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

1993 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 3

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S. Warnes
Ms. M. K. Doherty (Observer, Ireland. First half)

DURATION: 2 - 30 March (All times G M T).

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 collect Bass samples for maturity studies.
4. To collect ovary samples for fecundity studies of any large mackerel that are caught.
5. To obtain data on stomach contents to supplement the data collected in previous years.
6. To obtain data on development rates of eggs of selected fish species.
7. To obtain megrim ovaries for fecundity studies.

NARRATIVE:

CIROLANA sailed from Lowestoft at 1530h on 2 March and made a good passage to the western English Channel. The trawl warps were streamed to bed them down on the winch, however during this process one warp came fast on the bottom and parted. Attempts were made, without success, to recover the lost length of warp. The decision was then made to divide the remaining warp between the two drums to enable fishing to take place on the shallower stations of the survey pending a supply of additional warp during the mid-cruise break.

The trawl survey was commenced on the afternoon of 4 March. Good progress was made in fine weather until 16 March when CIROLANA docked in Falmouth at 1430h. Having spliced on additional warp CIROLANA left Falmouth at 1930h on 17 March to resume fishing on 18 March on the deeper stations at the shelf edge. Work continued with only a short interruption due to adverse weather on 22 March. 61 valid survey hauls were completed. A further 4 stations were attempted but were not valid due to gear damage. Of

these two were repeated but again without success. 3 additional tows were made off the south Cornish coast to sample mackerel in the Mackerel Box.

After the completion of fishing, a further attempt was made to locate the lost trawl warp and on this occasion it was successfully recovered. CIROLANA then set course for Lowestoft where she docked at 1330h on 30 March.

RESULTS:

Aim 1. Of the planned grid of 65 trawl survey stations 61 were successfully completed. Major gear damage was sustained on four other stations. Second attempts were made at two of these but without success. 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. Scanmar equipment was used to monitor headline height, door spread and bottom temperature.

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 Fishing Survey System, and preliminary summations and analyses were made.

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

Cruise:	3/93	4/92	3/91	3/90	3/89
Number of stations:	61	58	59	56	56
		Survey Total Catch kg.			
Hake	389	306	537	397	433
Megrim	490	139	448	600	647
Anglerfish (both species)	229	49	231	310	275
Cod	353	167	105	249	214
Haddock	142	86	59	57	79
Whiting	564	75	126	156	291
Ling	131	111	288	165	143
Blue whiting	109	187	432	400	644
Poor cod	1588	865	1155	543	639
Saithe	190	48	465	575	894
Spurdog	88	57	81	354	337

Cod catch rates were higher than in recent years with the 1991 yearclass being the most abundant one. Catches of haddock and whiting were significantly higher than usual and in both species 1-group fish were particularly abundant. Anglerfish and megrim catches were at normal levels after the low figures recorded last year. Dabs were much more abundant than normal in the shallower areas (1046 specimens compared with 101 in 1992 and 58 in 1991), and octopus (*Eledone*) were caught in much greater numbers than previously (825 specimens compared with 124 in 1992 and 13 in 1991). Lemon soles in the north of ICES Division VIIG were observed to be sexually mature at sizes down to 14 cm, and haddock were mature at a small size in the north of Division VIIJ.

Catches of the main pelagic species were as follows:

Cruise	3/93	4/92	3/91	3/90	3/89
			Survey total catch Kg.		
Horse mackerel	20 573	17 316	28 069	20 675	10 732
Mackerel	12 512	13 419	25 843	12 519	13 893

The main concentrations of adult horse mackerel were along the shelf edge, particularly at the southern end of the survey area, and in the western English Channel. Mackerel aged two and older were concentrated around the tip of Cornwall and off south-west Ireland. Only in the southernmost part of the survey area were there were indications that spawning had commenced. Charts showing the distribution of catches of the main species are attached.

Aim 2. Juvenile fish were sampled for recruitment studies. Preliminary indications are that 1-group hake are relatively abundant. 1-group haddock and whiting were unusually abundant with length modes of about 20 cm. Larger than normal numbers of small (15 cm.) white anglerfish were also recorded. 1-group horse mackerel were encountered in quantity at only three locations, off Ushant, south of the Scillies, and in Eddystone Bay. The relative abundance of 1-group mackerel was low in the survey area.

Aim 3. 8 bass were frozen for maturity studies.

Aim 4. No suitable large mackerel were caught for fecundity studies and no ovaries were collected.

Aim 5. Stomach contents were recorded for hake, megrim, anglerfish, John dory, rays, dogfish, cod, haddock, whiting, saithe and pollack.

Aim 6. Artificial fertilisations were made of eggs of long rough dab, ling and whiting and egg development rates were studied over a range of temperatures.

Aim 7. 97 megrim ovaries were preserved for fecundity studies.

MISCELLANEOUS:

1. Samples of whiting (86 fish), hake (50), plaice (38) and dab (21) were collected from two groups of stations used for collecting samples for contaminant studies (A. Franklin):

2. One pre-spawning monkfish ovary was preserved for reproduction studies (M.Greer-Walker).

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

4. A sample of 100 mackerel was preserved for parasite studies (K. McKenzie, S.O.A.F.D.).

5. Sprat samples were preserved for laboratory analysis (T. Hulme).

6. Herring were sampled and hearts were preserved for studies on the distribution of the parasitic fungus *Ichthyophonus*. (D. Bucke)

7. 12 boxes of small fish were frozen for fish food (T. Watson).

8. Hake, Anglerfish (both species), megrim and saithe were weighed whole, with intestines removed (liver remaining) and fully gutted in anticipation of a possible need to provide conversion factors to whole weight for commercial fish landed gutted but with livers in.

9. Tissue samples from 100 whiting were taken for genetic studies (EC FAR Molecular genetics Programme, D. Thompson).

10. 12 heads of elasmobranchs of five species were preserved for studies on elasmobranch diets and dentition (M. Pawson).

B.W.Jones.
30 March 1993.

SEEN IN DRAFT:

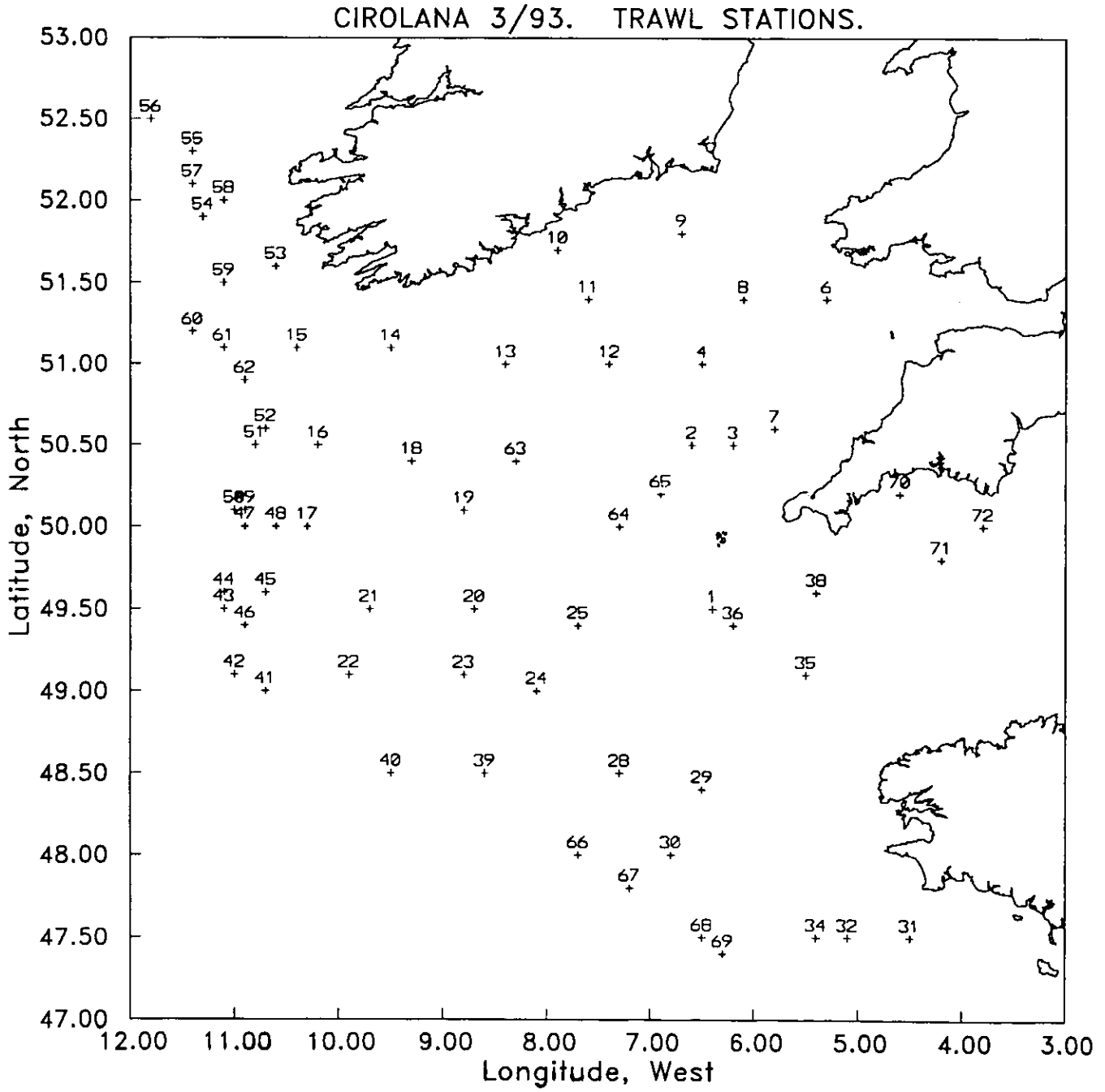
P. Mackay. (SFM)

J. French. (Master)

INITIALLED: J.G.S.

DISTRIBUTION:

Basic list +
B. W. Jones
S. Flatman
J. Casey
A. R. Child
G. Howlett
Mrs. W. A. Dawson
A. M. Watson
S. Warnes
Ms. M. K. Doherty (Observer, Ireland.)
Cornwall Sea Fisheries Committee
Devon Sea Fisheries Committee
Isles of Scilly Sea Fisheries Committee
Eire, via Foreign Office
France, via Foreign Office


CIROLANA 3/93. TRAWL STATIONS.
Latitude, North
Longitude, West
53.00
52.50
52.00
51.50
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50.00
49.50
49.00
48.50
48.00
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47.00
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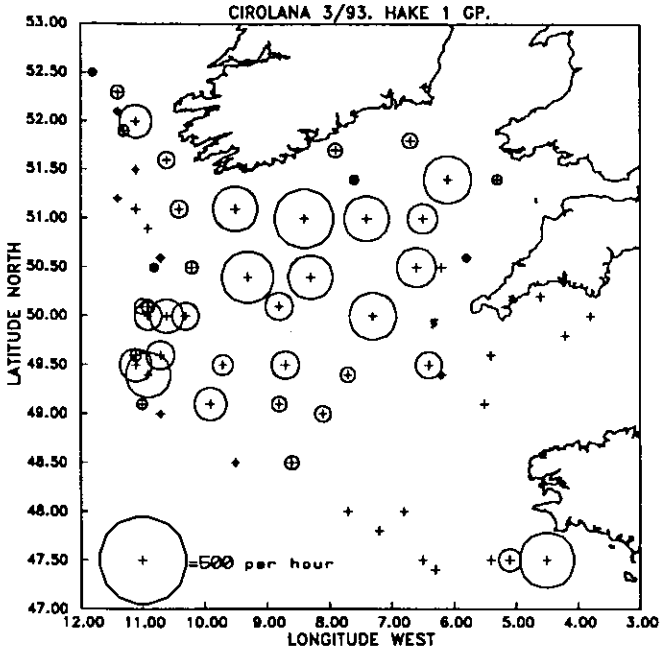
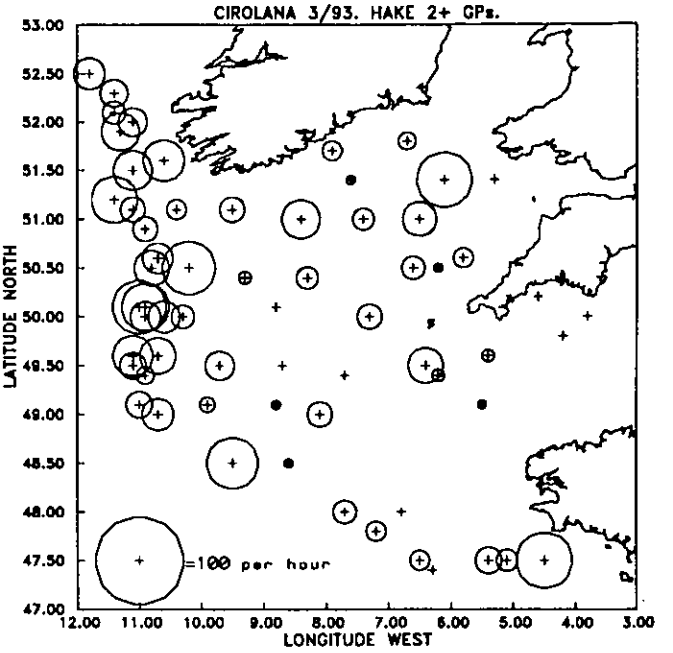
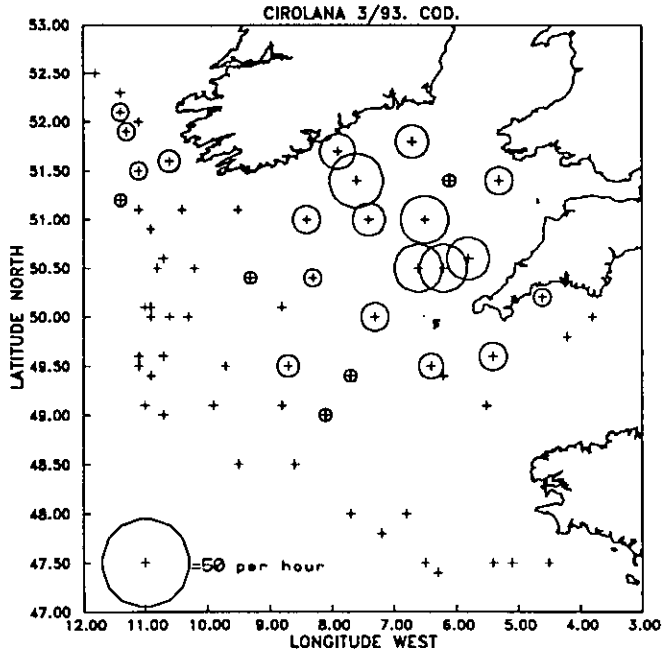
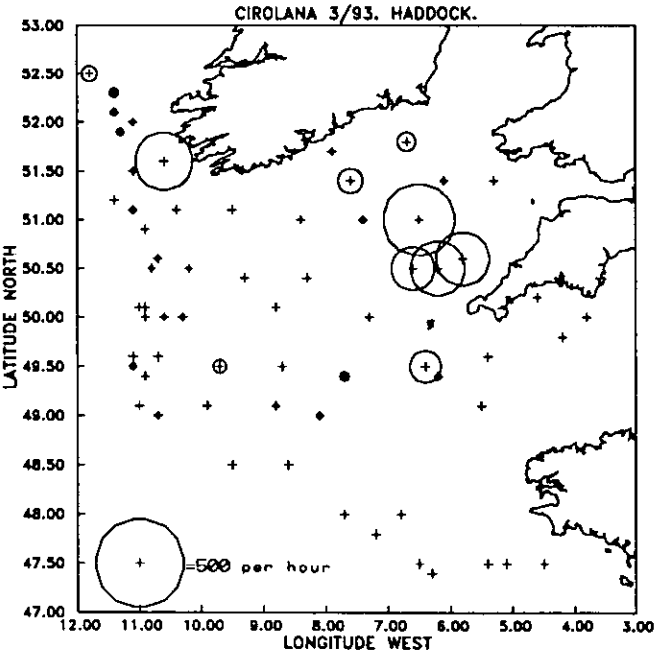
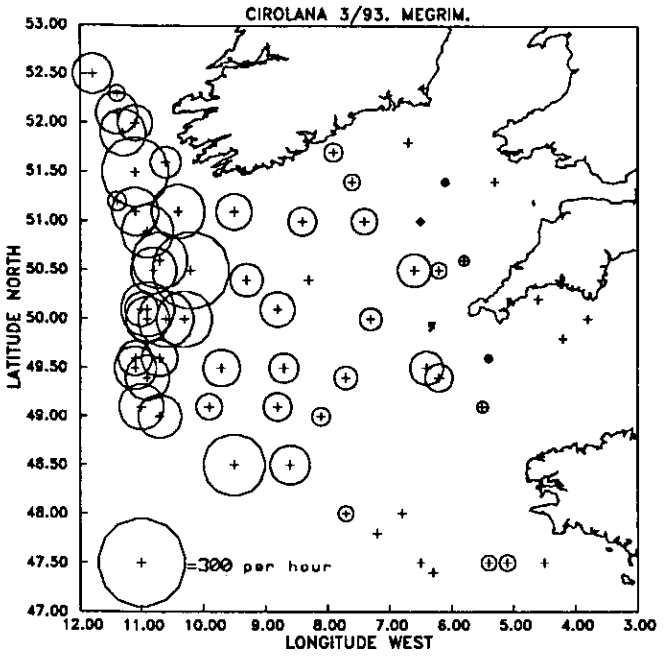
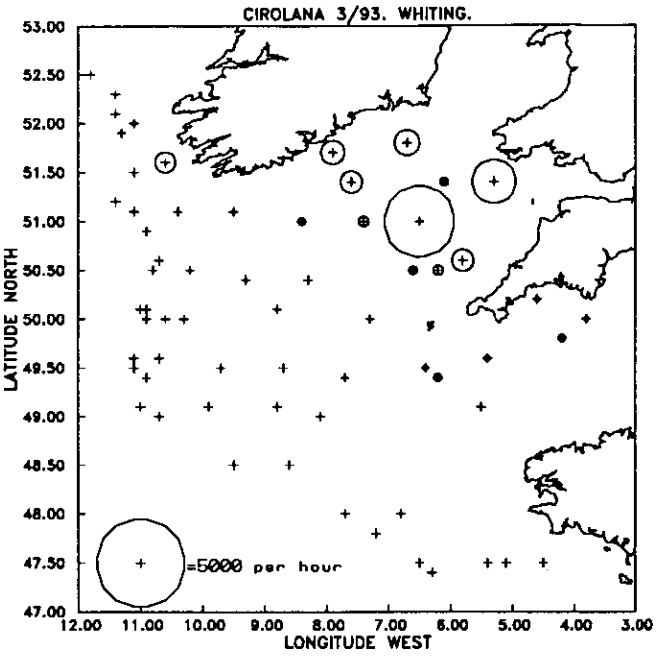

CIROLANA 3/93. HAKE 1 GP.
LATITUDE NORTH
LONGITUDE WEST
=500 per hour

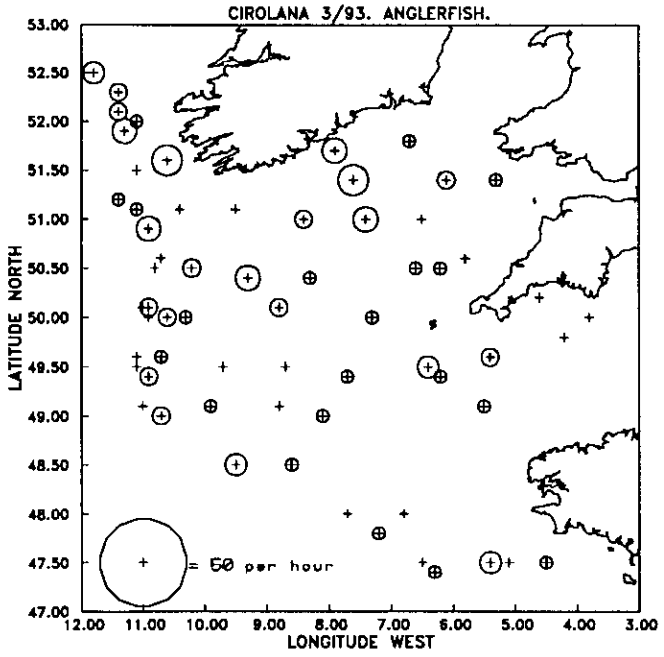

CIROLANA 3/93. HAKE 2+ GPs.
LATITUDE NORTH
LONGITUDE WEST
=100 per hour

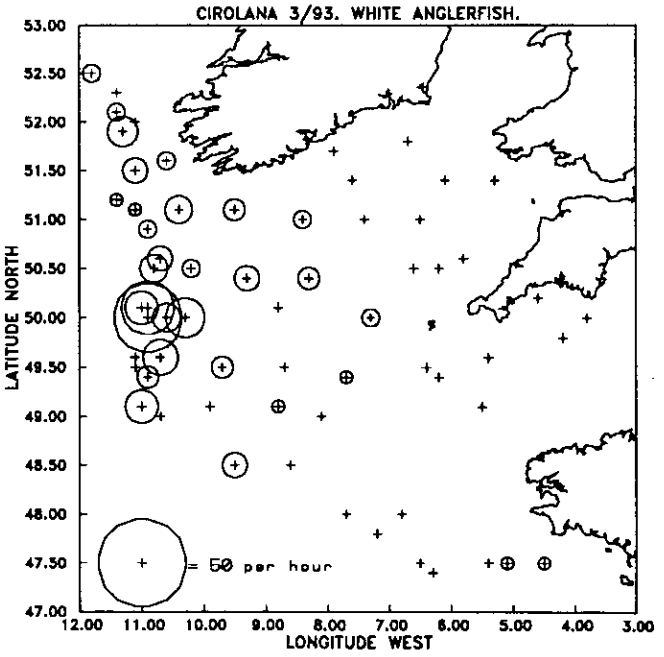

CIROLANA 3/93. COD.
LATITUDE NORTH
LONGITUDE WEST
=50 per hour

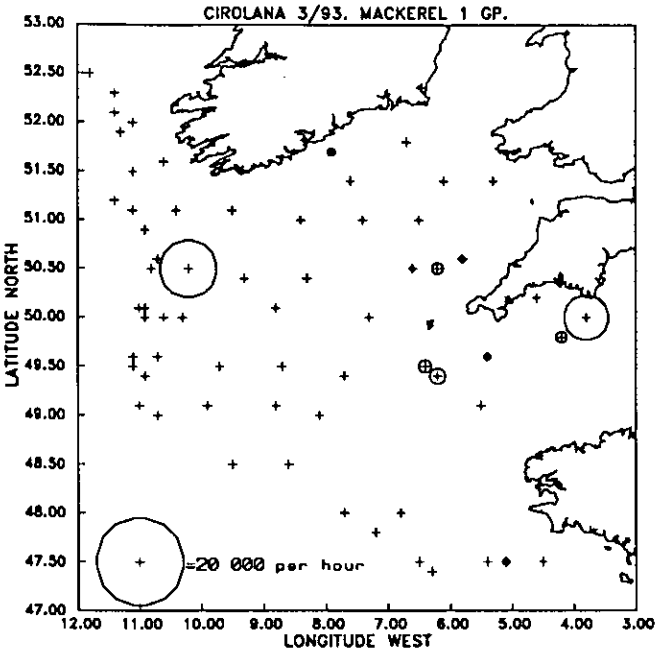

CIROLANA 3/93. HADDOCK.
LATITUDE NORTH
LONGITUDE WEST
=500 per hour

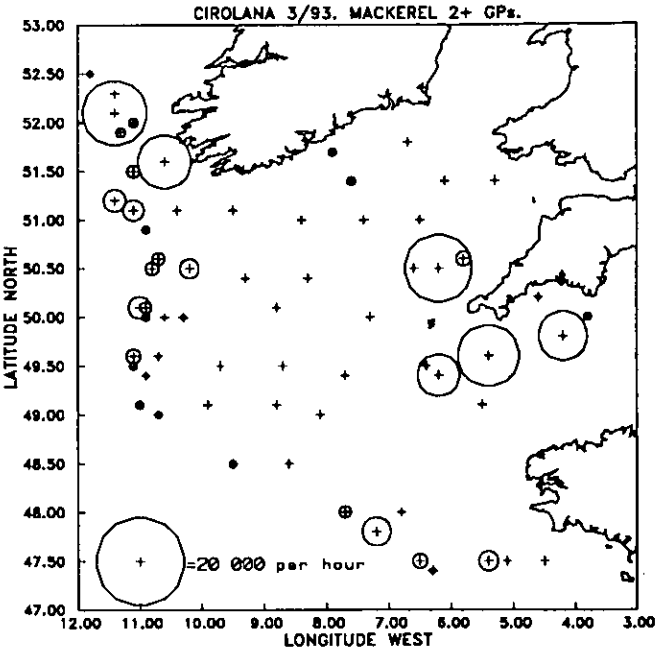

CIROLANA 3/93. MEGRIM.
LATITUDE NORTH
LONGITUDE WEST
=300 per hour

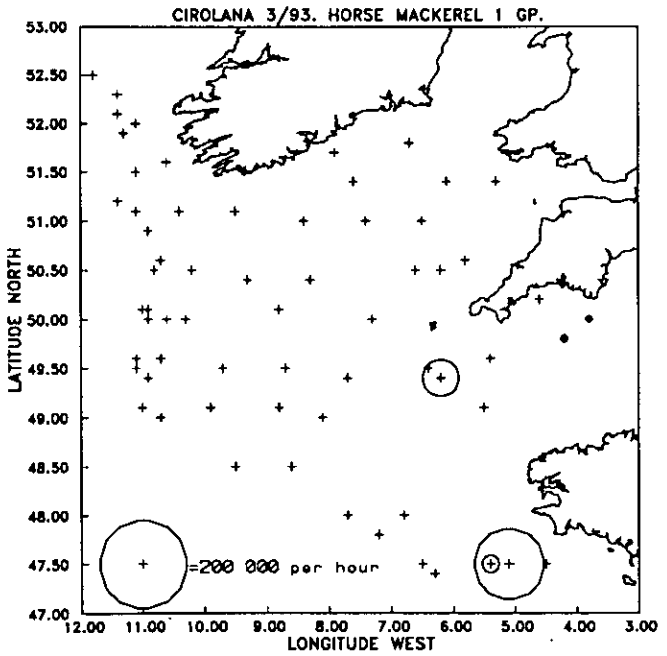

CIROLANA 3/93. WHITING.
LATITUDE NORTH
LONGITUDE WEST
=5000 per hour

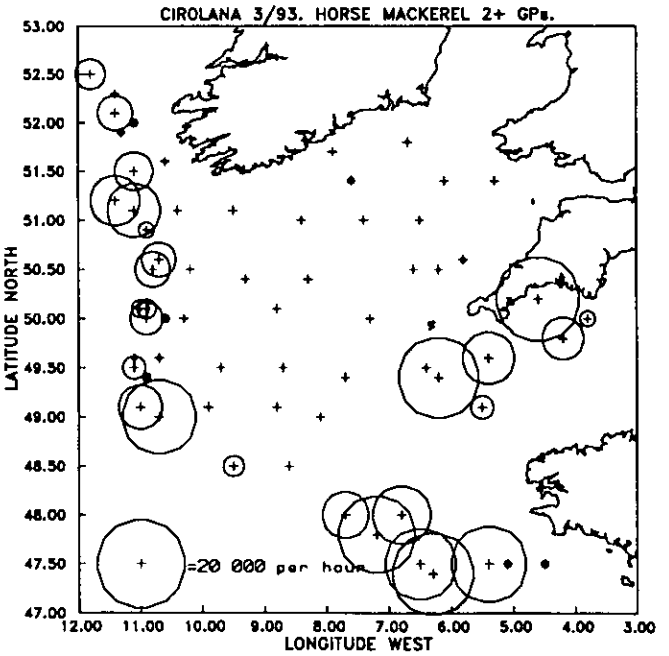

CIROLANA 3/93. ANGLERFISH.
LATITUDE NORTH
LONGITUDE WEST
= 50 per hour


CIROLANA 3/93. WHITE ANGLERFISH.
LATITUDE NORTH
LONGITUDE WEST
= 50 per hour


CIROLANA 3/93. MACKEREL 1 GP.
LATITUDE NORTH
LONGITUDE WEST
=20 000 per hour


CIROLANA 3/93. MACKEREL 2+ GPs.
LATITUDE NORTH
LONGITUDE WEST
=20 000 per hour


CIROLANA 3/93. HORSE MACKEREL 1 GP.
LATITUDE NORTH
LONGITUDE WEST
=200 000 per hour


CIROLANA 3/93. HORSE MACKEREL 2+ GPs.
LATITUDE NORTH
LONGITUDE WEST
=20 000 per hour