

ANNUAL MEETING - JUNE 1967United Kingdom Research Report, 1966

by B.B. Parrish and A.J. Lee

## SUBAREAS 1-5

A. Status of the Fisheries

Provisional figures indicate that United Kingdom landings from the ICNAF area increased by 7 per cent during 1966, from 56,000 tons to 60,000 tons comprised mainly of cod (57,000). The fishing effort increased by rather less, 13 per cent. In fact the fishing effort by freezer trawlers expanded by two-thirds its 1965 level as recently built vessels came into service, but this was offset by decreased effort by side trawlers.

This summary conceals more complex fleet movements between the Subareas of the ICNAF region. The increase in freezer trawler effort in 1966 took place in Subarea 3, and to some extent in Subarea 2. On the other hand, fishing by side trawlers increased in Subarea 1, reversing the switch from Subarea 1 to Subarea 3 which took place in 1965.

As a result of these changes the greater proportion of the increased catch in 1966 has been taken in Subarea 1 (21,000 tons) with catches in the other Subareas remaining almost constant.

As suggested by the movements of the fleet, these preliminary catch and effort statistics indicate an increase in stock abundance in Subarea 1 but a decrease in Subarea 3. Data are not yet available to relate these changes to the age composition of the stocks in question.

B. Special Research StudiesI. Biological Studies

Regular sampling for length and age has continued on the fresh fish markets, at sea on the Fairtry factory vessels, and also in the processing houses for samples of whole frozen fish. Further information on the structure of the cod stocks in Subarea 1 was collected during a cruise of R.V. ERNEST HOLT in connection with the United Kingdom research programme on north Atlantic salmon (see below). This showed a very marked distinction between the size composition of cod sampled in Subarea 1, Division 1F, and those sampled further north in Division 1A-D where the length composition was relatively uniform.

II. North Atlantic salmon

During October 1966 R.V. ERNEST HOLT carried out a cruise in Subarea 1 as part of a joint programme by the marine and freshwater laboratories in the United Kingdom, and in co-operation with the Danish authorities. The main objects of the cruise were to tag salmon and to collect them for racial studies based on electrophoretic analysis of the blood and parasitic infestation.

Fishing was mainly carried out in Divisions 1A, B, C and D and in all twenty-six salmon were caught in the size range 65 cm-97 cm total length. Only one was suitable for tagging.

In addition to the ERNEST HOLT CRUISE, a programme of salmon tagging and blood characteristics studies was carried out by a party of ten scientists from the United Kingdom, based at Greenland, during autumn 1966.

The shore-based, coastal tagging operations, which were carried out in the Godthåb area were much more successful than in 1965; 728 salmon were tagged out of a total of 2,120 salmon caught. To date, records have been received of the recapture of 25 of the tagged salmon in the Greenland fishery, mostly in the Godthåb area. In addition, one salmon, tagged in the Praestefjord on 14/10/66 was recaptured in the River Tweed on 18th March, 1967. It had been at liberty for 155 days, during which it had covered a minimum distance of 2,000 miles at a minimum rate of 13.5 miles per day.

Blood characteristics, including red cell and serum antigens, and blood groups, were investigated both in fish caught at sea and in fish caught in the coastal fishery; some work was done on transferins and some other material, e.g. eye lenses and hearts, were collected for further study. Only preliminary results are available from these investigations, and more detailed studies on the blood characteristics of national stocks are now required before further interpretation of the Greenland data is possible.

Attempts were made to extend and increase smolt tagging programmes during the spring and, though the number tagged did not always come up to expectations, 12,800 smolts were tagged in England and Wales from three river systems and 23,039 smolts, from five river systems, were tagged in Scotland.

### III. Environmental Studies

U.K. research vessels made no environmental surveys in the ICNAF area in 1966, but members of the Lowestoft, Aberdeen and Edinburgh laboratories were engaged in completing the report on the NORWESTLANT Surveys.

As in previous years the Continuous Plankton Recorder survey was conducted from the Oceanographic Laboratory Edinburgh, supported financially by H.M. Treasury, through the Natural Environment Research Council, and by the Department of the United States Navy through Contract N62558-3612 between the Office of Naval Research and the Scottish Marine Biological Association.

During 1966, Continuous Plankton Recorders, sampling at a depth of 10 metres, were towed in the ICNAF area by Cutters of the U.S. Coast Guard and by merchant ships from Denmark, Iceland and the United Kingdom. The total mileage sampled was 28,100 (compared with 25,900 in the previous year) made up of 3,900 miles in Area 1, 4,400 in Area 2, 16,000 in Area 3, 3,000 in Area 4 and 800 in Area 5.

The material is being analysed in the Edinburgh Oceanographic Laboratory and the results will be incorporated into a study of the distribution and abundance of the plankton and, especially, analyses of variation in the plankton and the environment. During the year progress has been made in the preparation of an atlas of the plankton of the North Atlantic based on sampling from 1958 to 1965; it is expected that charts of the distribution of about 200 organisms will be published during 1967.

In 1966 the spring outbreak of phytoplankton in most of the ICNAF region was later and less abundant than usual. For example, the spring peak occurred in May instead of April over the Grand Banks and there was a similar delay of about one month in the coastal waters of West Greenland. Thalassiosira spp., Chaetoceros spp., and Thalassiothrix longissima were the most abundant diatoms. Calanus finmarchicus and Thysanoessa longicaudata were the dominant organisms in the zooplankton. Calanus was common throughout the year over the Grand Banks but, in the oceanic waters east of Newfoundland, the increase in numbers of adult Calanus did not occur until April, that is, about one month later than usual. Euphausiids were somewhat less numerous than is usual.

A preliminary assessment of the numbers of young Sebastes suggests that they were somewhat below their average abundance in 1966; this was particularly noticeable in July in the region north of the Grand Banks and extending to the Strait of Belle Isle.