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

1987 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 9
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

J W Horwood (SIC)
Ms S E Deady (Irish Observer)
D J Symonds
A Walker
T Watson
D R Eaton
Mrs M J Boon
P A Large
Mrs A J Sutcliffe

DURATION

Sailed Lowestoft 2130h 23 October 1987
Docked Lowestoft 1100h 9 November 1987

LOCALITY

Western English Channel, Celtic Sea and Cardigan Bay

AIMS

1. To collect plaice (Pleuronectes platessa) ovaries from, (i) off northwest Cornwall (Bristol Channel), (ii) off southeast Ireland, (iii) in Cardigan Bay, and if time and density of plaice permit, (iv) off Plymouth and Lyme Bay.

2. To sample fish, and particularly sole (Solea solea), along transects from (i) Lyme Bay to Gulf of St Malo, (ii) Ushant to Lands Ends, and (iii) Padstow to southeast Ireland.

3. To collect, incidentally, sole ovaries and gonads from anglerfish (Lophius spp).

NARRATIVE

The cruise track is illustrated on Figure 1. The ship sailed directly to, and commenced fishing on 25 October in Lyme Bay, from where good catches of plaice for fecundity samples were obtained. A Granton trawl was used for all fishing, and CTD measurements were taken at stations in Lyme Bay and at each new location.

From 26-28 October transects were fished to Guernsey, and from Ushant to Lands End, but catch rates of sole were low. To the west of Guernsey, on a previously successful tow, the net was damaged, but recovered, and was replaced by a new net. About Ushant, two hours were spent attempting to find a trawlable inshore ground, but none was found; however, towards the end of this search, we were advised by French authorities that RV CIROLANA was not allowed to fish in an extensive coastal area.

The following locations were then fished to obtain plaice fecundity samples. From 29-30 October samples were obtained for the Bristol Channel, from off Trevose and Barnstaple, where catch rates proved low, and from off Caldy Island, which provided good catches. To be sheltered, somewhat, from southeasterly seas and to take advan-

tage of the weekend closure of the firing range, samples were collected in Cardigan Bay on 31 October to 1 November. From 2-4 November good catches of plaice and sole were obtained off southeast Ireland, from Waterford to Ballycotton. Transect stations near to Ireland were fished before returning to Caldy Island and Trevose, (5-6 Nov), to complete the plaice sampling from the Bristol channel. Samples were obtained from Plymouth Bay on 7 November before sailing for Lowestoft.

Generally fine weather which did not restrict fishing, and the diligence of the fishing crew in repairing net damage, contributed to a very productive cruise.

RESULTS

From the five locations, ovaries were preserved across the size range of the plaice encountered; the numbers are given in Table 1. The maturity stage of all female pliace was determined, and gonad weight and total weight were measured for a large proportion of the catch; under most conditions the stabilized electronic balance was accurate to within 2g. Table 2 gives the distribution of the numbers weighed by area, and the gonadosomatic index (GSI), calculated as gonad divided by total weights. Mature plaice were predominantly of stages III to IV. As can be seen from Table 2, the plaice found in Cardigan Bay were much smaller than those from the other locations, and matured at a much smaller length.

Every large (and hence expectedly mature) plaice was examined to determine that ovaries were developing. Only one large fish was found with an undeveloped gonad; at 46 cm this was one of the largest caught on the cruise, but by visual inspection was considered to be immature.

Transects were fished across the western English Channel, and on the Irish and English sides of the Celtic Deep. At these stations, and at the first tows of the more inshore stations, all species were identified, weighed and counted, and otoliths taken as appropriate. When tows were repeated, only the presence of species was recorded. All station details, catch and length data were input to the Groundfish Survey data-base, and a full set of output documents were available at the end of the cruise. Otoliths were collected from plaice and sole for the fecundity study, and from other species to complement the overall biological programme and to augment the market sampling; Table 3. From all 48 fishing stations combined 69 species of fish were identified.

Ovaries of the common sole were also examined, and from visual inspection these ranged from spent and atretic forms to those with advancing vitellogenesis. Ovaries from 55 sole were preserved from a range of maturity stages. Ovaries were also preserved from five anglerfish (Lophius piscatorius), and from one red band fish (Cepola rubescens).

Specific collections of requrested materials were as follows. Three samples of plaice were obtained for AEP division. Otolith and eyeball samples of hake (Merluccius merluccius) were obtained, length and otolith samples were obtained from mackerel (Scomber scombrus) and pilchard (Sardina pilchardus), and red mullet (Mullus surmuletus) were preserved frozen. Unusual species were preserved for the Archaeological Environmental Unit, York, and various uncommon species were retained for fish identification courses. Samples of hydroids caught in the fishing net were preserved, and two tanks of live invertebrates were returned.

J W Horwood (SIC)
18 November 1987

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

INITIALLED: DJG

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Table 3: PROVISIONAL NOS OF OTOLITHS COLLECTED BY SPECIES AND AREA

	107A	107E	107F	107G	107H
PLAICE	173	76	79	18	0
MEGRIM	22	1	10	29	22
LEMON SOLE	50	3	14	45	1
SOLE	38	40	87	3	0
WITCH	0	1	1	0	0
ANGLERFISH	29	31	7	3	0
COD	21	16	30	31	13
WHITING	0	45	36	31	2
LING	15	23	3	11	5
POLLACK	0	9	0	0	0
HAKE	48	37	30	52	6
BASS	0	3	2	0	0
MACKEREL	0	212	0	0	0
PILCHARD	0	82	0	0	0

DISTRIBUTION:

Basic List+
J W Horwood
Ms S E Deady (Irish Observer)
D J Symonds
A Walker
T Watson
D R Eaton
Mrs M J Boon
P A Large
Mrs A J Sutcliffe
Southern Sea Fisheries Committee
Devon Sea Fisheries Committee
Isles of Scilly Sea Fisheries Committee
Cornwall Sea Fisheries Committee
South Wales Sea Fisheries Committee
North WEstern and North Wales Sea Fisheries Committee
Guernsey, States Sea Fisheries Committee
Jersey, Department of Agriculture and Fisheries
R Grainger (Ireland)

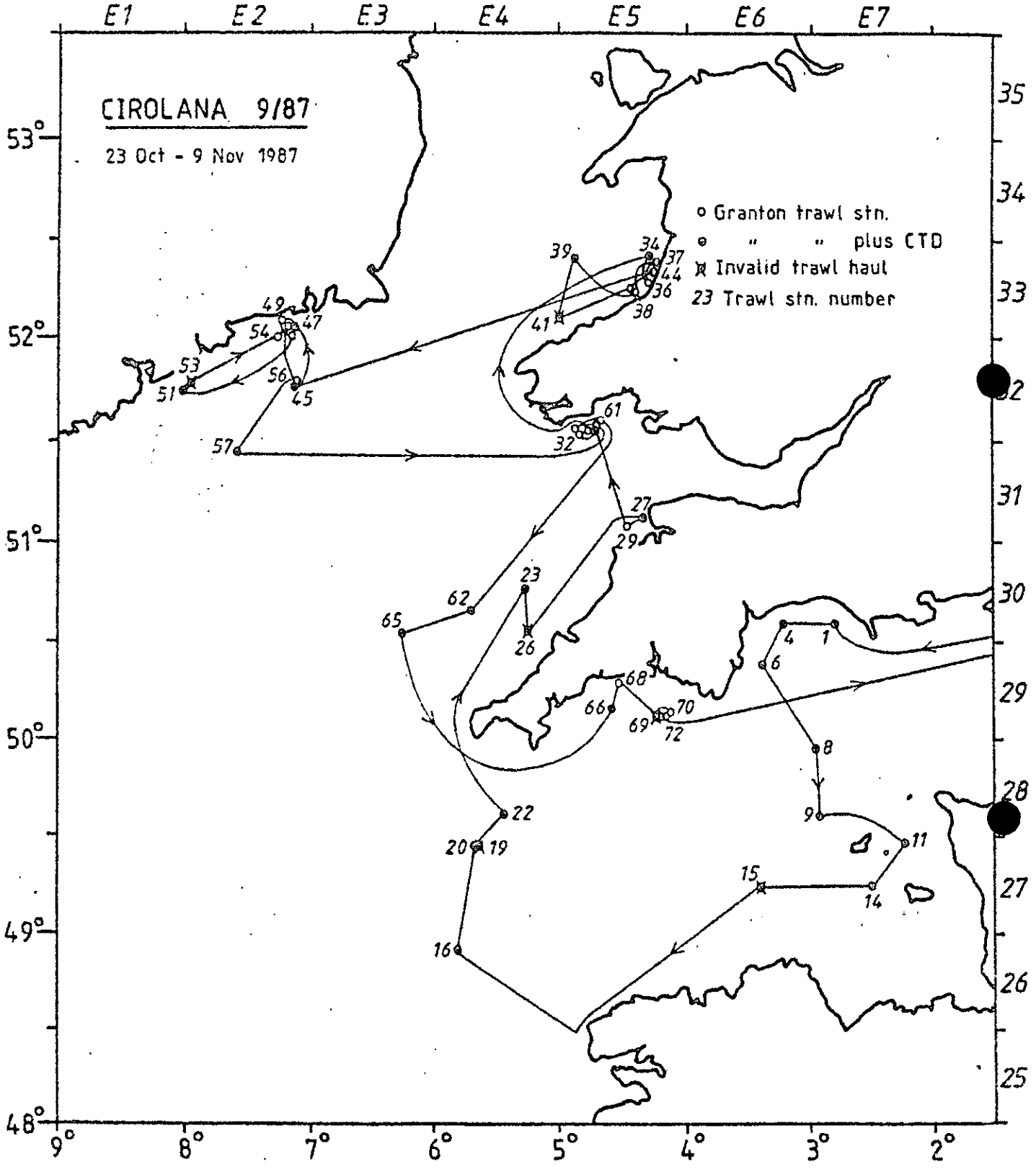
Table 1: Provisional number of plaice from which ovaries were preserved, by area and five cm length group

Length	Lyme Bay	Plymouth Bay	Bristol Channel	Cardigan Bay	S.E. Ireland	Total
20-24	0	0	0	6	0	6
25-29	0	1	8	8	9	26
30-34	6	3	11	7	8	35
35-39	6	5	8	12	8	39
40-44	5	2	8	1	8	24
45-49	1	0	1	0	7	9
50-54	1	0	0	0	0	1
55-59	1	0	0	0	0	1
Total	20	11	36	34	40	141

Table 2: Provisional frequency distribution of sampled mature or maturing plaice from which gonad and total weights were obtained, percentage that this sample represents of the total of that group caught, GSI, and standard error of GSI, by area and five cm length group.

Length	Lyme Bay	Plymouth Bay	Bristol Channel	Cardigan Bay	C.E. Ireland	Total
20-24	0	0	0	23	0	23
25-29	0	1	39	26	12	78
30-34	8	3	59	27	15	112
35-39	11	5	42	18	32	108
40-44	5	2	12	1	15	35
45-49	1	0	1	0	7	9
50-54	1	0	0	0	0	1
55-59	1	0	0	0	0	1
Total	27	11	153	95	81	367
% sampled	(100)	(100)	(58)	(40)	(89)	(58)
GSI(%)	5.6	5.6	3.6	5.2	5.5	
s.e. GSI%	(0.5)	(0.7)	(0.2)	(0.3)	(0.3)	

Table 3: TO COME; NUMBERS OF OTOLITHS COLLECTED


CIROLANA 9/87
23 Oct - 9 Nov 1987
o Granton trawl stn.
o " " plus CTD
⊠ Invalid trawl haul
23 Trawl stn. number
E1
E2
E3
E4
E5
E6
E7
53°
52°
51°
50°
49°
48°
9°
8°
7°
6°
5°
4°
3°
2°
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72
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Figure 1.