



NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

Laboratory Reference Module Summary Report

Benthic Invertebrate Component - 2023/24

LR28

14 June 2024

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MODULE / EXERCISE DETAILS

Module:	Laboratory Reference (LR)
Exercises:	LR28
Data/Sample Request Circulated:	15th November 2023
Sample Submission Deadline:	26th January 2024
Number of Subscribing Laboratories:	6
Number of LR Received:	3

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Summary

The Laboratory Reference module is a training module to encourage laboratories to build reference collections to improve identification consistency and to seek additional opinions for difficult specimens. The value of reference material in assisting identification cannot be over-emphasized; the creation and use of reference collections is viewed as best practice. Accordingly, the Laboratory Reference (LR) module of the Scheme was introduced in Scheme Year 3 (1996 / 1997). This module can help participating laboratories to assess their ability to identify material from their own samples. Laboratories are also able to use this exercise to obtain second opinion identifications for difficult or problematic taxa. The relatively high number of taxonomic edits and mismatches in the LR28 Laboratory Reference submissions highlights the usefulness of these exercises. This is especially so when laboratories are compiling voucher material for Reference Collections. There is great value in gaining a second opinion from experienced taxonomists on identifications of selected specimens. Range expansions and arrivals of alien taxa may bring new unfamiliar fauna into many areas. In addition, taxonomy is always changing with revisions of various groups, leading to nomenclatural changes or descriptions of new species.

Table 1. Summary of mis-identified taxa in the Laboratory Reference Module (LR28) (erroneous identifications in brackets).

LabCode	Taxonomic Edits	Major Taxonomic Group				
		Polychaeta	Oligochaeta	Crustacea	Mollusca	Other
BI_3002	7	<i>Eulalia viridis</i> agg. (<i>Eulalia ornata</i> ?)	-	<i>Iphimedia minuta</i> (<i>Iphimedia nexa</i>)	<i>Aporrhais</i> juv. (<i>Mangelia</i>)	-
		<i>Eulalia aurea</i> (<i>Eulalia viridis</i>)	-	<i>Microdeutopus anomalus</i> (<i>Microdeutopus gryllotalpa</i>)	-	-
		<i>Spio malmgreni</i> (<i>Spio arndti</i>)	-	<i>Caprella septentrionalis</i> (<i>Caprella linearis</i>)	-	-
BI_3018	8	<i>Harmothoe mariannae</i> (<i>Harmothoe fraserthomsoni</i>)	-	<i>Gammarus oceanicus</i> (<i>Gammarus chevreuxi</i>)	-	<i>Thyone fusus</i> (<i>Ekmania barthii</i>)
		<i>Chaetozone</i> (<i>Chaetozone hystricosa</i>); not <i>C. hystricosa</i> , probable undescribed sp.	-	<i>Nebalia borealis</i> (<i>Nebalia bipes</i>)	-	-
		<i>Chaetozone</i> (<i>Chaetozone christiei</i>); not <i>C. christiei</i> , probable undescribed sp.	-	-	-	-
		<i>Lamispina falcata</i> (<i>Pherusa arctica</i>)	-	-	-	-
		<i>Syllis kas</i> (<i>Syllis fasciata</i>)	-	-	-	-
BI_3019	6	<i>Syllis pontxioi</i> (<i>Syllis cf hyalina</i>)	-	-	<i>Petricolaria pholadiformis</i> juv. (<i>Kurtiella bidentata</i>)	<i>Golfingia elongata</i> (<i>Golfingia vulgaris</i>)
		<i>Arenicola</i> - fragment (Sipuncula)	-	-	<i>Diplodonta rotundata</i> juv. (<i>Kellia</i> spp. (#2))	-
		-	-	-	<i>Asbjornsenia pygmaea</i> (<i>Tellina donacina</i>)	-
TOTAL	21	10	0	5	4	2
% Error	28	48	0	24	19	10

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

Table 2. Summary of recording policy and taxonomic resolution changes in the Laboratory Reference Module (LR28) (original identifications in brackets).

LabCode	Number of differences	Identification policy difference explanations (participant original identifications in brackets)
BI_3002	5	Nemertea (<i>Lineus</i>) - Taxonomic resolution reduced
		<i>Phascolion strombus</i> (<i>Onchnesoma</i> / <i>Phascolion</i> ?) - Taxonomic resolution increased
		<i>Eumida sanguinea</i> agg. (<i>Eumida sanguinea</i>) - Taxonomic resolution reduced
		<i>Retusa umbilicata</i> (<i>Cylichna umbilicata</i>) - Nomenclature update
		<i>Alvania punctura</i> (<i>Alvania</i>) - Taxonomic resolution increased
BI_3018	2	<i>Spio</i> (<i>Spio arndti</i>) - Taxonomic resolution reduced, possible undescribed sp.
		<i>Echinogammarus finmarchicus</i> (<i>Echinogammarus incertae sedis finmarchicus</i>) - Recording policy difference
BI_3019	4	<i>Chaetopterus</i> (<i>Chaetopterus variopedatus</i>) - Taxonomic resolution reduced
		<i>Glycymeris glycymeris</i> juv. (<i>Glycymeris spat</i>) - Taxonomic resolution increased
		<i>Gammaropsis maculata</i> ? (<i>Gammaropsis maculata</i> (#2)) - Darker than typical
		Folliculinidae (<i>Lagotia viridis</i>) - Taxonomic resolution reduced

APPENDIX

LR28 individual summary reports for participating laboratories



NMBAQC Scheme Laboratory Reference Interim Results

Laboratory reference: LR28

Audit Completion Date: 26 April 2024

Date received: 28 February 2024

Auditor (lead): Tim Worsfold

Laboratory Code: BI_3002

Auditor (review): Rachel Jacobson

Key: Blue text = no change, Green text = change

No.	Original Data (OD) Identification	Edited Data (ED) Identification	Comment	WoRMS List Reference (29/04/24)
1	Amphiporus bioculatus	Amphiporus bioculatus		Amphiporus bioculatus McIntosh, 1874
2	Lineus	Nemertea	Taxonomic resolution reduced	Nemertea
3	Onchnesoma / Phascolion?	Phascolion strombus	Taxonomic resolution increased	Phascolion (Phascolion) strombus strombus (Montagu, 1804)
4	Aricidea cerrutii	Aricidea cerrutii		Aricidea (Acmira) cerrutii Laubier, 1966
5	Eulalia ornata?	Eulalia viridis agg.	Taxonomic edit	Eulalia viridis (Linnaeus, 1767)
6	Eulalia viridis	Eulalia aurea	Taxonomic edit	Eulalia aurea Gravier, 1896
7	Eulalia expusilla	Eulalia expusilla		Eulalia expusilla Pleijel, 1987
8	Eumida sanguinea	Eumida sanguinea agg.	Taxonomic resolution reduced	Eumida sanguinea (Örsted, 1843)
9	Nereiphylla rubiginosa	Nereiphylla rubiginosa		Nereiphylla rubiginosa (de Saint-Joseph, 1888)
10	Pseudopolydora nordica	Pseudopolydora nordica		Pseudopolydora nordica Radashevsky, 2021
11	Laonice bahusiensis	Laonice bahusiensis		Laonice bahusiensis Söderström, 1920
12	Spio arndti	Spio malmgreni	Taxonomic edit	Spio malmgreni Sikorski in Jirkov, 2001
13	Notocirrus scoticus	Notocirrus scoticus		Notocirrus scoticus McIntosh, 1869
14	Myriochele danielsseni	Myriochele danielsseni		Myriochele danielsseni Hansen, 1878
15	Ampelisca typica	Ampelisca typica		Ampelisca typica (Spence Bate, 1857)
16	Iphimedia nexa	Iphimedia minuta	Taxonomic edit	Iphimedia minuta G.O. Sars, 1883
17	Microdeutopus gryllotalpa	Microdeutopus anomalus	Taxonomic edit	Microdeutopus anomalus (Rathke, 1843)
18	Caprella linearis	Caprella septentrionalis	Taxonomic edit	Caprella septentrionalis Krøyer, 1838
19	Mangelia	Aporrhais juv.	Taxonomic edit	Aporrhais da Costa, 1778
20	Cylichna umbilicata	Retusa umbilicata	Nomenclature update	Retusa umbilicata (Montagu, 1803)
21	Spiralina spiralis	Spiralina spiralis		Spiralina spiralis (Montagu, 1803)
22	Chrysallida interstincta	Chrysallida interstincta		Parthenina interstincta (J. Adams, 1797)
23	Alvania	Alvania punctura	Taxonomic resolution increased	Alvania punctura (Montagu, 1803)
24	Gouldia minima	Gouldia minima		Gouldia minima (Montagu, 1803)
25	Thracia villiosuiscula	Thracia villiosuiscula		Thracia villosiuscula (MacGillivray, 1827)



NMBAQC Scheme Laboratory Reference Interim Results

Laboratory reference: LR28

Audit Completion Date: 31 May 2024

Date received: 15 May 2024

Auditor (lead): Tim Worsfold

Laboratory Code: BI_3018

Auditor (review): Rachel Jacobson, Chris Ashelby, Niccola Pennisi

Key: Blue text = no change, Green text = change

No.	Original Data (OD) Identification	Edited Data (ED) Identification	Comment	WoRMS List Reference (03/06/24)
1	Spio armata	Spio armata		Spio armata (Thulin, 1957)
2	Spio arndti	Spio	Taxonomic resolution reduced, possible undescribed sp.	Spio Fabricius, 1785
3	Amauropsis islandica	Amauropsis islandica		Amauropsis islandica (Gmelin, 1791)
4	Littorina obtusata	Littorina obtusata		Littorina obtusata (Linnaeus, 1758)
5	Lacuna pallidula	Lacuna pallidula		Lacuna pallidula (da Costa, 1778)
6	Tectura virginea	Tectura virginea		Tectura virginea (O. F. Müller, 1776)
7	Anoplodactylus petiolatus	Anoplodactylus petiolatus		Anoplodactylus petiolatus (Krøyer, 1844)
8	Paradoneis andreae	Paradoneis andreae		Paradoneis andreae López & Sikorski, 2017
9	Harmothoe fraserthomsoni	Harmothoe mariannae	Taxonomic edit	Harmothoe mariannae Barnich & Fiege, 2009
10	Malmgrenia andreapolis	Malmgrenia andreapolis		Malmgrenia andreapolis McIntosh, 1874
11	Lysilla loveni	Lysilla loveni		Lysilla loveni Malmgren, 1866
12	Echinogammarus incertae sedis finmarchicus	Echinogammarus finmarchicus	Recording policy difference	Echinogammarus incertae sedis finmarchicus (Dahl, 1938)
13	Marinogammarus obtusatus	Marinogammarus obtusatus		Marinogammarus obtusatus (Dahl, 1938)
14	Gammarus chevreuxi	Gammarus oceanicus	Taxonomic edit	Gammarus oceanicus Segerstråle, 1947
15	Malmgrenia mcintoshi	Malmgrenia mcintoshi		Malmgrenia mcintoshi (Tebble & Chambers, 1982)
16	Chaetozone hystricosa	Chaetozone	Taxonomic edit; not C. hystricosa, probable undescribed sp.	Chaetozone Malmgren, 1867
17	Hypereteone foliosa	Hypereteone foliosa		Hypereteone foliosa (Quatrefages, 1865)
18	Chaetozone christiei	Chaetozone	Taxonomic edit; not C. christiei, probable undescribed sp.	Chaetozone Malmgren, 1867
19	Pherusa arctica	Lamispina falcata	Taxonomic edit	Lamispina falcata (Støp-Bowitz, 1948)
20	Syllis fasciata	Syllis kas	Taxonomic edit	Syllis kas Lucas, Sikorski & San Martín, 2018
21	Prionospio fallax	Prionospio fallax		Prionospio fallax Söderström, 1920
22	Syllis variegata	Syllis variegata		Syllis variegata Grube, 1860
23	Nebalia bipes	Nebalia borealis	Taxonomic edit	Nebalia borealis Dahl, 1985
24	Ekmania barthii	Thyone fusus	Taxonomic edit	Thyone fusus (O.F. Müller, 1776)
25	Boreochiton ruber	Boreochiton ruber		Boreochiton ruber (Linnaeus, 1767)



NMBAQC Scheme Laboratory Reference Interim Results

Laboratory reference: LR28

Audit Completion Date: 29 April 2024

Date received: 29th January 2024

Auditor (lead): Tim Worsfold

Laboratory Code: BI_3019

Auditor (review): Rachel Jacobson

Key: Blue text = no change, Green text = change

No.	Original Data (OD) Identification	Edited Data (ED) Identification	Comment	WoRMS List Reference (11/05/24)
1	Theora lubrica	Theora lubrica		Theora lubrica A. Gould, 1861
2	Gammarus salinus	Gammarus salinus		Gammarus salinus Spooner, 1947
3	Pseudoprotella phasma	Pseudoprotella phasma		Pseudoprotella phasma (Montagu, 1804)
4	Chaetopterus variopedatus	Chaetopterus	Taxonomic resolution reduced	Chaetopterus Cuvier, 1830
5	Laonice bahusiensis	Laonice bahusiensis		Laonice bahusiensis Söderström, 1920
6	Glycymeris spat	Glycymeris glycymeris juv.	Taxonomic resolution increased	Glycymeris glycymeris (Linnaeus, 1758)
7	Prionospio fallax	Prionospio fallax		Prionospio fallax Söderström, 1920
8	Urothoe elegans	Urothoe elegans		Urothoe elegans Spence Bate, 1857
9	Caprella equilibra	Caprella equilibra		Caprella equilibra Say, 1818
10	Athanas nitescens	Athanas nitescens		Athanas nitescens (Leach, 1814)
11	Gammaropsis maculata (#2)	Gammaropsis maculata ?	Darker than typical	Gammaropsis maculata (Johnston, 1828)
12	Ampelisca typica	Ampelisca typica		Ampelisca typica (Spence Bate, 1857)
13	Lagotia viridis	Folliculinidae	Taxonomic resolution reduced	Folliculinidae Dons, 1914
14	Asthenognathus atlanticus	Asthenognathus atlanticus		Asthenognathus atlanticus Monod, 1933
15	Natanolana gallica	Natanolana gallica		Natanolana gallica (Hansen, 1905)
16	Kurtiella bidentata	Petricolaria pholadiformis juv.	Taxonomic edit	Petricolaria pholadiformis (Lamarck, 1818)
17	Acidostoma obesum (#2)	Acidostoma obesum		Acidostoma obesum (Spence Bate & Westwood, 1861)
18	Golfingia vulgaris	Golfingia elongata	Taxonomic edit	Golfingia (Golfingia) elongata (Keferstein, 1862)
19	Kellia spp. (#2)	Diplodonta rotundata juv.	Taxonomic edit	Diplodonta rotundata (Montagu, 1803)
20	Pontocrates moorei	Pontocrates moorei		Pontocrates moorei Myers & Ashelby, 2022
21	Pseudonotomastus southerni	Pseudonotomastus southerni		Pseudonotomastus southerni Warren & Parker, 1994
22	Syllis cf hyalina	Syllis pontxioi	Taxonomic edit	Syllis pontxioi San Martín & López, 2000
23	Tellina donacina	Asbjornsenia pygmaea	Taxonomic edit	Asbjornsenia pygmaea (Lovén, 1846)
24	Sipuncula	Arenicola - fragment	Taxonomic edit	Arenicola Lamarck, 1801
25	Tubificoides brownae (#3)	Tubificoides brownae		Tubificoides brownae Brinkhurst & Baker, 1979