



NMBQQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Fish Ring Test Bulletin – FRT19

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Table 1. Module/Exercise details

Module:	Fish Ring Test (FRT)
Exercises:	FRT19
Specimens Circulated:	09 th February 2026
Data Submission Deadline:	20 th March 2026 (extended)
Number of Subscribing Laboratories:	15
Number of Submissions Received:	16*
*Multiple data entries per laboratory permitted	

Table 2. Summary of differences

Specimen	Genus	Species	Total differences for 16 returns	
			Genus	Species
F-RT1901	<i>Scomber</i>	<i>scombrus</i>	0	1
F-RT1902	<i>Helicolenus</i>	<i>dactylopterus</i>	4	4
F-RT1903a	<i>Arnoglossus</i>	<i>imperialis</i>	3	6
F-RT1903b	<i>Liparis</i>	<i>liparis</i>	0	0
F-RT1904	<i>Trisopterus</i>	<i>minutus</i>	0	1
F-RT1905	<i>Eutrigla</i>	<i>gurnardus</i>	1	1
F-RT1906	<i>Pleuronectes</i>	<i>platessa</i>	0	0
F-RT1907	<i>Melanogrammus</i>	<i>aeglefinus</i>	0	0
F-RT1908	<i>Chelidonichthys</i>	<i>cuculus</i>	0	0
F-RT1909	<i>Malacocephalus</i>	<i>laevis</i>	0	0
F-RT1910	<i>Limanda</i>	<i>limanda</i>	0	0
F-RT1911*	<i>Glyptocephalus</i>	<i>cynoglossus</i>	NA	NA
	<i>Microstomus</i>	<i>kitt</i>	NA	NA
F-RT1912	<i>Trachurus</i>	<i>trachurus</i>	0	0
F-RT1913	<i>Trisopterus</i>	<i>luscus</i>	0	1
F-RT1914	<i>Clupea</i>	<i>harengus</i>	1	1
F-RT1915	<i>Merlangius</i>	<i>merlangus</i>	0	0
		Total differences	9	15
		Average differences /lab.	1.5	2.5
* Results for F-RT1911 excluded (see below)				

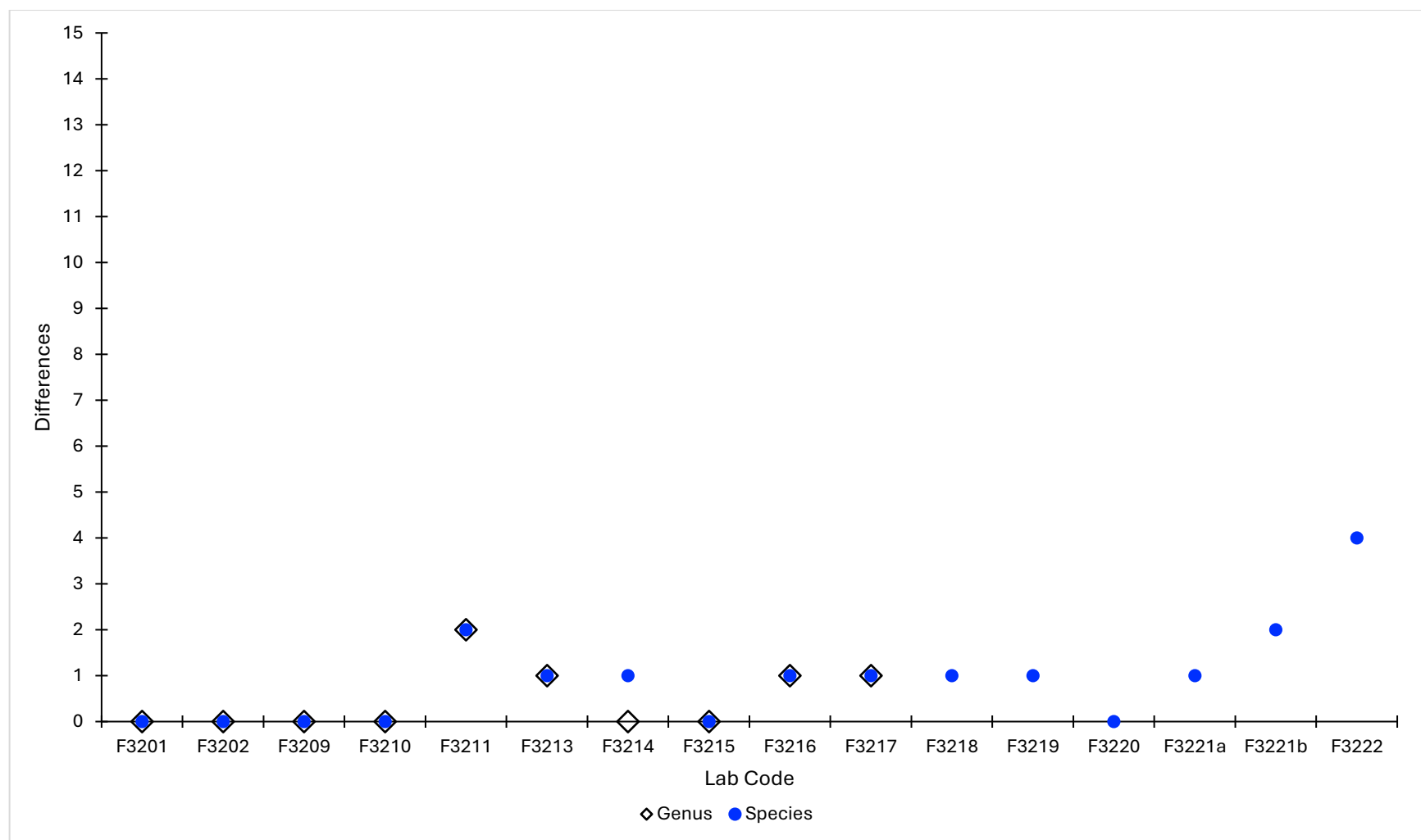


Figure 1. The number of differences from the AQC identification of specimens distributed in FRT19 for each of the participating laboratories. Species difference (blue filled circles) genera difference (open diamond).

Table 3. The identification of specimens made by participating laboratories for FRT19 (arranged by specimen).
Names are given only where different from the AQC identification *As reported

Taxon	F-RT1901	F-RT1902	F-RT1903a	F-RT1904	F-RT1905	F-RT1911*	F-RT1913	F-RT1914
Labcode	<i>Scomber scombrus</i>	<i>Helicolenus dactylopterus</i>	<i>Arnoglossus imperialis</i>	<i>Trisopterus minutus</i>	<i>Eutrigla gurnardus</i>	<i>Glyptocephalus cynoglossus</i> <i>Microstomus kitt</i>	<i>Trisopterus luscus</i>	<i>Clupea harengus</i>
F3201						<i>Glyptocephalus cynoglossus</i>		
F3202						<i>Glyptocephalus cynoglossus</i>		
F3209						<i>Microstomus kitt</i>		
F3210						<i>Microstomus kitt</i>		
F3211		<i>Sebastes viviparus</i>				<i>Microstomus kitt</i>		<i>Sardina pilchardus</i>
F3213			<i>Lepidorhombus whiffiagonis</i>			<i>Platichthys flesus</i>		
F3214			<i>Arnoglossus laterna</i>			<i>Microstomus kitt</i>		
F3215						<i>Glyptocephalus cynoglossus</i>		
F3216			<i>Lepidorhombus whiffiagonis</i>			<i>Platichthys flesus</i>		
F3217			<i>Lepidorhombus whiffiagonis</i>			<i>Microstomus kitt</i>		
F3218			<i>Arnoglossus laterna</i>			<i>Microstomus kitt</i>		
F3219	<i>Scomber colias</i>					<i>Microstomus kitt</i>		
F3220						<i>Microstomus kitt</i>		
F3221a		<i>Sebastes viviparus</i>				<i>Hippoglossoides platessoides</i>		
F3221b		<i>Sebastes viviparus</i>			<i>Trigla lyra</i>	<i>Hippoglossoides platessoides</i>		
F3222		<i>Sebastes norvegicus</i>	<i>Arnoglossus laterna</i>	<i>Trisopterus esmarkii</i>		<i>Hippoglossoides platessoides</i>	<i>Trisopterus minutus</i>	
* Results for F-RT1911 excluded (see below)								

Specimen images and detailed breakdown of identifications

Participating laboratories were asked to identify to species level the 15 specimens that were supplied with associated 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.

FRT19 was not a targeted ring test and most species included are commonly caught in routine monitoring surveys. Some specimens were in poor condition due to repeated freeze/thawing. Two different specimens were circulated for specimen number 3 (a & b) as there were not enough individuals of either species for all participants. Both were included in the photo library however participants only needed to identify the specimen they received.

LabCodes are abbreviated in this report to exclude the Scheme year, i.e. F_3101 = 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.

Figured FRT specimens are selected from the circulation series as typical of the size and condition range circulated. Due to difficulties sourcing sufficient specimens for distribution, some representative specimen images from previous ring tests have been used. 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. Some comparison images for other species are currently unavailable as was the case for winter flounder *Pseudopleuronectes americanus* in FRRT 16, and for piper gurnard *Trigla lyra* in this report.

F-RT1901 – *Scomber scombrus* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 35–40 cm.



One specific difference recorded, lab 19 identified as *Scomber colias*

The participant indicated that they identified the specimen as *Scomber japonicus* based on taxonomic keys, then changed to *S. colias* based on updated species distributions and recent literature. *Scomber scombrus* has 11 to 13 dorsal fin rays (Fig 2) whereas *S. japonicus* and *S. colias* have 9 to 11 and 9 to 10 respectively. The colouration of *S. japonicus* more closely resembles *S. scombrus* but is native to the Pacific. *S. colias* is more green-blue and has dusky spots on the underside which *S. scombrus* lacks.



Figure 2. *Scomber scombrus* highlighting number of dorsal fin rays (pin)

F-RT1902 – *Helicolenus dactylopterus* (Delaroche, 1809)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 20–30 cm.



Four generic and four specific differences recorded. Labs 11, 21a and 21b identified as *Sebastes viviparus* and lab 22 identified as *Sebastes norvegicus*.

Helicolenus dactylopterus has 11 to 12 strong dorsal spines, the lower nine pectoral fin rays have the outer third of their length free of the fin membrane. Characteristic features include mottled red and pink colouration with a large yellow eye (Fig 3). Inside the mouth is dark blue/black giving rise to its common name, blue-mouth redfish. *Sebastes viviparus* has similar colouration to *H. dactylopterus* but the mouth is pink inside and it has 15 strong dorsal spines. *Sebastes norvegicus* is bright uniform red and has 14 to 16 strong dorsal spines. It also attains a much larger size of up to 1 metre.



Figure 3. *Helicolenus dactylopterus*, taken from FRRT 13 report

F-RT1903a – *Arnoglossus imperialis* (Rafinesque, 1810)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 15–20 cm.



Three generic and six specific differences recorded. Labs 13, 16 and 17 identified as *Lepidorhombus whiffiagonis* and labs 14, 18 and 22 identified as *Arnoglossus laterna*.

Arnoglossus spp. are primarily distinguished by the first free rays on the dorsal fin, which originates in front of the eyes. In *A. imperialis* the first fin rays of the dorsal fin are free from the membrane. The second to fifth rays are elongated and thickened. In *A. laterna* the first rays are free of the membrane but not elongated or thickened. (Fig 4). *Lepidorhombus whiffiagonis* is also a left-eyed flatfish but has a prominent large head and eyes and a strongly curved lateral line above the pectoral fin (Fig 5).



Figure 4. Specimens of scaldfish showing (left to right) *Arnoglossus imperialis*, *A. laterna* and *A. thori*. Taken from FRT 18 report



Figure 5. *Lepidorhombus whiffiagonis*

F-RT1903b – *Liparis liparis* (Linnaeus, 1766)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea.
Condition: Good. Size: 7–10 cm.



No generic or specific differences recorded.

F-RT1904 – *Trisopterus minutus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Western Channel and Celtic Sea
Condition: Good. Size: 10–20 cm.



No generic and one specific difference recorded. Lab 22 recorded as *Trisopterus esmarkii*.

Trisopterus minutus differs from *Trisopterus esmarkii* by the relative position of the dorsal and anal fins and the position of the lower jaw. The end of the dorsal fin is in line with the start of the anal fin and the upper jaw overlaps the lower jaw in *T. minutus*. The chin barbel is also longer and more developed (Fig 6 top). The end of the dorsal fin is passed the first rays of the anal fin and the lower jaw extends past the upper jaw in *T. esmarkii*.

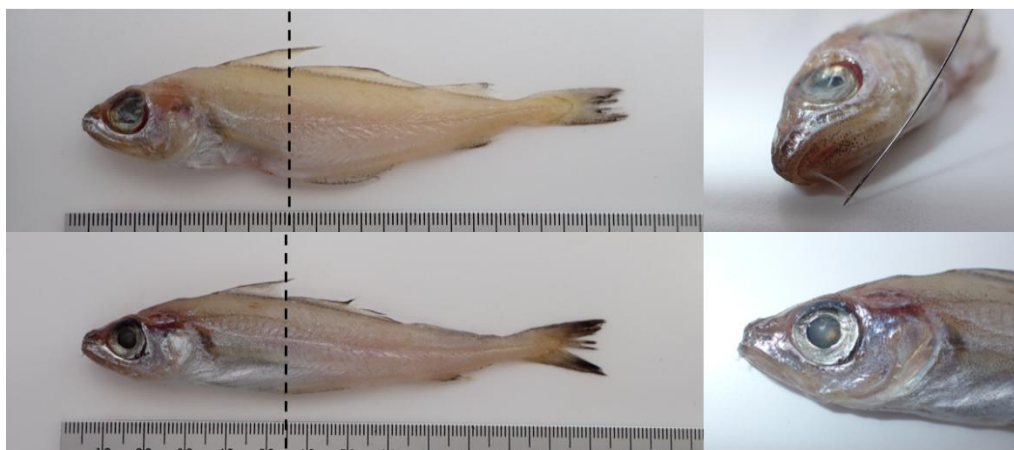


Figure 6. *Trisopterus minutus* (top) and *Trisopterus esmarkii* (bottom)

F-RT1905 – *Eutrigla gurnardus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 20–25 cm.



One generic and one specific difference recorded. Lab 21b identified as *Trigla lyra*.

Eutrigla gurnardus is generally grey in colour with a rough lateral line, straight head profile, pectoral fins that end before the vent and two spiny lobes on the snout (Fig 7). *Trigla lyra* by contrast is bright red, with a smooth lateral line, pectoral fins that go past the vent and distinctive elongated plates with spines on the snout.



Figure 7. *Eutrigla gurnardus*

F-RT1906 – *Pleuronectes platessa* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 20–30 cm.



No generic or specific differences recorded.

F-RT1907 – *Melanogrammus aeglefinus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 20–25 cm.



No generic or specific differences recorded.

F-RT1908 – *Chelidonichthys cuculus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 25–30 cm.



No generic or specific differences recorded.

F-RT1909 – *Malacocephalus laevis* (Lowe, 1843)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Good. Size: 35–50 cm.



No generic or specific differences recorded.

F-RT1910 – *Limanda limanda* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 15–25 cm.



No generic or specific differences recorded.

F-RT1911 – *Glyptocephalus cynoglossus* (Linnaeus, 1758) and *Microstomus kitt* (Walbaum, 1792)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Northeast Atlantic Ocean. Condition: Poor. Size: 20–25 cm.



Three labs (01, 02 & 15) identified their specimens as *Glyptocephalus cynoglossus* and eight labs (09, 10, 11, 14, 17, 18, 19 & 20) identified their specimens as *Microstomus kitt* (left). Furthermore, labs 13 and 16 identified their specimens as *Platichthys flesus*, and labs 21a&b & 22 identified their specimens as *Hippoglossoides platessoides*.

Results for specimen F-RT1911 were anomalous. Re-examination of the photograph distributed was also indicative of *M. kitt*. Some of the specimens were in poor condition and, due to the varying submissions, it is considered that a mix of species had been sent out to participants. Results from this specimen were excluded from the final scores.

F-RT1912 – *Trachurus trachurus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 25–35 cm.



No generic or specific differences recorded.

F-RT1913 – *Trisopterus luscus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 30–35 cm.



No generic and one specific difference recorded. Lab 22 identified as *Trisopterus minutus*.

Trisopterus luscus is a deeper bodied fish than *T. minutus* with a larger chin barbel (Fig 8).

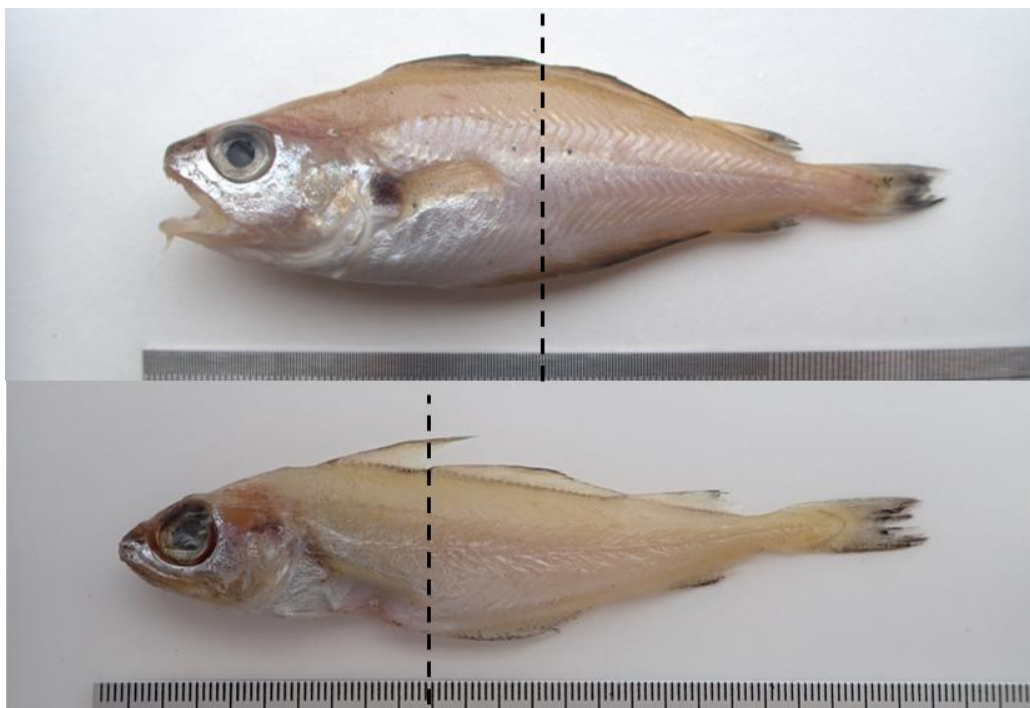


Figure 8. *Trisopterus luscus* (top) and *Trisopterus minutus* (bottom)

F-RT1914 – *Clupea harengus* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Irish Sea and Bristol Channel. Condition: Good. Size: 20–30 cm.



One generic and one specific difference recorded. Lab 11 identified as *Sardina pilchardus*.

Clupea harengus is a slender fish with no markings on the gill cover. By comparison *Sardina pilchardus* is a rounder bodied fish with conspicuous rayed markings on the gill cover, radiating from the eye (Fig 9).



Figure 9. *Clupea harengus* (top) and *Sardina pilchardus* (bottom)

F-RT1915 – *Merlangius merlangus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea.
Condition: Good. Size: 24–27 cm.



No generic or specific differences recorded.

Taxonomic discrepancies and confidence level

Synonyms

The World Register of Marine Species (WoRMS) and FishBase were used for currently accepted species names. *Chelidonichthys cuculus* was submitted under the old classification of *Aspitrigla cuculus* by eight participants. 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

Five participants submitted results with an authority, there were no errors identified. However, four of those submissions contained the unaccepted synonym *Aspitrigla cuculus*.

Confidence level

Confidence of identification was given for 135 entries (from 240 answers submitted). For those given, 96% were confident with species identification (excluding results from specimen 11).

Literature cited for FRT-19 identification

Maitland, P.S., Herdson, D. and Coates, S. (2009). Key to the Marine and Freshwater Fishes of Britain and Ireland.

Henderson, P. (2015). Identification Guide to the Inshore Fish of the British Isles.

Wheeler, A. (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. Eight out of 15 specimens were identified by all participants correctly. Five specimens had one incorrect identification each, one specimen (*Helicolenus dactylopterus*) had four incorrect identifications and one specimen (*Arnoglossus imperialis*) had six incorrect identifications (Table 3).

There was a comment from a participant regarding the safety of distributing specimen 03 *Helicolenus dactylopterus* regarding potential venom risk from the dorsal spines. Venom from this species is not well researched, with varying accounts of symptom severity. Anecdotal reports from fishers appear to indicate it may be milder by comparison than the sting of the lesser weever *Echiichthys vipera*, more

commonly encountered in inshore coastal waters. The effect freezing has on potential venom risk is also not well researched. While we cannot ascribe a warning to a specific specimen, as this may influence identification results, proper fish handling techniques will be encouraged. Instructions will be updated to include a general warning that, as in field samples, fish specimens may include any species caught in Northern European waters, and can include those with sharp thorns, teeth and spines, potentially including venomous spines. Standard precautionary handling should be employed, including the use of appropriate gloves.

The condition of specimens for F-RT1911 were below the standard of the other specimens provided this year. This specimen also had the most inconsistent answers. Eight participants identified their specimen as *Microstomus kitt*, three participants identified their specimen as *Glyptocephalus cynoglossus*, three participants identified their specimen as *Hippoglossoides platessoides*, and two participants identified their specimen as *Platichthys flesus*. There is a strong chance that a mix of species had inadvertently been circulated. To ensure against this in future ring tests, all specimens distributed will be photographed together so that any queries can be tracked more effectively.

Acknowledgements

APEM would like to acknowledge the survey teams of the Marine Institute Ireland, Cefas UK and DAERA Northern Ireland for their help in sourcing specimens for this years' ring test.

References

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