

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

1996 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 10

STAFF:

S I Rogers SIC
G Howlett
R Flatt
J Dann
T Mead
J Forster

● DURATION: 31 July - 16 August

LOCALITY: Southern Bight, English Channel

AIMS:

1. To undertake a beam trawl survey as part of an international programme in the North Sea and Channel to i) obtain fisheries independent data on the distribution and abundance of commercial flatfish species, and ii) derive age compositions of sole and plaice for use in the assessment of stock size.
2. To collect additional biological data on non-commercial fish by-catch, and on commercially important non-quota species, especially turbot, brill and cuttlefish, to improve our knowledge of these poorly studied species.
- 3. To quantify the seabed sediments and epibenthos using both photographic and trawl by-catch data, and also the ROXANN acoustic seabed discrimination system, in order to describe the association between the distribution and abundance of invertebrate by-catch, and the substrate type. These data will enable us to more accurately assess the impact of towed gears on invertebrate populations.

NARRATIVE:

CORYSTES left Lowestoft on the evening tide of 31 July and was ready for the first beam trawl station in the Thames estuary on the following day. Fishing stations in the Thames and off the Kent coast were completed, and CORYSTES then continued into the Channel and westwards along the south coast of England. On 6 August, after completing the survey of the English coast in 7d, and collecting spare parts for the beam trawl camera from Poole, CORYSTES entered French waters and proceeded to a group of stations in the Baie de Seine, to the east of the Cherbourg peninsula. Beam trawling continued eastwards along the north coast of France until 11 August when the last fishing station on the French coast was completed. After spending a day in the Rye Bay area calibrating the seabed discrimination system ROXANN using the beam trawl camera and the catch of macro benthos, more trawl stations were fished off the coasts of Suffolk, Norfolk and Lincolnshire. The final beam trawl

stations were completed in the Wash on 15 August, and all fish catch and age data were input before CORYSTES docked in Lowestoft on the morning of Friday 16 August.

RESULTS:

1. Fishing stations shown on Figure 1 were sampled with a 4m commercial beam trawl. All fish species in the catch were identified and measured, and all length measurements and catch records were entered on the Fishing Survey System (FSS).

As in previous years, the highest catch densities of sole and plaice in the Eastern Channel were found near the Dover Strait, while smaller numbers occurred in the Baie de Seine and on the coasts of West Sussex, Hampshire and Dorset (Figure 2). A relatively strong 1994 year class of plaice was evident from the survey in 7d and confirmed similar results obtained during the September 1995 Young Fish Survey on the south coast of England. The 1993 year class of sole, which was abundant as 0-group (YFS results) and as 2-group (this survey), was close to the average value in 1996.

survey year	7d Plaice age-group		
	1	2	3
1994	8.33	7.46	9.17
1995	11.32	4.06	3.00
1996	13.20	11.90	1.30

	7d Sole age-group		
	1	2	3
1994	4.75	3.17	8.33
1995	3.48	10.60	1.51
1996	3.5	7.3	3.8

In the North Sea, high catch densities of juvenile sole were found in the Outer Thames and in the coastal waters of Essex and Suffolk, and individual catches with the 4m beam reached 200 fish per hour (Figure 2). Catches of juvenile sole and plaice decreased between the Thames and the coast of north Norfolk:

4c RECTANGLE	31F1	32F1	33F1	34F1	35F0	35F1
Sole in 4c	224	130	78	36	86	3
Plaice in 4c	162	24	37	10	45	8

(Values given are the sum of the average catch (sole/hour/4m beam) for ages 0 to 3).

2. In IVc, otoliths were collected from stratified samples of sole, plaice, dab, flounder and lemon sole. In VIId, otoliths were taken from all sole, turbot and brill, and from stratified samples of dab, flounder, lemon sole, plaice, scaldfish and solenette. All otoliths were read at sea except for those of solenette and scaldfish, and ALD's for sole and plaice were prepared before the end of the cruise. The following table shows the numbers of otoliths collected.

Species	VIIId total	IVc total
sole	477	389
plaice	423	82
lemon sole	99	39
dab	269	86
flounder	96	46
turbot	6	1
scaldfish	77	
solenette	56	
brill	32	
TOTAL	1535	643

Increased catches of several infrequent species with a more southerly distribution were observed during the survey. The total number of cuttlefish *Sepia officinalis* caught (906) was greater than the catches taken in both 1995 (633) and 1994 (300), and the majority (78%) again occurred on the French coast. Catches of greater weever, *Trachinus draco* and sand sole *Pegusa lascaris* were also greater than last year.

	1995	1996
sand sole	28	41
greater weever	6	14

Samples of gill and liver tissue from brill were collected for analysis by the Fisheries Research Station, Belgium, as part of an EU funded research programme.

3: The by-catch of benthos from 41 station positions was sorted and all fauna and flora were identified, counted and weighed. These data, with corresponding data from the 1995 cruise; were all input to the FSS. The seabed discrimination system, 'ROXANN' was used at each station to monitor changes in substrate type between areas, and was further calibrated by photographs of the seabed using a camera mounted on the beam of the trawl, and detailed sampling of the benthos. Initial results suggest that during a 30 minute trawl tow the subtle changes detected in the ROXANN record can be explained by genuine changes in substrate shown on the photographic record. This now allows ROXANN to be 'ground-truthed' to a higher level of resolution than has previously been possible, although potential problems with depth and sea state may still exist.

S I Rogers
9 September 1996

SEEN IN DRAFT: B Chapman, W May.
INITIALLED: R Millner

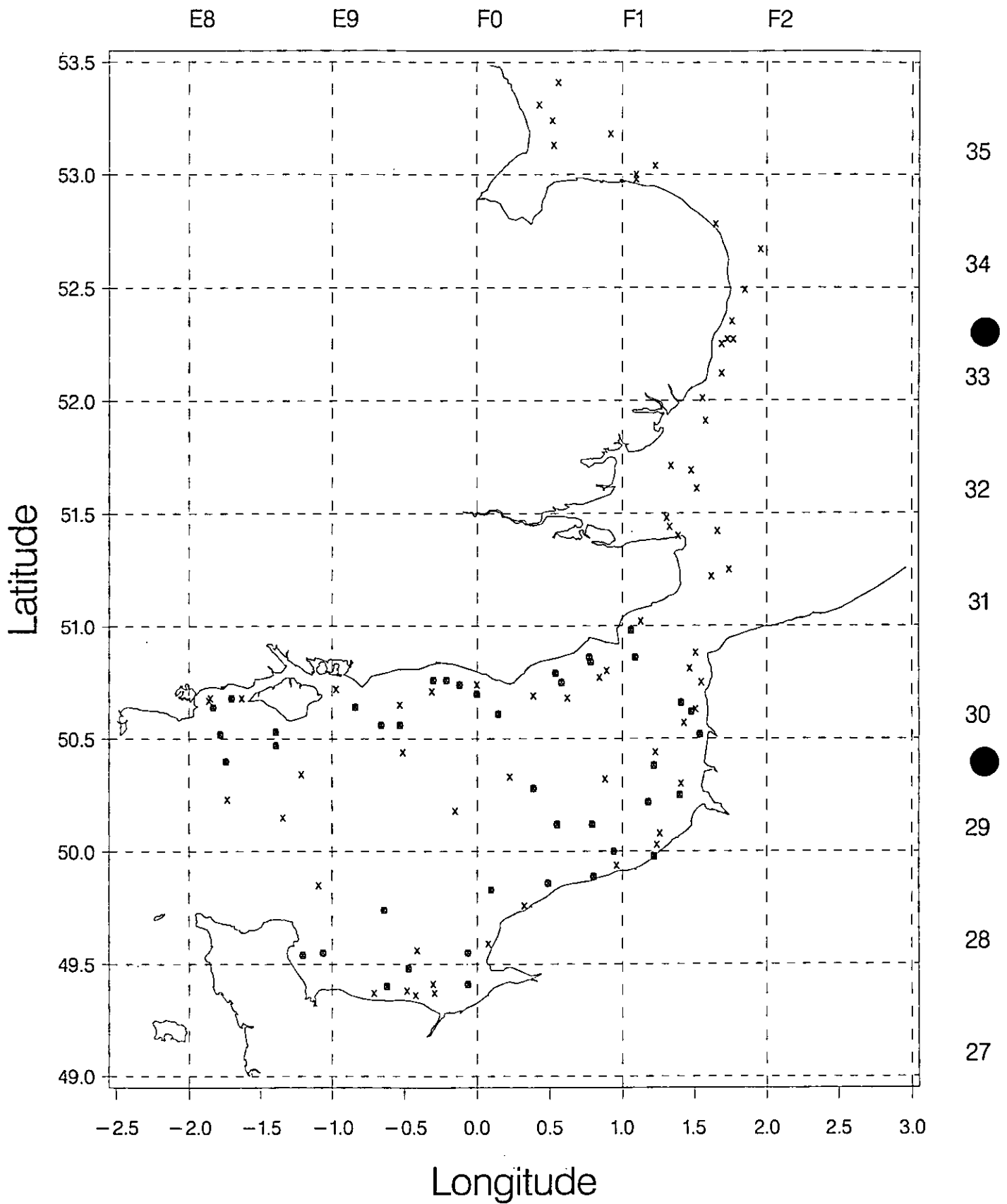
Basic list +	R Flatt
S I Rogers	T Mead
G Howlett	J Forster
J Dann	

A Tetard (IFREMER, Port en Bessin); A Rijnsdorp (RIVO, Netherlands); R de Clerck (FRS, Belgium); Kent and Essex, Sussex, Southern, Devon and Cornwall SFC; States of Guernsey, States of Jersey, CFO; D Love (Foreign and Commonwealth Office).

Figure 1

Station positions fished in 1996 with a 4m beam trawl (x).
Benthos samples taken from stations marked with (⊠).

479986.am



7d beam trawl survey 1996
Total number of 0- to 3- group sole

