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

1991 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 3

STAFF:

B W Jones
L.E.Woolner
J Casey
W A Dawson
P.A.Large
B C Mumford
S.P.Milligan
S Warnes
C.Stone (Observer, NCC. From Falmouth)

DURATION: 8 March - 2 April. (All times GMT).

LOCALITY: South-western Approaches, western English Channel

AIMS:

1. To carry out a trawl survey of the western Celtic Sea.

2. To sample juvenile fish.

3. To undertake a preliminary analysis of the stomach contents of the main fish species.

4. Collect Bass samples for maturity studies.

5. Collect samples of spawning herring for the University of Wales (Swansea).

NARRATIVE:

CIROLANA sailed from Lowestoft at 1400h on 8 March and made a good passage in fair weather to the Celtic Sea where the trawl survey was commenced on the morning of 10 March. Good progress was made until 13 March when problems with the trawl winch forced the ship to return to Falmouth for repairs. CIROLANA docked in Falmouth at 0900h on 14 March and sailed again at 1900h on 16 March to resume work the following morning. Work was interrupted by weather on the morning of 18 March until the next morning. Following that work continued without interruption and the last station of the grid was completed on the morning of 1 April. CIROLANA then set course for Lowestoft where she docked at 2330h on 2 April.

RESULTS:

Aim 1. Of the planned grid of 59 trawl survey stations all were successfully completed. Minor gear damage was sustained on three stations but all were repeated successfully. Trawl hauls were made using a modified Portuguese High-Headline Trawl fitted with rubber bobbins, a bunt tickler chain and a codend liner. Sixty floats were

attached to the headline and polyvalent doors were used. A chart indicating the position of each trawl station is attached.

At each station the catch of each species was weighed and all fish, or an appropriate sample, were measured. Samples of otoliths were taken as required. The resultant data were input to computer database using the Groundfish Survey Database suite of programs, and preliminary summations and analyses were made.

Catches of the main demersal species are given in the table below. Data for the previous two March surveys are given for comparison.

Cruise	3/91	3/90	3/89
Number of stations	59	56	56
	Survey total catch kg.		
Megrim	448	600	647
Saithe	465	575	894
Poor cod	1155	543	639
Blue whiting	432	400	644
Hake	537	397	433
Spurdog	81	354	337
Monk (both species)	231	310	275
Cod	105	249	214
Ling	288	165	143
Whiting	126	156	291
Haddock	59	57	79

The catch of pollack of 987 kg was exceptionally large and was due mainly to a single haul containing 889 kg. Catch rates of saithe,hake and haddock were about average for surveys conducted in March. Megrim, blue whiting, spurdog, monk, cod and whiting all had catch rates below the average value, while poor cod, ling and pollack were above average.

Catches of the main pelagic species were as follows:

Cruise	3/91	3/90	3/89
	Survey total catch Kg.		
Horse mackerel	28 069	20 675	10 732
Mackerel	25 843	12 519	13 893

The main concentrations of both mackerel and horse mackerel were along the shelf edge and in the western English Channel. Catch rates for both species were the highest recorded on these surveys.

Aim 2. Juvenile fish were sampled for recruitment studies. Preliminary asssments indicate that 1-group hake are of an abundance slightly greater than the highest (the 1985 yearclass) recorded on the March surveys. Juvenile horse mackerel were restricted to a few stations in the south-east of the survey area. Relative abundance of the 1990 yearclass appears to be below average. The relative abundance of 1-group mackerel was also low.

Aim 3. Stomach contents were recorded for all fish species. Sampled fish were stratified by size, depth and area. A total of 6900 stomachs from 64 species was examined. Prey of the main species are summarised below:

Predator	Prey
Hake < 20 cm	Pandalus, Crangon, Euphausiids.
20-50cm	Pandalus, Crangon, hake, poor cod, mackerel, blue whiting, l.s. smelt, red band fish.
> 50 cm	Mackerel, pilchard, poor cod, blue whiting.
Pollack >50 cm	Mackerel, pilchard.
Saithe >50 cm	Mackerel, pilchard, blue whiting, squid.
Cod <50 cm	Galathea, Hermit crabs, Pandalus, swimming crabs, Aphrodite, Nephrops.
Poor cod	Euphausiids, Pandalus, Crangon, swimming crabs, hermit crabs, cephalopods.
Megrim	Crangon, l.s. smelts, dragonets,gobies, Swimming crabs, Alpheus, Euphausiids, Pandalus.
Lemon sole	Fan worms, polychaets, bivalves.
Mackerel	Copepods, Euphausiids, phytoplankton, fish larvae.
Scad	Copepods, Euphausiids.
Monk	Mackerel, scad, megrim, dragonets, hake.
John Dory	L. s. smelt, herring, poor cod, mackerel,blue whiting.

Aim 4. Only two bass were caught and these were preserved frozen for maturity studies.

Aim 5. A sample of spawning (spent) herring from the south-west of Ireland was preserved for the University of Wales (Swansea).

MISCELLANEOUS:

1. Chelsea Instruments and Guild Line CTD measuring instruments were run for comparative purposes. The Chelsea Instruments equipment failed after a relatively short time. However, while both instruments were running, differences between them in both temperature and salinity readings were observed and logged.

2. Samples of whiting (17 fish), plaice (2) and dab (1) were collected from one of two groups of stations used for collecting samples for contaminant studies (A. Franklin):

3. Monkfish gonads were preserved for reproduction studies (M.Greer-Walker).

4. Artificially fertilized megrim eggs were incubated on board and eggs and larvae at various development stages were preserved as reference specimens for egg and larval identification.

5. A sample of 20 mature long rough dab ovaries was collected for Dr Taggart (Canada) (G.Arnold).

6. Various specimens were preserved for use on fish identification courses.

7. A sample of mackerel was preserved for parasite studies (K.McKenzie, D.A.F.S.).

8. Scanmar equipment was used on the trawl throughout the cruise to record headline height and door spread. A Scanmar temperature sensor was also used to record bottom temperature during trawl hauls. All the equipment appeared to work satisfactorily apart from one of the headline transducers which appeared to be unreliable.

9. One herring and two pilchard samples were preserved for laboratory analysis (T. Hulme).

B.W.Jones.
2 April 1991.

SEEN IN DRAFT:

J.Harper. (SFM)

B.Chapman. (Master)

INITIALLED: J. W. H.

CIROLANA 3/91

SHOWING :
STATION POSITION
STATION NUMBER
COASTLINE