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

1984 RESEARCH VESSEL PROGRAMME

REPORT RV CIROLANA CRUISE 7
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF:

J Pope NIC
B C Bedford
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T W Boon
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Mrs J R Hunton
A R Lawler
D J Coles
Dr G Crammer (Luton)

DURATION:

9 August-6 September (29 days)

LOCALITY:

North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard Granton Trawl in order to obtain information on:

   i) the distribution and abundance of all fish species caught by the trawl.

   ii) species interactions by examining stomach contents of selected predators.

   iii) length and age distributions of cod, haddock, whiting, saithe, Norway pout and plaice.

   iv) the distribution of fish in relation to environmental conditions.

2. To collect water samples for caesium analysis using the pumped sea water supply and Niskin bottles.

   To study the caesium content of fish at selected stations.

3. To sample the environment via the pumped sea water supply to shipboard sensors including:

   a) shallow water CTD
   b) Turner 10 flowmeter rigged to sample chlorophyll 'a'.

4. a) To sample haddock bloods from areas east and west of the prime meridian. (Dr Jamieson)

   b) To sample gadoid haemoglobin. (Dr Jamieson)

5. All instruments will be data logged and programmes tested to give depth profiles and surface transects.

6. Examine benthos distribution and abundance using:

a) a headline camera
b) the Granton trawl
c) a 1½ metre Agassiz trawl fitted with a (metre) distance recording wheel
d) Grabs in selected locations

7. All data will be entered on the ship's computer to create a data base for this cruise and summaries of the data obtained before the ship docks.

8. Release sea bed drifters off northeast coast. (Mr Riley)

9. Land live specimens of myxine. (Mr Scholes)

10. Collect stomach of whiting for Scotish stomach analysis programme. (A Robb)

11. Misc. Samples of fish as requested. (Mr Riley)
(Dr Millner)
(Mr Scholes)

NARRATIVE

RV CIROLANA departed from Grimsby at 1509 hours on the 9th August 1984, the Ground fish survey being commenced with a Granton trawl station at 1900 hours 33 miles ESE of Flamborough Head on the same day. Work continued almost without interuption (7 hours dodging on the 4th of September) until the 5th of September when the last station was completed at 95 miles to the east of the Tyne. A typical days work consisted of three trawl stations with associated CTD stations. Additionally the Agassiz trawl and day grab were used to sample benthos before the first and after the last trawl station of the day. AEP water station were taken at the trawling stations nearest to the points indicated by AEP1.

A cruise track is appended (see chart 1). For clarity trawl positions are shown on chart 1, AEP water stations on chart 2 and Agassiz and Grab stations on chart 3. In all 84 trawl hauls were made, 63 Agassiz and Grab stations and 52 AEP water stations made and Sea Surface Drifters were released at 12 positions. RV CIROLANA docked at 1427 at South Shields.

RESULTS

Aim 1 Ground fish survey

1. Valid hauls were made on all but three of the Groundfish Survey Stations proposed in the cruise programme.

At each station the weight of each fish species and that of commercially important shellfish species was recorded. The length distribution of each fish species present was obtained at each station. The results of total weight and length measurements were recorded on special forms and then input into the shipboard computer. These data were interrogated to provide preliminary results. At stations where the Agassiz trawl and grab were also deployed stomachs were taken from cod, haddock, and whiting and preserved for future study. At all trawl stations the CTD was deployed to provide information on the oxygen, temperature, salinity and transparency through the water column. Additionally at most stations the Koden colour echo sounder was run and recorded and the positional data from the Racal-Decca data logged to the computer.

Age-length key materials were collected from cod, haddock, whiting, saithe, ling, pollock and plaice by roundfish area.

Aim 2

Caesium studies

Surface water samples were taken at sites along the cruise track to continue the monitoring programme of radiocaesium levels in the North Sea. The position of water sampling stations is shown on chart 2. Near bottom samples of water were taken using Niskin samplers at positions near to the 57°N parallel. All water stations were filtered and passed through ASG ion exchange resin to extract radiocaesium prior to subsequent processing by AEP1. Samples of fillets of important commercial fish were taken in each of 12 AEP sampling areas. These were minced and frozen ready for further processing at the laboratory.

Aim 3

Environmental monitoring

Surface Sampler

Continous recordings were made of on line surface temperature, salinity and chlorophyll 'a'. The results were recorded on a six channel chart recorder used in the Yt mode. The sensing equipment comprised 1 x Model 8770 Guildline CTD system and a Turner Mk 10 Fluormmeter.

Discrete water samples were taken for salinity calibration checks on the Lowestoft salinity analyser.

PROFILE SAMPLER

At each fishing station a vertical profile was completed showing changes of oxygen temperature, salinity and transparency against depth. The results were recorded on a chart recorder used in XY mode. All data, except transparency, was also recorded on magnetic tape and logged on the ships computer.

The sensing equipment comprised 1 x Model 8770 Guildline CTD system and a Chelsea Oriel transparency meter. Two new 28" diameter alloy snatch blocks were used to provide a better cable lead from the main cable winch to the starboard aft quarter deployment point.

Aim 4

Genetic studies

Blood plasma samples for genetic studies (Dr Jamieson) were prepared from blood samples taken from 366 haddock caught at 13 trawl stations in areas east and west of the prime meridian. These were otolithed as part of the roundfish survey programme. The majority of haddock caught had suffered severe scale loss, and despite attempts to select fish in good condition approximately 30% of the samples taken showed signs of haemolysis. Haemoglobin specimens, again for Dr Jamieson, were also propared from blood samples taken from cod, haddock, saithe, pollack, ling, torsk and hake.

AIM 5

Data Logging

All but 3 CTD stations were logged on the computer and the profiles stored on the computer. During most trawl stations Decca Positions were logged every minute for use in distance over the ground calculations. Following telephone discussions with Mr Harding it was agreed not to attempt to data-log surface sampler results.. The data-logging programmes were found to contain several problems which need to be resolved.

AIM 6

Benthic Studies

The benthic invertebrate fauna was recorded throughout the survey. As in previous years the macroepibenthos was sampled using Granton and Agassiz tows. In addition this year the meiobenthos has also been sampled using a series of Day grabs. Benthos results from these and from Granton Hauls were recorded and photographed on a special form and imput to the shipboard computer.

For the 7th year in succession the remote headline camera was used on the Granton trawl. During this cruise, however, its use was restricted to 14 stations in the northern North Sea where previously results have either not been recorded or have been of poor quality.

AIM 7

Data Processing

All station details, catch weight data, length measurement data and benthos records were entered on the computer database. During the cruise entry procedures were improved and summarisation software written. Provisonal results were output before docking.

AIM 8

Sea surface drift cards wre released in batches of 100 at 12 sites off the north east coast of England during 10/11 August for Mr Riley. These sites were arranged in 3 sections each of 4 stations at 10 mile intervals running roughly northeast from Whitby, the Heugh and the Coquet, the inshore station in each case being 2 miles off. The 100 cards in each batch were released individually at one second intervals while steaming NW/SE (ie at right angles to the line of the section) through the designated dropping points.

AIM 9

Despite numerous attempts to preserve live specimens of myxine (hagfish) none survived more than a day in the special container. Even small, lively and apparently healthy individuals caught in the Agassiz trawl died in a short period. Clearly obtaining live specimens of this species requires a different approach.

AIM 10

Following a request from the DAFs laboratory (A Robb) stomachs of whiting were taken and preserved at stations on the south eastern North Sea to complement those to be sampled by/Scotia in a contemporary cruise.

R.V.

AIM 11

Samples of fish were frozen for:-

a) Mr Scholes; O group cod

b) Mr Baker; 5 plaice and 1 cod (few large cod became available following Mr Baker's telegrammed request for 5 fish of each species).

c) Dr Millner; for the stock identify course.

d) Dr Bromley; for feeding studies.

e) Dr Levine of Cambridge dept of Archeology.

f) Mr Elson; all monk caught were frozen after gutting of emptying intestines.

g) Dr Rees; Horse mussels.

Gear Loss

1 Agassiz trawl frame was damaged during the survey.

John G Pope NIC
5 September 1984

SEEN IN DRAFT M J Willcock Master
P MacKay Fishing Skipper

D J G

Circulation List

Basic +
J Pope NIC
B C Bedford
E J Shreeve
L E Woolner
T Boon
P A Large
Mrs J Hunton
A R Lawler
D J Coles
Dr G Crammer (Luton)