NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Fish Ring Test Bulletin – FRT15

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APEM

MODULE / EXERCISE DETAILS

Module:	**Fish Ring Test (FRT)**
Exercises:	**FRT15**
Specimens and Images Circulated:	**22nd November 2021**
Data Submission Deadline:	**14h January 2022**
Number of Subscribing Laboratories:	**8**
Number of Submissions Received:	**14***

***multiple data entries per laboratory permitted**

Contents

Table 1. Summary of differences

Specimen	Genus	Species	Total differences for 14 returns	
			Genus	Species
F-RT1501	*Arnoglossus*	*laterna*	**1**	**2**
F-RT1502	*Buglossidium*	*luteum*	**2**	**2**
F-RT1503	*Trisopterus*	*minutus*	**2**	**2**
F-RT1504	*Trachurus*	*trachurus*	**0**	**0**
F-RT1505	*Capros*	*aper*	**1**	**1**
F-RT1506	*Trisopterus*	*luscus*	**0**	**1**
F-RT1507	*Agonus*	*cataphractus*	**0**	**0**
F-RT1508	*Pleuronectes*	*platessa*	**0**	**0**
F-RT1509	*Merlangius*	*merlangus*	**1**	**1**
F-RT1510	*Microchirus*	*variegatus*	**2**	**2**
F-RT1511	*Eutrigla*	*gurnardus*	**0**	**0**
F-RT1512	*Myoxocephalus*	*scorpius*	**0**	**0**
F-RT1513	*Limanda*	*limanda*	**0**	**0**
F-RT1514	*Callionymus*	*lyra*	**0**	**1**
F-RT1515	*Glyptocephalus*	*cynoglossus*	**0**	**0**
		Total differences	**9**	**12**
		Average differences /lab.	**0.9**	**1.2**

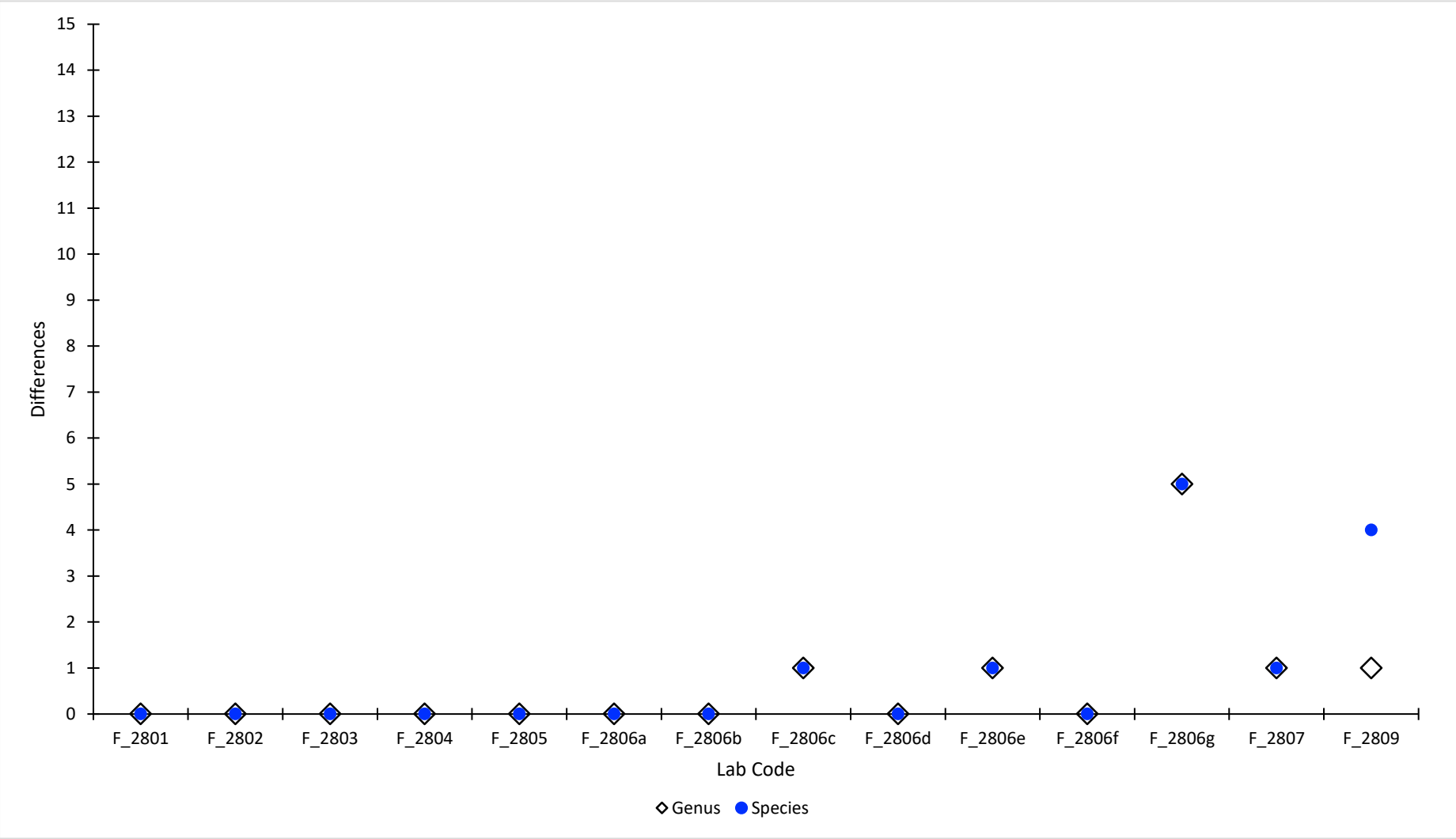

Figure 1. The number of differences from the AQC identification of specimens distributed in FRT15 for each of the participating laboratories. Specific differences (blue filled circles), generic differences (open diamonds)

Table 2. The identification of specimens made by participating laboratories for FRT15 (arranged by specimen). Names are given only where different from the AQC identification.

	F-RT1501	F-RT1502	F-RT1503	F-RT1504	F-RT1505	F-RT1506	F-RT1507	F-RT1508
Taxon	*Arnoglossus laterna*	*Buglossidium luteum*	*Trisopterus minutus*	*Trachurus trachurus*	*Capros aper*	*Trisopterus luscus*	*Agonus cataphractus*	*Pleuronectes platessa*
F_2801	--	--	--	--	--	--	--	--
F_2802	--	--	--	--	--	--	--	--
F_2803	--	--	--	--	--	--	--	--
F_2804	--	--	--	--	--	--	--	--
F_2805	--	--	--	--	--	--	--	--
F_2806a	--	--	--	--	--	--	--	--
F_2806b	--	--	--	--	--	--	--	--
F_2806c	--	--	*Pollachius virens*	--	--	--	--	--
F_2806d	--	--	--	--	--	--	--	--
F_2806e	--	--	--	--	--	--	--	--
F_2806f	--	--	--	--	--	--	--	--
F_2806g	*Psetta maxima*	*Solea solea*	*Merlangius merlangus*	--	*Zenopsis conchifer*	--	--	--
F_2807	--	*Solea solea*	--	--	--	--	--	--
F_2809	*- imperialis*	--	--	--	--	*- minutus*	--	--

Table 2 cont.

	F-RT1509	F-RT1510	F-RT1511	F-RT1512	F-RT1513	F-RT1514	F-RT1515
Taxon	*Merlangius merlangus*	*Microchirus variegatus*	*Eutrigla gurnardus*	*Myoxocephalus scorpius*	*Limanda limanda*	*Callionymus lyra*	*Glyptocephalus cynoglossus*
F_2801	--	--	--	--	--	--	--
F_2802	--	--	--	--	--	--	--
F_2803	--	--	--	--	--	--	--
F_2804	--	--	--	--	--	--	--
F_2805	--	--	--	--	--	--	--
F_2806a	--	--	--	--	--	--	--
F_2806b	--	--	--	--	--	--	--
F_2806c	--	--	--	--	--	--	--
F_2806d	--	--	--	--	--	--	--
F_2806e	--	*Pegusa lascaris*	--	--	--	--	--
F_2806f	--	--	--	--	--	--	--
F_2806g	*Gadus morhua*	--	--	--	--	--	--
F_2807	--	--	--	--	--	--	--
F_2809	--	*Solea solea*	--	--	--	*- reticulatus*	--

Specimen images and detailed breakdown of identifications

Participating laboratories were asked to identify to species level the 15 specimens that were supplied with images and the basic habitat and geographic details from where they were collected. Participants could also submit notes on their identifications, confidence level and details of literature used.

FRT15 was not a targeted ring test and most species included are commonly caught in routine monitoring surveys. Some specimens were relatively small but could still be expected to be caught using standard monitoring methods (e.g. seine netting).

LabCodes are abbreviated in this report to exclude the Scheme year, i.e. LB2801 = Lab 01. An additional terminal character has been added to the LabCode (small case sequential letters) to differentiate multiple data entries from the same laboratory, *i.e*. two participants from laboratory 01 would be coded as Lab 01a and Lab 01b. For details of your LabCode please contact your Scheme representative or APEM Ltd.

Figured FRT specimens are selected from the circulation series as typical of the size and condition range circulated. Where possible, figured specimens of other species have been selected to be of similar size as the FRT specimen with which they have been compared.

F-RT1501 – *Arnoglossus laterna* (Walbaum, 1792)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 11 - 11.5 cm.

One generic and two specific differences. Lab 09 identified as *Arnoglossus imperialis*, like *A. lanterna* has the first dorsal fin rays free of the membrane (Fig. 2) but the second to fifth rays are long and thickened extending beyond the other fin rays. Lab 06g identified as *Psetta maxima* (accepted as *Scophthalmus maximus* (Linnaeus, 1758)), while the first fin rays are branched, only their extreme tips are free from the fin membrane. *S. maximus* has also a broader, more circular body shape and has bony tubercles present on the skin.

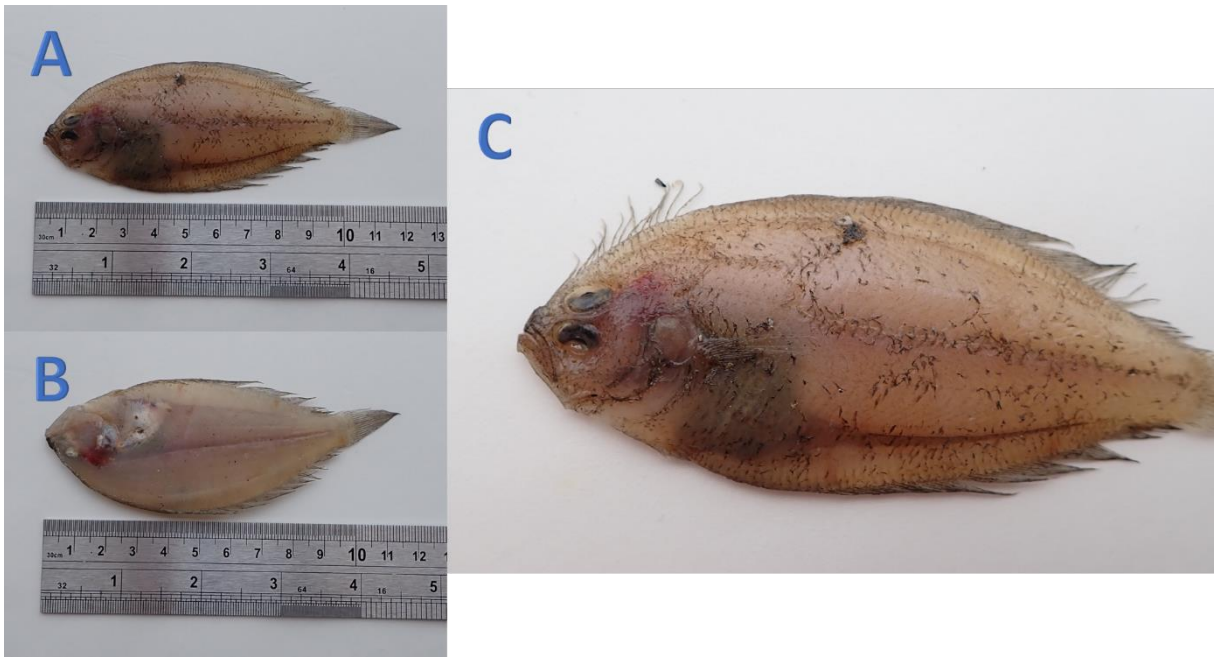

Figure 2. ***Arnoglossus Lanterna***

F-RT1502 – *Buglossidium luteum* (Risso, 1810)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 10.5 - 11.5 cm.

Two generic and specific differences, labs 06g and 07 identified as *Solea solea*. While *B. luteum* has a generic sole like appearance, it is distinguishable by smaller pectoral fin without spot and every fifth or sixth ray of the dorsal and anal fins being black (Fig. 3).

Figure 3. ***Buglossidium luteum***

F-RT1503 – *Trisopterus minutus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 8.5 - 9 cm.

Two generic and specific differences. Lab 06c identified as *Pollachius virens*. While *P. virens* has a similar number and arrangement of dorsal and anal fins, with the origin of the first anal fin starting below the space between the first and second dorsal fin. *T. minutus* has a long chin barbel and different colouration (Fig. 4)

Lab 08g identified as *Merlangius merlangus*, which has a chin barbel but the origin of the anal fins start beneath the middle of the first dorsal fin. See Fig. 10 for comparison.

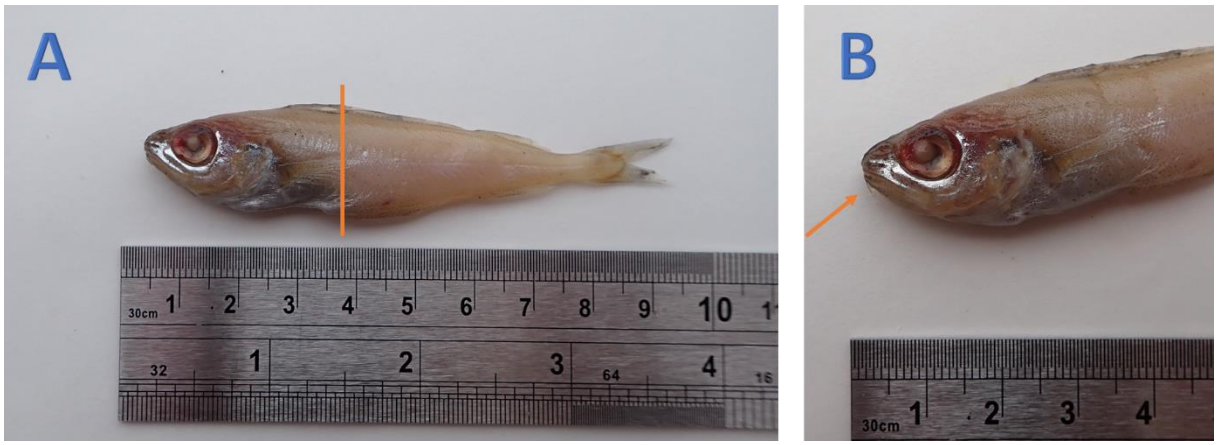

Figure 4. ***Trisopterus minutus***

F-RT1504 – *Trachurus trachurus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 10 - 11 cm.

No generic or specific differences.

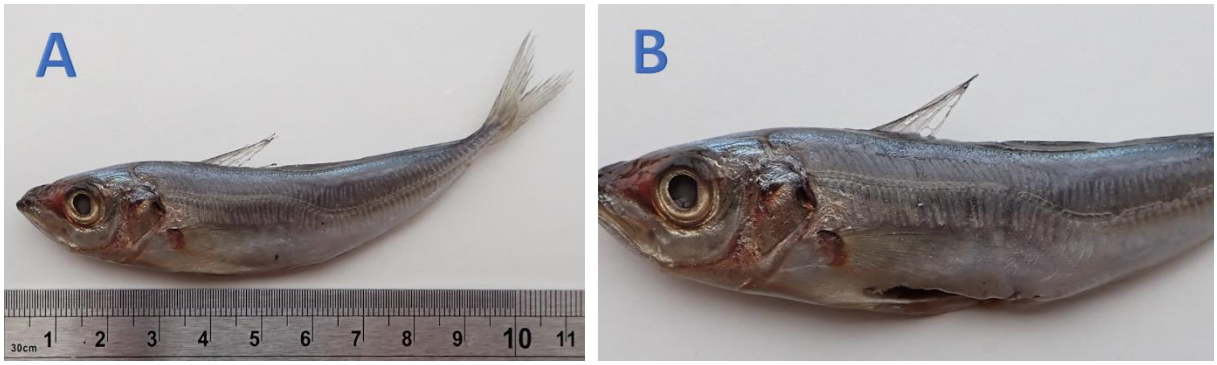

Figure 5. ***Trachurus trachurus***

F-RT1505 – *Capros aper* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 8 - 9.5 cm.

One generic and specific difference, lab 06g identified as *Zenopsis conchifer*. While both fish are deeply laterally compressed. *C. aper* has a relatively small head and large eye with finely toothed scales giving a rough texture (Fig 6.). *Z. conchifer* by contrast has more smooth skin texture and a characteristic dusky spot behind and slightly above the pectoral fin.

Figure 6. ***Capros aper***

F-RT1506 – *Trisopterus luscus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 10.5 - 11.5 cm.

One specific difference, Lab 09 identified as *Trisopterus minutus*. *T. luscus* is deeper bodied, has a well-developed chin barbel and the bases of the dorsal and anal fins overlap (Fig. 7) See Fig. 4 for comparison with *T. minutus*.

Figure 7. ***Trisopterus luscus***

F-RT1507 - *Agonus cataphractus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 11 - 11.5 cm.

No generic or specific differences.

Figure 8. ***Agonus cataphractus***

F-RT1508 – *Pleuronectes platessa* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 11.5 - 12.5 cm.

No generic or specific differences.

Figure 9. ***Pleuronectes platessa***

F-RT1509 – *Merlangius merlangus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 13 - 14 cm.

One generic and specific difference. Lab 06g identified as *Gadus morhua* which has the origin of the first anal fin behind or beneath the interspace between first and second dorsal fin. *G. morhua* also has a conspicuously light-coloured lateral line with a smooth curve above the pectoral fin. *M. merlangus* has no chin barbel in adult fish, minute in small fish.

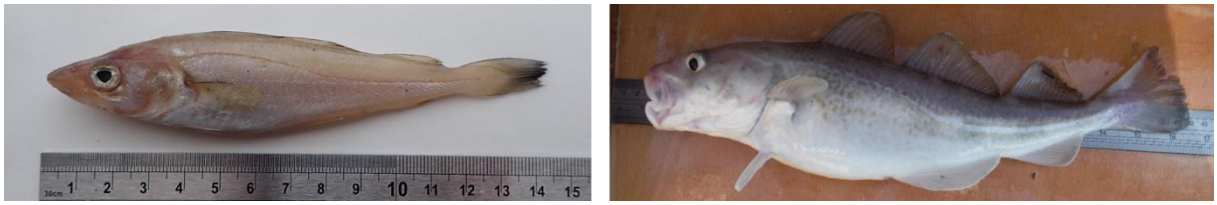

Figure 10. ***Merlangius merlangus*** **(left) and** ***Gadus morhua*** **(right)**

F-RT1510 – *Microchirus variegatus* (Donovan, 1808)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 16 - 16.5 cm.

Two generic and specific differences. Lab 06e identified *Pegusa lascaris* and Lab 09 identified as *Solea solea*, both of which have dorsal fins which originate before the eye. They also both have a spot on the eyed-side pectoral fin. *P. lascaris* also has a conspicuous nostril in the shape of a rosette. *M. variegatus* is quite thick bodied with relatively large eyes, with the origin of the dorsal fin behind Fig 11.

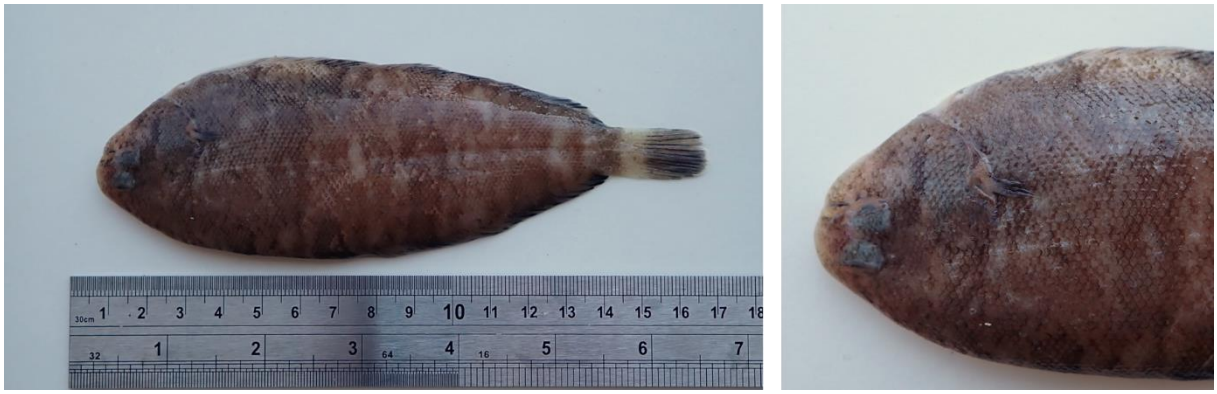

Figure 11. ***Microchirus variegatus***

F-RT1511 - *Eutrigla gurnardus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 18.5 - 20 cm.

No generic or specific differences.

Figure 12. ***Eutrigla gurnardus***

F-RT1512 – *Myoxocephalus scorpius* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 14 - 15 cm.

No generic or specific differences recorded.

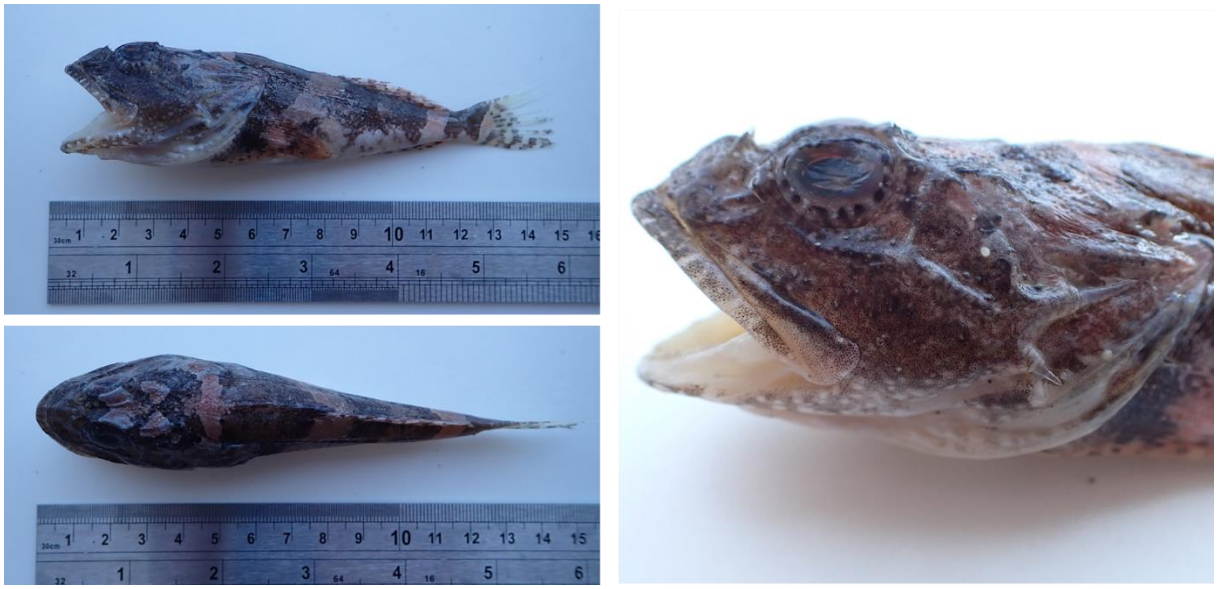

Figure 13. ***Myoxocephalus scorpius***

F-RT1513 – *Limanda limanda* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 20 cm.

No generic or specific differences recorded.

Figure 14. ***Limanda limanda***

F-RT1514 – *Callionymus lyra* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 18.5 - 19.5 cm.

One specific difference recorded, lab 09 recorded as *Callionymus reticulatus* which has 3 preopercular spines instead of 4 (Fig 15) and oblique pattern on the dorsal fin in contrast to the horizontal stripes of *C. lyra*.

Figure 15. ***Callionymus lyra***

F-RT1515 – *Glyptocephalus cynoglossus* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 26 - 28 cm.

No generic or specific differences recorded.

Figure 16. ***Glyptocephalus cynoglossus***

Taxonomic discrepancies and confidence level

Synonyms

The World Register of Marine Species (WoRMS) and FishBase were used for currently valid species names. All participants submitted currently valid scientific names. One misidentified specimen was submitted as *Psetta maxima*, which is now accepted as *Scophthalmus maximus*. Participants are asked to identify each specimen to species level and return results forms with species names, uncertain identifications can be indicated through use of the confidence level column.

Authority errors

From 210 entries only 16 specimen names were submitted with an authority (two participants). All submitted authorities were correct.

Confidence level

Confidence of identification was given for 161 entries (from 210 answers submitted). For those given, 99% were confident with species identification, 0% genus and 1% family. Most confidence levels given were accurate 98%.

Literature cited for FRT15 identification

Maitland & Herdson, 2009 - Key to the Marine and Freshwater Fishes of Britain and Ireland

Wheeler, 1969 - The fishes of the British Isles and North West Europe

Taxonomic and identification policy problems highlighted by this FRT

There were relatively few taxonomic errors for the specimens circulated. Seven out of 17 specimens were identified by all participants correctly. Four specimens had one incorrect identification each and four specimens had two incorrect identifications. Pleuronectiformes seemed to cause the most trouble for participants. Important diagnostic features include body shape, size and orientation of the mouth and eyes, lateral line position, fin position ornamentation/special features, and skin texture.

One participant indicated that the specimens were not in good condition and used the images provided for the purpose of identification. This also was the participant with the most generic and specific differences. This lab had multiple submissions, it may be the case that specimens were thawed, handled and refrozen multiple times leading to poor condition. Not all taxonomic features are visible in the photos provided with the specimens for this ring test as this may influence identification i.e. providing hints. This is something that can be discussed for future ring tests as using photos alone does not yield accurate results.

References

Froese, R. and D. Pauly. Editors. 2022. FishBase. World Wide Web electronic publication. www.fishbase.org, version (02/2022).

Fricke, R., Eschmeyer, W. N. & R. van der Laan (eds) 2022. Eschmeyer's Catalog of Fishes: Genera, species, references. (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp). Electronic version accessed 15 Feb 2022.

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Kay, P. & Dipper F., 2009. *A Field Guide to the Marine Fishes of Wales and adjacent waters*. Marine Wildlife, Llanfairfechan, 256 pp.

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