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UK RESEARCH REPORT: 1971

SUBAREAS 1-3

A. Status of the Fisheries

Fishing effort which was confined to Subareas 1 and 3 increased from 4 600 hours in 1970 to 9 500 hours in 1971; this was still well below the level of UK fishing effort in ICNAF areas in earlier years.

Total catches of cod were only 5 800 tons, 500 more than in 1970. About two-thirds of this was from Subarea 3, the remainder from Subarea 1. There was no fishing in Subarea 2.

HOURS FISHING, NUMBER OF ARRIVALS AND
LANDINGS OF COD FROM THE NORTH-WEST
ATLANTIC

	<u>ICNAF Subareas</u>			<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	
	<u>Landings (statute tons)</u>			
1970	2 760	2 107	424	5 291
1971	1 993 (808)*	-	3 799	5 792 (808)*
	<u>Hours fished</u>			
1970	2 034	1 897	709	4 640
1971	3 154 (1 251)*	-	6 356	9 510 (1 251)*
	<u>Number of arrivals</u>			
1970	14	5	5	24
1971	23 (8)*	-	13	36 (8)*

*Wet-fishers included in total.

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B. Special Research Studies

Biological: In collaboration with Danish fishery workers, UK scientists continued their investigations of the West Greenland salmon fishery in 1971. The main items in the programme were further drift-netting experiments (in preparation for the International Tagging Experiment planned for 1972) and the collection of samples of salmon blood for further serological studies. Four UK scientists took part in these investigations.

The results of the drift-netting programme were disappointing because, owing to circumstances beyond the investigators' control, fishing was restricted to thirteen days within the period of the experiment (10 September to 14 October). In all, 348 salmon were caught, of which 105 (about 30%) were tagged. One of the fish caught had been tagged, as a hatchery-reared smolt, in Maine in May 1970; it was released after re-tagging. Two local recaptures have since been reported.

The blood sampling programme was more successful. With the cooperation of a Danish commercial fishing vessel, 1 830 blood samples were collected; these are now being analysed.

Two of the 21 salmon tagged in 1970 from floating long lines have been recaptured, one in the Solway Firth (Scotland) and the other in Nova Scotia (Canada). In addition, two of the 56 salmon tagged from coastal gill nets in 1970 have been recaptured, one off Dunmore East (Eire) and the other in the Ungava River in Labrador.

To date, 125 recaptures have been recorded at West Greenland from wild smolts tagged in UK rivers in 1970 as well as 8 recaptures from UK hatchery-reared smolts.

Smolts were again tagged in home-waters during the spring of 1971. In England and Wales a total of 17 140 (5 619 wild and 11 521 hatchery-reared) was tagged and in Scotland 20 706 wild and 5 247 hatchery-reared smolts were tagged, giving an overall total of 25 953.

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SUBAREAS 1-5

Special Research Studies

Environmental: The survey with Continuous Plankton Recorders, operated from the Oceanographic Laboratory, Edinburgh, continued in 1971 on the same basis as in other years. The survey was financed by the UK Natural Environment Research Council.

Recorders are towed at a depth of 10 metres, at monthly intervals, along standard routes by cutters of the US Coast Guard and by merchant ships from Denmark, Iceland and the United Kingdom. During 1971, recorders sampled for 1 092 miles in Subarea 1, 2 315 miles in Subarea 2, 13 244 miles in Subarea 3, 3 345 miles in Subarea 4 and 1 258 miles in Subarea 5. This sampling forms part of the laboratory's standard survey of the North Atlantic and the North Sea.

The data processing of the results from the survey is fully automated; the survey area is divided into statistical rectangles, each 2° of longitude by 1° of latitude, which are then grouped into a system of standard areas (see Annual Report of the Scottish Marine Biological Association for 1970-71). The monthly distributions of all species, or groups of species, are plotted as mean numbers

per statistical rectangle and per standard area. At the end of every year, the annual and seasonal fluctuations in abundance of each species are calculated for each standard area for the period 1948 onwards in the North Sea and north-eastern Atlantic and 1962 onwards for the western Atlantic; routine statistical analyses, such as Principal Component Analyses, are then carried out. Further details may be obtained on application to the Director, Oceanographic Laboratory, Institute for Marine Environmental Research, 78 Craighall Road, Edinburgh, EH6 4RG.

In 1971 phytoplankton was below average in the oceanic parts of Subareas 2 and 3 with the spring peak in April in Subarea 3 and in May in Subarea 2, that is about a month earlier in both cases than the long-term mean. Thalassiothrix longissima was abundant earlier than usual whereas the other dominant spring diatoms, Phaeoceros spp. and Thalassiosira spp., were below average. Over the Grand Banks, the spring peak in March was also earlier than usual, but it was close to the long-term mean in the coastal region of Subarea 4, although in both these areas T. longissima was abundant in February and March and scarce from April onwards.

Copepods were correspondingly early in the oceanic section of Subareas 2 and 3. Numbers were highest in both areas in May, about a month earlier than usual. Over the Grand Banks, peak numbers were found in March, and from July onwards, whereas in Subarea 4, they were already abundant in June. Numbers of adult Calanus finmarchicus, which is the dominant copepod in the oceanic parts of Subareas 1, 2 and 3, were close to the average in both abundance and time of occurrence. In Subarea 2, high numbers were found from April onwards, but further south in Subarea 3 it was common throughout the year except in June in the oceanic section and from May to July over the Grand Banks. Numbers were much above average in Subarea 4 in January, June and August.

In contrast to the copepods, the peak abundance of euphausiids was about a month later than usual (April instead of March) in Subarea 2; in both the oceanic and coastal sections of Subarea 3 they were very abundant in March and high numbers were found again over the Grand Banks in August.

Numbers of larvae of Sebastes spp. were low in all areas; the non-pigmented variety was present in the oceanic part of Subarea 3 in April and the pigmented variety in the coastal waters of Subarea 5 in August. Ammodytes spp. were abundant in Subarea 3 in March but less common than usual over the Grand Banks.

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