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Report on the otolith photograph exchange scheme

by R. W. Blacker

Progress

Last year's report on the scheme gave the results of the circulation of the first two series of photographs of cod from Subarea 4T-4V and Subarea 1. Unfortunately the quality of reproduction of the illustrations for the meeting document was too poor to show any details of the various interpretations. Since then a detailed report on these two series, using line drawings for comparison with the photographs, has been sent to each reader. The otoliths themselves are being circulated as well.

Four more series of photographs have been sent out under the revision of the scheme suggested at the 1964 meeting. As recommended, in addition the otoliths are also being circulated (to a smaller number of readers), but this has seriously delayed the return of results. To date only one other series (the third series - more difficult otoliths from Subarea 1) has completed circulation. Few returns have been received from two series (from 2J and 3K) sent out last November. A detailed report on the third series has been sent to all readers.

At present two sets of photographs are being sent to each reader, one to be annotated and returned to me and the other to be retained for reference when reports on the results are issued. It is suggested that circulation could be speeded up if the initial diagnosis were made on photographs only and then the otoliths were circulated with a report on the findings. The quality of the photographs is such that in the majority of cases there is little to be gained from examination of the otoliths themselves.

Future exchanges

The otoliths used in the 1962 exchanges, the results of which were summarized by B.F. Calvin DeBaie in ICNAF Serial No. 1429, will be used in future exchanges. Not surprisingly R.C. Hennemuth (Document No.2, Serial No. 1454, this meeting) has found significant differences in the age determinations made by the readers taking part in those exchanges. It is hoped that the circulation of photographs will show the causes of these differences. The first set of these, illustrating small fish from Subarea 3K, has already been sent out and another series from 4T should have reached readers by this time.

Conclusions

The main difficulty, with many of the otoliths in the series sent out so far, is the interpretation of the early growth pattern. Figures 1 - 5 show examples from Subareas 1 to 4. In each case there is little disagreement about the outer zones in the older fish (marked in the figures), but in the centre is a very distinct narrow hyaline zone which the majority of readers take to be the nucleus, i.e. the end of the first year's growth; others, however, interpret this as an autumn check so giving an age one year less than the majority view. Between this and the outer undisputed zones is a succession of hyalines of varying width. They often group into a wide hyaline zone as in K11 (Fig. 1) and J12 (Fig. 2), or they may be more or less distinct as in G47 (Fig. 3) which shows four such hyalines. K21 (Fig. 4) shows a broad hyaline zone and one or two weak checks between it and the nucleus. P7 (Fig.5) illustrates the change in character which may be found between the earlier and later hyaline zones. This broad hyaline complex was not counted as a winter zone by some readers. The examples emphasize the need for extensive sampling of small fish for as much of the year as possible, throughout the commission area. Such sampling should show when the hyaline in this central complex are laid down, and whether or not more than one year's growth is represented.

Figure 1. Cod K11, Subarea 3K. 61 cm, probably seven years old.

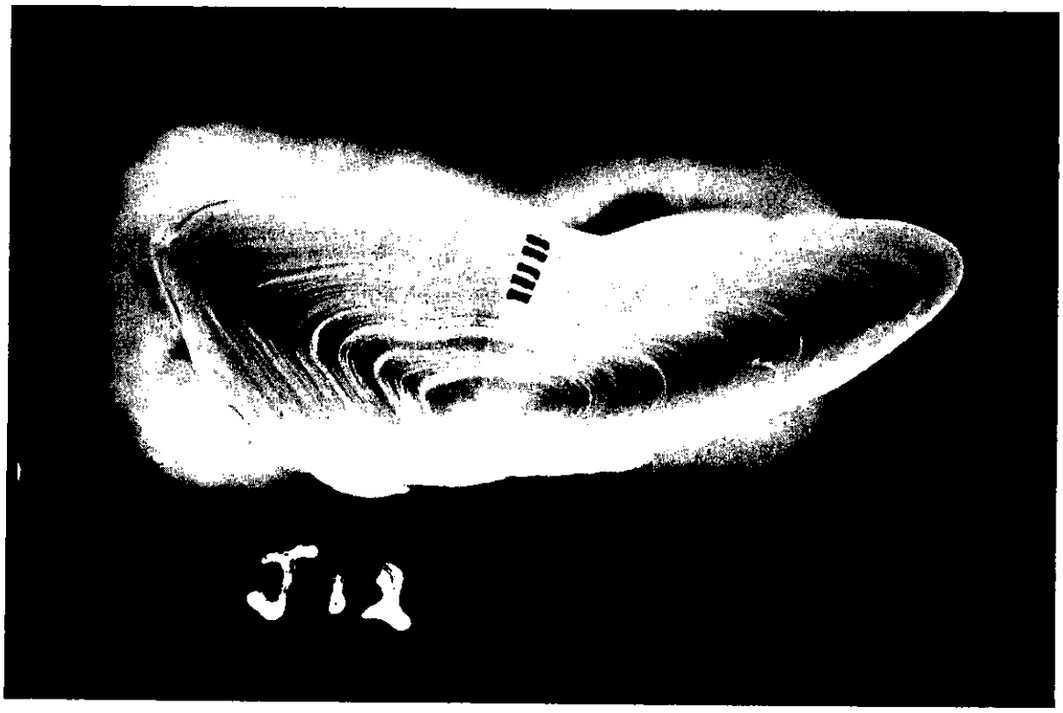

Figure 2. Cod J12, Subarea 2J. 53 cm, probably nine years old.

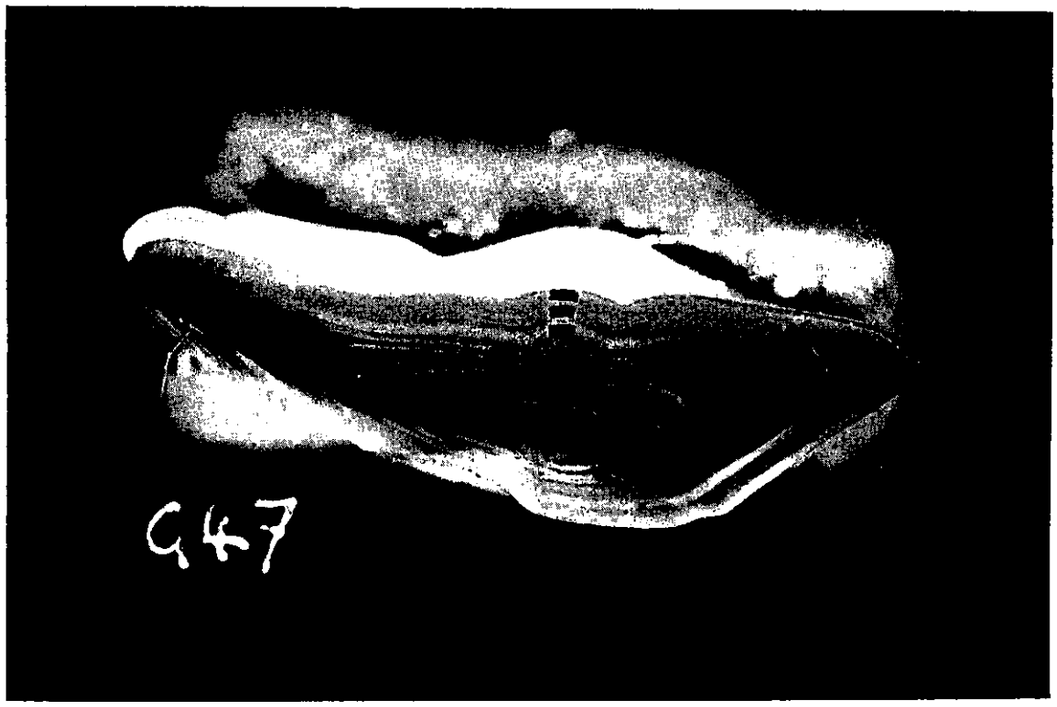

Figure 3. Cod G47, Subarea 1F. 57 cm; majority reading from third exchange series six years old. Other estimates 4, 5, and 7 (?6) years.

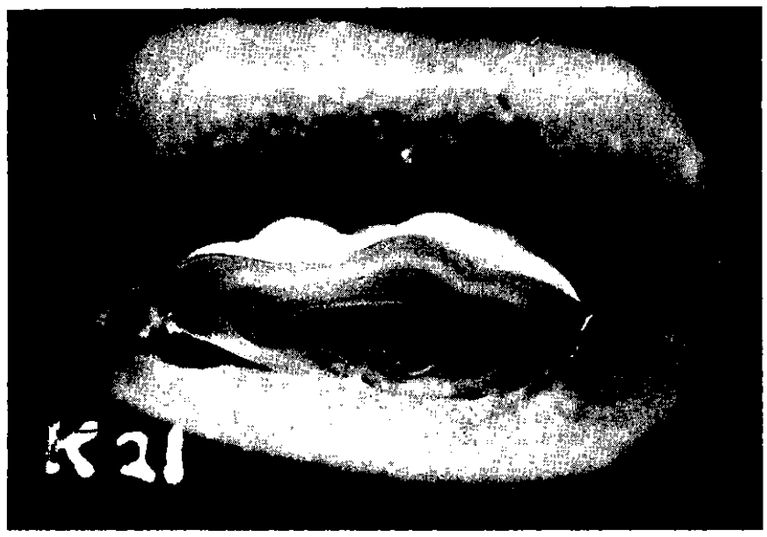

Figure 4. Cod K21, Subarea 3K (2s-6 of 1962 exchanges) 21 cm. Interpreted as either one or two or two (3) in the earlier exchange.

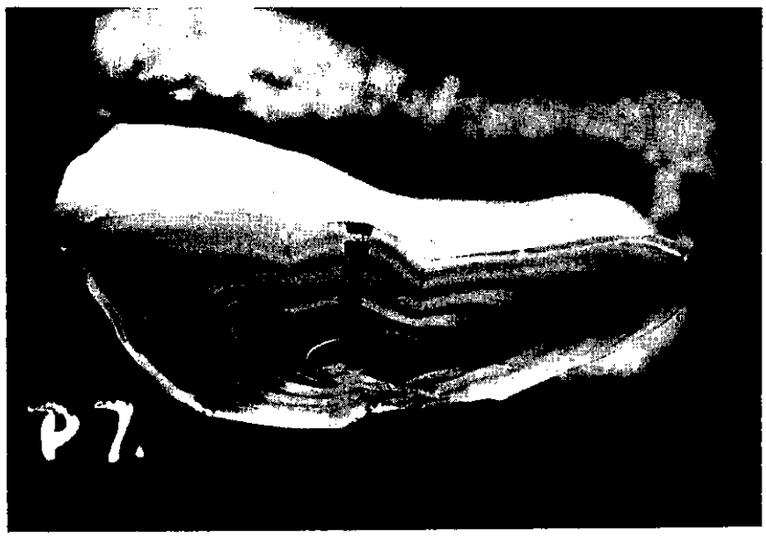

Figure 5. Cod P7, Subarea 4T-V. The two central rings are completely different in character from the outer four zones. They may either be considered as checks in a very large nucleus or both may be counted as annual zones, which seems more likely. There is nothing to indicate that one is a check and the other a true winter zone. Its age is therefore probably six years, but possibly only four.