A Note on the Pyloric Caecae of *Gadus poutassou* Risso

By

D. F. S. Raitt

Marine Laboratory, Aberdeen

Considerable doubt seems to have occurred in the past as regards the presence or absence of pyloric appendages or caecae in the blue whiting *Gadus poutassou* Risso. Early authors either make no mention of pyloric caecae (RISSO, 1826) or state that they are absent (COSTA, 1850 and SMITT, 1892). WILLIAMSON (1908), however, found that "the caecae were from 9 to 15 in number". SCHNAKENBECK (1929) and EHRENBAUM (1936) both specifically state that the blue whiting has no caecae, the latter going so far as to say that "in having no pyloric caecae *poutassou* comes close to hake which has only one". BIGELOW and SCHROEDER (1955) query the absence of caecae since, as with WILLIAMSON's observations, in a number of specimens of *Gadus poutassou* which they examined from Georges Bank and Brown Bank off the New England coast, caecae were present and numbered from 8 to 11. KOEFOED (1957) showed that in the specimens he examined caecae were present and numbered 8–11 in fish from West Spitsbergen. The results of previous workers are summed up in Table 1.

Table 1

Summary of previous observations on the number of pyloric caecae in *Gadus poutassou*

Author	Year	Area	Number of fish examined	Observation
RISSO	1826	Mediterranean	?	No mention
COSTA	1850	Mediterranean	?	Caecae absent
SMITT	1892	Norwegian Seas	?	*Poutassou* lacks caecae
WILLIAMSON	1907	North Sea	28	9–15
SCHNAKENBECK	1929	North Sea	?	No pyloric caecae
EHRENBAUM	1936	North Sea	?	Caecae absent
BIGELOW & SCHROEDER	1955	Middle and North Atlantic off United States	5	8–11
KOEFOED	1957	West Spitsbergen	7	8–11
		Other areas	?	6–10

Table 2

Number of pyloric caecae in *Gadus poutassou* taken from different areas

Area	Time of sampling	Number of fish examined	Mean number of pyloric caecae	Range of counts
Faroe	July 1960	248	10·79	8–13
Faroe	October 1960	26	10·50	8–12
North Sea	March 1960	55	10·84	8–14
West coast	November 1960	37	10·19	8–13
All Samples		366	10·71	8–14

In investigations of *Gadus poutassou* recently started at the Marine Laboratory, Aberdeen, routine observations have been made on the occurrence and numbers of pyloric caecae in a total of 366 fish. The details of the samples and results are given in Table 2. The presence of pyloric caecae in *Gadus poutassou* of the eastern Atlantic area has been verified in samples from the North Sea, west coast of Scotland, and Faroe, the average number being between 10 and 11 with a range of 8 to 14. The data suggest that the number of caecae tends to increase with size of fish. This is shown in Figure 1, in which the mean number of caecae in each sample is plotted against the mean length. Samples with a mean length of less than 20 cm (i.e. juveniles) tended to have a lower mean caecal count than those of 25 cm and over (adults).

The food of the *G. poutassou* examined consisted of the euphausiid *Meganyctiphanes norvegica* and small fish, mostly sand-eels. SVETOVIDOV (1934) has suggested a relationship between food size and numbers of pyloric caecae and has drawn examples from the Gadidae to show that fish which eat larger food organisms tend to have more caecae. Whiting have from 33 to 90 caecae (WILLIAMSON, 1908) and their food is also principally composed of euphausiids and small fish. *Gadus esmarkii* with a caecal count of about 22–30 feeds mainly

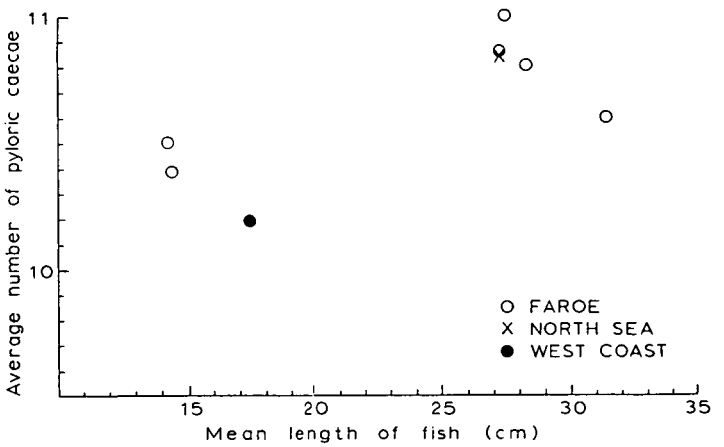

Figure 1. Relationship between number of pyloric caecae and mean length of blue whiting, *Gadus poutassou*, from different areas.

on zooplankton. Clearly the relationship food size/number of caecae may not be such a straightforward one as SVETOVIDOV suggested and much more information is required on their function and also on the significance of caecal counts as a morphological character.

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