names are given only where different from AQC identification (continued).**

	RT4422 <i>Pleurobranchia pileus</i>	RT4423 <i>Sphaerosyllis hystrix</i>	RT4424 <i>Boccardiella ligerica</i>	RT4425 <i>Pygospio elegans</i>
LB1901	--	- <i>taylori</i>	<i>Polydora cornuta</i>	--
LB1902a	--	- <i>taylori</i>	--	--
LB1902b	[ <i>Pleurobranchia</i> -]	- <i>taylori</i>	--	--
LB1902c	<i>Euplokamis dunlapae</i>	- <i>taylori</i>	--	--
LB1902d	[ <i>Pleurobranchia</i> -]	- <i>taylori</i>	--	--
LB1902e	[ <i>Pleurobranchia</i> -]	- <i>taylori</i>	--	--
LB1902f	--	- <i>taylori</i>	--	--
LB1902g	--	- <i>taylori</i>	--	--
LB1904a	<i>Beroe cucumis</i>	- <i>taylori</i>	<i>Dipolydora quadrilobata</i>	--
LB1904b	--	- <i>taylori</i>	<i>Dipolydora quadrilobata</i>	--
LB1905	<i>Ciona intestinalis</i>	--	--	--
LB1907	--	- <i>taylori</i>	--	--
LB1908	--	--	--	--
LB1909	--	- <i>taylori</i>	--	--
LB1910	? <i>Aurelia aurita</i> (bad condition)	- <i>taylori</i>	--	--
LB1911	--	--	--	--
LB1912	--	- <i>taylori</i>	<i>Dipolydora coeca</i>	--
LB1913	<i>Beroe cucumis</i>	--	<i>Pseudopolydora antennata</i>	--
LB1914	--	<i>Prosphaerosyllis tetralix</i>	--	--
LB1916	<i>Depastrum cyathiforme</i>	- <i>taylori</i>	--	--
LB1918	<i>Haliclystus octoradiatus</i>	--	--	--
LB1919	<i>Beroe cucumis</i>	- <i>taylori</i>	<i>Dipolydora quadrilobata</i>	--
LB1922	--	--	--	--
LB1926	<i>Beroe cucumis</i>	- <i>taylori</i>	--	--
LB1950	<i>Rhabdomolgus ruber</i>	<i>Erinaceosyllis erinaceus</i>	--	<i>Spio goniocephala</i>
LB1956	[ <i>Plaurobranchia</i> -]	- 0	--	--
LB1961	<i>Cervera atlantica</i>	--	<i>Dipolydora socialis</i>	--

Identifications in brackets not counted as differences, see comments.

**SUMMARY OF DIFFERENCES PER PARTICIPATING LABORATORY**  
(For details see Table 2)





**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification.**

Taxon	LB1901	LB1902a	LB1902b	LB1902c	LB1902d
RT4401 <i>Periocolodes longimanus</i>	--	--	--	--	--
RT4402 <i>Tubificoides insularis</i>	[- cf. <i>galiciensis</i> ]	[- cf. <i>galiciensis</i> ]	[- <i>swirencoides</i> ]	[- <i>swirencowi</i> ]	--
RT4403 <i>Odostomia acuta</i>	- <i>umbilicaris</i>	--	--	--	--
RT4404 <i>Sabellaria alveolata</i>	--	--	--	--	--
RT4405 <i>Amphiura chiajei</i>	--	--	--	--	--
RT4406 <i>Spisula subtruncata</i>	- <i>elliptica</i>	--	- <i>elliptica</i>	--	--
RT4407 <i>Psamathe fusca</i>	--	--	--	--	--
RT4408 <i>Leitoscoloplos mammosus</i>	--	--	--	--	--
RT4409 <i>Ampelisca spinipes</i>	--	- <i>diadema</i>	--	- <i>diadema</i>	--
RT4410 <i>Ophelia borealis</i>	--	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	--	--	--	- <i>blakei</i>	--
RT4412 <i>Eusyllis blomstrandii</i>	<i>Odontosyllis fulgurans</i>	--	--	--	--
RT4413 <i>Ampharete lindstroemi</i> agg.	[- <i>grubei</i> ]	- <i>acutifrons</i>	[- <i>grubei</i> ]	[- <i>baltica</i> ]	- <i>acutifrons</i>
RT4414 <i>Periocolodes longimanus</i>	--	--	--	--	--
RT4415 <i>Scoloplos armiger</i>	--	--	--	--	--
RT4416 <i>Paranais litoralis</i>	--	--	--	- <i>frici</i>	--
RT4417 <i>Parexogone hebes</i>	--	--	--	--	--
RT4418 <i>Syllidia armata</i>	--	--	--	--	--
RT4419 <i>Pseudocuma longicorne</i>	--	--	--	--	--
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	--	--	--
RT4422 <i>Pleurobranchia pileus</i>	--	--	[ <i>Pleurobranchia</i> -]	<i>Euplokamis dunlapae</i>	[ <i>Pleurobranchia</i> -]
RT4423 <i>Sphaerosyllis hystrix</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>
RT4424 <i>Boccardiella ligerica</i>	<i>Polydora cornuta</i>	--	--	--	--
RT4425 <i>Pygospio elegans</i>	--	--	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification (continued).**

Taxon	LB1902e	LB1902f	LB1902g	LB1904a	LB1904b
RT4401 <i>Periocolodes longimanus</i>	--	--	--	<i>Monocolodes borealis</i>	<i>Monocolodes borealis</i>
RT4402 <i>Tubificoides insularis</i>	--	[- <i>swirencoides</i> ]	[- <i>swirencoides</i> ]	[- <i>swirencoides</i> ]	[- <i>galiciensis</i> ]
RT4403 <i>Odostomia acuta</i>	--	--	--	- <i>unidentata</i>	- <i>turrita</i>
RT4404 <i>Sabellaria alveolata</i>	--	--	--	--	--
RT4405 <i>Amphiura chiajei</i>	--	--	--	--	--
RT4406 <i>Spisula subtruncata</i>	--	--	--	--	--
RT4407 <i>Psamathe fusca</i>	--	--	--	--	--
RT4408 <i>Leitoscoloplos mammosus</i>	--	--	--	--	--
RT4409 <i>Ampelisca spinipes</i>	--	--	--	- <i>eschrichtii</i>	- <i>diadema</i>
RT4410 <i>Ophelia borealis</i>	--	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	--	--	--	--	- <i>caulleryi</i>
RT4412 <i>Eusyllis blomstrandii</i>	--	--	--	--	--
RT4413 <i>Ampharete lindstroemi</i> agg.	- <i>acutifrons</i>	- <i>acutifrons</i>	- <i>acutifrons</i>	[- <i>baltica</i> ]	[- <i>lindstroemi</i> ]
RT4414 <i>Periocolodes longimanus</i>	--	--	--	<i>Monocolodes borealis</i>	<i>Monocolodes borealis</i>
RT4415 <i>Scoloplos armiger</i>	--	--	--	<i>Leitoscoloplos mammosus</i>	<i>Leitoscoloplos mammosus</i>
RT4416 <i>Paranais litoralis</i>	--	--	--	--	--
RT4417 <i>Parexogone hebes</i>	--	--	--	--	--
RT4418 <i>Syllidia armata</i>	--	--	--	--	--
RT4419 <i>Pseudocuma longicorne</i>	--	--	--	--	--
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	<i>Dexamine spinosa</i>	[ <i>Atylus</i> ] <i>vedlomensis</i>
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	--	<i>Pseudocuma longicorne</i>	--
RT4422 <i>Pleurobranchia pileus</i>	[ <i>Pleurobranchia</i> -]	--	--	<i>Beroe cucumis</i>	--
RT4423 <i>Sphaerosyllis hystrix</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>	- <i>taylori</i>
RT4424 <i>Boccardiella ligerica</i>	--	--	--	<i>Dipolydora quadrilobata</i>	<i>Dipolydora quadrilobata</i>
RT4425 <i>Pygospio elegans</i>	--	--	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification (continued).**

Taxon	LB1905	LB1907	LB1908	LB1909	LB1910
RT4401 <i>Perioculodes longimanus</i>	--	--	--	--	--
RT4402 <i>Tubificoides insularis</i>	[- <i>galiciensis</i> ]	--	[- <i>swirencoides</i> ]	- <i>benedii</i>	[- cf. <i>galiciensis</i> ]
RT4403 <i>Odostomia acuta</i>	- <i>turrita</i>	- <i>unidentata</i>	- <i>turrita</i>	- <i>turrita</i>	- <i>unidentata</i>
RT4404 <i>Sabellaria alveolata</i>	--	--	--	--	--
RT4405 <i>Amphiura chiajei</i>	--	--	--	--	--
RT4406 <i>Spisula subtruncata</i>	--	--	--	--	--
RT4407 <i>Psamathe fusca</i>	[ <i>Kefersteinia cirrata</i> ]	--	--	--	--
RT4408 <i>Leitoscoloplos mammosus</i>	--	--	--	--	--
RT4409 <i>Ampelisca spinipes</i>	--	--	--	--	--
RT4410 <i>Ophelia borealis</i>	--	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	--	--	--	<i>Polydora ciliata</i> agg.	--
RT4412 <i>Eusyllis blomstrandii</i>	--	--	--	<i>Syllis armillaris</i>	--
RT4413 <i>Ampharete lindstroemi</i> agg.	- <i>acutifrons</i>	- <i>acutifrons</i>	- <i>acutifrons</i>	--	- <i>acutifrons</i>
RT4414 <i>Perioculodes longimanus</i>	--	--	--	--	--
RT4415 <i>Scoloplos armiger</i>	--	--	--	--	--
RT4416 <i>Paranais litoralis</i>	--	--	--	<i>Tubificoides pseudogaster</i>	--
RT4417 <i>Parexogone hebes</i>	--	--	--	--	--
RT4418 <i>Syllidia armata</i>	--	--	--	--	--
RT4419 <i>Pseudocuma longicorne</i>	--	--	--	<i>Petalosarsia declivis</i>	--
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	--	--	--
RT4422 <i>Pleurobrachia pileus</i>	<i>Ciona intestinalis</i>	--	--	--	? <i>Aurelia aurita</i> (bad condition)
RT4423 <i>Sphaerosyllis hystrix</i>	--	- <i>taylori</i>	--	- <i>taylori</i>	- <i>taylori</i>
RT4424 <i>Boccardiella ligerica</i>	--	--	--	--	--
RT4425 <i>Pygospio elegans</i>	--	--	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification (continued).**

Taxon	LB1911	LB1912	LB1913	LB1914
RT4401 <i>Perioculodes longimanus</i>	--	--	--	--
RT4402 <i>Tubificoides insularis</i>	[- cf. <i>galiciensis</i> ]	[- <i>swirencoides</i> ]	- <i>benedii</i>	[- <i>galiciensis</i> ]
RT4403 <i>Odostomia acuta</i>	- <i>turrita</i>	- <i>turrita</i>	- <i>unidentata</i>	--
RT4404 <i>Sabellaria alveolata</i>	--	--	--	--
RT4405 <i>Amphiura chiajei</i>	--	--	--	--
RT4406 <i>Spisula subtruncata</i>	--	--	- <i>elliptica</i>	--
RT4407 <i>Psamathe fusca</i>	[ <i>Kefersteinia cirrata</i> ]	--	[ <i>Kefersteinia cirrata</i> ]	--
RT4408 <i>Leitoscoloplos mammosus</i>	<i>Scoloplos armiger</i>	--	--	--
RT4409 <i>Ampelisca spinipes</i>	--	- <i>diadema</i>	--	--
RT4410 <i>Ophelia borealis</i>	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	<i>Pseudopolydora antennata</i>	--	<i>Pseudopolydora paucibranchiata</i>	<i>Pseudopolydora paucibranchiata</i>
RT4412 <i>Eusyllis blomstrandii</i>	<i>Odontosyllis ctenostoma</i>	--	- <i>lamelligera</i>	--
RT4413 <i>Ampharete lindstroemi</i> agg.	- <i>acutifrons</i>	[- <i>grubei</i> ]	[- <i>baltica</i> ]	[- <i>lindstroemi</i> ]
RT4414 <i>Perioculodes longimanus</i>	--	--	<i>Monoculodes carinatus</i>	--
RT4415 <i>Scoloplos armiger</i>	--	--	--	--
RT4416 <i>Paranais litoralis</i>	<i>Grania</i> spp.	--	<i>Tubificoides pseudogaster</i>	<i>Tubificoides heterochaetus</i>
RT4417 <i>Parexogone hebes</i>	--	--	--	<i>Exogone verrugera</i>
RT4418 <i>Syllidia armata</i>	--	--	--	--
RT4419 <i>Pseudocuma longicorne</i>	--	--	<i>Cyclaspis longicaudata</i>	--
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> ] <i>vedlomensis</i>	[ <i>Atylus</i> -]
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	<i>Pseudocuma longicorne</i>	--
RT4422 <i>Pleurobrachia pileus</i>	--	--	<i>Beroe cucumis</i>	--
RT4423 <i>Sphaerosyllis hystrix</i>	--	- <i>taylori</i>	--	<i>Prosphaerosyllis tetralix</i>
RT4424 <i>Boccardiella ligerica</i>	--	<i>Dipolydora coeca</i>	<i>Pseudopolydora antennata</i>	--
RT4425 <i>Pygospio elegans</i>	--	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification (continued).**

Taxon	LB1916	LB1918	LB1919	LB1922
RT4401 <i>Perioculodes longimanus</i>	--	--	--	--
RT4402 <i>Tubificoides insularis</i>	[- <i>swirencoides</i> ]	--	[- <i>galiciensis</i> ]	[- <i>swirencoides</i> ]
RT4403 <i>Odostomia acuta</i>	- <i>plicata</i>	- <i>unidentata</i>	- <i>plicata</i>	- <i>unidentata</i>
RT4404 <i>Sabellaria alveolata</i>	--	<i>Hydroides dianthus</i>	--	--
RT4405 <i>Amphiura chiajei</i>	--	--	--	--
RT4406 <i>Spisula subtruncata</i>	- <i>elliptica</i>	--	- <i>elliptica</i>	--
RT4407 <i>Psamathe fusca</i>	--	[ <i>Kefersteinia cirrata</i> ]	[ <i>Kefersteinia cirrata</i> ]	[ <i>Kefersteinia cirrata</i> ]
RT4408 <i>Leitoscoloplos mammosus</i>	--	--	--	--
RT4409 <i>Ampelisca spinipes</i>	--	- <i>tenuicornis</i>	- <i>diadema</i>	--
RT4410 <i>Ophelia borealis</i>	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	--	- 0	--	<i>Pseudopolydora paucibranchiata</i>
RT4412 <i>Eusyllis blomstrandii</i>	--	Syllidae	--	<i>Dioplosyllis? cirrosa?</i>
RT4413 <i>Ampharete lindstroemi</i> agg.	- <i>acutifrons</i>	- <i>finmarchica</i>	- <i>finmarchica</i>	- <i>acutifrons</i>
RT4414 <i>Perioculodes longimanus</i>	--	--	--	--
RT4415 <i>Scoloplos armiger</i>	--	--	--	--
RT4416 <i>Paranais litoralis</i>	--	--	<i>Ctenodrilus serratus</i>	<i>Tubificoides pseudogaster</i> agg.
RT4417 <i>Parexogone hebes</i>	--	--	--	<i>Exogone verrugera</i>
RT4418 <i>Syllidia armata</i>	--	<i>Kefersteinia cirrata</i>	<i>Nereimyra punctata</i>	--
RT4419 <i>Pseudocuma longicorne</i>	--	<i>Monopseudocuma gilsoni</i>	--	--
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> ] <i>vedlomensis</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	--	--
RT4422 <i>Pleurobrachia pileus</i>	<i>Depastrum cyathiforme</i>	<i>Haliclystus octoradiatus</i>	<i>Beroe cucumis</i>	--
RT4423 <i>Sphaerosyllis hystrix</i>	- <i>taylori</i>	--	- <i>taylori</i>	--
RT4424 <i>Boccardiella ligerica</i>	--	--	<i>Dipolydora quadrilobata</i>	--
RT4425 <i>Pygospio elegans</i>	--	--	--	--

Identifications in brackets not counted as differences, see comments.

**Table 2. Identifications made by participating laboratories for RT 44 (arranged by participants). Names are given only where different from AQC identification (continued).**

Taxon	LB1926	LB1950	LB1956	LB1961
RT4401 <i>Periocolodes longimanus</i>	--	--	--	--
RT4402 <i>Tubificoides insularis</i>	[- <i>galiciensis</i> ]	<i>Capitella giardi</i>	- 0	[- <i>swirencoides</i> ]
RT4403 <i>Odostomia acuta</i>	- <i>plicata</i>	- <i>conoidea</i>	<i>Peringia ulvae</i>	- <i>unidentata</i>
RT4404 <i>Sabellaria alveolata</i>	--	--	--	--
RT4405 <i>Amphiura chiajei</i>	--	- <i>fliformis</i>	<i>Ophiura</i> 0	--
RT4406 <i>Spisula subtruncata</i>	--	--	--	--
RT4407 <i>Psamathe fusca</i>	--	[ <i>Kefersteinia cirrata</i> ]	[ <i>Kefersteinia cirrata</i> ]	--
RT4408 <i>Leitoscoloplos mammosus</i>	--	--	--	<i>Schroederella berkeleyi</i>
RT4409 <i>Ampelisca spinipes</i>	--	--	- <i>brevicornis</i>	--
RT4410 <i>Ophelia borealis</i>	--	--	--	--
RT4411 <i>Dipolydora quadrilobata</i>	<i>Pseudopolydora antennata</i>	--	--	<i>Polydora ciliata</i>
RT4412 <i>Eusyllis blomstrandii</i>	--	<i>Syllis hyalina</i>	--	--
RT4413 <i>Ampharete lindstroemi</i> agg.	[- <i>lindstroemi</i> ]	- <i>acutifrons</i>	- 0	[- <i>baltica</i> ]
RT4414 <i>Periocolodes longimanus</i>	--	--	--	--
RT4415 <i>Scoloplos armiger</i>	--	--	--	--
RT4416 <i>Paranais litoralis</i>	--	<i>Limnodrilus hoffmeisteri</i>	Tubbificidae	--
RT4417 <i>Parexogone hebes</i>	--	--	<i>Exogone</i> sp.	--
RT4418 <i>Syllidia armata</i>	--	--	--	--
RT4419 <i>Pseudocuma longicorne</i>	--	--	--	<i>Monopseudocuma gilsoni</i>
RT4420 <i>Nototropis guttatus</i>	[ <i>Atylus</i> ] <i>vedlomensis</i>	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]	[ <i>Atylus</i> -]
RT4421 <i>Monopseudocuma gilsoni</i>	--	--	--	--
RT4422 <i>Pleurobrachia pileus</i>	<i>Beroe cucumis</i>	<i>Rhabdomolgus ruber</i>	[ <i>Plaurobrachia</i> -]	<i>Cervera atlantica</i>
RT4423 <i>Sphaerosyllis hystrix</i>	- <i>taylori</i>	<i>Erinaceusyllis erinaceus</i>	- 0	--
RT4424 <i>Boccardiella ligerica</i>	--	--	--	<i>Dipolydora socialis</i>
RT4425 <i>Pygospio elegans</i>	--	<i>Spio goniocéphala</i>	--	--

Identifications in brackets not counted as differences, see comments.

## RESULTS & DISCUSSION

### RT4401 *Periocolodes longimanus* (Fig. 1a) (cf. Lincoln 1979)

Substrate: Mud/Sand. Salinity: Full. Depth: Infralittoral. Locality: Irish Sea. Condition/Size: Good; Large.



Fig. 1a. *Periocolodes longimanus* (lateral view)

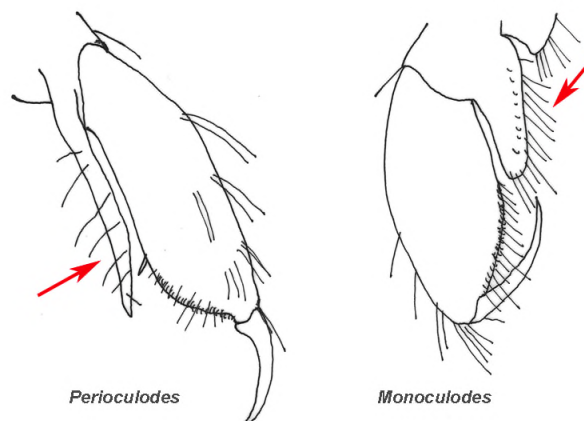


Fig. 1b. Propodus of gnathopod 1 (after Lincoln 1979)

Labs 1904a and 1904b identified as *Monocolodes borealis*.

*Monocolodes* differs mainly from *Periocolodes* by its propodus of gnathopod 1 being suboval, the carpal lobe rather short and broad, while in *Periocolodes* the propodus of gnathopod 1 is elongate rectangular and the carpal lobe very long and slender (see Fig. 1b).

Total number of differences: 2 generic and 2 specific.

### RT4402 *Tubificoides insularis* (Fig. 2) (cf. van Haaren & Soors 2013)

Substrate: Mixed. Salinity: High. Depth: Circalittoral. Locality: Irish Sea. Condition/Size: Good; Large.



Fig. 2. *Tubificoides insularis* (dorsal view)

As a result of some queries by participants all returned RT4402 specimens were re-investigated and the characters observed discussed with the oligochaete specialist Ton van Haaren.

On all specimens investigated, the papillae start is variable from segment III to VI (VII) or even later (depending on the developmental stage, T. van Haaren pers. comm.). The papillation is fine anteriorly and coarser from mid-body (thus might be difficult to see in anterior segments). There are dorsal hair chaetae present in anterior segments and there are bifid chaetae present dorsally and ventrally, with the upper tooth finer and shorter than the lower. These characters agree with those described by van Haaren & Soors (2013)

for *T. insularis* and also with *T. galiciensis*. These species have different penial sheaths, conical with a distended end in *T. insularis* and cylindrical with an open end in *T. galiciensis* though the circulated specimens were not all mature reproductive individuals.

The morphological differences between *T. cf. galiciensis* sensu Worsfold (2003), the true *T. galiciensis* Martinez-Ansemil & Giani, 1987 and *T. insularis* (Stephenson, 1922) are not clear, since in general the start of papillation is a variable character in the genus *Tubificoides* and other differences observed (eg. the penial sheath) require some confirmation. A molecular study might be helpful to decide whether *T. cf. galiciensis* is in fact conspecific with the true *T. galiciensis*, a junior synonym of *T. insularis* or perhaps a new species altogether.

Similar species with hair chaetae and which may show some degree of papillation are also found in the NE Atlantic area. These include *T. swirencoides* (widespread in the UK), *T. scoticus* (East coast of Scotland), *T. swirencowi* (Denmark, Sweden) and *T. parapectinatus* (Netherlands). The morphological differentiation of *T. insularis* from *T. swirencoides*, *T. scoticus*, *T. swirencowi* and *T. parapectinatus* again is difficult and requires some experience. In *T. insularis* bifid chaetae are present all over, but in the other species mentioned, posterior segments show simple pointed chaetae in the dorsal bundle instead of bifids (but bifids are otherwise present in anterior dorsal bundle and ventrally !). Unfortunately bifid chaetae might have abraded tips or tips difficult to see depending on the orientation of the animal and thus bifids could be mistaken for a simple chaeta. *Tubificoides swirencoides* can be separated from *T. swirencowi* and *T. parapectinatus* by the form and length of their penial sheath, whereas *T. swirencowi* and *T. parapectinatus* differ only genetically. *Tubificoides scoticus* has unusual bifids with broad lance-shaped teeth. Genetic studies such as those of Kvist *et al.* (2010) are providing additional information about the genus *Tubificoides* including new records of species in the NE Atlantic area (eg. *T. fraseri* from Wales and *T. kozloffii* from Sweden) and the possible presence of cryptic species.

All identifications of species having a papillated bodywall and dorsal hair chaetae are considered correct for the purpose of this ring test.

(NB. Recent taxonomic works now treat the Tubificidae as a subfamily, the Tubificinae, within the Naididae – see Erseus *et al.* 2008)

Labs 1901, 1902a, 1904b, 1905, 1914, 1919 and 1926 identified as *T. galiciensis* and Labs 1910 and 1911 as *T. cf. galiciensis* respectively.

Labs 1902b, 1902f, 1902g, 1904a, 1908, 1912, 1916, 1922 and 1961 identified as *T. swirencoides*.

Lab 1902c identified as *T. swirencowi*.

Lab 1956 identified only to genus level (as *Tubificoides* sp.).

Labs 1909 and 1913 identified as *T. benedii*.

*Tubificoides benedii* and *T. insularis* both have a papillated bodywall, but *T. benedii* has no dorsal hair chaetae which clearly distinguishes this species from *T. insularis*.

Lab 1950 identified as *Capitella giardi*.

In the polychaete *C. giardi* the bodywall is not papillated and the chaetal morphology is different: there are short capillary chaetae in some anterior segments and very distinctive rows of hooded hooks present more posteriorly.

Total number of differences: 1 generic and 4 specific.



**RT4403 *Odostomia acuta* (Fig. 3a)** (cf. Graham 1988)

Substrate: Mud. Salinity: Variable. Depth: Intertidal. Locality: Thames Estuary. Condition/Size: Good; Medium.



Fig. 3a. *Odostomia acuta* (lateral view)



Fig. 3b. *Odostomia turrita* (lateral view)

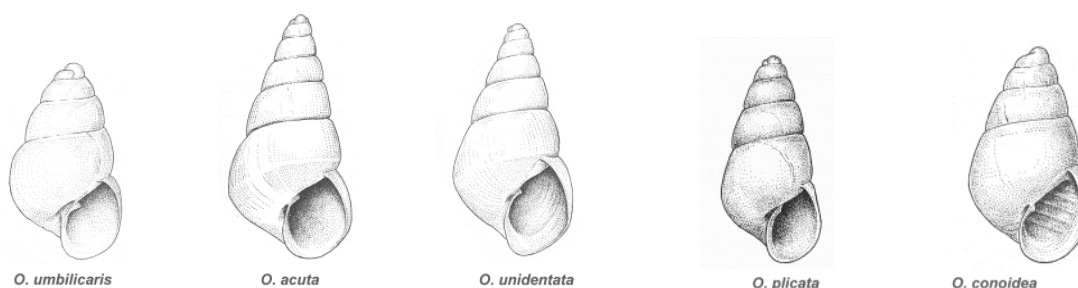


Fig. 3c. Comparison of some *Odostomia* species (from Graham 1988). NB. Graham's drawing of "*O. plicata*" reproduced here has since been recognised as a figure of *O. turrita* (S. Smith pers comm.).

The distributed specimens were originally identified as *Odostomia turrita* and the results of the first version of this ring test have been based on this identification. Due to the high number of differences found we re-investigated the returned specimens and confirm their identity to be *O. acuta* as they show only slightly prosocline growth lines and a distinct umbilical groove and umbilicus (Fig. 3a). Unfortunately the pictures of *O. turrita* in Graham (1988) are misleading which might explain the high number of misidentifications found. It has been suggested (S. Smith pers.comm.) that *O. turrita* and *O. plicata* are either a cline or they interbreed. Short specimens fit *O. turrita* and taller ones fit *O. plicata* with many intermediate forms. *Odostomia turrita* seems to be more selective about food and prefers *Spirorbis*, whereas *O. plicata* eats spirorbids and other small polychaetes. DNA investigations may be helpful to resolve the *Odostomia* complex.

**Lab 1901** identified as *O. umbilicaris*.

This shell is broader with more tumid whorls and distinctly prosocline growth lines (see Fig. 3c).

**Labs 1904a, 1907, 1910, 1913, 1918, 1922 and 1961** identified as *O. unidentata*.

This shell shows strongly prosocline growth lines and a distinctive lozenge-shaped, large aperture with a basal spout (see Fig. 3c).

**Labs 1904b, 1905, 1908, 1909, 1911 and 1912** identified as *O. turrita*.

This shell shows strongly prosocline growth lines, has no umbilicus and a rather indistinct umbilical groove (Fig. 3b).

**Labs 1916, 1919 and 1926** identified as *O. plicata*.

This shell is distinctively narrower, with whorls nearly flat-sided (see Fig. 3c).

Lab 1950 identified as *O. conoidea* which has been moved to the genus *Megastomia* (see Bouchet & Gofas 2014).

This shell shows distinctive spiral ridges on the inside of the outer lip of the aperture (see Fig. 3c).

Lab 1956 identified as *Peringia ulvae*.

In *P. ulvae* the shell is not heterostrophic, a characteristic of pyramidellid gastropods like *Odostomia* species, which have a protoconch lying across the apex or tucked upside down into it. Moreover the aperture of *P. ulvae* is lacking a tooth.

Total number of differences: 1 generic and 19 specific.

**RT4404 *Sabellaria alveolata* (Fig. 4a)** (cf. Hayward & Ryland 2011)

Substrate: Mud. Salinity: High. Depth: Infralittoral. Locality: NE England. Condition/Size: Good; Medium.



Fig. 4a. *Sabellaria alveolata* (dorsolateral view)



Fig. 4b. *Hydroides norvegica* (lateral view)

Lab 1918 identified as *Hydroides dianthus*.

*Hydroides dianthus* is a serpulid which lives in calcareous tubes, has a feathery tentacular crown and a solid stalked operculum with large, partly curved spines (see Fig. 4b as an example for the genus *Hydroides*). *Sabellaria alveolata* however is a sabellariid which lives in a sandy tube and can be reef-forming. The prostomium shows tentacular filaments and an operculum composed of modified chaetae arranged in concentric semicircles (see arrow Fig. 4a).

Total number of differences: 1 generic and 1 specific.

**RT4405 *Amphiura chiajei* (Fig. 5a, b)** (cf. Southward & Campbell 2006)

Substrate: Mixed. Salinity: Full. Depth: Circalittoral. Locality: North Sea. Condition/Size: Good; Large.



Fig. 5a. *Amphiura chiajei* (dorsal view)



Fig. 5b. Ventral side of arm with tentacle scales (arrow)

Lab 1950 identified as *A. filiformis*.

In contrast to *A. chiajei* this species does not have tentacle scales (see arrow Fig. 5b) and some of the arm spines are not pointed but have an axe-shaped tip.

Lab 1956 identified as *Ophiura* sp.

In this genus the arm spines are not projecting, but pressed close to the arm, a typical feature of the family Ophiuridae.

Total number of differences: 1 generic and 2 specific.

**RT4406 *Spisula subtruncata* (Fig. 6)** (cf. Oliver et al. 2010)

Substrate: Mud. Salinity: Reduced. Depth: Intertidal. Locality: S England. Condition/Size: Poor; Medium.



Fig. 6. *Spisula subtruncata*

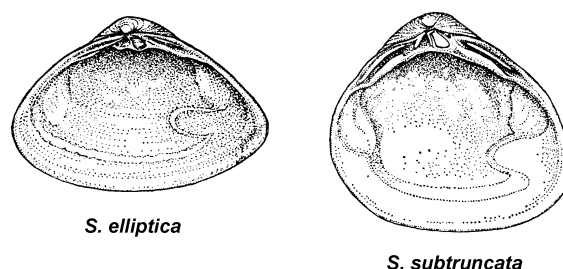


Fig. 6b. Pallial sinus of *Spisula elliptica* and *S. subtruncata* (from Tebble 1966)

Labs 1901, 1902b, 1913, 1916 and 1919 identified as *S. elliptica*.

The shells of *S. elliptica* and *S. subtruncata* are very similar externally, but *S. elliptica* is characterised by a pallial sinus reaching almost to the posterior end of the chondrophore and occurs offshore on the continental shelf, often on sand waves. In *S. subtruncata* in contrast the pallial sinus does not reach the posterior end of the chondrophore and the species ranges from low intertidal to the nearshore shelf (see Fig. 6b).

Total number of differences: 0 generic and 5 specific.

**RT4407 *Psamathe fusca* (Fig. 7)** (cf. Jarvis 2011)

Substrate: Mixed. Salinity: Full. Depth: Subtidal. Locality: NE England. Condition/Size: Good; Medium/Large.



Fig. 7. *Psamathe fusca* (dorsal view)

Labs 1905, 1911, 1913, 1918, 1919, 1922, 1950 and 1956 identified as *Kefersteinia cirrata* which is a junior synonym of *P. fusca* (cf. Pleijel 1998; Jarvis 2011). (Both names appear to be accepted on the WoRMS website which requires some clarification and probable emendation).

Total number of differences: 0 generic and 0 specific.

**RT4408 *Leitoscoloplos mammosus* (Fig. 8a, b)** (cf. Mackie 1987, Badalamenti & Castelli 1991, Unicomarine Key 1996)

Substrate: Mud/Sand. Salinity: Full. Depth: Subtidal. Locality: SW England. Condition/Size: Good; Large.



Fig. 8a. *Leitoscoloplos mammosus* (lateral view)



Fig. 8b. Anterior end of *L. mammosus* (ventral view)

Lab 1911 identified as *Scoloplos armiger*.

*Scoloplos armiger* can easily be confused with *L. mammosus* due to its general shape and occurrence in the same habitat. But in *L. mammosus* the thoracic neurochaetae are exclusively crenulated capillaries, while in *S. armiger* there are two kinds of neurochaetae: crenulated capillaries and shorter serrated hooks.

Lab 1961 identified as *Schroederella berkeleyi*.

The genus *Schroederella* differs from both *Leitoscoloplos* and *Scoloplos* by its first two segments being achaetous, while in the other two genera only the first segment (= peristomium) is achaetous (see Fig. 8b).

Total number of differences: 2 generic and 2 specific.

**RT4409 *Ampelisca spinipes* (Fig. 9)** (cf. Lincoln 1979, Dauvin & Bellan-Santini 1988)

Substrate: Hard. Salinity: Full. Depth: Sublittoral. Locality: Irish Sea. Condition/Size: Good; Large/Medium.

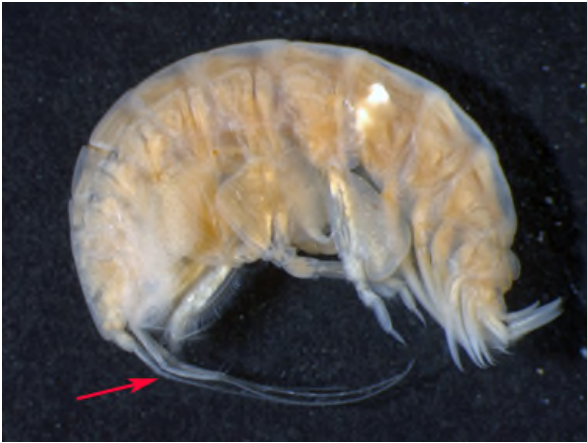


Fig. 9a. *Ampelisca spinipes* (lateral view)

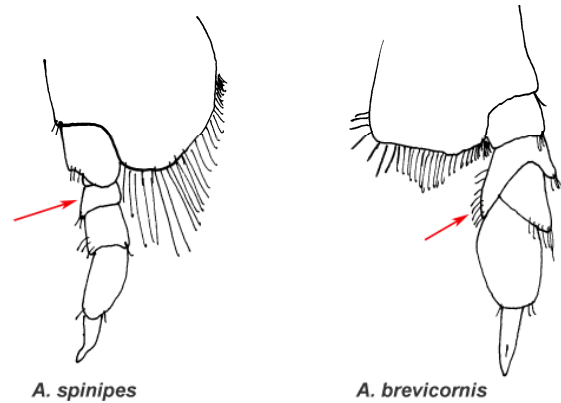


Fig. 9b. Merus of P7 (after Dauvin & Bellan-Santini 1988)

Labs 1902a, 1902c, 1904b, 1912 and 1919 identified as *A. diadema*.

*Ampelisca diadema* differs by its shorter antenna 1 which is only slightly longer than the peduncle of antenna 2, while in *A. spinipes* antenna 1 is distinctly longer than the peduncle of antenna 2 (see arrow Fig. 9a).

Lab 1918 identified as *A. tenuicornis*.

In *A. tenuicornis* antenna 1 is even shorter, not reaching the length of the peduncle of antenna 2.

Lab 1904a identified as *A. eschrichtii*.

*Ampelisca eschrichtii* can be distinguished by its uropod 2 with long marginal spines increasing in length distally, while in *A. spinipes*, *A. diadema* and *A. tenuicornis* uropod 2 has short spines all over.

Lab 1956 identified as *A. brevicornis*.

*Ampelisca brevicornis* is recognised by its merus of pereopod 7 with a large posterior lobe (see Fig. 9b).

Total number of differences: 0 generic and 8 specific.

**RT4410 *Ophelia borealis* (Fig. 10)** (cf. Rowe 2010)

Substrate: Sandy mud. Salinity: Full. Depth: Circalittoral. Locality: NW England. Condition/Size: Good; Medium.



Fig. 10. *Ophelia borealis* (lateral view)

This species was correctly identified by all participants.

Total number of differences: 0 generic and 0 specific.

**RT4411 *Dipolydora quadrilobata* (Fig. 11a)** (cf. Unicomarine Key 2000, Radashevski 2012, Radashevski & Simboursa 2013)

Substrate: Mud. Salinity: Reduced. Depth: Intertidal. Locality: E England. Condition/Size: Good; Whole; Medium.



Fig. 11a. *Dipolydora quadrilobata* (ventral view)

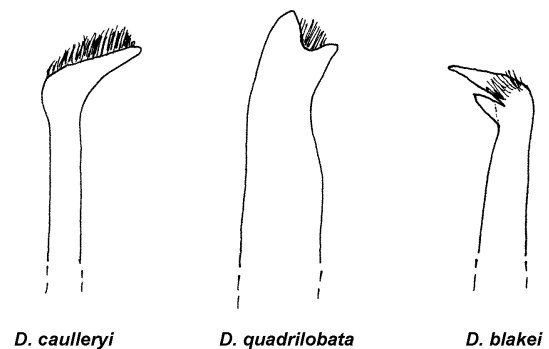


Fig. 11b. Falcate notochaetae of chaetiger 5  
(after Hartmann-Schröder 1996 and Radashevsky & Simboursa 2013)

So far only two species of *Dipolydora* with bristle-topped falcate notochaetae in chaetiger 5 are known from British waters, *D. caulleryi* and *D. quadrilobata*. In *D. quadrilobata* the falcate notochaetae are bidentate with bristles arising between the main fang and the lateral tooth and in *D. caulleryi* they are unidentate without lateral tooth and bristles covering the convex side of the main fang. A third species, *D. blakei* which is known to be widely distributed in the West Atlantic, was recently described as a new record for the Mediterranean Sea, by Radashevski & Simboursa (2013). In *D. blakei* the falcate notochaetae are bidentate as in *D. quadrilobata*, but the bristles arise from the convex side of the main fang as in *D. caulleryi* (see Fig. 11b.).

As this ring test was assembled before the paper by Radashevski & Simboursa (2013) was published, the specimens sent could have been confused with *D. blakei*. We re-investigated all specimens upon their return and confirm their identification as *D. quadrilobata*. The results of this ring test have been adjusted accordingly.

Lab 1902c identified as *D. blakei*.

Re-examination of the returned specimen showed that the bidentate notochaetae of chaetiger 5 agree with *D. quadrilobata* as described above.

Lab 1904b identified as *D. caulleryi*.

Re-examination of the returned specimen showed that the notochaetae of chaetiger 5 are bidentate and agree with *D. quadrilobata* as described above.

Labs 1909 and 1961 identified as *Polydora ciliata* or *P. ciliata* agg. respectively.

In contrast to *Dipolydora*, chaetiger 1 in *Polydora* is without notochaetae (see arrow in Fig. 11a showing chaetiger 1 with notochaetae).

Labs 1911 and 1926 identified as *Pseudopolydora antennata* and Labs 1913, 1914 and 1922 identified as *Pseudopolydora paucibranchiata*.

In *Pseudopolydora* neuropodial hooks start from chaetiger 8 and the hook shaft shows a constriction, while in *Dipolydora* the hooks start from chaetiger 7 and the shaft is without constriction.

Lab 1918 identified only to genus level (as *Dipolydora* sp.)

Total number of differences: 7 generic and 10 specific.

**RT4412 *Eusyllis blomstrandii* (Fig. 12)** (cf. San Martín 2003 & 2012)

Substrate: Mud/Gravel. Salinity: Reduced. Depth: Intertidal. Locality: Thames Estuary. Condition/Size: Good; Large.



Fig. 12. *Eusyllis blomstrandii* (dorsal view)

Lab 1913 identified as *Eusyllis lamelligera*.

In this species blades of compound chaetae are of different sizes within one parapod, while in *E. blomstrandii* they are all similar.

Lab 1901 identified as *Odontosyllis fulgurans* and Lab 1911 identified as *O. ctenostoma*.

*Odontosyllis* differs from *Eusyllis* by the absence of a mid-dorsal pharyngeal tooth.

Lab 1909 identified as *Syllis armillaris* and Lab 1950 identified as *S. hyalina*.

In *Syllis* antennae and dorsal cirri are distinctly articulated, while in *Eusyllis* they are smooth or only weakly articulated in the anterior part of the body.

Lab 1922 identified as *Dioplosyllis? cirrosa?*

*Dioplosyllis* is differentiated by its very long dorsal cirri coiled over the dorsum.

Lab 1918 identified only to Syllidae.

Total number of differences: 6 generic and 7 specific.

**RT4413 *Ampharete lindstroemi* agg. (Fig. 13)** (cf. Jirkov 2011; Jirkov & Leontovich 2013)

Substrate: Clay/Sand. Salinity: Full. Depth: Infralittoral. Locality: North Sea. Condition/Size: Good; Small.



Fig. 13. *Ampharete lindstroemi* agg. (lateral view)

Labs 1901, 1902b and 1912 identified as *A. grubei*, Labs 1902c, 1904a, 1913 and 1961 as *A. baltica* and Labs 1904b, 1914 and 1926 as *A. lindstroemi*.

As stated by Jirkov (2011; NMBAQC key) and Jirkov & Leontovich (2013) *A. lindstroemi* agg. represents a species of complex of *A. lindstroemi*, *A. grubei*, *A. baltica* and 2-3 undescribed species. Until a revision with descriptions of the respective species is published, all specimens lacking long neuropodial cirri in the two last thoracic segments and showing abdominal neuropodial cirri reduced, if present, should be identified as *A. lindstroemi* agg. For the purpose of this exercise we have not counted identifications as *A. grubei*, *A. baltica* or *A. lindstroemi* as differences.

Labs 1902a, 1902d, 1902e, 1902f, 1902g, 1905, 1907, 1908, 1910, 1911, 1916, 1922 and 1950 identified as *A. acutifrons*.

*Ampharete acutifrons* is differentiated by the presence of long neuropodial cirri in the two last thoracic and the following abdominal segments.

Upon a query by some participants having identified their specimens as *A. acutifrons*, all returns were re-examined and their identity as *A. lindstroemi* agg. confirmed. They show very small (reduced) cirri in the last thoracic neuropodia, becoming gradually larger towards the posterior end, but none were found to be considered as long as described by Jirkov (2011) and Jirkov & Leontovich (2013) for *A. acutifrons*.

Labs 1918 and 1919 identified as *A. finmarchica*.

*Ampharete finmarchica* differs by its huge paleal chaetae with sharply tapering tips from *A. lindstroemi* agg. with moderately sized palleae with slowly tapering tips.

Lab 1956 identified only to *Ampharete* sp.

Total number of differences: 0 generic and 16 specific.



**RT4414 *Periocolodes longimanus* (Fig. 14)** (cf. Lincoln 1979)

Substrate: Mud/Sand. Salinity: Full. Depth: Circalittoral. Locality: English Channel. Condition/Size: Good; Medium.



Fig. 14. *Periocolodes longimanus* (lateral view)

Labs 1904a and 1904b identified as *Monocolodes borealis* and Lab 1913 as *Monocolodes carinatus*. For distinguishing characters of *Periocolodes* and *Monocolodes* see above (RT4401).

Total number of differences: 3 generic and 3 specific.

**RT4415 *Scoloplos armiger* (Fig. 15)** (cf. Mackie 1987, Unicmarine key 1996)

Substrate: Sand. Salinity: Full. Depth: Infralittoral. Locality: SW England. Condition/Size: Good; Variable.



Fig. 15. *Scoloplos armiger* (lateral view)

Labs 1904a and 1904b identified as *Leitoscoloplos mammosus*. For distinguishing characters of *Scoloplos* and *Leitoscoloplos* see above (RT4408).

Total number of differences: 2 generic and 2 specific.

**RT4416 *Paranais litoralis* (Fig. 16)** (cf. Brinkhurst & Coates 1985, Worsfold 2003, van Haaren & Soors 2013)

Substrate: Clean sand. Salinity: Full. Depth: Infralittoral. Locality: Wales. Condition/Size: Good; Medium.



Fig. 16a. *Paranais litoralis* (ventral view)

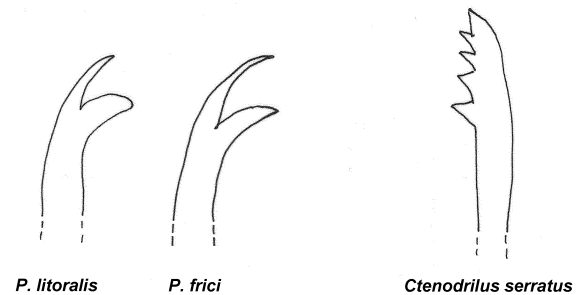


Fig. 16b. Distinctive chaetae of *Paranais* and *Ctenodrilus* (after Brinkhurst & Coates 1985 and Hartmann-Schröder 1996).

Lab 1902c identified as *P. frici*.

Morphologically *P. frici* is distinguished from *P. litoralis* by its differently shaped bidentate chaetae (see Fig. 16b). The main tooth is longer and the secondary tooth is less prominent than in *P. litoralis*. Moreover *P. frici* prefers fresh or brackish waters, while *P. litoralis* is much more salt tolerant.

Labs 1909, 1913 and 1922 identified as *Tubificoides pseudogaster* agg., Lab 1914 as *Tubificoides heterochaetus* and Lab 1950 as *Limnodrilus hoffmeisteri*.

These are long worms with numerous segments and thin, but uncompressed tail segments, while *P. litoralis* is small and short with compressed tail segments.

(NB. Recent taxonomic works now treat the Tubificidae as a subfamily, the Tubificinae, within the Naididae – see Erseus *et al.* 2008).

Lab 1911 identified as *Grania* spp.

*Grania* species are members of Enchytraeidae which have exclusively simple, pointed chaetae, while in other oligochaete families chaetae are mostly bidentate and additional other chaetal types can be present.

Lab 1919 identified as *Ctenodrilus serratus*.

*Ctenodrilus serratus* is a polychaete which might be confused with *P. litoralis* due to its low number of segments (up to 15), but the presence of pectinate chaetae is distinctive (see Fig. 16b).

Lab 1956 identified only to Tubificidae (spelling error).

Total number of differences: 8 generic and 9 specific.

**RT4417 *Parexogone hebes* (Fig. 17)** (cf. San Martín 2003 & 2012)

Substrate: Muddy sand. Salinity: Full. Depth: Infralittoral. Locality: N Wales. Condition/Size: Good; Large.



Fig. 17. *Parexogone hebes* (dorsal view)

Labs 1914 and 1922 identified as *Exogone verrugera* and Lab 1956 identified only to *Exogone* sp.

In the past many authors considered *Parexogone* to be a subgenus of *Exogone*. Following a general trend to abolish subgenera in polychaete taxonomy, the key presented by San Martín at the NMBAQC workshop in 2012 lists now *Parexogone* as a genus. Since this key is not yet published and thus maybe not available to all participants, all identifications as *Exogone hebes*, *Parexogone hebes*, or *Exogone (Parexogone) hebes* are accepted as correct herein.

*Exogone* differs from *Parexogone* by its blades of compound chaetae being variously shaped, i.e. spiniger- or elongated falciger-like, or blades fused to shaft or missing. In *Parexogone* blades are mostly short bidentate falcigers with few spinigers or elongate falcigers being present.

Total number of differences: 3 generic and 3 specific.

**RT4418 *Syllidia armata* (Fig. 18)** (cf. Jarvis 2011)

Substrate: Sand. Salinity: Full. Depth: Infralittoral. Locality: S North Sea. Condition/Size: Good; Medium.



Fig. 18. *Syllidia armata* (dorsal view)

Lab 1918 identified as *Kefersteinia cirrata* which is a junior synonym of *Psamathe fusca* according to Pleijel (1998). *Psamathe* differs from *Syllidia* by the presence of 8 pairs of tentacular cirri.

Lab 1919 identified as *Nereimyra punctata*.

Both, *Nereimyra* and *Syllidia*, have 6 pairs of tentacular cirri, but *Nereimyra* differs by the presence of some notochaetae, while they are missing in *Syllidia*.

Total number of differences: 2 generic and 2 specific.

**RT4419 *Pseudocuma longicorne* (Fig. 19)** (cf. Shalla 2011)

Substrate: Mud/Sand. Salinity: Full. Depth: Infralittoral. Locality: SW England. Condition/Size: Good; Medium.



Fig. 19. *Pseudocuma longicorne* (lateral view)

**Lab 1918** and **1961** identified as *Monopseudocuma gilsoni*.

Males of *M. gilsoni* have one pair of pleopods and the flagellum of antenna 2 is short, extending to the end of the pereon. Males of *P. longicorne*, however, have two pairs of pleopods and the flagellum of antenna 2 is long, extending to at least pleonite 5.

Females of *M. gilsoni* are distinguished by their uropod peduncle which is as long as the endopod, while in those of *P. longicorne*, the uropod peduncle is shorter than the endopod.

**Lab 1909** identified as *Petalosarsia declivis*.

*Petalosarsia declivis* can be differentiated by the shape of its carpus in pereopod 1 which is expanded and flattened.

**Lab 1913** identified as *Cyclaspis longicaudata*.

As a member of the family Bodotriidae, *C. longicaudata* lacks a freely articulated telson. In Pseudocumatidae, however, a short freely articulated telson is present.

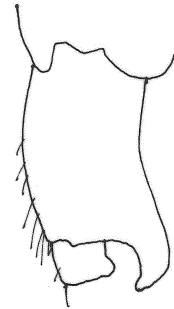
Total number of differences: 4 generic and 4 specific.

**RT4420 *Nototropis guttatus* (Fig. 20a, c)** (cf. Lincoln 1979)

Substrate: Gravel. Salinity: Full. Depth: Infralittoral. Locality: Irish Sea. Condition/Size: Good; Small.



Fig. 20a. *Nototropis guttatus* (lateral view)



*Nototropis vedlomensis*

Fig. 20b. Basis of P 5 of *N. vedlomensis* (after Lincoln 1979)

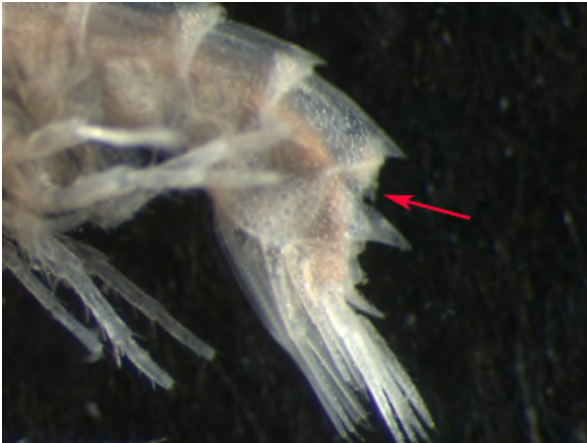


Fig. 20c. Posterior segments of *N. guttatus* (lateral view)



Fig. 20d. Posterior segments of *D. spinosa* (lateral view)

Labs 1901, 1902a, 1902b, 1902c, 1902d, 1902e, 1902f, 1902g, 1905, 1907, 1908, 1909, 1910, 1911, 1912, 1914, 1916, 1919, 1922, 1950, and 1961 identified as *Atylus guttatus* and Lab 1956 as *Atylys guttatus* (spelling error).

In the past this species has been either attributed to the genus *Nototropis* or to *Atylus*. According to Lowry (2013) the accepted name is *Nototropis guttatus*. Lowry expressed this opinion already in WoRMS in 2010 and confirmed it again in the newly erected World Amphipoda Database in 2013. For the purpose of this exercise we will not count identifications to the genus *Atylus* as differences.

Labs 1904b, 1913, 1918 and 1926 identified as *Atylus vedlomensis*, now accepted as *Nototropis vedlomensis*. *Nototropis vedlomensis* is differentiated by the basis of pereopod 5 which has a prolonged hook-like process (see Fig. 20b).

Lab 1904a identified as *Dexamine spinosa*.

*Dexamine spinosa* lacks the spinulose tubercle on urosome 1 in front of the prominent tooth (see Fig. 20d) which is typical for *Nototropis guttatus* (see arrow Fig. 20c).

Total number of differences: 1 generic and 5 specific.

**RT4421 *Monopseudocuma gilsoni* (Fig. 21)** (cf. Shalla 2011)

Substrate: Mud/Sand. Salinity: Full. Depth: Infralittoral. Locality: Irish Sea. Condition/Size: Fair; Variable.



Fig. 21. *Monopseudocuma gilsoni* (lateral view)

Labs 1904a and 1913 identified as *Pseudocuma longicorne*.

For distinguishing characters of *Pseudocuma* and *Monopseudocuma* see above (RT4419).

Total number of differences: 2 generic and 2 specific.

**RT4422 *Pleurobrachia pileus* (Fig. 22)** (cf. Hayward & Ryland 2011, Granhag et al. 2012)

Substrate: Silt. Salinity: Full. Depth: Intertidal. Locality: Irish Sea. Condition/Size: Good; Medium.

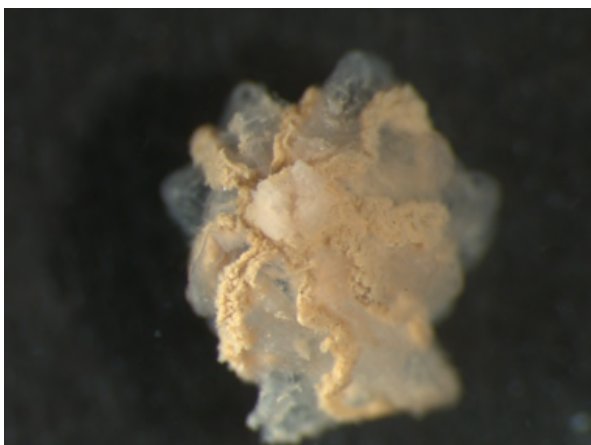


Fig. 22. *Pleurobrachia pileus* (oral view)

*Pleurobrachia pileus* is a typical representative of the planktonic phylum Ctenophora. Occasionally mass stranding is known to occur e.g. after stormy weather, which explains the presence of these animals in benthic samples. Members of Ctenophora (or comb jellies) have 8 meridional rows of ciliary plates or comb rows which should be distinct, even when the animals are in bad condition.

Labs 1902b, 1902d and 1902e identified as *Pleurobranchia pileus* and Lab 1956 as *Plaurobrachia pileus* respectively (spelling errors).

Labs 1904a, 1913, 1919 and 1926 identified as *Beroe cucumis*.

*Beroe* species have a more cylindrical body shape and a much wider mouth opening than *Pleurobrachia* which is more or less gooseberry-shaped with a well defined mouth.

Lab 1902c identified as *Euplokamis dunlapae*.

Smaller specimens of *E. dunlapae* can be confused with *P. pileus*, but the comb rows in *E. dunlapae* extend only up to  $\frac{3}{4}$  of the full body length, whereas in *P. pileus* they extend more or less over the full body length.

Lab 1910 identified as ?*Aurelia aurita* (bad condition) (Cnidaria), Lab 1916 as *Depastrum cyathiforme* (Cnidaria), Lab 1918 as *Haliclystus octoradiatus* (Cnidaria), Lab 1961 as *Cervera atlantica* (Cnidaria), Lab 1950 as *Rhabdomolgus ruber* (Echinodermata) and Lab 1905 as *Ciona intestinalis* (Chordata).

These species are all members of other phyla which do not have the typical comb rows of the Ctenophora.

Total number of differences: 11 generic and 11 specific (spelling errors not counted).

**RT4423 *Sphaerosyllis hystrix* (Figs. 23a, b)** (cf. San Martín 2003 & 2012)

Substrate: Mud. Salinity: Reduced. Depth: Intertidal. Locality: SE England. Condition/Size: Good; Medium.



Fig. 23a. *Sphaerosyllis hystrix* (dorsal view)

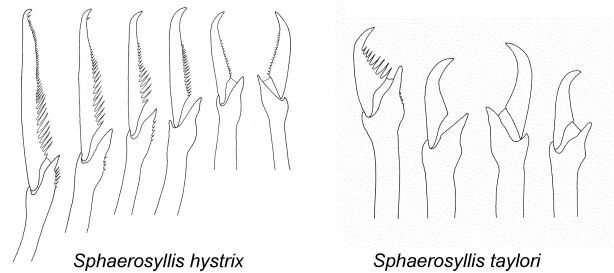


Fig. 23b. Anterior neurochaetae of *S. hystrix* and *S. taylora* (from San Martín 2003)

The distributed specimens were originally identified and validated as *Sphaerosyllis taylora* and the results of the first version of this ring test have been based on this identification. Following a discussion with some participants, we re-investigated the returned specimens and confirm their identity to be *S. hystrix* as they have anterior neurochaetae showing a distinct dorsoventral gradation in length of blades from long to short. *Sphaerosyllis taylora* in contrast shows no dorsoventral gradation and blades are all short and typically sickle-shaped (Fig. 23b). The results have been changed accordingly herein. Due to the small size of many syllid species their identification has always been challenging which might explain the high number of misidentifications found. Additionally the keys used by participants might not be very clear in distinguishing between these two species. Although in Spanish, we recommend the perfectly illustrated work on Syllidae of the Fauna Iberica series by San Martín (2003) in addition to the two subsequent NMBAQC workshop guides on Syllidae by Garwood (2006) and San Martín (2012), though neither of these have been published.

Labs 1901, 1902a, 1902b, 1902c, 1902d, 1902e, 1902f, 1902g, 1904a, 1904b, 1907, 1909, 1910, 1912, 1916, 1919, 1926 identified as *S. taylora* which differs by the characters explained above from *S. hystrix*.

Lab 1950 identified as *Erinaceusyllis erinaceus* and Lab 1914 as *Prosphaerosyllis tetralix*.

*Erinaceusyllis* and *Prosphaerosyllis* are characterised by the presence of four eyes and a pair of additional eyespots. *Sphaerosyllis* has only four eyes, without additional eyespots.

Lab 1956 identified only to genus level (as *Sphaerosyllis* sp.)

Total number of differences: 2 generic and 20 specific.

**RT4424 *Boccardiella ligerica* (Fig. 24)** (cf. Unicomarine Key 2000)

Substrate: Mixed. Salinity: High. Depth: Infralittoral. Locality: SW England. Condition/Size: Fair; Medium/Large.



Fig. 24. *Boccardiella ligerica* (dorsal view)

Lab 1913 identified as *Pseudopolydora antennata*.

In *Pseudopolydora* neuropodial hooks are present from chaetiger 8, while in *Boccardiella* and the other genera discussed here they start from chaetiger 7.

Lab 1912 identified as *Dipolydora coeca*, Labs 1904a, 1904b and 1919 as *D. quadrilobata*., Lab 1961 as *D. socialis* and Lab 1901 as *Polydora cornuta*.

*Dipolydora* and *Polydora* differ mainly from *Boccardiella* by their branchiae which start from chaetiger 7-10, while in *Boccardiella* they start from chaetiger 2 (see arrow Fig. 24).

Total number of differences: 7 generic and 7 specific.

**RT4425 *Pygospio elegans* (Fig. 25)** (cf. Unicomarine Key 2000)

Substrate: Mud. Salinity: Full. Depth: Intertidal. Locality: Thames Estuary. Condition/Size: Good; Small.



Fig. 25. *Pygospio elegans* (dorsal view)

Lab 1950 identified as *Spio gonocephala*.

In the genus *Spio* branchiae start from chaetiger 1, while in *Pygospio* they are present only after chaetiger 10.

Total number of differences: 1 generic and 1 specific.



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## Ring Test Specimen Return Instructions

**Please return all ring test specimens as soon as possible.**

These are reference specimens and must be returned to our collection. Your laboratory may be ineligible for future ring tests if specimens are not returned.

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