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Report on the otolith photograph exchange scheme

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1. Cod otoliths. The circulation programme has continued. One more series from the 1962 Exchange samples (from Subarea 3P) has been sent out and others have been photographed in readiness for printing and circulating in the near future. During the past year five more series have completed their circulations. Reports on these are in preparation and will be sent to participants in the scheme as soon as possible.

The problem of interpretation of the central zones of cod otoliths from all the ICNAF subareas remains as the main source of disagreement among the otolith readers. Two examples, from Subarea 2H, are shown in the figures. H17 (Figure 1) shows the otolith of a 22 cm cod caught in August: ages of 0?, 2 and 4 years were given in the 1962 exchange and 2, 3 and 4 years in the latest exchange. Ages of the otolith from a 24 cm cod (H19) shown in Figure 2 varied from 2 to 4 years in the 1962 exchange, but all readers agreed on 3 years in the latest circulation.

In the present state of our knowledge the best interpretations of these otoliths are 4 years old for H17 and 3 years old for H19, as there seem to be no valid reasons for omitting any of the main zones. However, the zones in these two examples are very clear, whereas in a large proportion of otoliths from these stocks the central hyaline zones are not very distinct. Validation studies on these otoliths should include extensive field observations on the seasonal feeding behaviour of the fish, as it is unlikely that the Petersen method alone can be used to separate year-classes in the slow-growing stocks of the ICNAF area.

When samples from all the ICNAF subareas have been photographed and circulated it will be possible to review as a whole the problems of cod otolith interpretation in the north-west Atlantic.

2. Redfish otoliths. The photographs of redfish otoliths shown in my 1966 report to the Sub-committee on Ageing Techniques were sent to experts as recommended by the committee. Dr. Sandeman (St. John's, Newfoundland) ^{have}

, Mr G.F. Kelly and Mr Nicky (U.S.A.)

confirmed that the photographs would be of considerable value for recording interpretations, particularly of the earlier growth zones, but he always uses reflected light and a high magnification for reading the otoliths of older fish. However, it is doubtful if satisfactory photographs can be easily obtained using reflected light at high magnifications. An alternative seems to be the use of the burning technique which has proved to be the best method of preparing sole and plaice otoliths for reading (Christensen 1964). A few tests have been made and results are promising (Figures 3 and 4). Otoliths treated in this way still require careful preparation before burning if the best results are to be obtained.

I would like to thank those taking part in the cod otolith exchange scheme for their continued cooperation.

Reference

Christensen, J. M., 1964. Burning of otoliths, a technique for age determination of soles and other fish. *J. Cons. perm. int. Explor. Mer*, 29 (1): 73-81. Copenhagen.

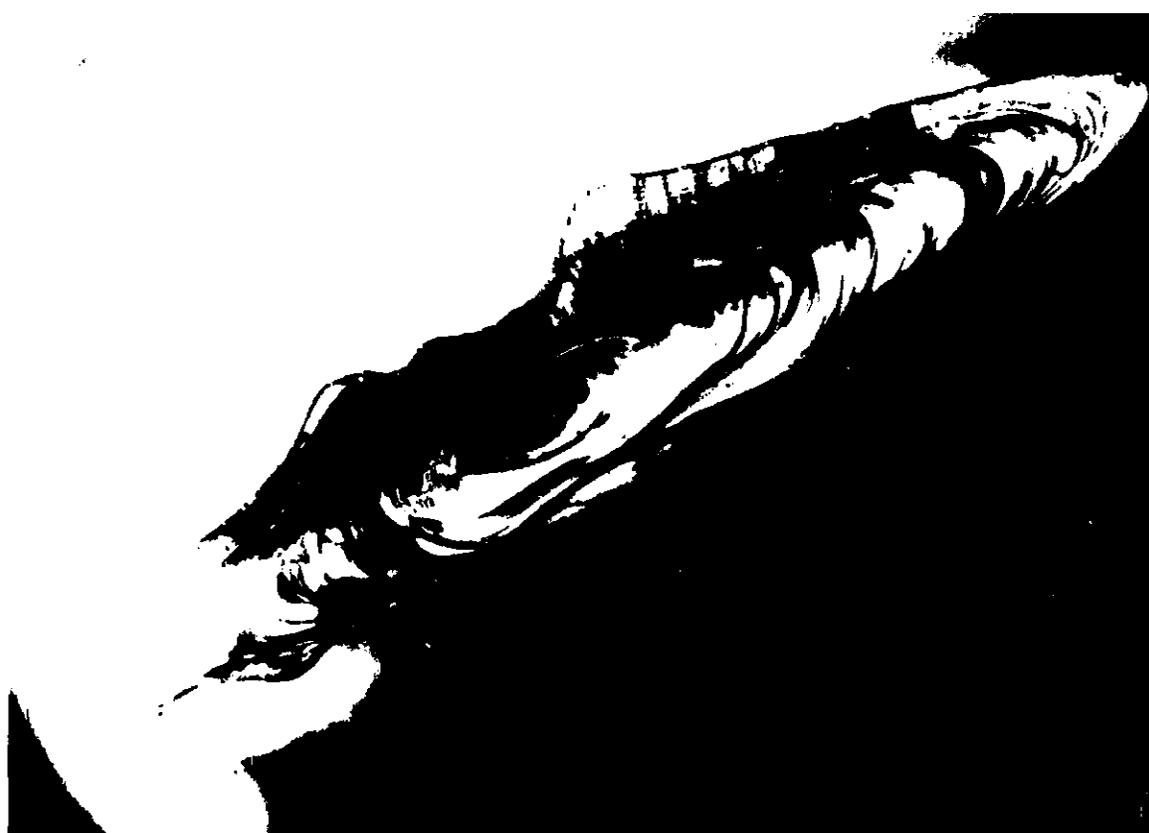
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Fig. 1. Otolith of a 22 cm cod from Div.2H, August 1960, probably a four-year-old fish.



Fig. 2. Otolith of a 24 cm cod from Div.2H, August 1960; three-year-old fish.



3A



3B

Fig. 3A and 3B. Redfish otoliths: (A) prepared by the turning technique and photographed by reflected light, compared with (B) unburnt otoliths; photographed by transmitted light; 41 cm redfish.



4A



4B

Fig. 4A and 4B. Redfish otoliths: (A) prepared by the burning technique and photographed by reflected light compared with (B) unburnt otoliths photographed by transmitted light; 51 cm redfish.