NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Fish Ring Test Bulletin – FRT18

24th November 2025

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MODULE / EXERCISE DETAILS

Module:	**Fish Ring Test (FRT)**
Exercises:	**FRT18**
Specimens Circulated:	**21st May 2025**
Data Submission Deadline:	**20th August 2025**
Number of Subscribing Laboratories:	**9**
Number of Submissions Received:	**10***

***multiple data entries per laboratory permitted**

Contents

Table 1 Summary of differences

Specimen	Genus	Species	Total differences for 6 returns	
			Genus	**Species**
F-RT1801	*Trisopterus*	*minutus*	**4**	**4**
F-RT1802	*Scomber*	*scombrus*	**0**	**0**
F-RT1803	*Trisopterus*	*esmarkii*	**1**	**1**
F-RT1804	*Trachurus*	*trachurus*	**0**	**0**
F-RT1805	*Limanda*	*limanda*	**0**	**0**
F-RT1806	*Eutrigla*	*gurnardus*	**0**	**0**
F-RT1807	*Clupea*	*harengus*	**0**	**0**
F-RT1808	*Merlangius*	*merlangus*	**0**	**0**
F-RT1809	*Melanogrammus*	*aeglefinus*	**0**	**0**
F-RT1810	*Chelidonichthys*	*cuculus*	**0**	**4**
F-RT1811	*Arnoglossus*	*imperialis*	**0**	**3**
F-RT1812	*Argentina*	*silus*	**0**	**2**
F-RT1813	*Buglossidium*	*luteum*	**1**	**1**
F-RT1814	*Callionymus*	*lyra*	**0**	**0**
F-RT1815	*Capros*	*aper*	**1**	**1**
		Total differences	7	16
		Average differences /lab.	**1.2**	**2.7**

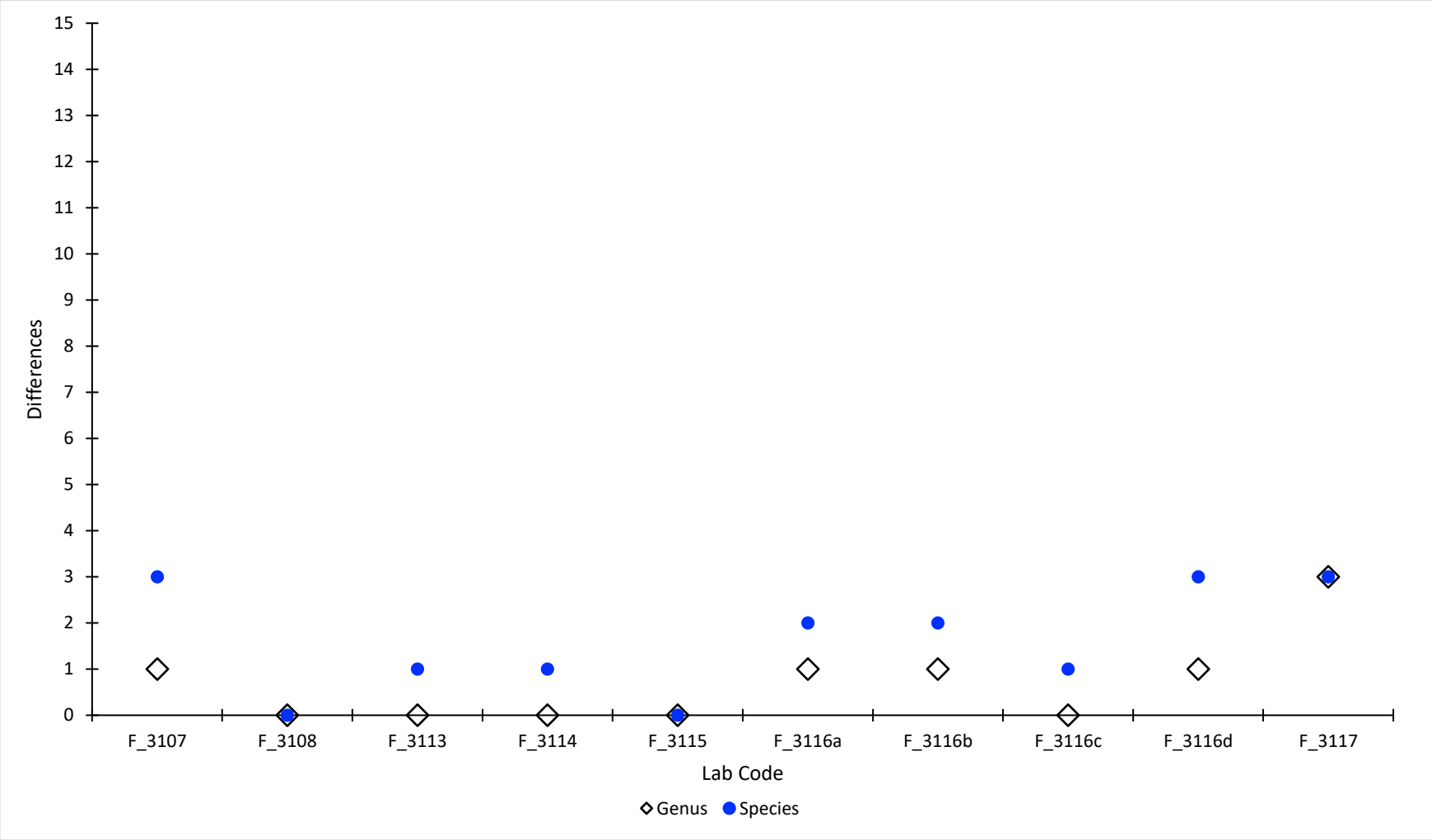


Figure 1. The number of differences from the AQC identification of specimens distributed in FRT18 for each of the participating laboratories. Species difference (blue filled circles) genera difference (open diamond).

Table 2 The identification of specimens made by participating laboratories for FRT8 (arranged by specimen). Names are given only where different from the AQC identification

Specimens							
	F-RT1801	**F-RT1803**	**F-RT1810**	**F-RT1811**	**F-RT1812**	**F-RT1813**	**F-RT1815**
Taxon	***Trisopterus minutus***	***Trisopterus esmarkii***	***Chelidonichthys cuculus***	***Arnoglossus imperialis***	***Argentina silus***	***Buglossidium luteum***	***Capros aper***
F_3107	- -	- -	- -	*Arnoglossus laterna*	*Argentina sphyraena*	*Solea solea*	- -
F_3108	- -	- -	- -	- -	- -	- -	- -
F_3113	- -	- -	- -	*Arnoglossus laterna*	- -	- -	- -
F_3114	- -	- -	- -	*Arnoglossus laterna*	- -	- -	- -
F_3115	- -	- -	- -	- -	- -	- -	- -
F_3116a	*Merlangius merlangus*	- -	*Chelidonichthys lucernus**	- -	- -	- -	- -
F_3116b	*Pollachius virens*	- -	*Chelidonichthys lucernus**	- -	- -	- -	- -
F_3116c	- -	- -	*Chelidonichthys lucerna*	- -	- -	- -	- -
F_3116d	*Pollachius virens*	- -	*Chelidonichthys lucernus**	- -	*Argentina sphyraena*	- -	- -
F_3117	*Merlangius merlangus*	*Pollachius pollachius*	- -	- -	- -	- -	*Cyttopsis rosea*

*As reported

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.

FRT18 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.

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. 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. 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.

F-RT1801 - *Trisopterus minutus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea. Condition: Good. Size: 11–13 cm.

Four taxonomic differences recorded. Labs 16a and 17 identified as *Merlangius merlangus*. Labs 16b and 16c identified as *Pollachius virens*.

T minutus can be distinguished from *M. merlangus* by the position of the origin of the first anal fin, the anal fin of the former is directly below the space between the first and second dorsal fin while the anal fin of the latter lies below the base of the first dorsal fin. *T. minutus* also has a prominent chin barbel.

Figure 2. Specimens of *Merlangius merlangus* (top) and *Trisopterus minutus* (bottom).

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, it is darker in colour with a creamy lateral line. The upper and lower jaws of *P. virens* are in line in young fish with the lower jaw protruding slightly in adults, whereas *T. minutus* has a protruding upper jaw.

F-RT1802 - *Scomber scombrus* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea. Condition: Good. Size: 19–21 cm.

No generic or specific differences recorded.

F-RT1803 - *Trisopterus esmarkii* (Nilsson, 1855)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea. Condition: Good. Size: 12–14 cm.

One generic and one specific difference recorded. Lab 17 identified as *Pollachius pollachius*.

The lower jaw of *T. esmarkii* is slightly longer than the upper, it also has a small barbel. The lower jaw of *P. pollachius* is much longer than the top and protruding and has no barbel.

Figure 3. Specimens of *Trisopterus esmarkii* (top) and *Pollachius pollachius* (bottom).

F-RT1804 - *Trachurus trachurus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea. Condition: Good. Size: 12–13 cm.

No generic or specific differences recorded.

F-RT1805 - *Limanda limanda* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 16–18 cm.

No generic or specific differences recorded.

F-RT1806 - *Eutrigla gurnardus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 19–22 cm.

No generic or specific differences recorded.

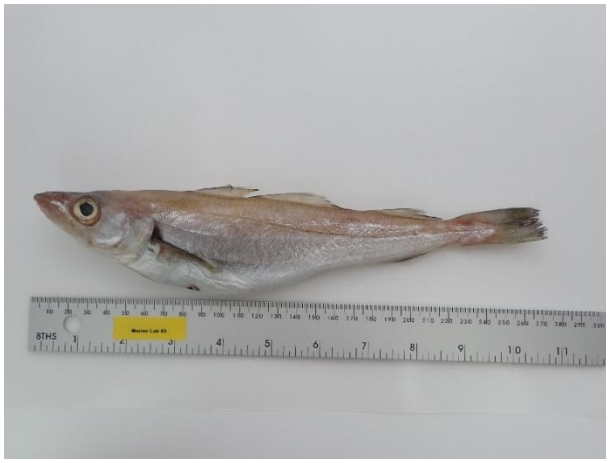
F-RT1807 - *Clupea harengus* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 20–22 cm.

No generic or specific differences recorded.

F-RT1808 - *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.

F-RT1809 - *Melanogrammus aeglefinus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea. Condition: Good. Size: 21–23 cm.

No generic or specific differences recorded.

F-RT1810 - *Chelidonichthys cuculus* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 21–25 cm.

No generic and four specific differences recorded. Labs 16a, b, c and d identified as *Chelidonichthys lucerna*.

Chelidonichthys cuculus and *C. lucerna* can be distinguished by the shape of the head/snout and the length of the pectoral fins relative to the vent. *Chelidonichthys cuculus* has a more concave head profile and pectoral fins that just reach the vent, whilst C. *lucerna* has a straight angled head profile and pectoral fins (often an ornate blue in colour) that extend past the vent.

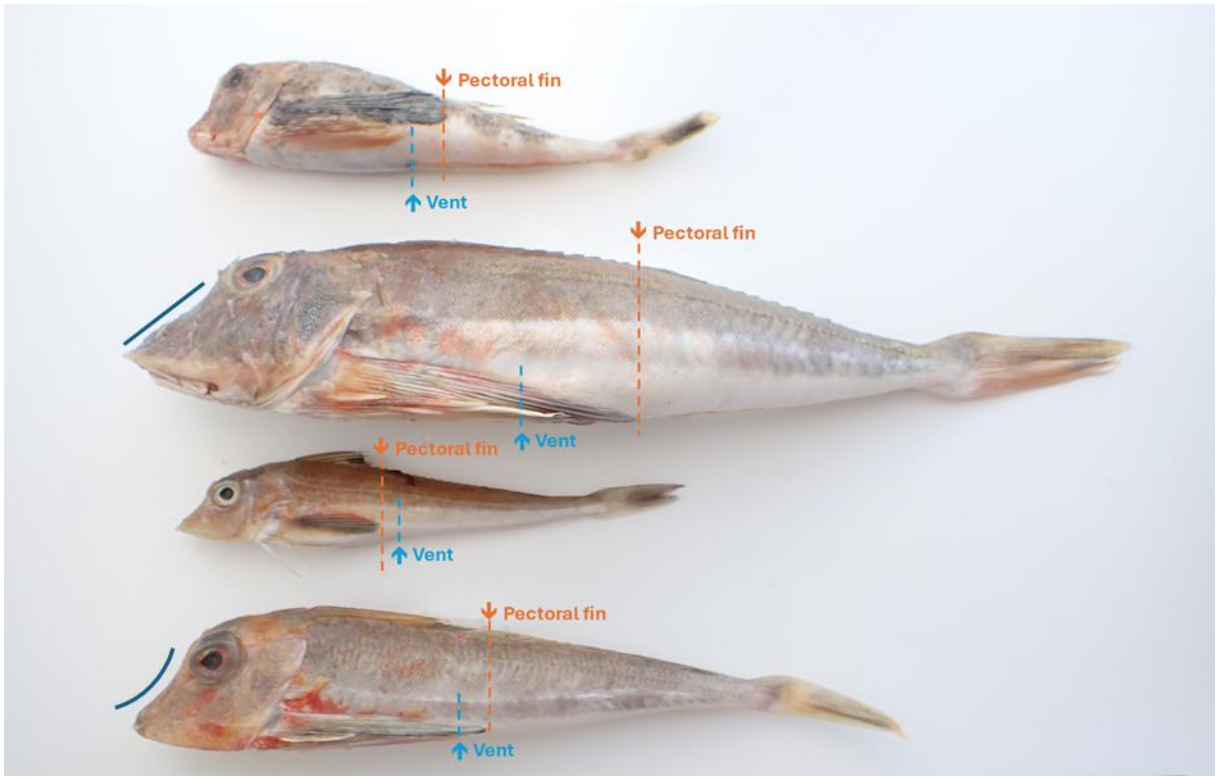


Figure 4. Selected gurnards showing (top to bottom) *Chelidonichthys lastoviza* (Bonnaterre, 1788), *Chelidonichthys lucerna* (Linnaeus, 1758), *Eutrigla gurnardus* (Linnaeus, 1758) *and Chelidonichthys cuculus* (Linnaeus, 1758).. (Adapted from FRRT_16).

F-RT1811 - *Arnoglossus imperialis* (Rafinesque, 1810)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 16–18 cm.

No generic and three specific differences recorded. Labs07, 13 and 14 identified as *Arnoglossus laterna*.

North Atlantic species in the genus *Arnoglossus* 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 elongate and thickened. In *A. laterna* the first rays are free of the membrane but not elongate. In *A. thori* the first four rays are thickened with the second ray markedly longer and dark on colour.

Figure 5. Specimens of scaldfish showing (left to right) *Arnoglossus. imperialis, A. laterna* and *A. thori.*

F-RT1812 - *Argentina silus* (Ascanius, 1775)

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

No generic and two specific differences recorded. Labs 07 and 16d identified as *Argentina sphyraena*.

A silus and *A. sphyraena* are very similar, both being slender, silvery fish with large eyes. The diameter of the eye is greater than the snout length in *A. silus*, while the eye is equal to the snout in *A. sphyraena*.

Figure 6. Specimens of argentine (silver smelts), showing *A. silus* (top) and *A. sphyraena* (bottom).

F-RT1813- -*Buglossidium luteum* (Risso, 1810)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 9–11 cm.

One generic and one specific difference recorded. Lab 07 recorded as *Solea solea*.

While both members of the Soleidae family *B. luteum* can be distinguished from *S. solea* by the black colouration of every fifth or sixth fin ray on the anal and dorsal fins. *S. solea* also has a distinctive black spot on the right-side pectoral fin.

Figure 7. Specimens of *Buglossidium luteum* (left) and *Solea solea* (right).

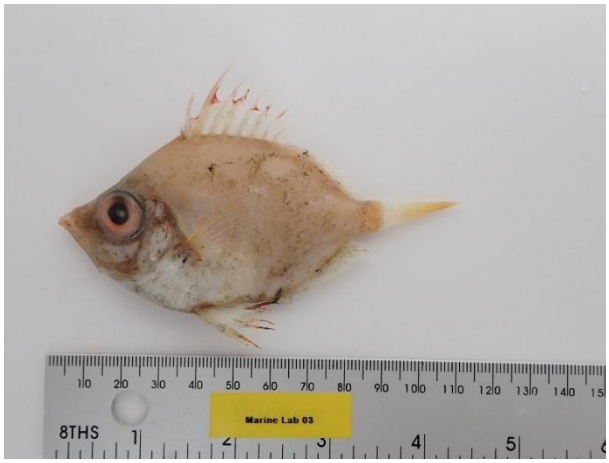
F-RT1814 - *Callionymus lyra* Linnaeus, 1758

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 24–30 cm.

No generic and no specific differences recorded.

F-RT1815 - *Capros aper* (Linnaeus, 1758)

Substratum: Mixed. Salinity: High. Depth: Continental shelf of British Isles. Geography: Celtic Sea and Irish Sea. Condition: Good. Size: 10–12 cm.



One generic and one specific difference recorded. Lab 17 identified as *Cyttopsis rosea*.

Although ostensibly these two species can look similar, they are classified in different taxonomic orders. *Capros aper* belongs to the order Caproiformes, while *Cyttopsis rosea* is in the order Zeiformes. They can be distinguished by the size of the mouth and head shape and the number of anal fin spines. *Capros aper* has a small mouth and pointed snout, three anal fin spines, elongated first pelvic fin spine and rough body scales. In contrast, *C. rosea* has a large, highly protrusible mouth and one to two anal fin spines. No image of *C. rosea* is provided as they are not commonly caught in inshore coastal waters of the UK.

Taxonomic discrepancies and confidence level

Synonyms

The World Register of Marine Species (WoRMS) and FishBase were used for currently accepted species names. All but one of the participants (one record) submitted currently valid scientific names. *Chelidonichthys cuculus* was submitted under the old classification of *Aspitrigla cuculus*. 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

Only one participant submitted results with an authority, there were no errors identified.

Confidence level

Confidence of identification was given for 120 entries (from 150 answers submitted). For those given, 92% were confident with species identification.

Literature cited for FRT-18 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. Three specimens had one incorrect identification each, one had two incorrect identifications. Two specimens had four errors each. These were *Trisopterus minutus* and *Chelidonichthys cuculus*

One participant indicated that *Argentina silus* was not in their literature and used Google image search instead. While this did return a correct identification it is not suggested for accurate identification. The Google AI answer to “the limitations of using image search for fish identification” fails to address perhaps the biggest flaw; that being there is no way to ensure the images and files named on the vast array of internet sources are indeed correct.

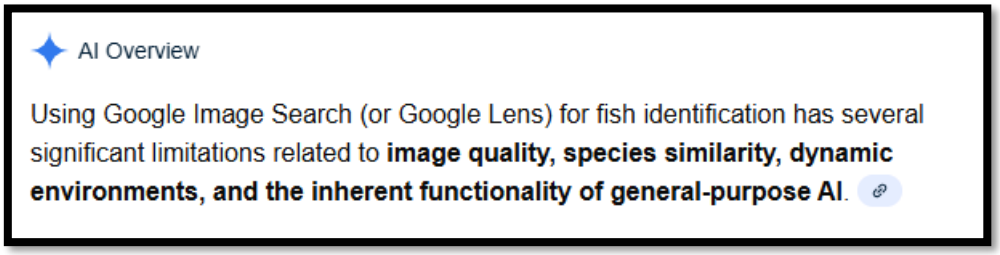


Figure 8. Google AI overview accessed September 2025.

There was one comment about the photo accompanying F-RT1811 *Arnoglossus imperialis* not matching the specimen. This could potentially be due to the white balance of the photo. A photo with an improved view of the fin rays is included in this report, see Figure 5.

There were no comments about the condition of the specimens circulated for FRT18, which is an improvement on previous years.

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

Baldock, L. and Dipper, F. (2023). Inshore Fishes of Britain and Ireland. Princeton University Press.

Froese, R. and Pauly, D. (Eds.) (2024). FishBase. World Wide Web electronic publication. www.fishbase.org , version (08/2025).

Fricke, R., Eschmeyer, W. N. and R. van der Laan (Eds.) (2022). Eschmeyer's Catalog of Fishes: Genera, species, references. http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp).

Fischer, W., Bauchot, M.-L. and Schneider, M. (1987). Fiches FAO d_identification desespèces pour les besoins de la péche. (Révision 1). Méditerranée et mer Noire.Zone de péche 37.

Henderson, P. (2015). *Identification Guide to the Inshore Fish of the British Isles*. Pisces Conservation Limited, Pennington, 321 pp.

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

Maitland P.S., Herdson D. and Coates S. (Eds.) (2009). Key to the Marine and Freshwater Fishes of Britain and Ireland, Environment Agency: Bristol, ISBN 978-1-84911-049-5.

Munk, P. and Nielsen, J.G. (2005). *Eggs and larvae of North Sea fishes*. Biofolia, Denmark, 215 pp.

Pisces Conservation Ltd (1995 – 2025). https://www.pisces-conservation.com/

Wheeler, A. (1969). *The fishes of the British Isles and North West Europe*. Macmillan, London, 613 pp.

Wheeler, A. (1978). *Key to the fishes of Northern Europe*. Warne, London, 380 pp.