

**CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT
2002 RESEARCH VESSEL PROGRAMME**

REPORT: RV CIROLANA: CRUISE 6

STAFF:

Part 1

S Flatman (SIC)
M R Dunn (2IC)
B D Rackham
T Watson
R A Ayers
J Dann
T R Woods
C S Whittaker

Part 2

S Flatman (SIC)
M R Dunn (2IC)
B D Rackham
T Watson
S Warnes
D J Brown
S A Warne
J Keable
N Ward (SEAFISH – part time)
M Montgomerie (SEAFISH – part time)

DURATION: Part 1: 6 – 20 November. Part 2: 21 November – 4 December

LOCATION: Irish Sea, Celtic Sea, western English Channel.

AIMS:

1. To carry out a trawl survey of the Irish Sea, Celtic Sea and western Channel, as part of the west coast IBTS series and in support of the EU data regulation, to obtain information on:
 - a) Distribution, size composition and abundance of all fish species.
 - b) Age - length distribution of selected species for ICES WG input and biological studies.
 - c) Biological parameters of selected species.
 - d) Beca trawl suitability and standard station grid for this new survey series.
2. To collect material for fish identification courses.
3. To collect and preserve frozen, all scallops (*Pecten maximus*) that are caught.
4. To continue the development and testing of electronic data capture equipment and the new Fishing Survey System.
5. To monitor the distribution and abundance and to collect data on *Ommastrephid* squids.
6. To collect samples of boarfish (*Capros aper*) for environmental studies (J. Pinnegar).

7. To collect hake (*Merluccius merluccius*) maturity and fecundity material (P. Witthames).
8. To determine seabed type in selected areas using the QTC system, ground-truthed by grab samples (Part 2 only).

NARRATIVE:

RV CIROLANA sailed from Lowestoft at 2100h 6 November having been delayed for five days due to major engine repairs. The vessel made a good passage through the southern North Sea and eastern English Channel, and commenced fishing operations at 0600h 8 November on the first survey position 30 nml. SE of Start Point. The Baca trawl came fast on a small pinnacle ten minutes into the tow, and when the net was recovered the ground rope was separated from the net on the port side and the belly was torn. The mini ctd unit was undamaged, although the protective cage was bent. Repairs were quickly effected, and by 1300h CIROLANA was able to shoot again on the tow, avoiding the pinnacle discovered earlier. No further pinnacles or problems were noted during the 30 minute tow, but on hauling the net was found to have suffered substantial damage to the sleeve and cod-end, and the ground rope was again separated from the net on the port side. By this time the weather had deteriorated, and CIROLANA steamed to the shelter of Falmouth bay in order to make repairs.

Fishing recommenced at 1300h 9 November at a position 30 nml. S of Falmouth, in an area of relatively clear ground worked by local fishermen. The 30-minute tow was completed without incident, but the net suffered damage to the belly and cod-end. It was clear that the Baca trawl as originally rigged was unsuitable for these hard grounds. CIROLANA steamed overnight to the Celtic Deeps, and successfully completed three tows on mud/sand substrate without further damage. In addition, working on such clear ground allowed useful trials of different gear configurations to be carried out, and it was found that increasing the sweep length from 50m to 150m provided more consistent net geometry results. With further work on the hard grounds off Southern Ireland and the Bristol Channel ruled out, CIROLANA steamed overnight to a position 10 nml SE of Dublin Bay, and commenced work at 0700h 11 November on the Irish Sea section of the survey.

During 11 – 13 November, a further 10 valid tows in the Irish Sea were completed with the modified baca trawl, with little damage being sustained. An easterly gale on the morning of 14 November prevented work, and CIROLANA moved into a more sheltered position 6 nml SW of Barrow-in-Furness to change the baca trawl for the Portuguese High Headline trawl (PHHT), in preparation for the harder grounds to the south. By 1230h the wind had eased, and the survey was recommenced at a position SW of N Morecambe gas field. Six valid hauls were completed by 1100h 16 November, and the vessel steamed to Caernarvon Bay for the final tow of the day. During the tow the main winch clutch failed, and the trawl warps had to be recovered using the net drum. This was achieved without further incident and, after consultations with ship managers, course was set for Lowestoft for repairs.

CIROLANA was diverted to Falmouth for winch repairs in order to minimize downtime, and docked at 1500h on 17 November. With an estimated time for repair of 4 - 5 days, scientific staff from part 1 of the cruise were released to return to Lowestoft.

The other 4 scientific staff for part 2 of the cruise travelled to Falmouth on 20 November, arriving at 1730h. On the morning of 21 November it became clear that winch repairs would take longer than originally estimated, and the scientific staff remaining from part 1 returned to Lowestoft to minimize staff costs. During 21 - 22 November the progress with winch repairs was better than expected, and scientific staff were recalled to the ship for a sailing time of 1600h on 24 November. CIROLANA eventually sailed at 2100h, after turning and re-marking the warps, and putting a crew member ashore for return to Lowestoft following medical advice.

CIROLANA recommenced fishing operations on 25 November at a position 77 nml W of Brest, a station in relatively deep water selected in order that a substantial length of warp could be run off and re-seated correctly on the winch drums. On successful completion of the tow, the vessel steamed north to begin the identification of new trawling sites for the survey. During 25 – 26 November four potential sites in ICES Divisions VIIh and VIIe were identified, and data on seabed type was recorded using the QTC ground discrimination system during transects across the sites. The PHHT was towed on two of the sites in VIIh, but suffered damage to the belly of the net on both. The Day grab was deployed at each end of the tows, but failed to obtain satisfactory samples. The Shippek grab was also used on the second site, and yielded a small sample consisting of sand and small shell. A southerly gale prevented fishing and grabbing operations on the remaining two sites, and CIROLANA ran to shelter in St Ives bay. The vessel anchored at 0920h on 27 November, and remained there as winds increased to severe gale strength. By 2200 the wind had eased, and CIROLANA steamed overnight to a position 18 nml NW of Trevoise Head to recommence the trawl survey. Three stations were completed in the Bristol Channel, during which the research vessel THALASSA (France) was sighted and contacted. On 28 November CIROLANA towed alongside RV CELTIC VOYAGER (Ireland) at the south end of Cardigan Bay, before completing a further three tows within the bay to the north and east.

After an overnight steam to grounds off Waterford, two tows were successfully completed before 1015h when the vessel suffered steering failure. Although the vessel could steam at reduced speed, fishing operations with unreliable steering were considered too much of a safety risk, and course was set for an anchorage in Ringabella Bay close to Cobh. CIROLANA anchored at 1945 on 30 November. By this time a hole had been discovered in the stern ramp, and it was clear that further fishing was out of the question until both the ramp and steering had been repaired.

At 0930h on 1 December, the vessel's Searider was deployed to Cobh to collect two crew members and the two SEAFISH staff. After completing one trip with the SEAFISH gear, the weather deteriorated and the Searider was unable to leave Cobh, and arrangements were made for the personnel to remain ashore for the night. By 0930h on 2 December the weather had improved sufficiently for the Searider to return, making two trips to embark the crew members and SEAFISH staff. After further steering tests, and following consultation with the ship's

managers, CIROLANA was ordered to proceed to Falmouth for repairs. The two SEAFISH staff were put ashore by Searider, and the vessel left Ringabella Bay.

Apart from a failure of one of the steering pumps, CIROLANA made an uneventful passage back to Falmouth, and docked at 1315h on 3 December.

RESULTS:

1. A total of 17 deployments were carried out using the new Baca trawl with standard polyvalent doors and a 20mm codend liner. Scanmar sensors were used on every deployment to monitor headline height and door spread throughout each tow. Four trawl hauls were declared invalid, three due to substantial net damage, and the other was successfully repeated. Damage was much reduced after the trawl was fitted with wing and belly strengtheners and increased length (150m) sweeps, although most of the tows with the modified gear were on muddy or sandy grounds.

A total of 20 hauls were made using the standard Portuguese high headline trawl (without bunt tickler), of which four were invalid. Two invalid tows were due to net damage on new sites, one was due to winch clutch failure, and the other was successfully repeated.

The SAIV mini-CTD sensor was used at all sites, successfully recording bottom temperature and salinity data during each tow. The sensor was found to be reliable and easy to use, particularly when Karabiners plus net-mounted D-rings were used to secure it, as it had to be removed from the trawl on hauling to avoid damage on the net drum. The protective cage worked well, but would benefit from further strengthening.

At each trawl station the total catch was weighed by species, and all fish, or an appropriate sample, were measured. Otoliths were taken from selected species over the length range caught for subsequent age determination. All fish sampling was carried out according to prescribed survey protocols and was input direct to the electronic data capture system. The system was used to monitor and control otolith sampling levels. A new version of the deckmaster software was available for trial, and was found to be robust and easy to use. Some minor problems with cable connectors were noted and resolved during the cruise.

A total of six Day grab and 3 Shippek grab deployments were made, in order to identify sea-bed type for comparison with the QTC sea-bed discrimination software results, but these were largely unsuccessful.

A chart showing the positions of trawl hauls and grab sites is attached (Figure 1).

Ship's equipment failures and some poor weather conditions were largely responsible for the lack of survey coverage. Nevertheless, much useful data was gained on the new Baca trawl performance, and it is hoped that this will form a sound base for SEAFISH investigations. It is unfortunate that ship's equipment failures prevented SEAFISH staff from gathering further data on board, but it may be possible to re-schedule this work early in 2003. Four new potential trawl sites were identified, but grounds appeared hard and a suitable ground gear would need to be employed if the sites were included in the new Q4 survey.

2. A total of 25 species of fish were frozen for internal CEFAS fish identification courses. In addition a sample of 39 species of fish was frozen for Dr Fox, for external fish identification courses.
3. Very few scallops (*Pecten maximus*) were caught. One sample was frozen.
4. The electronic data capture system was used throughout the survey, and no major problems were encountered. New deckmaster hardware and software were successfully trialled. A new switching system for EDC computer data transfer was provided for part 2 of the cruise, and was found to be a great improvement over the previous cable-swapping procedure.
5. Data on the distribution and abundance of *Ommastrephid* squids are now collected as a routine element of the standard westerly survey procedures, although squid catches on the limited number of stations worked were generally light.
6. A sample of 50-100 boarfish (*Capros aper*) were frozen for environmental studies.
7. A total of 15 hake were sampled for maturity, fecundity and feeding analyses.
8. The QTC system was used to record seabed data on the four new trawl sites and on a further 10 trawl sites fished using the Portuguese high headline trawl.
9. Additional biological data (length, weight, sex and maturity) were collected for several elasmobranch species. No unusual species were recorded.
10. Three starry smoothhound (*Mustelus asterias*) heads were frozen for dentition studies (M. Harris, Florida).
11. A sample of horse mackerel (*Trachurus trachurus*) was frozen, to supplement Vlle market samples.

Other Observations

Four observations of cetaceans were made during the survey. These were thought to be mainly of the common dolphin in groups of 4 to 30 individuals. The observations will be sent, together with details of cetacean behaviour and sea conditions, to Dr P.G.H. Evans of the Sea Watch Foundation, Cetacean Monitoring Unit. We are grateful to the watch-keeping officers of RV CIROLANA for their observations and keen interest in this voluntary programme.

General

This has been a difficult cruise, with much time lost due to ship's equipment failures, but some useful results have nevertheless been achieved in spite of the problems. The untiring efforts and good humour of the ship's officers, crew and scientific staff are much appreciated.

S. Flatman
3 December 2002

SEEN IN DRAFT

R. McCurry (Master)

A. Lincoln (Senior Fishing Mate)

INITIALLED:

Dr R.S. Millner

DISTRIBUTION:

Basic list
Staff on Cruise
Devon SFC
Cornwall SFC
South Wales SFC
Isles of Scilly SFC
Wales & NW SFC
Ireland (via FCO)
France (via FCO)

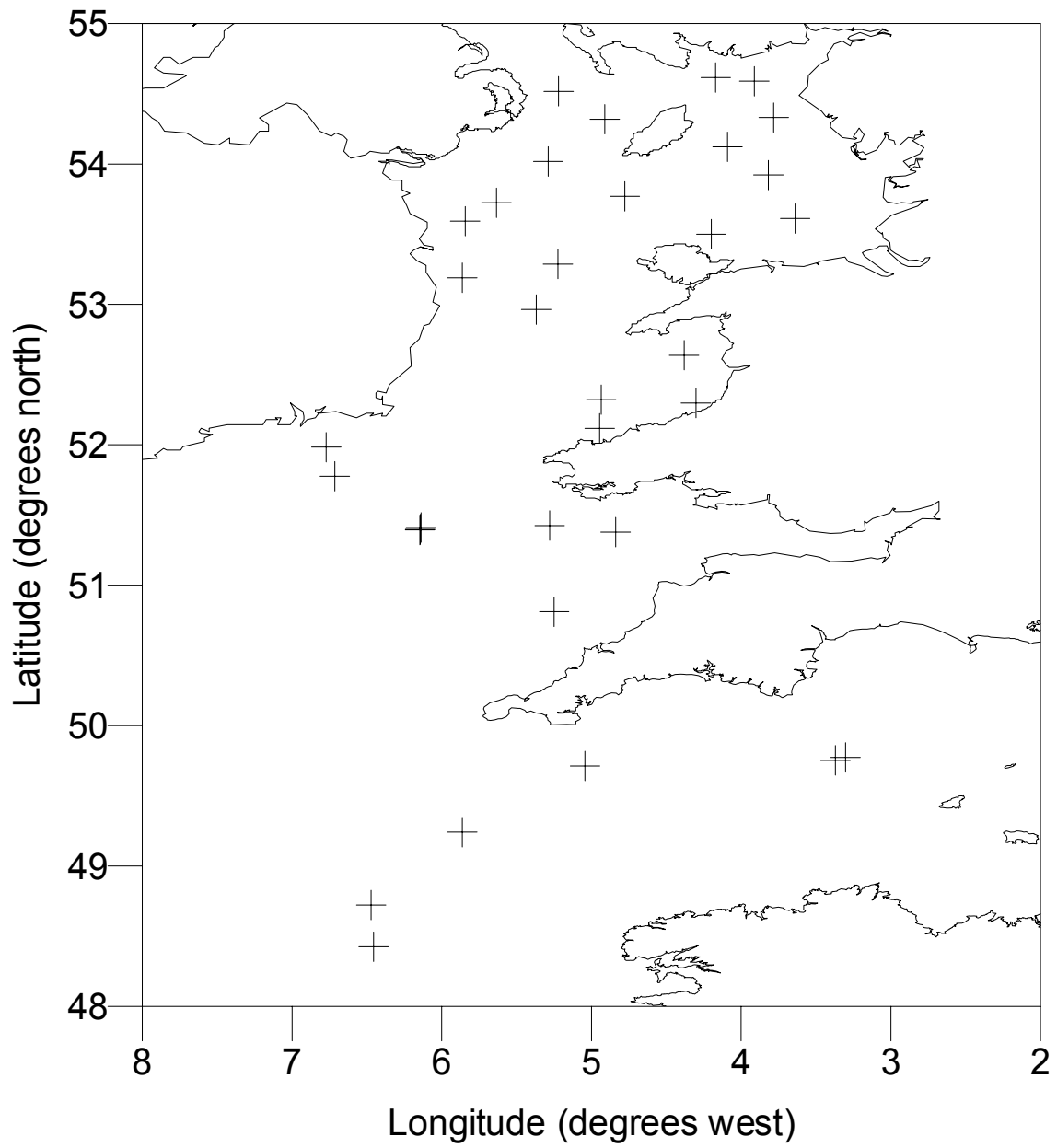


FIGURE 1.
Map showing stations completed with the PHHT or Baca Trawl.