

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

1992 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 9

STAFF:

C T Macer (SIC)
A J R Cotter
T J Hulme
T W Boon (14 August-10 Sept.)
R A Ayers
D J Brown
M R Allison
P J Welsby
R J Read (14 -27 August)
T E Eaton (27 August-14 Sept.)

DURATION:

Left Lowestoft 0845h 14 August
Arrived South Shields 0400h 14 September
All times are Greenwich Mean Time

LOCALITY:

North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard GOV trawl in order to obtain information on:
 - (a) Distribution and abundance of all fish species.
 - (b) Length and age distribution of commercially important species.
 - (c) Distribution of fish in relation to their environment.
 - (d) Distribution of macrobenthos and anthropogenic debris.
2. To collect fish samples for Caesium analysis from selected areas in the North Sea.
3. To investigate variance caused by different fish sampling strategies.
4. To collect material for fish identification courses.
5. To provide fish samples for contaminant analysis for inclusion in the North Sea Task Force Quality Status Report.

6. To make a general investigation of an area east of the Farne Islands for the Sea Mammal Research Unit.
7. To collect samples of whiting for Dr Williams, Dept. of Zoology, National Museum of Wales.
8. To collect samples of herring for the study of Ichthyophonous disease.
9. To collect gall bladders and biological data from samples of saithe.
10. To make further trials with canvas kites with the GOV trawl.
11. To make a collection of photographs depicting survey activities for use in displays of FSM1 work.
12. To collect biological data from grey gurnard, angler fish, pollack, tusk, and four-bearded rockling, as material for the IBTS.
13. To collect samples of morlog for the British Geological Survey.

NARRATIVE:

RV CIROLANA steamed south to the first station in rectangle 32F1 in the Thames Estuary where trawling commenced at 1523h on 14 August. Work then proceeded northwards in a latitudinal direction, a single 30-minute tow and a Nansen bottle cast (surface and bottom) being made in each of the IBTS designated rectangles. The survey continued uninterrupted until 1230h 27 August, when the trawl winch broke down on hauling the second tow of the day in rectangle 40FO, 60 miles off North Shields. The vessel steamed for North Shields, where she anchored off the harbour at 1900h 27 August. The exchange of the AEP staff was made by Searider, and repairs were made to the trawl winch.

After leaving the anchorage at 0600h on 28 August, the grid was resumed at 0550h the same day, and stations were worked northwards towards the Orkney Islands. Work was interrupted by bad weather on 30 August and shelter was sought off North Ronaldsay. After working a single station east of Orkney on 31 August, passage was made to rectangle 51E8 north of The Shetlands, and on completion of the station the vessel made for Lerwick, where she docked at 1330h on 1 September.

Sailing at 1330h on 2 September, the grid was resumed at 1813h the same day, and two rectangles east of The Shetlands were worked. The tow in rectangle 49E9 was invalidated by gear damage, this being the only invalid haul on the grid. The remaining stations in the northern North Sea were completed at 1529h on 9 September, and the ship then steamed towards Aberdeen where T.Boon and a crew member were disembarked by Searider at 0600h on 10 September, after which the last station on the grid in 43E8 off Aberdeen was completed at 1345h on 10 September.

The vessel steamed to the Farne Deeps in order to carry out trials with the canvas kites, and these commenced at 0800h on 11 September. The second haul resulted in a parted footrope and split belly, and a new trawl had to be rigged. This was shot at 1759h on 11 September, but the trawl winch again broke down immediately after hauling, so precluding further trawling in the time

available. An echo-survey of the area frequented by seals approx. 20 miles NNE of the Farne Islands was commenced at 0749h on 12 September and completed at 1330h the same day. The ship anchored off North Shields at 1718h on 12 September, and entered the South Shields drydock at 0400h 14 September.

RESULTS:

1. A total of 74 rectangles were successfully completed with the standard-rig GOV trawl, with the tow in rectangle 49E9 the only one invalidated. It has not yet been possible to fish this rectangle without bobbins. Length samples and the catch weights from all species were recorded, and otolith samples from the standard species were taken. Surface and bottom temperature and salinity were recorded at each station, and a photograph of the benthos taken. Anthropogenic debris was weighed and identified.
2. Samples of fish flesh for Caesium analysis were collected and frozen from all the areas targetted in the North Sea.
3. Comparative trials of systematic sampling, Dutch shuffle sampling, and length categorisation were made with whiting, scad, dab, and a mix of species from selected catches in order to assess possible sampling biases arising when large catches must be sampled on deck. Preliminary analysis (chi-squared) indicated that both Dutch shuffling and systematic sampling can yield effective randomisation by length group when compared with a census of all fish in the catch. Length categorisation provides a census of very small or large individuals, but creates complications where categories overlap due to subjective sorting by different people. The variances of weight measurements at sea were also estimated and found to be reasonable.
4. Fish from 55 different species were collected for the fish identification courses.
5. Fish samples for contaminant analysis for inclusion in the North Sea Task Force Quality Status Report were collected from 8 of the 15 requested sampling sites. For the remaining sites, the required species were either absent or insufficiently abundant. (Dr. Franklin).
6. An echo-survey was made of the seal area off the Farne Islands, but the planned trawling in the area could not be done due to the winch breakdown. (SMRU).
7. Samples of whiting were collected from the required areas and frozen whole. (Dr Williams).
8. Herring hearts were taken whenever possible from a sample of 50 fish across the length range in 53 of the 75 rectangles fished. Fish with diseased hearts were found in 27 rectangles, mainly in the north-western North Sea, and these were frozen whole. (D. Bucke).
9. Gall bladders and biological data were collected from 95 saithe. (Dr. Feist).
10. The trials with the canvas kites were unfortunately marred by gear damage and the winch breakdown. However, it was established that two kites gave insufficient headline lift (around 3 metres).
11. Photographs were taken of various aspects of survey work.

12. Biological data were collected for grey gurnard, angler fish, pollack, tusk, and four-bearded rockling for the IBTS.

13. All morlog caught was retained, amounting to 9 samples.

C T Macer
24 September 1992

SEEN IN DRAFT: B Chapman (Master)
J Harper (Senior Fishing Mate)

INITIALLED: JGS

DISTRIBUTION:

Basic list+
D Bucke (Weymouth)
S Feist (Weymouth)
Dr Williams (National Museum of Wales)
A Franklin (Burnham)
Dr Hammond (SMRU, Cambridge)