

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

1989 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 7/89

STAFF:

- W G Parnell (SIC)
- T W Boon
- A M Watson
- B D Rackham
- R P Flatt
- S W Feist
- M Sherlock
- T A Bailey
- A J Sutcliffe
- C Rowell (University of York)

DURATION:

Left Lowestoft 1600 11 August
Arrived Wallsend 0711 12 September
(All times are Greenwich Mean Time)

LOCALITY:

North Sea and Skagerak.

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard Granton 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;
 - e) prevalence of disease in dab.
2. To collect fish and water samples for Caesium analysis from a grid of stations in the North Sea.
3. To carry out a survey of Caesium in sea water in the Skagerak.
4. To collect a sample of 30 haddock for meristies, enzyme analysis and mitochondrial DNA analysis (K Zwanenburg, Canada).
5. To collect samples of scad blood and muscle tissue from south of 56°N and north of 58° N (Dr J Casey).
6. To collect five sediment samples from an area close to the Ling Bank (Dr H Rees).

7. To evaluate the use of the Simrad ES400 colour sounder and printer as a tool in the investigation of the relationship between scattering layers and groundfish abundance.
8. To collect fish samples for AEP2 contaminants studies (A Franklin).
9. To collect fish for fish identification courses (A Watson).
10. To collect small gadoids/sprats for fish food (Dr P Bromley).

NARRATION:

CIROLANA sailed from Lowestoft at 1600 h, 11 August and started the groundfish survey at Smiths Knoll at 0731 h on the following day. The survey was worked in a general northwards direction taking best advantage of the weather, using a standard Granton trawl except on 10 stations around the Shetlands where Arctic bobbins were required to work the rough ground. CTD casts were made on each trawl station and a continuous record of temperature, salinity and chlorophyll 'a' was logged at five minute intervals throughout the trip. AEP1 requirements for sampling water for caesium analysis in the North Sea were achieved by sampling at or en route to fishing stations while fish for analysis were taken from selected trawl hauls. The survey continued until 1900 h 23 August when a water sampling survey was started at the entrance to the Skagerak. This continued until 0141 h 25 August after which the groundfish survey was recommenced. A mid-cruise break was taken in Lerwick between 2250 h 29 August and 0807 h 31 August. The survey was then worked southwards without interruption except for a series of 5 Day Grab stations which were worked in the United Kingdom EEZ to the west of the Ling Bank. The groundfish survey was terminated in Swallow Hole at 1131 h 11 September and course was set for Wallsend where the ship was due to dry-dock. CIROLANA arrived at 0711 h 12 September.

RESULTS

Aim 1. Eighty-nine Granton trawl hauls were made, 3 of which were invalid due to net damage. At each station species were sorted, weighed and measured and otoliths at the rate of 1 fish per cm length group were taken from cod, haddock, whiting, Norway pout, plaice, saithe and lemon sole. Individual weights of each fish otolithed were recorded. In roundfish areas 2 and 4 otoliths were taken from all cod caught for selection differential studies (C Rowell). In addition otoliths were taken from dabs at some stations to tie in with the study of the prevalence of disease in dab. All data was computer logged as were the continuous records of temperature salinity and chlorophyll 'a'. A computer record was also kept of headline height and door spread as recorded by SCANMAR sensors. The door spread sensor appeared to work correctly throughout most of the trip, in marked contrast to the headline height sensor which would work on one tow and not the next. Approximately 6000 dabs from stations in the southern North Sea and off the Scottish and NE English coasts were examined for epidermal diseases and liver nodules/tumours. Combined disease prevalence rates ranged from 0-33% the highest rates occurring off the Firth of Forth and to a lesser extent on the Dogger Bank. Lymphocystis was the commonest condition encountered. Samples for histological and ultrastructural evaluation were collected for further analysis.

Aim 2. Samples of fish fillets from cod, haddock, whiting, saithe, plaice, herring and mackerel were taken from the catch at selected trawl stations and frozen for return to the laboratory for radiocaesium analysis. At each station and on a grid of selected stations where fish samples were obtained, surface water samples were collected from the ships clean salt water supply and 50 l samples were processed by filtration through a 0.45 μm filter. Radiocaesium was removed from the filtrate by passing the filtered sea water through cartridges containing ammonium molybdophosphate on silica gel (AMP). The cartridges containing the AMP were retained for analysis in the laboratory.

Aim 3. A grid of 10 stations was worked on the survey of radiocaesium in sea water in the Skagerak.

Aim 4. Two samples of haddock were collected from east and west of 0° for meristics, enzyme analysis and mitochondrial DNA analysis. (K Zwanenburg).

Aim 5. Samples of scad blood, muscle tissue and otoliths were collected from South of 56° N and north of 58° N. (Dr J Casey).

Aim 6. Five sediment samples from west of the Ling Bank were collected using a Day Grab.

Aim 7. The Simrad ES400 colour sounder was run throughout the trip and paper records kept for later examination at the laboratory.

Aim 8. Some fish samples were collected from four specified areas for contaminants studies. (A Franklin).

Aim 9. Various species were deep frozen for the fish I.D. course. (A Watson).

Aim 10. Ten boxes of small gadoids were deep frozen for fish food. (Dr Bromley).

W G Parnell
12 September 1989

SEEN IN DRAFT: M J W, Master
R G, Fishing Skipper

INITIALLED: J G P J G S

DISTRIBUTION:

Basic list +
Staff on cruise

CIRO 7/89 GRANTON STATIONS

SHOWING :
CRUISE TRACK
STATION POSITION
COASTLINE

