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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1984 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 3

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DURATION:

9 March-5 April (All times GMT)

LOCALITY:

English Channel, Celtic Sea and Bay of Biscay

AIMS:

1. To carry out a depth stratified trawl survey of the western Celtic Sea and Bay of Biscay.
2. To sample juvenile fish.
3. To sample pelagic fish shoals.
4. To collect tissue samples for racial studies.

NARRATIVE:

CIROLANA cleared her berth at 2016 h 9 March and commenced fishing south of Start Point at 0720 h two days later. Fishing continued each day, between dawn and dusk, until 23 March when CIROLANA berthed at 1627 h in Santander, northern Spain. Fishing was resumed at 1526 h 25 March, soon after leaving Santander, but only one haul was made before work ceased due to deteriorating weather conditions. In the light of very poor weather prognoses for the following few days in the Bay of Biscay, and the possibility of better weather to the north, Cirolana steamed northwards to the Celtic Sea. Despite stormy conditions on passage the Celtic Deeps were reached by 0700 h 28 March where work was resumed, trawling on the Nephrops grounds for Dr Bennett. With continuing poor forecasts for the weather in the Celtic Sea - Bay of Biscay area it was decided to amend the objectives of the cruise and collect further mackerel samples for stock separation analysis. From the Celtic Deeps CIROLANA sailed to the west of Ireland, and then worked northwards trawling off the Outer Hebrides, east and west of Shetland before returning to Grimsby where she docked at 0730 h 5 April.

RESULTS:

1. Four depth stratified transects were worked with the Portuguese high headline trawl (PHHT), at 51° 49' 30", 47° 30' and 46° N. A series of samples were also taken at similar depths off the Spanish coast, but transects could not be worked due to the nature of the seabed and the narrowness of the shelf. The position of the trawl hauls are shown on the cruise track (Fig. 1). The size distribution of some of the more abundant species are available on request.

As on previous occasions the clearest relation between size of fish and depth is shown by poor cod and megrim. The smallest poor cod were in the shallow water but were absent further offshore. The opposite was true for the megrim. A marked difference was also recorded between the size and distribution of male megrim compared to the females. The males were consistently smaller and virtually confined to the deeper water.

Although the mackerel spawning season has only just begun the largest fish in the population were already concentrated along the shelf edge, where the highest egg concentrations are usually recorded. More smaller fish were found close to the main spawning centres than we have come to expect this early in the spawning season. It is assumed that this is an aspect of the wider changes in Western mackerel distribution which have been recorded in recent seasons. As in December 1983, very few mackerel of the 1982 or 1983 year classes were found.

In contrast to the absence of juvenile mackerel, juvenile scad appeared throughout the area surveyed, from southern Ireland to Cape Finisterre.

The results of the otolith sampling programme are summarised in Table 1.

2. Throughout the first part of the cruise, southwards to Cape Finisterre, stations were worked with the 2 m young flatfish beam trawl. Samples invariably included some fish, from small top-knots to large scad, but no consistent catches of juvenile fish were made.

Working northwards again, from Cape Finisterre to Santander stations were worked with both the neuston net and the Boothbay net. Catches in the neuston net included the ubiquitous *Onos* sp. and some mackerel larvae, but no 0-group fish of any sort. The only plankton traces which appeared to justify shooting the Boothbay net were found off the coast of Spain. When towed close to the seabed off Finisterre a number of 0-group blue whiting, 3-5 cm, were caught. When fished on what appeared to be similar traces off the north Spanish coast only salps, euphausiids and shrimps were caught. In the Bay of Biscay and Celtic Sea there were no scattering layers, and it was too early in the year to justify fishing for 0-group fish with the neuston net.

3. Occasional small mid-water traces were recorded (1-2 transmissions, and 2-5 m deep) but none that were large enough to merit shooting the Engel trawl.

4. Samples of liver tissue were collected from: blue whiting; pout whiting; whiting; Norway pout; poor cod; pollack; saithe; cod; haddock; hake; ling; forkbeard and shore rockling for electrophoretic analysis of racial characteristics.

5. Over 200 mackerel ovaries were collected, and preserved for Mr L Mariduena's histological studies of mackerel maturation and fecundity.
6. Four trawl hauls were made on 12 March and a further four on 28 March in the Celtic Deep Nephrops grounds as part of Dr Bennett's Nephrops sampling programme. In addition to measuring Nephrops records were kept of the by-catch and 29 berried Nephrops were returned to Lowestoft for fecundity examination.
7. Samples of 100-200 mackerel were collected from six areas; the south-west, Celtic Sea, north Biscay, south Biscay, north-west coast of Spain, and ICES Area 109, and frozen for Dr K McKenzie (DAFS Aberdeen).
8. From the 29 March to the time when fishing ceased, 1600 h 3 April fishing was directed toward catching mackerel for stock separation studies (although catch data continued to be worked up on the Groundfish Survey Program). Trawling positions were selected on the basis of past experience in the areas, by consulting local commercial fishing vessels, and fishery protection vessels. The time available for this aim did not permit extensive or methodical searching. Little difficulty was experienced in finding fish west of Ireland, but few fish were found west of Scotland, or on the grounds of the Rona winter fishery. In the northern North Sea mackerel appeared to be equally scarce along the shelf edge, and down the median line to 60°N but sufficient fish to make a representative sample were found to the east of Fair Isle.
9. Strain gauge measurements were made while towing the 2 m beam trawl, the Boothbay net and the Isaac-Kidd net for Mr Shreeve.
10. Samples of sprats and herring were returned to Lowestoft for FSM 1, plus assorted fish for the Fisheries Inspectorate fish identification courses, and the Environmental Archaeology Unit, York University.

The spiral valve were removed from one electric ray and one tope for Dr Rachel Smith's (National Museum of Wales) studies on fish parasites, but a 4 m basking shark and a very young (70 cm) six gilled shark (Hexanchus griseus) were returned live to the sea.

A small collection of live crustacea were returned live to Grimsby for collection by Dr R F Uglow (University of Hull).

S J Lockwood
10 April 1984

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