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

1986 RESEARCH VESSEL PROGRAMME

REPORT:- RV CIROLANA:- CRUISE 2
(PROVISIONAL: Not to be quoted without prior reference to the author).

STAFF

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A M Watson
T Watson
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DURATION:

Left Lowestoft 1440 h 2 February
Arrived Lowestoft 1144 h 27 February

LOCALITY

North Sea

AIMS

1. To participate in the ICES International Young Fish Survey.

2. To sample post-larval herring and sprat using the Isaacs-Kidd midwater trawl.

3. To take bottom and surface temperature and salinity readings and collect nutrient samples on each trawl station.

4. To collect and preserve stomachs of cod and whiting for the ICES North Sea Stomach Sampling project. (This was extended to include herring after the original programme was printed).

5. To collect from samples for Laernaeocera sp studies (Kings College London).

6. To collect extra samples of herring from rectangles outside the English designated sampling area for meristic characters.

NARRATIVE

After a delay of 48 hours caused by gale force easterly winds, CIROLANA sailed from Lowestoft at 1440 h 2 February and steamed in poor weather to fish the southernmost ICES rectangles allocated to England by the International Young Fish Survey (IYFS) co-ordinator.

Fishing with the GOV trawl commenced at 0827 h 3 February in rectangle 33F2 (see attached chart) while the Isaacs Kidd trawl was shot for the first time at 1804 h that same evening in 32F1. The order in which rectangles were fished from then on was decided on a day to day basis to make the best use of the weather

conditions and to fit the requirement that the Isaacs.Kidd trawling had to be carried out during the hours of darkness and the GOV trawling mainly during daylight. Fishing continued uninterrupted until 0244 h 6 February when CIROLANA was forced to dodge in an easterly gale until 1522 h the same day. The rectangles along the English coast and out to 2°E were then fished without incident until 12 February when the first gear damage of the trip occured in rectangle 41F0, a cod end splitting when an estimated catch of 150 baskets of gurnards was being brought aboard. On the next haul an almost equivalent catch of herring was brought aboard while fishing in rectangle 41F1. Worsening weather conditions on 14 February stopped fishing again at 1153 h and although there was one rectangle left to work in the area it was decided in view of the bad forecast to steam across to the Danish coast to fish allocated rectangles there. An uncomfortable passage in an easterly gale was made on 15 February and fishing was started again in 41F7 at 0720 h the following day. That same evening the spreader bar of the Isaacs Kidd trawl was bent while fishing in a moderate swell and work was then abandoned and course set for a mid-cruise break in Esbjerg. CIROLANA docked at 0954 h 17 February and while in port the opportunity was taken to have the damaged spreader bar straightened ashore. CIROLANA sailed again at 0905 h the next day. In improving weather the rectangles off the Danish coast were completed by 0220 h 20 February and course was then set for the rectangles off the Fresian Islands. The final survey rectangle was completed by 1140 h 22 February and fishing was then concentrated in those rectangles in which heavy herring catches had been reported by other participating vessels. The extra rectangles fished are shown in the chart, those off the Dutch coast being fished first. Those in the German Bight last. The last tow was made in 38F5 at 1141 h 26 February and course was then set for Lowestoft where CIROLANA docked at 1144 h 27 February.

RESULTS

1. Sixty-four hauls, 3 of which were invalid were made with the GOV trawls. In spite of the often marginal weather conditions only two of the allocated rectangles were not fished, 40F1 because of poor weather and 37E9 because of the nature of the bottom. The 13 extra tows for herring were worked in the standard recommended manner and the catch data for herring, cod, haddock, whiting, Norway pout and sprat reported to the survey co-ordinator on TRIDENS by radio about 4 times per week. All fish were measured on each haul. Otolith samples of cod, haddock, whiting, Norway pout, herring and mackerel were taken at, or above the level decided upon by the IYFS Working Groups (Table 1) Length stratified samples of 10 sprat per 0.5 cm length group per sampling area were deep frozen for otolith extraction ashore. Herring were otolithed, the K_2's counted and the state of maturation noted. The x-ray generator was used to determine vertebral counts. The total number of herring sampled by area is shown in Table 2.

   As CIROLANA only covered part of the total survey area, no firm conclusions can be drawn from the catch data collected in this cruise. However catches of 1-group herring appear to be higher than in previous years and the catches of 1-group cod far exceed any that have been taken in the recent past. For example in rectangle 37F7, 2408 cod < 25cm were taken in the equivalent of a 1 hour tow.

2. Seventy-seven tows, two of which were invalid were made with the Isaacs Kidd trawl in the hours of darkness. Herring larvae were widely distributed over the sampling area north of 52°30N but conclusions in year class size cannot be drawn until all the data are available.

3. Surface and bottom temperature, salinity and nutrient sampling was carried out on each GOV trawl station. Surface temperature data were sent by telex to the Lowestoft laboratory for vetting before being sent on to the Deutsches Hydrografisches Institut in Hamburg.

4. Stomachs of cod, whiting and herring were preserved for the ICES North Sea Stomach sampling project (Table 3).

5. A total of 1331 fish were deep frozen from 23 stations in 19 rectangles for Lsernaeocera studies (Table 4).

6. Thirteen extra tows in 11 rectangles were carried out to obtain samples of herring for meristic characters.

7. The computer system gave trouble free service and was extensively utilised throughout the cruise. All station data and all GOV trawl catch data was loaded into a data base using the Groundfish Survey (GFS) suite and then fully checked. A file was prepared to the ICES IYFS format. Data bases were also created for CIROLANA cruise 2/82 and 8/83. The advantage of a dedicated computer system was made use of to further the development of software. This included the writing of a programme to produce summary length distributions, amendments to the ICES file producing segment of the GFS suite, extensive enhancements to the station list generating segment of the GFS suite and a suite of programmes to unload historical GFS files of catch and length records and to reformat and load them into a course data base. Extensive investigations of the Salford contouring suite were carried out with the aim of utilising parts for a cruise track program.

8. The Eilersen Electric Maritime Weighing System was used and tested for the first time on this cruise. With certain small modifications the system is obviously a major improvement on the old spring balance system of weighing.

W G Parnell
7 March 1986

SEEN IN DRAFT: M J Willcock - Master
R Graham - Fishing Skipper

INITIALLED: DJG

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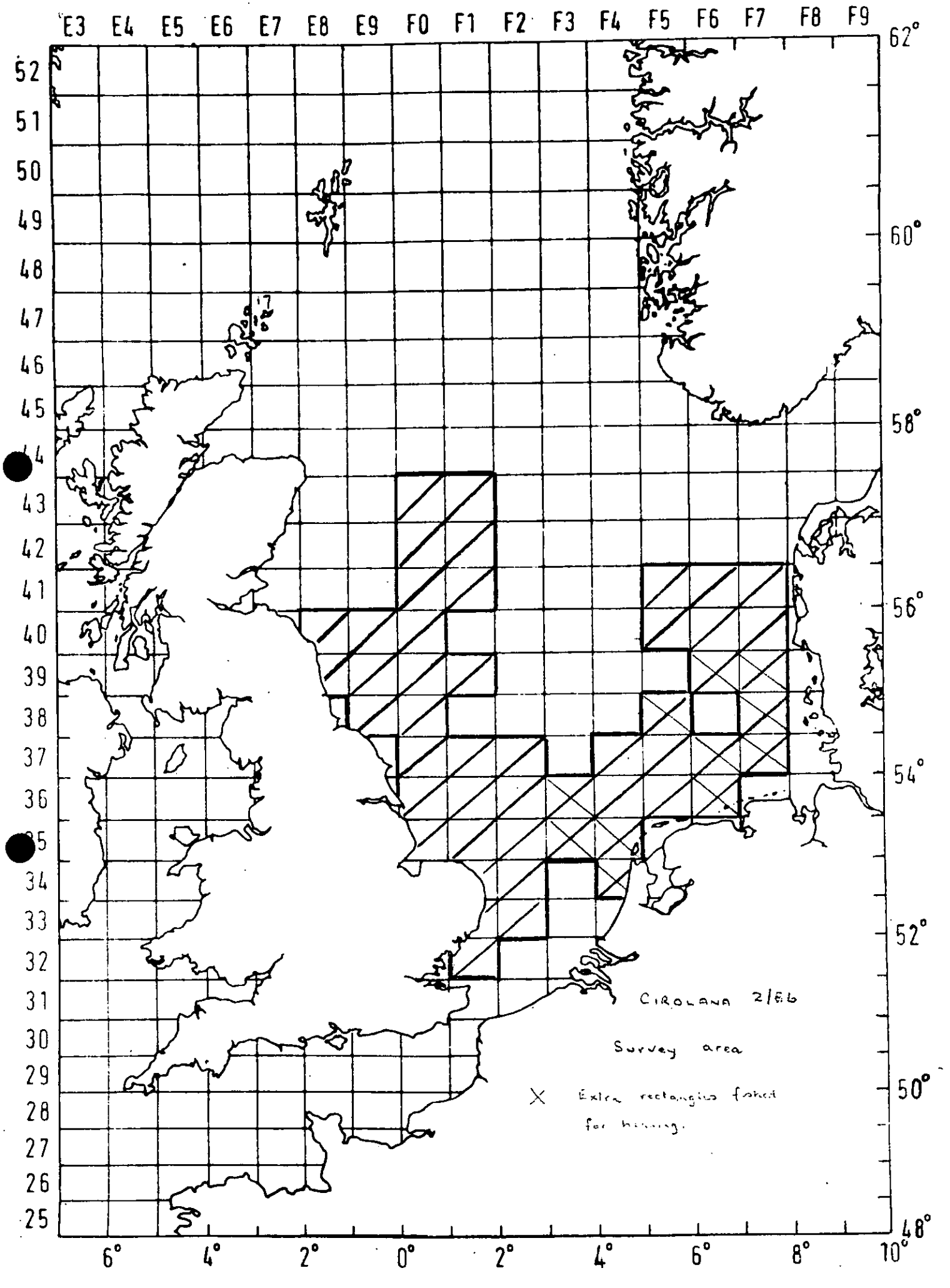
E3 E4 E5 E6 E7 E8 E9 F0 F1 F2 F3 F4 F5 F6 F7 F8 F9
52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25
62° 60° 58° 56° 54° 52° 50° 48°
6° 4° 2° 0° 2° 4° 6° 8° 10°
CIROLANA 2/86
Survey area
X Extra rectangles fished for herring.

Table 1. Number of otoliths taken in each roundfish area.

Roundfish Area	Cod	Haddock	Whiting	Norway Pout
2	71	219	152	79
4	152	227	208	79
5	53	0	206	0
6	363	4	165	0
7	60	19	84	0
TOTAL	699	469	815	158

Table 2. CIROLANA 2/86 IYFS

HERRING

Sampling Area	No of Rects Sampled	No of Vs, K_2 Oto's
2.1	8	305
4.1	5	388
4.2	5	248
5.1	6	268
5.2	4	43
6.1	1	61
6.2	1	68
6.3	5	94
6.4	8	262
6.5	1	51
6.6	3	93
7.2	7	289

Table 3. Stomachs examined on IYFS Feb 1986.

AREA	COD		WHITING		HERRING	
	Feeding Fish	Total Examined	Feeding Fish	Total Examined	Feeding Fish	Total Examined
2	51	91	219	623	47	89
4	160	241	177	813	93	215
5	52	54	218	523	14	40
6	59	87	87	249	150	295
7	70	75	102	197	97	191
TOTAL	392	548	803	2405	401	830

Table 4. CIROLANA 2/86 Number frozen for Laernaeocera Studies

Square	Cod	Haddock	Whiting	Poor Cod	Norway Pout	Luscus	Plaice	Dab	Lemons	LRD	Flounder	Witch
33F2	4				3		3	10				
33F1	3		3			3		10				
34F1	7		10				2	15	1			
35F0	5		25				5	10			1	
35F1	5		25				1	10	2			
34F2	1		25	5			10	10				
38F1	3	1	25				10	10		10		
38E9	28	12	25	5	25			10	6	10		
40E8	25	25	25	4	25	1	1	10	10	10		2
39E8	18	25	25	1	9		4	10	3	10		1
40F0	19	25	25	5	25		4	10	2	10		
41F7	29		25				10	10	1	3	8	
41F7									2	1	2	
40F7	4		10				10	10			2	
40F7	11		15	1								
36F5	9		5				10	10			4	
36F5	4		4			1					1	
35F4	4		20			1	10	10			1	
34F4	25		25			2	10	10			3	
36F6	2		2				10	10				
	25		25	2		2	10	10			2	
38F7	25		25				10	10			3	
39F6	11	1	25	2		1	10	10		10	2	
TOTAL	267	89	394	25	87	11	130	205	27	64	29	3

total no of fish 1331
Total no of stns 23