

CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE
SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT

1998 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 2

STAFF:

Part 1

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T Watson
R A Ayers
J Dann
M. Etherton
C. Lordan (UCC)
H. Murua (AZTI, Spain)

Part 2

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T.W. Boon
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D Brown
T.A Mead
H. Murua (AZTI, Spain)

DURATION: Part 1: 27 February - 14 March 1998
Part 2: 15 March - 31 March 1998

LOCATION: Celtic Sea, South-Western Approaches, western English Channel.

AIMS:

1. To carry out a trawl survey of the Celtic Sea, to obtain information on:
 - a) Distribution, size composition and abundance of all fish species.
 - b) Age - length distribution of selected species.
2. To sample juvenile fish for recruitment studies.
3. To collect material for fish identification courses.
4. To collect and preserve frozen, all scallops that are caught.
5. To continue the development and testing of electronic data capture equipment.
6. To collect mackerel fecundity samples as a part of the 1998 mackerel and horse mackerel egg survey programme.
7. To incubate the eggs of hake, blue whiting and poor cod through to hatching to provide larvae tissue for genetic studies.

8. To monitor the distribution and abundance and to collect data on Ommastrephid squids (University College Cork, Ireland).
9. To monitor the distribution and abundance of whelks and whelk shells with hermit crabs. To freeze all whelks and whelk shells with hermit crabs for analysis at CEFAS, Conwy laboratory.
10. To sample the upper mid-water scattering layer, using the MIK-net, to investigate distribution and abundance of small prey items.
11. To collect, deep frozen, specimens of selected species of elasmobranchs; to collect egg cases of dogfish and rays fixed in 70% ethanol; for the University of Swansea.
12. To sample adult hake to obtain an estimate of fecundity.

NARRATIVE:

RV Cirolana left Lowestoft at 1000h 27 February and made slow progress in a strong SW wind. A deckhand was embarked from Poole at 1330h 28 February using the vessels' workboat. The trawl survey began at 0600h 29 February, 30 nml south of the Lizard, and continued through to 1600h on the following day when the vessel hove to in a SW gale. Weather conditions prevented any further work until 0700h 4 March when one trawl station was completed. A second tow was attempted at 1130h but was abandoned in rapidly deteriorating weather. The vessel remained hove to until 0600h on the following day. Three further hauls were completed by 1700h 5 March when the weather again deteriorated. The SW gales prevailed over the whole survey area and there appeared to be no advantage in attempting to steam to a different area. The vessel therefore remained hove to in SW gale force winds and heavy swell until 1300h 7 March. The survey progressed well for the next two days, in a temporary spell of very fine weather, along the western edge of the survey area, between latitude 49°30'N and 50°30'N. After an overnight steam to the north western end of the survey grid, one further trawl station was completed by 0900h 10 March when increasing SW winds and a heavy swell again interrupted the survey. One further trawl haul was completed at 1700h during a lull in the heavy swell as the wind veered NW. With improving conditions forecast the vessel remained hove to at the most northerly point of the survey area. An uncomfortable night was spent in NW winds gusting to 50 knots with a confused swell. The improved conditions did not materialise and at 0615h 11 March RV Cirolana began to steam south-eastwards in an attempt to find a sheltered work area south of Ireland. Two trawl stations were completed south of Ireland by 1930h 11 March in improving weather conditions. After the first trawl station on the following day RV Cirolana steamed the short distance to a position off Cork to land the JFM who needed hospital treatment. A further two trawl stations were completed on that day and four more by 2015h 13 March. RV Cirolana then set course for Falmouth arriving there at 0800h 14 March.

Relief scientific staff embarked at 1000h 15 March. The SFM had received hospital treatment in Falmouth and was unable to continue on part 2 of the cruise and returned to Lowestoft with scientific staff from part 1. Marine staff responsibilities were re-

arranged and after the arrival of a replacement JFM, Cirolana sailed from Falmouth at 0800h 16 March in fine weather and headed east to complete two PHHT tows in Eddystone Bay and then progressed to complete the survey in fine weather with only a short interruption on Wednesday 25 March when the cook was put ashore by Sea-rider, in St Ives, Cornwall for medical treatment. The survey was completed in the western English Channel on Sunday 29 March and Cirolana set a course for Lowestoft, where she docked at 0005 hrs on Tuesday 31 March.

RESULTS:

Aim 1. A total of 74 valid trawl stations were completed and a further 6 were declared invalid. Trawling was carried out using a modified Portuguese High-Headline Trawl fitted with rubber bobbins, a bunt tickler chain and a codend liner. The bunt tickler chain was removed in areas of hard trawling ground in accordance with usual practice for this survey. 84 floats were attached to the headline and polyvalent doors were used. A chart indicating the position of each trawl station is attached. Scanmar equipment was used to monitor headline height, door spread and bottom temperature. In addition, at 51 trawl stations CTD profiles were taken.

At each trawl station, the catch of each species was weighed and all fish, or an appropriate sample, were measured. Samples of otoliths for age determination studies were taken as required. Benthos and crustacea were identified to species wherever possible. The resultant data were input to computer database using the CEFAS Electronic Data Capture System, and preliminary summations and analyses were made.

Charts showing the distribution and relative abundance of a selection of species of commercial interest are attached.

Aim 2. Data on recruitment of hake, anglerfish, megrim, mackerel and horse mackerel were collected. These data will form a major input to the ICES assessments for these species.

Aim 3. Specimens of 67 different fish species were preserved for the Laboratory's fish identification courses

Aim 4. No scallops were caught.

Aim 5. The latest generation of the CEFAS electronic data capture equipment was fully tested and performed almost flawlessly for the duration of the cruise. Some minor modifications to the software were suggested.

Aim 6. A total of 146 gonads from female mackerel were collected to establish fecundity estimates as part of the 1998 mackerel and horse mackerel egg survey programme.

Aim 7. Eggs of hake were fertilised *in vitro* and reared to hatching for genetic studies. No mature specimens of poor cod or blue whiting were caught. In addition *in vitro* fertilisation of eggs from haddock, whiting and megrim were fertilised and incubated at different temperatures through to hatching to provide larval tissue for genetic studies and to establish egg development rates. An attempt to fertilize eggs from long-rough dab was also made without success.

Aim 8. Distribution and relative abundance by length, sex, and maturity for all squid species was monitored by C Jordan (UCC). Data on stomach contents was also collected. Samples from part 2 of the trip, were preserved for later analysis.

Aim 9. Only one specimen of hermit crab in whelk was caught and preserved.

Aim 10. A total of 3 valid tows were carried out using the MIK-net in an attempt to establish the species composition of the upper midwater scattering layer over the deep water (>300m) on the edge of the Continental shelf.

Aim 11. Single specimens of 2 species of elasmobranchs (blackmouth dogfish and velvet belly) were collected and frozen for Swansea University.

Aim 12. A total of 30 female hake gonads were collected by H Murua (AZTI, San Sebastian, Spain) to obtain an estimate of fecundity.

MISCELLANEOUS:

1. Tissue samples from 56 hake were collected for DNA studies (R. Millner).
2. Tissue samples from 16 cod for DNA studies were collected (Univ. Hull).
3. Tissue samples of 10 species of gadoid were collected for genetic studies (UEA)
4. One whole pollack was preserved (R Turner)
5. A 1.0 m ring-net was deployed on eight occasions. The samples taken were preserved and will be examined for fish eggs and larvae, to provide information on the timing of first spawning of mackerel and horse mackerel as part of the triennial mackerel and horse mackerel egg survey.

J. Casey/J.H. Nichols
31 March 1998

SEEN IN DRAFT:

B Salter.

(SFM)

B Salter.

D. McDarren

(Master)

D McDarren

INITIALLED:

DISTRIBUTION:

Basic list

Staff on Cruise

Devon SFC

Cornwall SFC

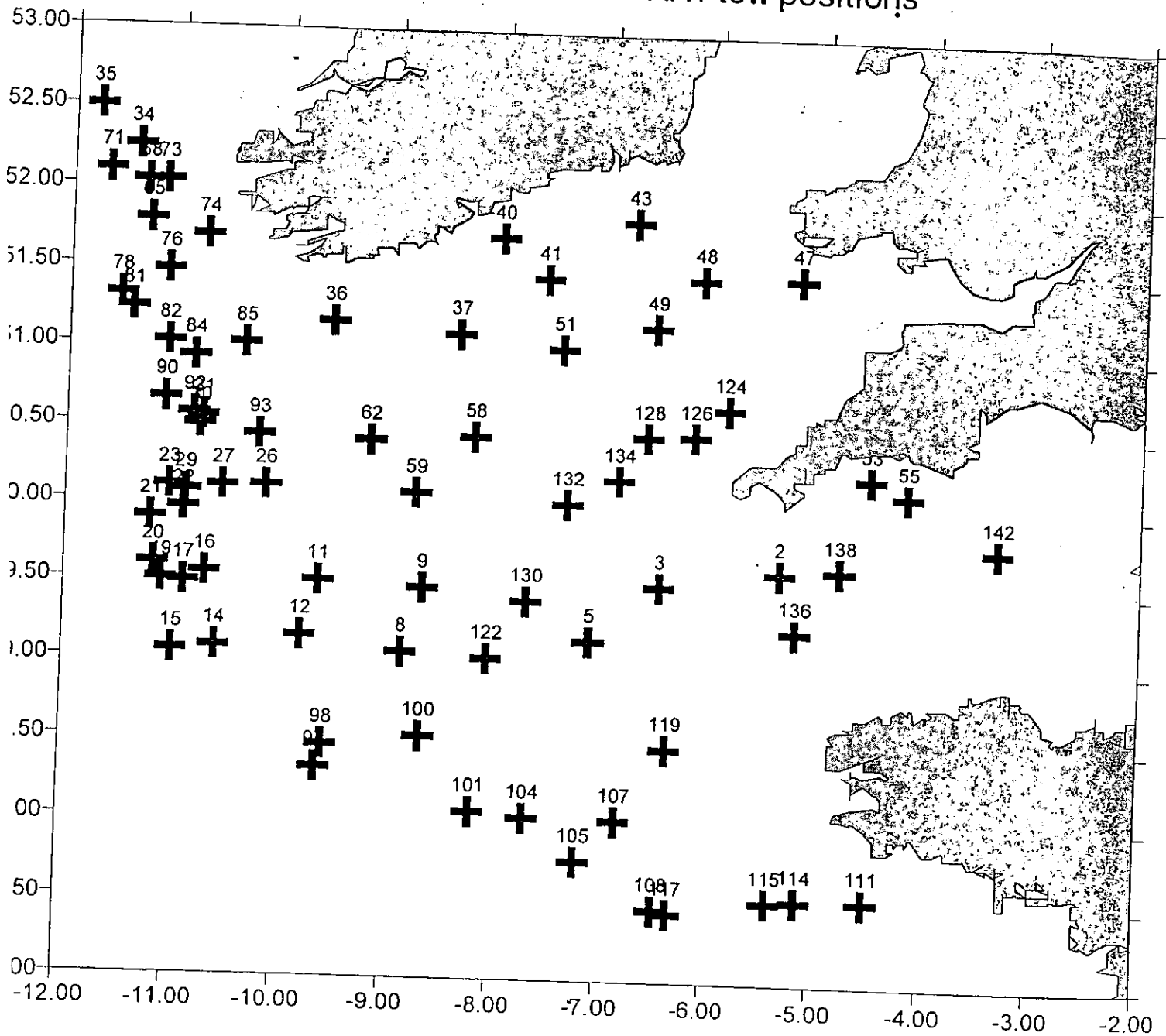
South Wales SFC

Isles of Scilly SFC

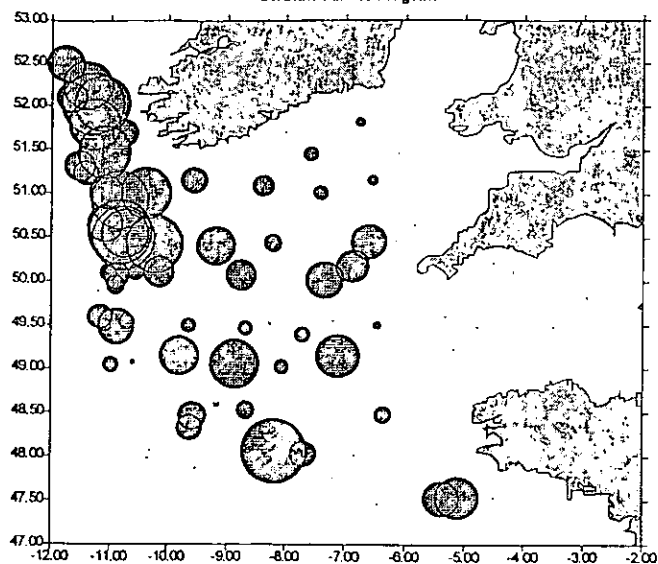
Eire, via Foreign Office

France, via Foreign Office

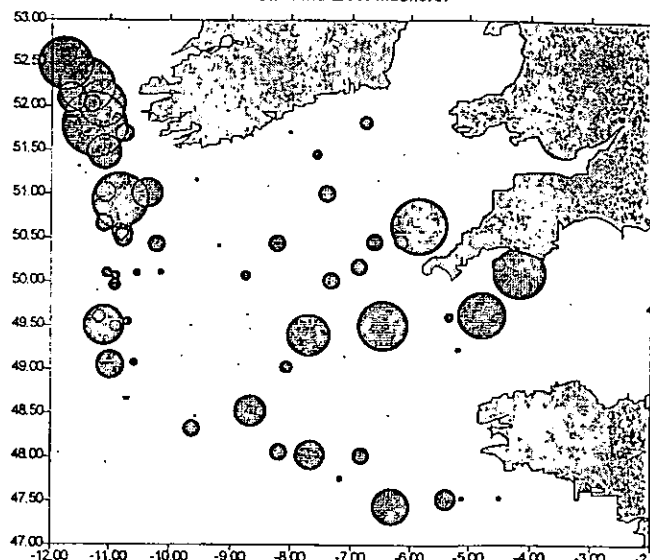
Cirolana 2/98: Valid PHHT tow positions



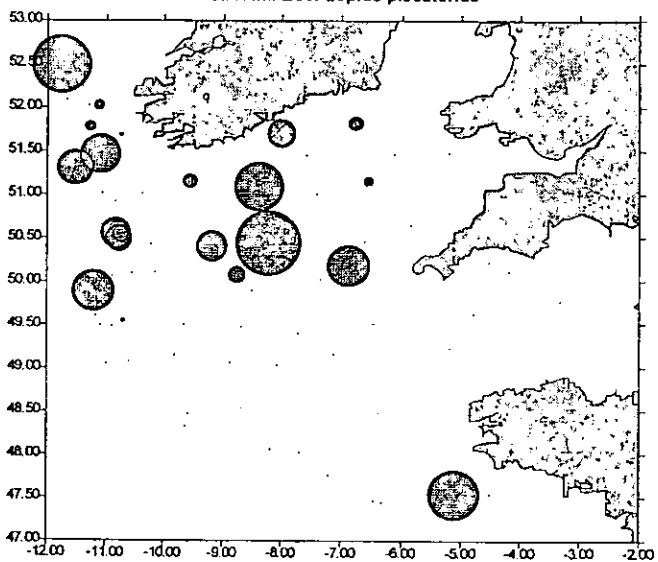
Cirolana 2/98: Megrim



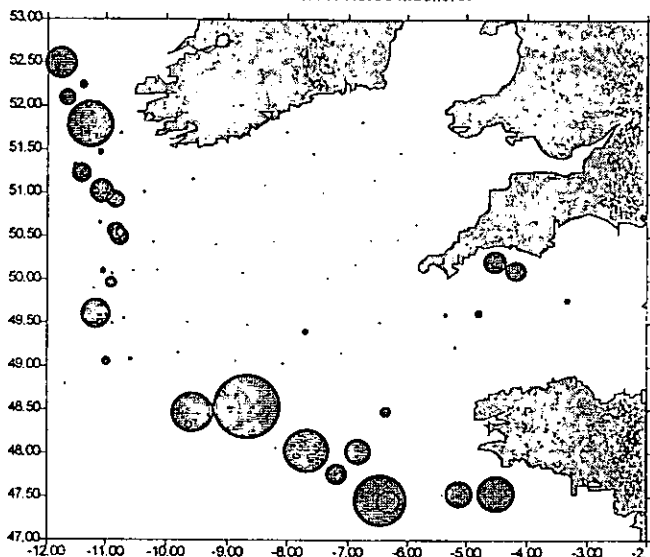
Cirolana 2/98: Mackerel



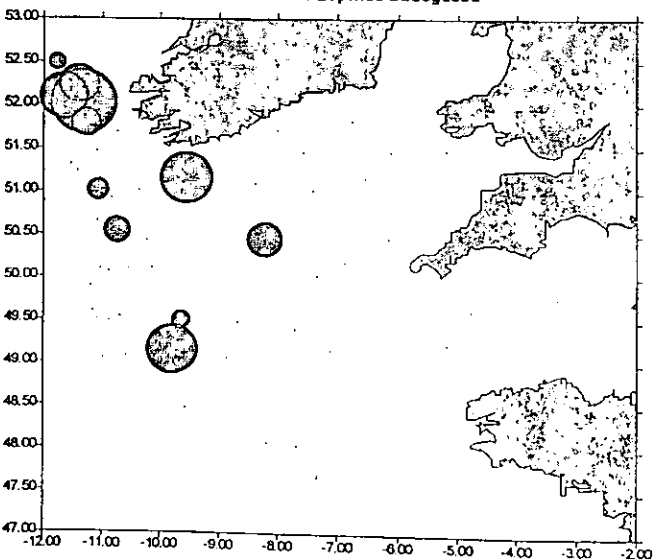
Cirolana 2/98: *Lepus piscatorius*



Cirolana 2/98: Horse mackerel



Cirolana 2/98: *Lepus budgassa*



Cirolana 2/98: Hake

