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Fish Reverse Ring Test Bulletin – FRRT11

10 January 2019

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APEM

MODULE / EXERCISE DETAILS

Module:	Fish Reverse Ring Test FRRT
Exercises:	FRRT11
Specimen Request Circulated:	9th September 2019
Specimen Submission Deadline:	6th December 2019
Number of Subscribing Laboratories:	13
Number of Submissions Received:	13

Table1. Summary specimens and data received from participating laboratories for the eleventh Fish Reverse Ring Test FRRT11

Number of specimens submitted: **190**
Number of species: **70**
Number of taxonomic errors (TE): **5**
Number of taxonomic discrepancies (TD; *spelling error, **synonym): **6**
Number of problematic taxa submitted (†): **4**

Class	Order	Family	Species	Common name	No. of spms	No. of TE	No. of TD
Elasmobranchii	Rajiformes	Rajidae	*Raja clavata* Linnaeus, 1758	thornback ray	1		
			Raja montagui Fowler, 1910	spotted ray	1		
Actinopterygii	Clupeiformes	Clupeidae	*Clupea harengus* Linnaeus, 1758	herring	7		
			Sprattus sprattus (Linnaeus, 1758)	sprat	8		
		Engraulidae	*Engraulis encrasicolus* (Linnaeus, 1758)	anchovy	2		
	Cypriniformes	Cyprinidae	*Alburnus alburnus* (Linnaeus, 1758)	bleak	2	1	
			Gobio gobio (Linnaeus, 1758)	gudgeon	1		
			Leuciscus leuciscus (Linnaeus, 1758)	dace	1		
	Osmeriformes	Osmeridae	*Osmerus eperlanus* (Linnaeus, 1758)	smelt	1		
	Gadiformes	Gadidae	*Gadus morhua* Linnaeus, 1758	cod	3		
			Merlangius merlangus (Linnaeus, 1758)	whiting	6		
			Pollachius pollachius (Linnaeus, 1758)	pollack	2	1	
			Trisopterus capelanus (Lacepède, 1800)	n/a	1		
			Trisopterus esmarkii (Nilsson, 1855)	Norway pout	1		
			Trisopterus luscus (Linnaeus, 1758)	pout/bib	5		
			Trisopterus minutus (Linnaeus, 1758)	poor-cod	3		
		Lotidae	*Ciliata mustela* (Linnaeus, 1758)	five-bearded rockling	2		
		Phycidae	*Phycis blennoides* (Brünnich, 1768)	greater fork-beard	1		
		Merlucciidae	*Merluccius merluccius* (Linnaeus, 1758)	hake	1		
	Atheriniformes	Atherinidae	*Atherina presbyter* Cuvier, 1829	sand-smelt	6		

Class	Order	Family	Species	Common name	No. of spms	No. of TE	No. of TD
	Gasterosteiformes	Gasterosteidae	*Spinachia spinachia* (Linnaeus, 1758)	fifteen-spined stickleback	4		
	Syngnathiformes	Syngnathidae	*Entelurus aequoreus* (Linnaeus, 1758)	snake pipefish	1	1	
			Nerophis lumbriciformis (Jenyns, 1835)	worm pipefish	1		
			Syngnathus rostellatus Nilsson, 1855	Nilsson's pipefish	5		
	Scorpaeniformes	Sebastidae	†*Helicolenus dactylopterus* (Delaroche, 1809)	blue-mouth redfish	1		
		Triglidae	*Chelidonichthys cuculus* (Linnaeus, 1758)	red gurnard	1		1**
			Chelidonichthys lucerna (Linnaeus, 1758)	tub gurnard	2		
			Eutrigla gurnardus (Linnaeus, 1758)	grey gurnard	6		
		Cottidae	*Myoxocephalus scorpius* (Linnaeus, 1758)	short-spined sea scorpion	1		
			Taurulus bubalis (Euphrasen, 1786)	sea scorpion	1		
		Agonidae	*Agonus cataphractus* (Linnaeus, 1758)	pogge	3		
		Liparidae	*Liparis liparis* (Linnaeus, 1766)	sea-snail	1		
	Perciformes	Moronidae	*Dicentrarchus labrax* (Linnaeus, 1758)	seabass	7		
		Carangidae	†*Trachurus trachurus* (Linnaeus, 1758)	scad	7		
		Sparidae	*Diplodus annularis* (Linnaeus, 1758)	annular seabream	1		
			Diplodus vulgaris (Geoffroy Saint-Hilaire, 1817)	two banded seabream	1		
			Lithognathus mormyrus (Linnaeus, 1758)	striped seabream	1		
			Pagellus acarne (Risso, 1827)	axillary seabream	1		
			Pagellus erythrinus (Linnaeus, 1758)	Pandora	1		
			Sparus aurata Linnaeus, 1758	gilthead seabream	2		
		Mullidae	*Mullus barbatus* Linnaeus, 1758	red mullet	1		
			Mullus surmuletus Linnaeus, 1758	striped red mullet	4	1	
		Mugilidae	*Chelon auratus* (Risso, 1810)	golden grey mullet	2		2**
			†*Chelon labrosus* (Risso, 1827)	thick-lipped grey mullet	1		
		Labridae	*Ctenolabrus rupestris* (Linnaeus, 1758)	goldsinny	2		
			Labrus bergylta Ascanius, 1767	ballan wrasse	2	1	
			Symphodus melops (Linnaeus, 1758)	corkwing wrasse	2		
		Trachinidae	*Echiichthys vipera* (Cuvier, 1829)	lesser weever	3		1*

Class	Order	Family	Species	Common name	No. of spms	No. of TE	No. of TD
		Blenniidae	*Lipophrys pholis* (Linnaeus, 1758)	shanny	1		
		Zoarcidae	*Zoarces viviparus* (Linnaeus, 1758)	viviparous blenny	1		
		Ammodytidae	*Ammodytes tobianus* Linnaeus, 1758	lesser sand-eel	3		
			Hyperoplus lanceolatus (Le Sauvage, 1824)	greater sandeel	2		
		Callionymidae	*Callionymus lyra* Linnaeus, 1758	dragonet	5		
		Gobiidae	*Aphia minuta* (Risso, 1810)	transparent goby	4		
			†*Gobius gasteveni* Miller, 1974	Steven's goby	1		
			Gobius niger Linnaeus, 1758	black goby	2		
			Pomatoschistus microps (Krøyer, 1838)	common goby	4		
			Pomatoschistus minutus (Pallas, 1770)	sand goby	10		1*
			Pomatoschistus pictus (Malm, 1865)	painted goby	2		
		Scombridae	*Scomber scombrus* Linnaeus, 1758	Mackerel	3		
	Pleuronectiformes	Citharidae	*Citharus linguatula* (Linnaeus, 1758)	spotted flounder	1		
		Scophthalmidae	*Scophthalmus rhombus* (Linnaeus, 1758)	brill	3		
		Bothidae	*Arnoglossus laterna* (Walbaum, 1792)	scaldfish	1		
		Pleuronectidae	*Limanda limanda* (Linnaeus, 1758)	dab	3		
			Microstomus kitt (Walbaum, 1792)	lemon sole	2		
			Platichthys flesus (Linnaeus, 1758)	flounder	5		1*
			Pleuronectes platessa Linnaeus, 1758	plaice	9		
		Soleidae	*Buglossidium luteum* (Risso, 1810)	solenette	2		
			Pegusa lascaris (Risso, 1810)	sand sole	1		
			Solea solea (Linnaeus, 1758)	Dover sole	5		

Species names according to World Register of Marine Species (WoRMS) and FishBase, accessed December 2019 – Synonym discrepancies discussed below

Table 2. Summary of taxonomic errors, discrepancies and problematic taxa for the eleventh Fish Reverse Ring Test FRRT11

	Laboratory identification	APEM Ltd. identification
Taxonomic errors		
F2607	*Labrus bergylta* (Ascanius, 1767)	*Symphodus melops* (Linnaeus, 1758)
F2608	*Gadus morhua*	*Pollachius pollachius* (Linnaeus, 1758)
F2610	*Chelidonichthys cuculus*	*Mullus surmuletus* Linnaeus, 1758
F2611	*Rutilus rutilus* (Linnaeus, 1758)	*Alburnus alburnus* (Linnaeus, 1758)
F2622	*Syngnathus rostellatus* (Nilsson, 1855)	*Entelurus aequoreus* (Linnaeus, 1758)
Taxonomic discrepancies (spelling)		
F2610	*Platchthys flesus*	*Platichthys flesus* Linnaeus, 1758
F2617	*Pomatoschistus minutis*	*Pomatoschistus minutus* (Pallas, 1770)
F2618	*Echiichthy vipera*	*Echiichthys vipera* (Cuvier, 1829)
Taxonomic discrepancies (synonyms)		
F2607	*Liza aurata* (Risso, 1810)	*Chelon auratus* (Risso, 1810)
F2608	*Liza aurata*	*Chelon auratus* (Risso, 1810)
F2621	*Aspitrigla cuculus* (Linnaeus, 1758)	*Chelidonichthys cuculus* (Linnaeus, 1758)
Problematic taxa		
F2601	Unknown	*Helicolenus dactylopterus* (Delaroche, 1809)
F2608	*Atherina presbyter*?	*Chelon labrosus* (Risso, 1827)
F2619	Unknown	*Trachurus trachurus* (Linnaeus, 1758)
F2622	*Gobius paganellus*?	*Gobius gasteveni* Miller, 1974

Taxonomic errors

Symphodus melops (Linnaeus, 1758)

Specimen has serrated pre-operculum edge and dark comma-shaped spot behind eye. *L. bergylta* has a smooth pre-operculum edge.

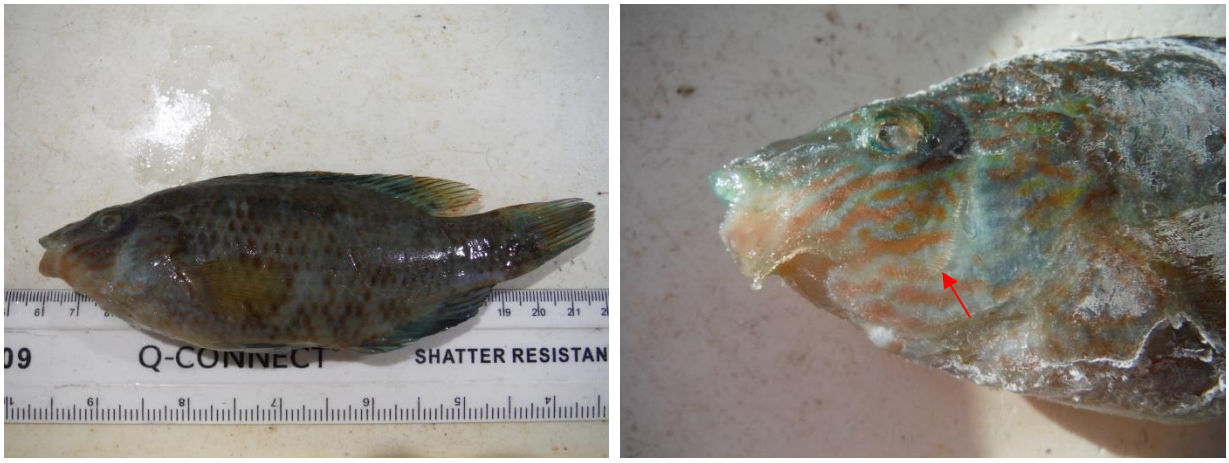

Figure 1. *Symphodus melops*, detail of serrated pre-operculum edge (right)

Pollachius pollachius (Linnaeus, 1758)

Specimen has lower jaw upturned and protruding beyond the upper, lateral line with strong curve above the pectoral fin and no chin barbel. *G. morhua* has an overhanging upper jaw and long chin barbell. Although the specimen was a good size it was in poor condition for identification.

Figure 2. ***Pollachius pollachius***

Mullus surmuletus Linnaeus, 1758

Unlike *C. cuculus* the specimen does not have characteristic armour-plated head with strong spines and lower three rays of the pectoral fins separated.

Figure 3. ***Mullus surmuletus*** **(left) and** ***Chelidonichthys cuculus*** **(right)**

Alburnus alburnus (Linnaeus, 1758)

Specimen with long-based anal fin (>16 branched rays), head small with oblique mouth and large eyes. *R. rutilus* has a moderate length anal fin (9–11 branched rays).

Figure 4. ***Alburnus alburnus***

Entelurus aequoreus (Linnaeus, 1758)

Specimen with smooth body rings and round in cross-section; head profile straight with reddish longitudinal band from tip of snout, through eye to gill cover; rudimentary caudal fin. *S. rostellatus* (and *S. acus*) have rigid bony plates giving an angular cross-section to the body and a better developed caudal fin.

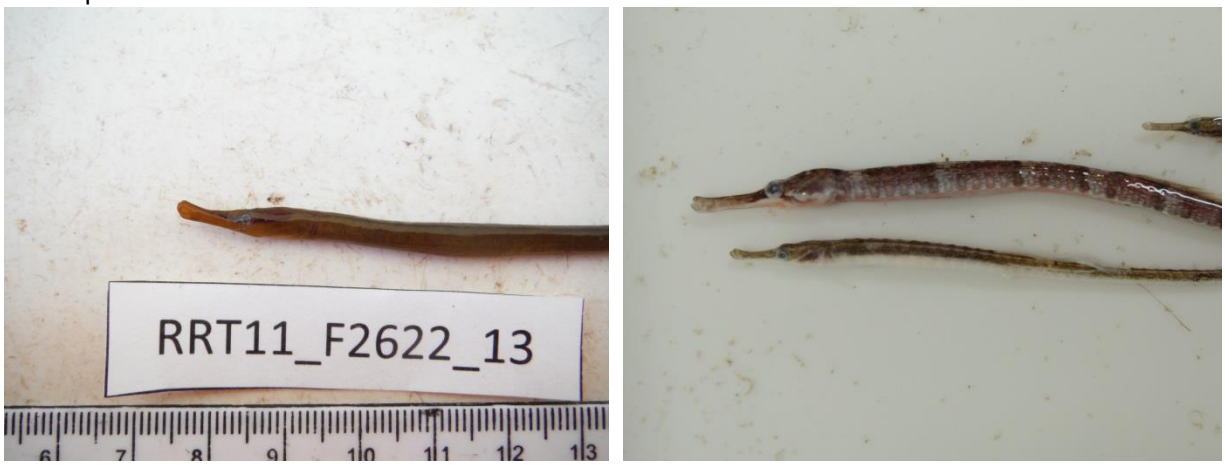

Figure 5. ***Entelurus aequoreus*** **(left),** ***Syngnathus acus*** **(right, top) and** ***Syngnathus rostellatus*** **(right, bottom)**

Taxonomic discrepancies

Spelling errors

Three specimens were submitted with spelling errors (*P. flesus*, *P. minutus* and *E. vipera*), a fourth specimen was submitted with a spelling error on the electronic datasheet but correct on the paper copy.

Synonyms

The World Register of Marine Species (WoRMS) and FishBase, accessed December 2019, were used for currently valid species names. Three specimens were submitted with synonyms; two *Chelon auratus* (Risso, 1810) and one *Chelidonichthys cuculus* (Linnaeus, 1758). However, there are currently inconsistencies in the preferred names for these species, as summarised below.

Valid/accepted species names from online sources (January 2020)

WoRMS	FishBase	Eschmeyer's Catalog of Fishes	UK Species Inventory (Natural History Museum)
Chelon auratus	*Chelon auratus*	*Liza aurata*	*Liza aurata*
Chelon labrosus	*Chelon labrosus*	*Chelon labrosus*	*Chelon labrosus*
Chelon ramada	*Chelon ramada*	*Chelon ramada*	*Liza ramada*
Chelidonichthys cuculus	*Chelidonichthys cuculus*	*Chelidonichthys cuculus*	*Chelidonichthys* / *Aspitrigla cuculus*

There is a general consensus between three of the four main online sources for using the genus *Chelidonichthys* for *C. cuculus,* with only the NHM list causing confusion. The online version giving *Aspitrigla* as the recommended genus but the downloaded list gives *Chelidonichthys* as the recommended genus.

The genus designation *Chelon* for *C. auratus* and *C. ramada* is less clear. Recent studies of the molecular phylogenies of Mugilidae have demonstrated that UK species of *Liza* should be assigned to *Chelon* (Durand *et al.,* 2012; Durand & Borsa, 2015; Xia *et al.,* 2016). Until recently there was a consensus between WoRMS, FishBase and Eschmeyer's Catalog of Fishes for *C. auratus* and *C. ramada*; however, as of January 2020, Eschmeyer's Catalog of Fishes now lists *L. aurata* as valid instead of *C. auratus*. It is unclear why *L. aurata* is currently valid in Eschmeyer's Catalog of Fishes; we recommend using WoRMS and FishBase for species names.

Authority errors

Only 69 specimen names were submitted with an authority. The authority and year were correct for those submitted; however, there were 16 records either missing parentheses or incorrectly containing them. Authority errors were not counted as taxonomic discrepancies.

Problematic taxa

Helicolenus dactylopterus (Delaroche, 1809)

Head moderately large and spiny with a bony ridge across the cheek below the eye. 11–12 strong dorsal fin spines; 26–30 scales in the lateral line. Predominantly red with mottled pattern. Inside the mouth and gill cavity a dark blue (not distinct in submitted specimen).

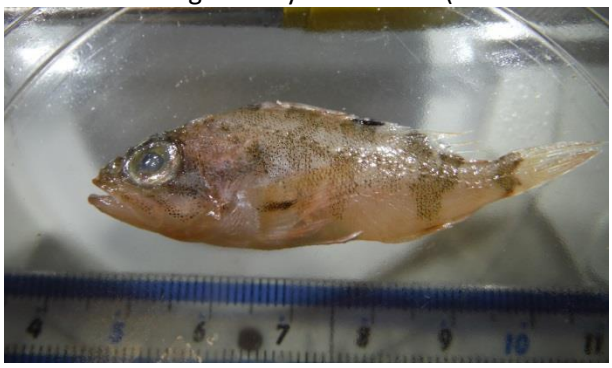

Figure 6. ***Helicolenus dactylopterus***

Chelon labrosus (Risso, 1827)

Juvenile mullet (Mugilidae) specimen with silver body colour along the sides and ventrally; sand smelt (*A. presbyter*) has a clear green back, an intense silver line along the sides and is ventrally white or silvery-white. Ventral head melanophores of the specimen match descriptions given by Reay (1988) for *C. labrosus*, however dissection of the pyloric caeca is recommended to confirm identifications.

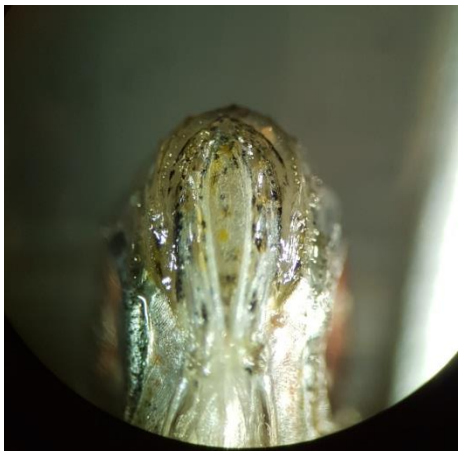

Figure 7. ***Chelon labrosus*****, ventral head detail (right)**

Trachurus trachurus (Linnaeus, 1758)

The juvenile specimen was small (21 mm) and lacking the characteristic bony scales along the length of the lateral line. However, the specimen has the characteristic slender body shape, narrow caudal peduncle, spines on the operculum and three anal spines with a gap between the second and third spine (characteristic of Carangids).

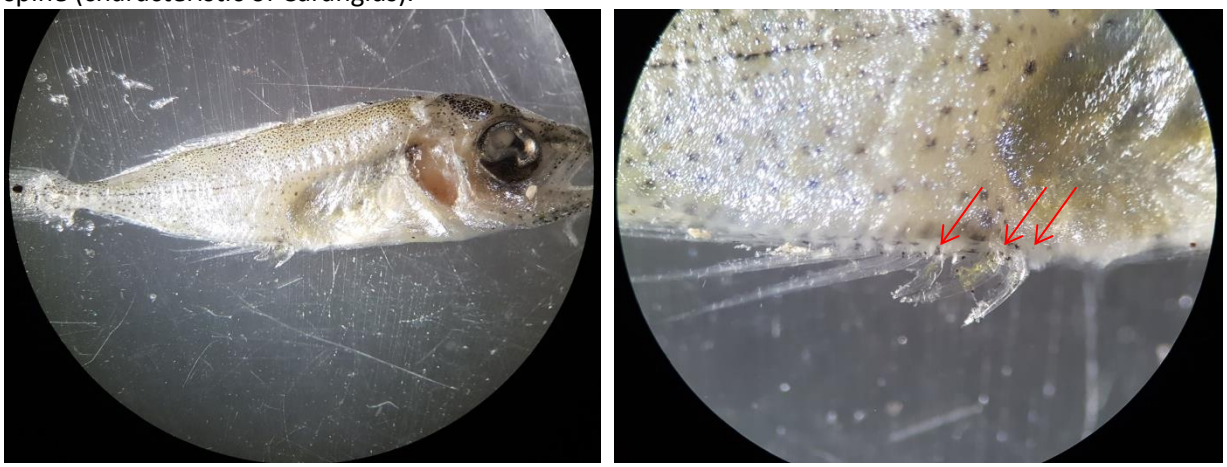

Figure 8. *Trachurus trachurus*, anal spine detail (right)

Gobius gasteveni Miller, 1974

Specimen with sensory papillae row *d* with horizontal section divided (continuous in *Gobius niger* and *G. cruentatus*). First dorsal fin rounded in outline, fin rays not elongate (first dorsal triangular in *G. niger* with elongate rays). Anterior nostril with process thin, elongate (digitate filaments in *G. paganellus*, triangular lappet in *G. couchi*). Pectoral free rays moderately developed; free rays well developed in *G. paganellus* (Figure 9, bottom right). Cheek and opercula mottled, with white spots nearer lower edge; pectoral dark mark extending onto fin, without pronounced pale posterior edge (present in *G. couchi*).

Figure 9. *Gobius gasteveni* (top left, top right and bottom left); *Gobius paganellus* Linnaeus, 1758 (bottom right)

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APPENDIX

FRRT11 individual summary reports for participating laboratories with specimen details as provided by participants and taxonomic errors, discrepancies and comments given by APEM

EXERCISE DETAILS

Fish Reverse Ring Test (F-RRT11)

Return Deadline - 06/12/19

Data Received - 04/11/19

Specimens Received - 05/11/19

Laboratory Code - F2601

Key to codes:

TE - Taxonomic error

TD - Taxonomic discrepancy

* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Callionymus lyra*; Common Dragonet; 200	-	-
3	*Trisopterus minutus*; Poor Cod; 190	-	-
4	*Sprattus sprattus*; Sprat; 70	-	-
5	*Limanda limanda*; Dab; 60	-	-
6	*Merlangius merlangus*; Whiting; 140	-	-
7	*Hyperoplus lanceolatus*; Greater Sandeel; 270	-	-
8	*Scomber scombrus*; Mackerel; 180	-	-
9	*Microstomus kitt*; Lemon Sole; 190	-	-
10	*Trachurus trachurus*; Horse Mackerel; 80	-	-
11	*Trisopterus esmarkii*; Norway Pout; 160	-	-
12	*Pleuronectes platessa*; Plaice; 220	-	-
13	*Eutrigla gurnardus*; Grey Gurnard; 160	-	-
14	*Clupea harengus*; Herring; 250	-	-
15	*Arnoglossus laterna*; Scaldfish; 120	-	-
16	*Unknown; 50	*Helicolenus dactylopterus* (Delaroche, 1809); blue-mouth redfish	Bony ridge across the cheek below the eye; 11 strong dorsal fin spines

EXERCISE DETAILS

Fish Reverse Ring Test (F-RRT11)

Return Deadline - 06/12/19

Data Received - 03/12/19

Specimens Received - 06/12/19

Laboratory Code - F2602

Key to codes:

TE - Taxonomic error

TD - Taxonomic discrepancy

* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Platichthys flesus*	-	-
3	*Pleuronectes platessa*	-	-
4	*Sparus aurata*	-	-
5	*Sprattus sprattus*	-	-
6	*Gadus morhua*	-	-
7	*Syngnathus rostellatus*	-	-
8	*Pomatoschistus minutus*	-	-
9	*Clupea harengus*	-	-
10	*Pomatoschistus microps*	-	-
11	*Atherina presbyter*	-	-
12	*Pollachius pollachius*	-	-
13	*Labrus bergylta*	-	-
14	*Gobio gobio*	-	-
15	*Spinachia spinachia*	-	-
16	*Ammodytes tobianus*	-	-

EXERCISE DETAILS

Fish Reverse Ring Test (F-RRT11)

Return Deadline - 06/12/19

Data Received - 07/11/19

Specimens Received - 08/11/19

Laboratory Code - F2607

Key to codes:

TE - Taxonomic error

TD - Taxonomic discrepancy

* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Pomatoschistus minutus*; Sand goby; 66	-	-
2	*Pomatoschistus microps*; Common goby; 46	-	-
3	*Clupea harengus*; Herring; 106	-	-
4	*Sprattus sprattus*; Sprat; 59	-	-
5	*Liza aurata*; Golden grey mullet; 134	*Chelon auratus* (Risso, 1810)	TD - Synonym
6	*Atherina presbyter*; Sand smelt; 84	-	-
7	*Dicentrarchus labrax*; Sea bass; 81	-	-
8	*Spinachia spinachia*; Fifteen-spined stickleback; 119	-	-
9	*Trachurus trachurus*; Horse mackerel/scad; 66	-	-
10	*Symphodus melops*; Corkwing wrasse; 39	-	-
11	*Pleuronectes platessa*; Plaice; 299	-	-
12	*Labrus bergylta*; Ballan wrasse; 152	*Symphodus melops* (Linnaeus, 1758); corkwing wrasse	TE - Pre-operculum edge serrated; dark, comma-shaped spot behind eye
13	*Mullus surmuletus*; Striped red mullet; 56	-	-
14	*Aphia minuta*; Transparent goby; 27	-	-
15	*Pomatoschistus minutus*; Sand goby; 60	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 14/11/19
Specimens Received - 03/12/19
Laboratory Code - F2608

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Gadus morhua*; cod	*Pollachius pollachius* (Linnaeus, 1758); Pollack	TE - Lower jaw upturned and protruding beyond the upper; lateral line with strong curve above the pectoral fin
2	Liza aurata; golden grey mullet	*Chelon auratus* (Risso, 1810)	TD - Synonym
3	*Scophthalmus rhombus*; Brill	-	-
4	*Spinachia spinachia*; 15 spined stickleback	-	-
5	*Hyperoplus lanceolatus*; Greater sandeel	-	-
6	*Unknown; (Juvenile sand smelt?)	*Chelon labrosus* (Risso, 1827); thick-lipped mullet	Small juvenile; tentative species identification (<5 cm)
7	*Platichthys flesus*; Flounder	-	-
8	*Taurulus bubalis*; Long Spined scorpion fish	-	-
9	*Pomatoschistus minutus*; Sand Goby	-	-
10	*Atherina presbyter*; Sand Smelt	-	-
11	*Ammodytes tobianus*; Lesser Sandeel	-	-
12	*Sprattus sprattus*; Sprat	-	-
13	*Lipophrys pholis*; Shanny	-	-
14	*Dicentrarchus labrax*; sea bass	-	-
15	*Pleuronectes platessa*; plaice	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 04/12/19
Specimens Received - 02/12/19
Laboratory Code - F2610

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Trachurus trachurus*; Horse mackerel	-	-
2	*Chelidonichthys cuculus*; Red gurnard	*Mullus surmuletus* Linnaeus, 1758; striped red mullet	TE - Lower three rays of the pectoral fins not separate; no spines at the end of the snout
3	*Dicentrarchus labrax*; Bass	-	-
4	*Zoarces viviparus*; Viviparous blenny	-	-
5	*Gobius niger*; Black goby	-	-
6	*Ciliata mustela*; 5 Bearded rockling	-	-
7	*Solea solea*; Sole	-	-
8	*Gadus morhua*; Cod	-	-
9	*Merlangius merlangus*; Whiting	-	-
10	*Platchthys flesus*; Flounder	*Platichthys flesus* (Linnaeus, 1758)	TD - Spelling error
11	*Trisopterus luscus*; Pout	-	-
12	*Pomatoschistus minutus*; Sand goby	-	-
13	*Pleuronectes platessa*; Plaice	-	-
14	*Limanda limanda*; Dab	-	-
15	*Agonus cataphractus*; Hooknosed pogge	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 28/10/19
Specimens Received - 30/10/19
Laboratory Code - F2611

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Clupea harengus*; Herring; 88	-	-
3	*Atherina presbyter*; Sand Smelt; 72	-	-
4	*Engraulis encrasicolus*; Anchovy; 75	-	-
5	*Rutilus rutilus*; Roach; 48	*Alburnus alburnus* (Linnaeus, 1758); bleak	TE - Anal fin long-based, >16 branched rays; head small with oblique mouth and large eyes
6	*Sprattus sprattus*; Sprat; 60	-	-
7	*Pomatoschistus minutus*; Sand Goby; 58	-	-
8	*Pomatoschistus microps*; Common Goby; 45	-	-
9	*Dicentrarchus labrax*; Sea Bass; 56	-	-
10	*Alburnus alburnus*; Bleak; 42	-	-
11	*Leuciscus leuciscus*; Dace; 74	-	-
12	-	-	No specimen submitted
13	-	-	No specimen submitted
14	-	-	No specimen submitted
15	-	-	No specimen submitted
16	-	-	No specimen submitted

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 26/11/19
Specimens Received - 27/11/19
Laboratory Code - F2616

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Sprattus sprattus*; Sprat	-	-
3	*Trisopterus minutus*; Poor cod	-	-
4	*Trisopterus luscus*; Bib	-	-
5	*Scomber scombrus*; Mackerel	-	-
6	*Eutrigla gurnardus*; Grey Gurnard	-	-
7	*Aphia minuta*; Transparent Goby	-	-
8	*Solea solea*; Common Sole	-	-
9	*Pomatoschistus minutus*; Sand Goby	-	-
10	*Pomatoschistus pictus*; Painted Goby	-	-
11	*Buglossidium luteum*; Solenette	-	-
12	*Callionymus lyra*; Common Dragonet	-	-
13	*Nerophis lumbriciformis*; Worm Pipefish	-	-
14	*Mullus surmuletus*; Striped Red Mullet	-	-
15	*Syngnathus rostellatus*; Lesser Pipefish	-	-
16	*Scophthalmus rhombus*; Brill	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 19/11/19
Specimens Received - 21/11/19
Laboratory Code - F2617

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Scophthalmus rhombus*; Brill	-	-
2	*Echiichthys vipera*; Lesser Weaver	-	-
3	*Callionymus lyra*; Common Dragonet	-	-
4	*Clupea harengus*; Herring	-	-
5	*Raja clavata*; Thornback Ray	-	-
6	*Merlangius merlangus*; Whiting	-	-
7	*Solea solea*; Common Sole	-	-
8	*Buglossidium luteum*; Solinette	-	-
9	*Platichthys flesus*; Flounder	-	-
10	*Pleuronectes platessa*; Plaice	-	-
11	*Syngnathus rostellatus*; Lesser Pipefish	-	-
12	*Eutrigla gurnardus*; Grey Gurnard	-	-
13	*Pomatoschistus microps*; Common Goby	-	-
14	*Pomatoschistus minutis*; Sand Goby	*Pomatoschistus minutus* (Pallas, 1770)	TD - Spelling error
15	*Sprattus sprattus*; Spratt	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 05/12/19
Specimens Received - 02/12/19
Laboratory Code - F2618

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Gadus morhua*; Cod	-	-
2	*Merlangius merlangus*; Whiting	-	-
3	*Osmerus eperlanus*; Smelt	-	-
4	*Solea solea*; Common sole	-	-
5	*Agonus cataphractus*; Pogge	-	-
6	*Liparis liparis*; Common sea snail	-	-
7	*Pleuronectes platessa*; Plaice	-	-
8	*Limanda limanda*; Dab	-	-
9	*Myoxocephalus scorpius*; Bull Rout	-	-
10	*Echiichthy vipera*; Lesser weever	*Echiichthys vipera* (Cuvier, 1829)	TD - Spelling error
11	*Trisopterus luscus*; Bib	-	-
12	*Microstomus kitt*; Lemon sole	-	-
13	*Dicentrarchus labrax*; Sea Bass	-	-
14	*Gobius niger*; Black goby	-	-
15	*Eutrigla gurnardus*; Grey gurnard	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 20/11/19
Specimens Received - 21/11/19
Laboratory Code - F2619

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Trachurus trachurus*; Scad; 79	-	-
2	*Merlangius merlangus*; Whiting; 111	-	-
3	*Clupea harengus*; Herring; 89	-	-
4	*Unknown; 21	*Trachurus trachurus* (Linnaeus, 1758); scad	Juvenile; lateral line scales/scutes undeveloped
5	*Spinachia spinachia*; Fifteen-spined stickleback; 73	-	-
6	*Pomatoschistus minutus*; sand goby; 64	-	-
7	*Mullus surmuletus*; red mullet; 84	-	-
8	*Eutrigla gurnardus*; grey gurnard; 84	-	-
9	*Aphia minuta*; transparent goby; 28	-	-
10	*Syngnathus rostellatus*; nilson's pipefish; 71	-	-
11	*Ammodytes tobianus*; lesser sandeel; 70	-	-
12	*Pleuronectes platessa*; Plaice; 138	-	-
13	*Callionymus lyra*; Common dragonette; 112	-	-
14	*Atherina presbyter*; Sand smelt; 46	-	-
15	*Labrus bergylta*; Ballan Wrasse; 68	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 26/11/19
Specimens Received - 27/11/19
Laboratory Code - F2620

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Sprattus sprattus*; Sprat	-	Spelling error on electronic datasheet
3	*Trisopterus minutus*; Poor Cod	-	-
4	*Trisopterus luscus*; Bib	-	-
5	*Scomber scombrus*; Mackerel	-	-
6	*Eutrigla gurnardus*; Grey Gurnard	-	-
7	*Aphia minuta*; Transparent Goby	-	-
8	*Pegusa lascaris*; Sand Sole	-	-
9	*Pomatoschistus minutus*; Sand Goby	-	-
10	*Pomatoschistus pictus*; Painted Goby	-	-
11	*merlangius merlangus*; Whiting	-	-
12	*Callionymus lyra*; Dragonet	-	-
13	*Agonus cataphractus*; Pogge	-	-
14	*Ctenolabrus rupestris*; Goldsinny	-	-
15	*Syngnathus rostellatus*; Lesser Pipefish	-	-
16	*Raja montagui*; Spotted Ray	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 11/12/19
Specimens Received - 11/12/19
Laboratory Code - F2621

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
1	*Aspitrigla cuculus*; Red gurnard	*Chelidonichthys cuculus* (Linnaeus, 1758)	TD - Synonym
2	*Citharus linguatula*; Spotted flounder	-	-
3	*Merluccius merluccius*; European hake	-	-
4	*Diplodus annularis*; Annular seabream	-	-
5	*Lithognathus mormyrus*; Sand steenbras	-	-
6	*Dicentrarchus labrax*; European seabass	-	-
7	*Mullus barbatus*; Red mullet	-	-
8	*Trachurus trachurus*; Atlantic horse mackerel	-	-
9	*Chelidonichthys lucerna*; Tub gurnard	-	-
10	*Pagellus erythrinus*; Common pandora	-	-
11	*Phycis blennoides*; Greater forkbeard	-	-
12	*Trisopterus capelanus*; Poor cod	-	-
13	*Sparus aurata*; Gilthead seabream	-	-
14	*Diplodus vulgaris*; Common two-banded seabream	-	-
15	*Pagellus acarne*; Axillary seabream	-	-

EXERCISE DETAILS
Fish Reverse Ring Test (F-RRT11)
Return Deadline - 06/12/19
Data Received - 05/12/19
Specimens Received - 06/12/19
Laboratory Code - F2622

Key to codes:
TE - Taxonomic error
TD - Taxonomic discrepancy
* - Problem taxa indicated

Specimen No.	Laboratory identification (scientific name; common name; length in mm)	APEM identification (if different)	Code / Comments
2	*Dicentrarchus labrax*; Bass; 109	-	-
3	*Clupea harengus*; Herring; 120	-	-
4	*Atherina presbyter*; Sand smelt; 123	-	-
5	*Engraulis encrasicolus*; Anchovy; 74	-	-
6	*Echiichthys vipera*; Lesser weever; 65	-	-
7	*Trisopterus luscus*; Bib; 185	-	-
8	*Platichthys flesus*; Flounder; 225	-	-
9	*Pleuronectes platessa*; Plaice; 304	-	-
10	*Chelidonichthys lucerna*; Tub gurnard; 76	-	-
11	*Ctenolabrus rupestris*; Goldsinny; 112	-	-
12	*Ciliata mustela*; Five-bearded rockling; 129	-	-
13	*Syngnathus rostellatus*; Nilsson's pipefish; 206	*Entelurus aequoreus* (Linnaeus, 1758); snake pipefish	TE - Body rings smooth and body round in cross-section
14	*Solea solea*; Dover sole; 124	-	-
15	*Trachurus trachurus*; Scad; 93	-	-
16	*PROBLEM TAXA; Rock goby?; 82	*Gobius gasteveni* Miller, 1974; Steven's goby	Sensory papillae row *d* with horizontal section divided; anterior nostril with process thin, elongate; cheek mottled, with white spots nearer lower edge; pectoral dark mark extending onto fin, without pronounced pale border