

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

**1995 RESEARCH VESSEL PROGRAMME**

**REPORT: RV CIROLANA: CRUISE 4a 1995**

**STAFF:** J H Nichols  
L E Woolner  
P R Witthames  
C D Darby  
B D Rackham  
A Lawler  
B Fogg

**DURATION:** All times are GMT

Part i) Left Lowestoft 1230h 21 April  
Docked Devonport 1500h 28 April

Part ii) Left Devonport 1500h 14 May  
Disembarked Holyhead 0900h 22 May

**LOCALITY:** Celtic Sea/Bay of Biscay

**AIMS:**

1. To participate in the international mackerel and horse mackerel egg survey of the western and southern stocks in survey period 4. England and Wales have responsibility for sampling the standard grid between latitudes 43°N and 49° 30'N.
2. To sample mackerel with the Danish Foto trawl and with handlines to determine the levels of atresia in the female spawning stock.
3. To incubate artificially fertilised mackerel eggs through stage I over the temperature range 6°-17°C making observations of development rate at between 1 and 3 hourly intervals. To sample eggs at each development stage for lipid analysis.

**NARRATIVE:** [Part (i)]

RV CIROLANA sailed from Lowestoft at 1230h 21 April and made a good passage to the first plankton sampling station in the Celtic Sea. The sampling grid was started at 1930h 22 April at Lat: 48° 45'N; Long: 5°15'W. Plankton sampling progressed along the line of longitude until 1900h on the following day when the Foto trawl was shot close to the shelf edge. Considerable difficulty was experienced in deploying the net from the net drum for this first haul. As a consequence the starboard wing end of the net became detached from the foot rope during the tow and the net failed to fish properly. The plankton sampling grid was resumed at 2330h and progressed well until 1930h on the following day (24 April). On completion of the station at Lat: 48° 15'N; Long: 10° 45'W a major mechanical failure occurred and main engine propulsion was lost. All efforts to restore power failed and

RV CIROLANA began to make slow progress north-eastwards using the bow thruster. At 1810h 26 April RV CIROLANA was taken in tow by the tug MV ROBUST and anchored off Plymouth at 1645h 27 April. The vessel was moved into dry dock at Devonport at 1500h 28 April.

Staff returned to Lowestoft by coach leaving Devonport at 1000h 29 April arriving in Lowestoft 1700h.

#### RESULTS [Part (i)]

1. A total of 21 plankton sampling stations were completed using the Lowestoft 53cm HSTN with 20cm diameter nose cone and 270 $\mu$  aperture mesh (Figure 1). Mackerel and horse mackerel eggs were found in stations 12 to 16, close to the shelf edge but they were not abundant. At latitude 48° 45'N it was not necessary to extend sampling beyond the core area.
2. The one deployment of the Foto trawl was unsuccessful and only 3 mackerel and 1 horse mackerel were caught. Damage to the trawl almost certainly resulted in it failing to fish properly.

J H Nichols  
28 April 1995

SEEN IN DRAFT: W Guyatt (Master)  
M G C Reynolds (SFM)

#### NARRATIVE [Part (ii)]

During the delay caused by the dry docking for repair of the outer tailshaft bush, the RV SCOTIA had extended her survey southwards and succeeded in sampling most of the western area allocated to England and Wales for survey period 4. At the same time Spain sampled the stations in the southern area allocated to England and Wales.

RV CIROLANA sailed from Devonport at 1500h 14 May and steamed to latitude 48° 15'N; longitude 5° 45'W (Station 23) to begin sampling some of the stations which RV Scotia had been unable to visit (Figure 2). By extending survey period 4 by 2 days a further 21 stations were completed in that period by 0445h 17 May (Station 43). RV CIROLANA then steamed north-westwards to position 48°45'N; 06°15'W (Station 44) and began sampling in survey period 5 at 1630h 17 May. Over the following 4 days a total of 41 plankton sampling stations were completed in fine weather and without incident. On completion of station 84, at 0825h 21 May, RV CIROLANA steamed to Holyhead to change scientific staff for cruise 4b. On arrival off Holyhead at 0745h 22 May scientific staff were changed using the ships workboat between 0800h and 1000h. Staff from cruise 4a returned from Holyhead to Lowestoft by road.

#### RESULTS [Part ii]

1. RV SCOTIA reported high numbers of mackerel eggs at position 47° 15'N; 07° 45'W on 8 May but had been unable to sample further west. The station was repeated by

RV CIROLANA on 15 May and mackerel eggs were again abundant. A further 4 stations (Figure 2: 28-31) were sampled to the west before a zero concentration was found. High numbers of mackerel eggs were then found at the westernmost station of the standard area (station 32) on the next sampling line to the south. Unfortunately, it was impractical to sample further to the west at this point. Both mackerel and horse mackerel eggs were abundant at that latitude on most stations east to station 41.

During the sampling in survey period 5, between latitudes 48° 45'N and 50° 15'W (station 44-84), mackerel eggs were most abundant off the shelf edge over water depths greater than 500m. There was a sharp western boundard with high egg numbers at stations 56, 59, 80 and 83 and zero's at station 57, 58, 81 and 82. The eastern boundary was also clearly defined by zero concentrations of both mackerel and horse mackerel eggs.

The sampling by RV CIROLANA in survey period 5 covered 38 stations previously allocated to The Netherlands and 3 stations allocated to Ireland. This will make up for some shortfall in ships time in period 5 and will allow The Netherlands to work further south covering the western area down to latitude 44°N.

2. There was insufficient time to deploy the Foto trawl during this part of the cruise. Fecundity and atresia targets for the whole western area for period 4 had been largely achieved by RV SCOTIA.
3. Feathered hooks were deployed, for the only time on this part of the cruise, between 1730h and 1830h 18 May. A total of ca. 40 mackerel and 4 horse mackerel were caught. Only one female mackerel was ripe and ca. 2000 eggs were stripped, fertilised and subsequently incubated at 13°C. Over the following four days samples of eggs at each development stage I, II, III and IV were removed. Each sample consisted of three tubes of 150 eggs each. The eggs were rinsed in distilled water, the water was removed and they were then deep frozen at -80°C and returned to the laboratory for lipid analysis (Dr C Fox).

J H Nichols  
22 May 1995

SEEN IN DRAFT : M J Willcock (Master)  
R Graham SFM

INITIALLED: J W H

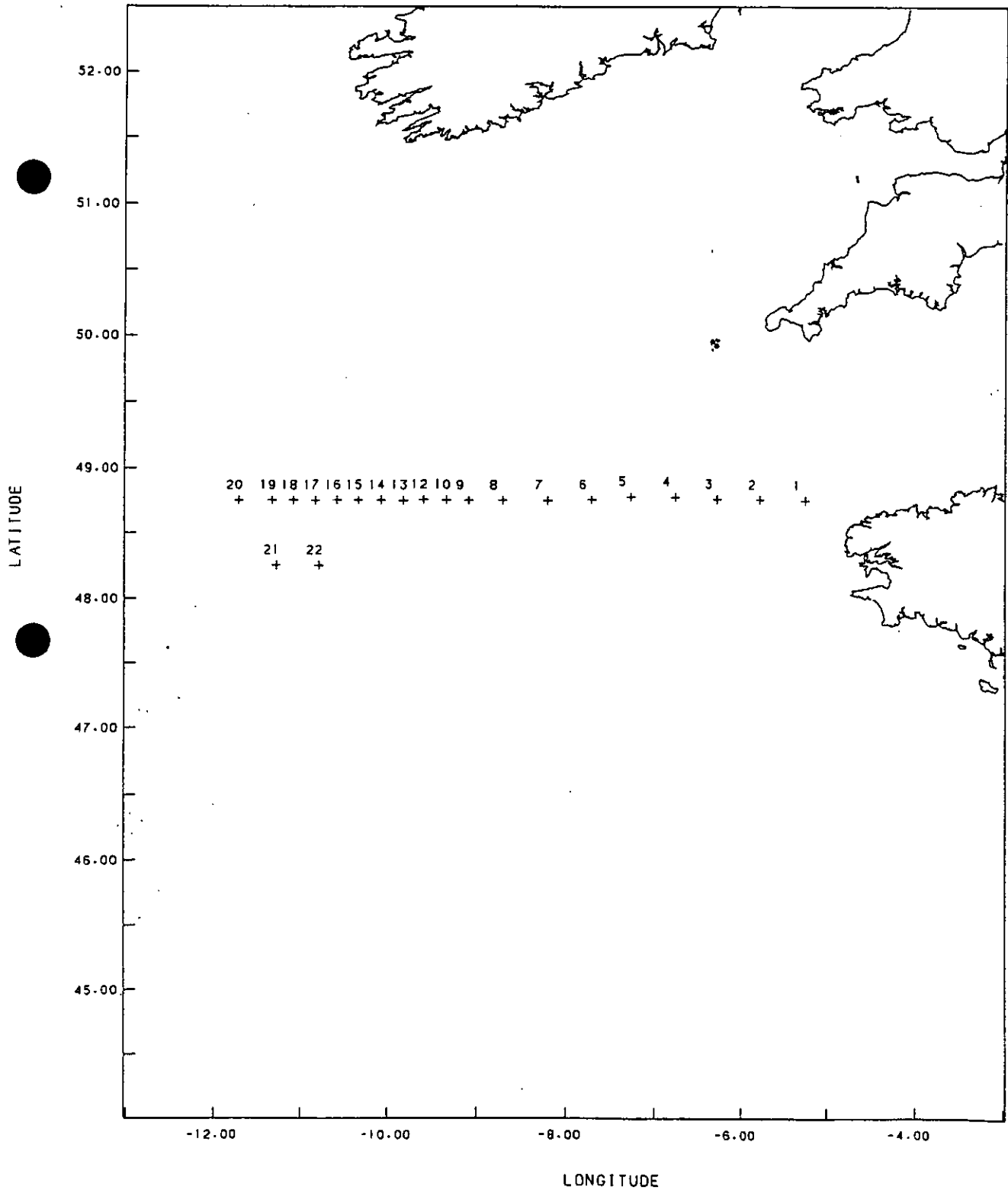
DISTRIBUTION:

Basic list+  
J H Nichols  
L E Woolner  
P R Witthames  
C D Darby  
B D Rackham  
A Lawler  
B Fogg  
FCO (4)

CIROLANA CRUISE 4A/1995 PART 1

FIGURE 1

SHOWING :  
STATION POSITION  
STATION NUMBER  
COASTLINE



# CIROLANA CRUISE 4A/1995 PART 2

## FIGURE 2

SHOWING  
 STATION POSITION  
 STATION NUMBER  
 COASTLINE

