CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT

2002 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 1

STAFF:

T Boon (SIC)
B Harley (2 SIC)
J Dann
M Etherton
R Taylor
G Burt
S Hetherington
R Flatt
S Neville

R Ayers (2-6 Feb)
C Whittaker (2-6 Feb)

DURATION: 02 February – 20 February

LOCATION: North Sea

AIMS:

1. To participate in the ICES co-ordinated International Bottom Trawl Survey for quarter 1. To fish over an allocated area of the North Sea using a standard GOV trawl in order to obtain information on:
   a) Distribution, size composition and abundance of all fish species caught.
   b) Age – length distribution of selected 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 CTD.
   f) Length weight information using individual fish measurements.

2. To collect acoustic data at two operating frequencies (38 kHz and 120 kHz) continuously throughout the cruise. Data recorded from the 38 kHz transducer will be combined with GOV trawl data and an estimate of total abundance made for roundfish species. This work will form part of a three year project (CATEFA) aimed at examining the relationships between trawl catches and acoustic data.

3. To collect material for fish identification courses (T Watson, CEFAS Lowestoft)

4. To collect 20 male gonads from plaice (*Pleuronectes platessa*) and store in liquid nitrogen (S Scott, CEFAS Lowestoft)

5. To collect dab (*Limanda limanda*) >22cm for bass feeding experiments (C. Sweeting, University of Newcastle)

NARRATIVE:

(all times are GMT)
With a forecast of south-westerly severe gale force 9, RV CIROLANA's sailing was postponed for 24 hours. The vessel sailed from Lowestoft at 1212h on 2 February. The survey was begun off Dunwich (ICES rectangle 33F1) but over heating engines resulted in a loss of ground speed and an invalid haul. A valid haul was made in the Thames Estuary the following morning. However, later in the morning, while towing off North Foreland, the winch brake failed. On hauling, a bridle swivel had parted and gear damage entailed four hours of mending. The gear was shot again in this position but the vessel was unable to provide enough power to achieve the required 4 knots ground speed. The trawl doors dug in and the port lower bridle broke and the upper bridle swivel parted. The gear was retrieved on the starboard side but the net was severely damaged.
A replacement trawl was bent on during the night as the vessel made passage to the Brown Ridge. Fishing commenced the following morning with the vessel on 3 engines. At this stage the micro CTD's were performing unreliably and conventional CTD casts were made at each trawl position, weather permitting. Further gear damage was sustained during the second haul resulting in 3 hours of mending. The trawl was shot successfully for the third time on 4 February in deteriorating weather conditions. The vessel ran and dodged through a south-westerly severe gale force 9 over night but was able to fish in Markham's Hole at first light on 5 February. A second successful haul was made that day but, at the end of the third haul, the winch failed completely. The gear was recovered intact after five hours by employing the net drum as a temporary winch. The vessel set course for Lowestoft, to effect winch repairs, docking at 1630h on 6 February.
Two scientific staff were disembarked and the winch electrics were repaired. Cirolana sailed at 0645h on 8 February. A replacement tow was made off Dunwich but then the trawl was severely damaged during the second tow, just north-east of Lowestoft. A new trawl was bent on as the vessel made an overnight passage to the northern end of the grid. Most of the next day was spent dodging in a severe south-westerly gale but one haul was made late afternoon in ICES rectangle 39F0. Sunday 10 February saw the first day of the cruise during which a trouble free work programme of three hauls was completed. However this change of fortune was short lived as the trawl was severely damaged during the first tow of the following day. In deteriorating weather conditions the vessel was moved into an anchorage in Alnmouth Bay where the rest of the day was spent mending the trawl and sheltering from a SW severe gale 9. On 12 February three hauls were successfully completed but during the first haul the following day the starboard lower wing was torn and the belly holed in several places. During the third haul the trawl was damaged beyond repair and a replacement trawl was bent on over night.
During the next five days 17 trawl hauls and 16 ctd casts were completed without incident in fine weather. Most of 19 February was spent dodging in a westerly gale but one haul was completed late in the afternoon. The weather continued poor through out the night. A further haul was made late morning on 20 February and the ground along the tow north east of Lowestoft, which resulted in severe gear damage on 8 February, was inspected. Prudence determined that the tow was not repeated. Cirolana docked in Lowestoft at 2125h on 20 February.

RESULTS:
Aim 1. Thirty-seven 30 minute GOV trawl stations were successfully completed. Light gear damage was sustained during three hauls and severe damage during a further four hauls. Three trawls were beyond on board repair. Three hauls were invalidated due to mechanical problems – one through loss of engine power and two through winch failure. Trawling was carried out using the standard specification for International Young Fish Surveys. At the first five trawling stations an AML micro CTD was attached to the fishing gear. However results were unacceptably poor and thereafter a standard 3770 CTD profile was made at 33 trawling positions to obtain temperature and salinity data. A chart indicating the ICES rectangles worked is attached (Figure 1). Scanmar equipment was used to monitor headline height and door spread. At each station, the catch of each species was weighed and all fish, or representative samples, were measured. Samples of otoliths for age determination were taken as specified in standard instructions. Benthos and crustacea were identified to the species wherever possible and recorded as present. Any anthropogenic waste

material was recorded and weighed. The resultant data were input to computer database using the CEFAS Electronic Data Capture System. These data will be analysed at CEFAS Lowestoft and will provide a major input to the ICES assessment of North Sea gadoids and pelagic species.

Aim 2. Acoustic data were recorded at two operating frequencies (38 kHz and 120 kHz) continuously throughout the cruise. Phase data were collected for a 48 hour period to assess the practicalities of phase data collection on future surveys. Post-processing was undertaken on the 38 kHz which is the standard operating frequency for fisheries acoustic surveys. This data will be combined with the trawl data to produce an abundance estimate for roundfish species in the North Sea. The data were also processed according to the parameters decided on for the CATEFA project, and will be further analysed in due course.

Aim 3. Specimens of more than 40 different species were preserved for the Laboratory's fish identification courses.

Aim 4. A total of 30 male gonads from plaice (*Pleuronectes platessa*) were collected and stored in liquid nitrogen.

Aim 5. Dab samples were collected where large individuals were abundant in the catch. Approximately 60kg of unfilleted dab were collected and frozen.

MISCELLANEOUS:

1. During the first five days of the cruise photographic records were made of the fishing operations, the catch processing and the Electronic Data Capture system. In all 10 hours of digital video recording, 170 digital stills and 20 conventional negative stills were taken.
2. Cod (*Gadus morhua*) ovary samples from 11 fish were preserved in formaldehyde for P Witthames (CEFAS). Additional data were also recorded.
3. Six gadoids, six flatfish and six pelagic fish were deep frozen for M Dunn (CEFAS) for use in demonstrating otolithing techniques.
4. Live specimens of lesser spotted dogfish (*Scyliorhinus caniculus*) (2), bullrout (*Myoxocephalus scorpius*) (5) and sea scorpion (*Taurulus bubalis*) (1) were returned to Lowestoft for CEFAS aquarium services.
5. Small snips of caudal fin were collected from 50 whiting (*Merlangius merlangus*) at each of three sites and preserved in ethanol. Samples are for G Charrier (University of Brest) for genetic studies.
6. A request from C Fox (CEFAS) for horse mackerel (*Trachurus trachurus*) gill arches for DNA studies was not satisfied due to the scarcity of this species.

T W Boon
21 February 2001

SEEN IN DRAFT:

Master	R McCurry
Senior Fishing Mate	A Lincoln

INITIALLED:

Surveys Contract Manager	R Millner

DISTRIBUTION:

Basic list +	T Boon	B Harley	J Dann	R Ayers
	M Etherton	R Taylor	G Burt	C Whittaker
	S Hetherington	R Flatt	S Neville	