

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

1996 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 10

STAFF:

J Cotter, SIC  
B Rackham  
L Woolner  
T Watson  
D Brown (part 1)  
M Brown (part 1)  
P Stanton (part 1)  
R Ayers (part 2)  
J Dann (part 2)  
J Forster (part 2)  
S Jennings (UEA, part 2)

DURATION:

Left Lowestoft 1930h, 22 October 1995  
Mid-cruise break: Aberdeen 1800h, 7 November to 0000h, 8 November  
Arrived Lowestoft: 1930h, 23 November 1996.

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.
  - e) Surface and bottom temperature and salinity.
2. To identify and record macrobenthos, taking photographs as necessary for identification purposes.
3. To collect material for fish identification courses.
4. To preserve material from diseased fish.
5. To inspect herring (*Clupea harengus*) for the presence of *Ichthyophonus* and to preserve any infected fish.
6. To carry out repeat tows at selected locations (as time permits) to further investigate within-survey variance at a station.

East Anglia. This is intended to complement work already completed during the first part of Cirolana 8/96. (S Jennings)

8. To investigate starfish damage as an indicator of trawling intensity. (M Kaiser)

PLAN:

CIROLANA will sail on the evening tide at 1800 BST on 22 October. Staff should be on board by 1700h. Staff changes will take place on or around 7 November during a mid-cruise break in Aberdeen, if an exchange by Searider to North Shields cannot be scheduled.

J Cotter  
25 September 1996

INITIALLED: CTM, JH

DISTRIBUTION:

Basic list +  
C T Macer  
J Pope  
R Millner  
M Pawson  
J Nichols  
M Kaiser, Conwy  
S Feist, Weymouth  
+ All cruise staff

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

**1996 RESEARCH VESSEL PROGRAMME**

PROGRAMME: RV CIROLANA: CRUISE 10

STAFF: J Cotter (SIC)  
B Rackham  
T Watson  
L Woolner  
D Brown (pt 1)  
M Brown (pt 1)  
P Stanton (pt 1)  
R Ayers (pt 2)  
J Dann (pt 2)  
J Forster (pt 2)  
S Jennings (pt 2)

DURATION: 22 October to 25 November, 1996

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.
  - e) Surface and bottom temperature and salinity data using Niskin bottles.
2. To identify and record macrobenthos, taking photographs as necessary for identification purposes.
3. To collect material for fish identification courses. (T Watson)
4. To preserve material from diseased fish. (S Feist, Weymouth)
5. To inspect herring (*Clupea harengus*) for the presence of *Ichthyophonus* and to preserve any infected fish. (S Feist, Weymouth)
6. To carry out repeat tows at selected locations (as time permits) to further investigate within-survey variance at a station.
7. To carry out trial tows using a 2 metre beam trawl for sampling epibenthos as part of a collaborative project on monitoring biodiversity with the University of

7. To carry out trial tows using a 2 metre beam trawl for sampling epibenthos as part of a collaborative project on monitoring biodiversity with the University of East Anglia. This was intended to complement work already completed during the first part of Cirolana 8/96. (S Jennings)
8. To preserve samples of 0-group cod gills, liver and muscle for stock separation studies. (R Millner)
9. To collect samples of different species of sand eel to assist trout feeding studies. (G Tingley)
10. To investigate starfish (*Asterias rubens*) regeneration as an indicator of trawling intensity. (M. Kaiser)
11. To collect 10 liver samples from any two demersal fish species for analysis of cytochrome P450 (Dr A. Waller, De Montfort University)

#### NARRATIVE:

Trawling began in the southern half of the North Sea, then proceeded northwards to Aberdeen along the eastern side. Fishing was curtailed or delayed on several of the 17 days by bad weather. Whilst in Aberdeen, scientists and crew of RV Cirolana took the opportunity to visit the RV G.O.Sars which was engaged in the Norwegian IBTS survey and berthed adjacently for a day. During the second half of the cruise, weather was generally better. The remaining northerly stations were trawled first; an attempt to repeat one (51E9) was abandoned when the trawl came fast and the doors tangled on retrieval. Trawling continued in the central North Sea, with the grid of 75 stations being completed in rectangle 42E8 on Nov 20. Replicate tows were made at several stations on the way back to Lowestoft. A computer drawn track of the cruise (omitting the tracks between replicate stations for clarity) is attached.

#### RESULTS:

1. The grid of 75 trawl stations was completed with valid tows. Several stations had to be fished in darkness (contrary to IBTS recommendations, but due to the season and northerly latitudes) in order to achieve this. The usual biological sampling procedures were carried out on the target species. Electronic fish measuring equipment (fitted with improved connectors) proved reliable and acceptable. A computerised deckmaster system developed by R. Ayers was trialled successfully on the second part of the cruise; this served to hasten data entry and minimise arithmetic errors. Surface and bottom temperature and salinity data were collected from all trawl stations using Niskin bottles and electronic reversing thermometers.
2. Epibenthos taken in the GOV trawl were sorted into taxonomic groups, usually species, weighed and counted. Anthropogenic debris was weighed and recorded by type.
3. Specimens of all available species required for use on the fish identification course were collected.

4. No obviously diseased fish were encountered.
5. *Ichthyophonus* heart disease was not observed in herring from any station.
6. Eight stations (in rectangles 51E9, 40E9, 38E9, 38F0, 36F1, 36F0, 32F3 and 32F1) were fished twice, but gear damage invalidated two of these tows.
7. Beam trawl tows were made for 5 minutes at all stations during the second half of the cruise. Two stations previously fished with the GOV trawl in the first half (rectangles 44F4 and 44F5) were revisited during an overnight steam to obtain beam trawl samples from near the Norwegian trench. A grid of 12 additional stations was beam trawled overnight (12 Nov) in rectangle 49F0 to compare with a similar grid worked by the Norwegians. Two other grids of 12 additional stations were beam trawled overnight (15/16 & 21/22 Nov) in rectangles 43F2 and 36F1 in order to compare performance of the standard trawl with another, heavier version previously used for photographic work. The beam trawl proved robust and reliable, with only two tows having to be repeated. Shooting and hauling in deep water was slow at first due to the lightness of the gear, but times were later successfully reduced considerably. The distance meter fitted to one shoe jammed and must be redesigned.
8. Gill, liver and muscle tissues from a total of more than 100 individual 0-group cod caught at 12 stations were preserved for genetic analysis.
9. Several examples of various sand eels, including some taken with the beam trawl, were frozen to assist identifications in trout feeding studies.
10. Regeneration of arms in *Asterias* was counted at 8 stations where it occurred in number.
11. Liver samples were collected from haddock and whiting as required.
12. Three samples of morlog were saved for the British Geological Survey.

J. Cotter  
Scientist in Charge  
23 November 1996.

Seen in draft and approved by D McDarren, Master  
M Reynolds, Fishing Skipper  
R Millner, FSMG Team 1 leader.

# CIROLANA CRUISE 10/96

SHOWING:  
CRUISE TRACK

DATA VALUES REPRESENTING: STATION NUMBER

