

THE CENTRE FOR ENVIRONMENT, FISHERIES & AQUACULTURE SCIENCE,  
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1998 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 8

STAFF:

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DURATION:

31 July - 14 August 1998

LOCALITY:

North Sea (IVc), eastern English Channel (VIIId).

AIMS:

1. To undertake a beam trawl survey in the southern North Sea and eastern Channel as part of an international programme 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 quantify the seabed sediments and epibenthos using trawl by-catch data and remote acoustic seabed discrimination systems (ROXANN / QTC View), in order to describe the association between the substrate and the distribution and abundance of invertebrate by-catch.
3. To collect additional biological data on non-commercial fish by-catch, and on commercially important non-quota species, especially turbot, brill, and cuttlefish.

NARRATIVE:

CORYSTES left Lowestoft on the afternoon tide of 31 July and began fishing at the first beam trawl station in the Thames estuary that evening. Fishing stations in the Thames and off the Kent coast were completed the next day, and CORYSTES continued into the Channel and westwards along the south coast of England. On 6 August, after completing the survey of the English coast in the Channel, CORYSTES entered French waters at Cap Gris Nez and proceeded southwest to fishing stations north and south of Dieppe. Beam trawling continued on the north coast of France in fine weather until 10 August when the last fishing station on the French coast was completed east of the Cherbourg Peninsula. During the return journey to Lowestoft, trawl station positions off the Sussex coast were

re-visited to confirm seabed identification using QTC View, and the last fishing stations off the coast of Essex and Suffolk were completed. The abundance of all fish and benthic by-catch, and the ages of all sole and plaice caught, were added to the database before CORYSTES docked in Lowestoft on the morning of Friday 14 August.

## RESULTS:

### 1.

i) All 97 trawl stations in the eastern Channel and southern North Sea were successfully sampled with a 4m commercial beam trawl (Figure 1). All fish species in the catch were identified, and all catch records and fish length measurements were entered on the Fishing Survey System (FSS).

ii) Catch densities of juvenile (0 to 3-group) sole in the Eastern Channel were highest on the north coast of France and on the English coast between Shoreham and Hastings (Figure 2). In the Thames area and off the Suffolk coast juvenile sole were abundant and frequently caught at rates of 50-100 fish per hour. Juvenile plaice were most abundant in the eastern part of the Channel, particularly in the shallow water between Boulogne and Dieppe (Figure 3).

ii) In IVc, flatfish otoliths were collected from all plaice and from stratified samples of sole and flounder. In VIId, otoliths were taken from all sole, turbot and brill, and from stratified samples of plaice, dab, flounder, lemon sole, scaldfish and solenette. All sole, plaice and dab otoliths collected in IVc and VIId were read at sea, and Age Length Distributions were prepared before the end of the cruise. The following table shows the numbers of otoliths collected.

Species	VIId total	IVc total
sole	561	251
plaice	437	109
dab	218	44
lemon sole	48	45
brill	21	2
flounder	32	
scaldfish	42	
solenette	46	
turbot	4	
<b>TOTAL</b>	<b>1409</b>	<b>451</b>

### 2.

i) The by-catch of benthos from all station positions in the eastern Channel and southern North Sea was subsampled and sorted and all fauna and flora were identified, counted and weighed. Stations between the Outer Thames estuary and the coast of west Sussex were dominated by the Bryozoan *Alcyonidium diaphanum*. This species may in fact be several different species and samples were collected for DNA analysis at Swansea University. Stations in the Baie de La Seine were dominated by starfish and swimming crabs, whereas stations in deeper water mid-Channel comprised mainly sponges and other filter feeders. Careful monitoring of the presence of elasmobranch egg cases in the benthic by-catch and the substrates to which they were attached revealed, for example, that dogfish mainly deposit their eggs on the bryozoan *Flustra foliacea*, but also use erect

sponges and hydroids. This is an example of the way in which the detailed analysis of benthic by-catch can provide information on the distribution of Essential Fish Habitat.

ii) Samples of starfish were examined for the presence of damage potentially caused by the passage of towed fishing gears. Percentage arm loss at 45 stations ranged from 1 - 34 %. These values will be compared against the known distribution of fishing activity to show whether this species can be used as a widespread indicator of fishing impact.

iii) The seabed discrimination system 'QTC View' was used at each station to describe changes in substrate type at trawl stations. Sediment samples from a Day grab were used to ground truth the system, and will now contribute to a more detailed analysis of demersal fish / benthos / substrate associations in the Channel and western waters of the UK.

3.

i) Cuttlefish *Sepia officinalis* were not as abundant on the English coast as in 1996, while the total number of individuals caught in French waters remained relatively high.

	1996	1997	1998
English coast	545	162	192
French coast	1324	651	1078

ii) Samples of brill liver and gill tissue were preserved for further analysis of stock structure as part of an EU funded programme.

iii) Nine seahorse (*Hippocampus hippocampus*) were collected from French coastal waters, the largest number ever recorded on the beam trawl survey.

S I Rogers  
14 August 1998

SEEN IN DRAFT: R Williams, R Graham.  
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Basic list +

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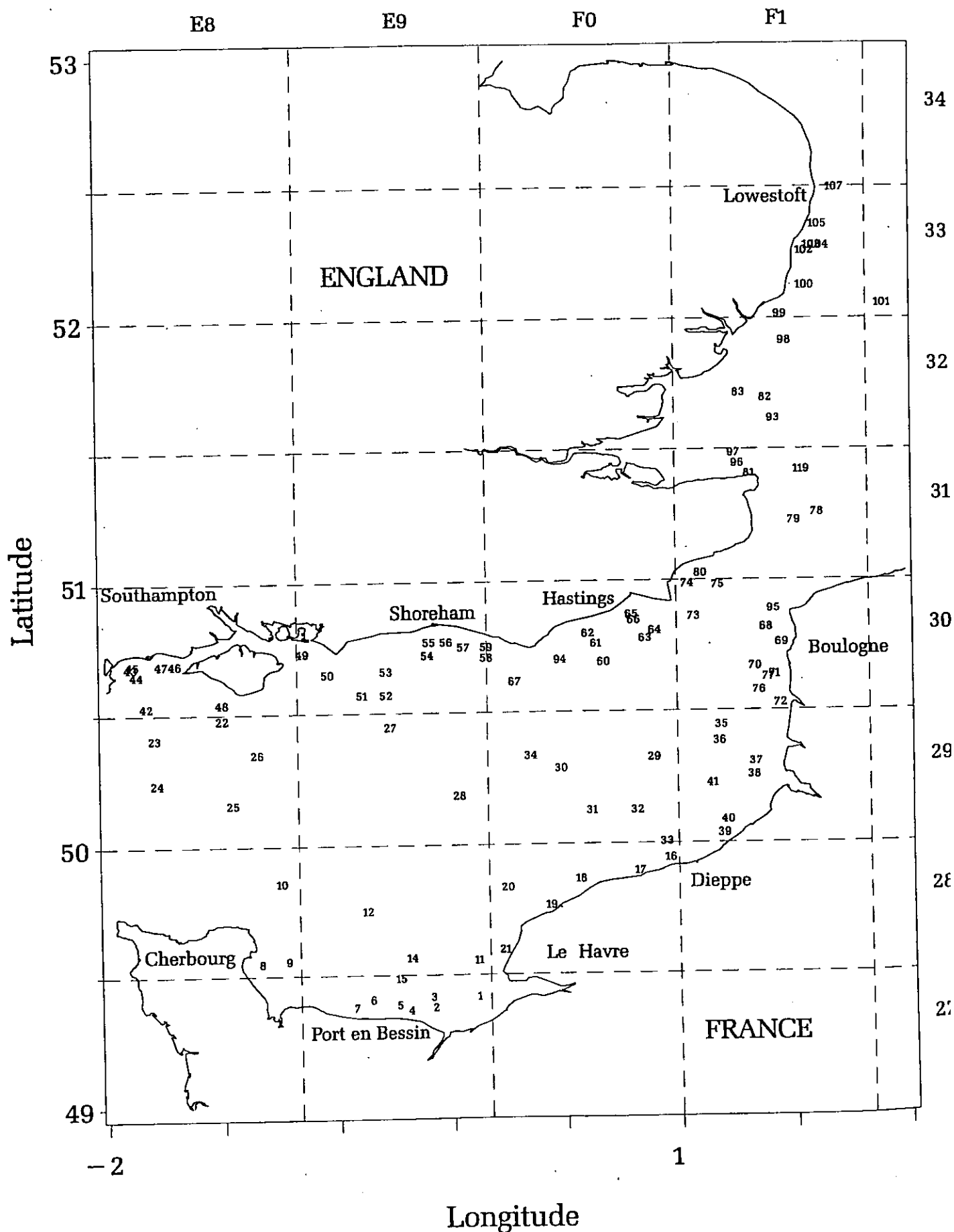
States of Guernsey, States of Jersey, CFO

Ms Carmen Ferry (Foreign and Commonwealth Office).

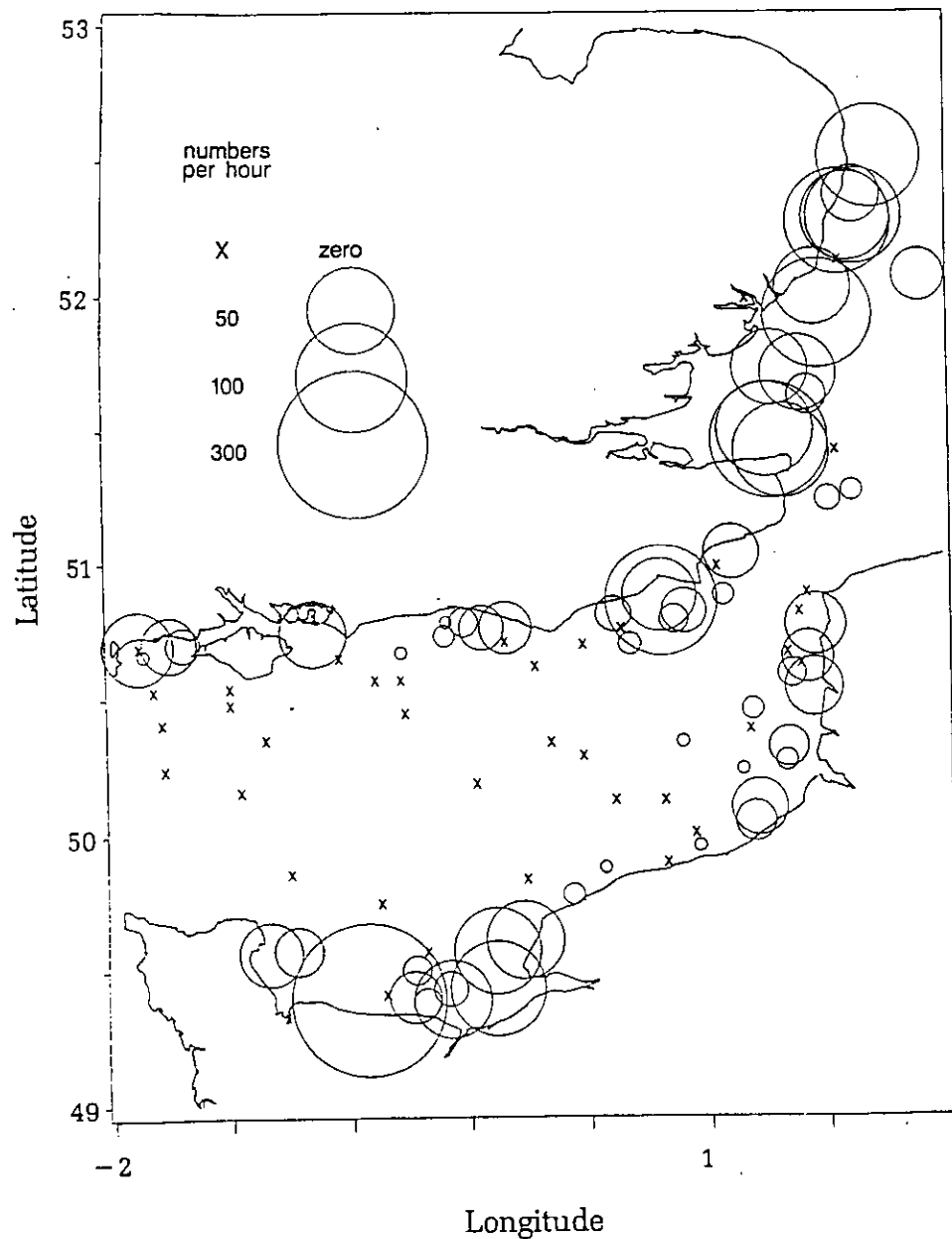
# CEFAS THIRD QUARTER BEAM TRAWL SURVEYS CORYSTES station positions (Aug 1998)

Figure 1

STNPLT.sas



1998 BEAM TRAWL SURVEY  
JUVENILE (UP TO 3-group) SOLE



1998 BEAM TRAWL SURVEY  
JUVENILE (UP TO 3-group) PLAICE

