

THE CENTRE FOR ENVIRONMENT, FISHERIES & AQUACULTURE SCIENCE,  
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK, NR33 0HT.

1999 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 8

STAFF:

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DURATION:

24 August – 5 September 1999

LOCALITY:

North Sea (IVc), English Channel (VIId).

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 (QTC), in order to describe the association between the substrate and the distribution and abundance of invertebrate by-catch. These data will enable us to more accurately assess the degree of association between benthic populations and seabed physical structure, and hence to advise on the implications of anthropogenic activity in coastal waters.
3. 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.

NARRATIVE:

CORYSTES left Lowestoft on the morning tide of 24 August and began fishing at the first beam trawl station off Southwold the same day. On 25 August CORYSTES entered French waters at Cap Gris Nez and proceeded southwest to fishing stations in the Baie de Somme. Beam trawling continued westwards along the north coast of France in fine weather until 28 August when the last fishing station on the French coast was completed east of the Cherbourg Peninsula. Overnight, CORYSTES returned to English coastal waters and at dawn began beam trawling to the west of the Isle of Wight. Over the next six days, fishing stations off the Hampshire and Sussex coast were completed, so that by 3 September all remaining stations in the Channel had been sampled. The seabed at selected sites along this coast was sampled by Day grab for subsequent particle size

analysis. Trawl stations in the Outer Thames estuary were completed during the return journey to Lowestoft, and the abundance of all fish and benthic by-catch, and the ages of all sole and plaice caught in the eastern Channel, were added to the onboard database. CORYSTES finally docked in Lowestoft on the afternoon of Sunday 5 September in thick fog.

## RESULTS:

### 1.

i) Seventy four trawl stations in the Eastern Channel, and 17 in the 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) at sea.

ii) As observed in previous surveys, the catch densities of juvenile sole were highest on the English coast near Hastings, on the French coast in shallow water between Boulogne and Dieppe, and in the Baie de La Seine, between Le Havre and Cherbourg (Figure 2). Juvenile plaice (0 to 3-group) were also abundant in these areas (Figure 3). Catch rates of both species in the Outer Thames Estuary and off the coast of Suffolk were consistently high.

iii) 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 and lemon sole. All sole and plaice otoliths collected in 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	1035	399
plaice	454	133
dab	143	
lemon sole	21	1
brill	24	2
flounder		28
turbot	11	
<b>TOTAL</b>	<b>1688</b>	<b>563</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. Catches off the south coast of England were generally smaller than off the French coast and in mid-Channel. Echinoderms were a dominant component of the invertebrate fauna, and these included the brittlestar *Ophiothrix fragilis* (especially in mid-Channel), starfish *Asterias rubens* (Baie de La Seine), and the urchin *Psammechinus miliaris*. One specimen of the crab *Atelecyclus undecimdentatus*, captured off Port en Bessin, represents the extreme easterly distribution of this species. Two habitats sampled in mid-Channel were characterised by the fragile colonial bryozoan *Pentapora fascialis*, and maerl *Lithothamnion* spp. These habitats are sites of high species diversity and are susceptible to towed gear impacts. An increased knowledge of the distribution and ecology of these environments will be important for coastal zone management.

ii) The abundant filter-feeding bryozoan genus *Alcyonidium* was collected from 20 stations in the Channel for population genetic analysis (Dr J. Fenton). It is thought that some species only colonise specific substrates (e.g. ascidians, hydroids). The material collected will also be used to investigate the extent of substrate choice in this genus.

iii) The seabed discrimination system 'QTC View' was once again used at each trawl station to describe substrate type. The system was operated in 'unclassified' mode, which allowed all trawl stations to be clustered according to the similarity in their acoustic properties. Samples of the seabed collected by Day grab, and photographs of sample sites, have now been obtained from 85% of fishing stations during this and previous groundfish surveys. There is now sufficient information to associate these discrete clusters of acoustic signals with specific types of seabed physical structure, demersal fish and invertebrate benthos.

3.

i) Catches of spider crab *Maja squinado* in the eastern Channel were considerably greater than in previous years. Large numbers of cuttlefish *Sepia officinalis*, especially juveniles, were also caught.

	1997	1998	1999
Spider crab total weight (kg)	126	92	340
Cuttle fish total weight (kg)	81	220	121

ii) Blood samples from 47 Plaice, and testes from maturing males, were taken from stations throughout the Channel for enzyme analysis.

iii) A 21 cm specimen of Baillon's wrasse (*Crenilabrus bailloni*) was caught in shallow water close to mouth of the River Seine, at Le Havre. This unusual Mediterranean species is seldom recorded this far north, and its' biology is virtually unknown.

S I Rogers  
5 September 1999

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Figure 1  
 CORYSTES station positions (Aug 1999)

STNPLT.sas

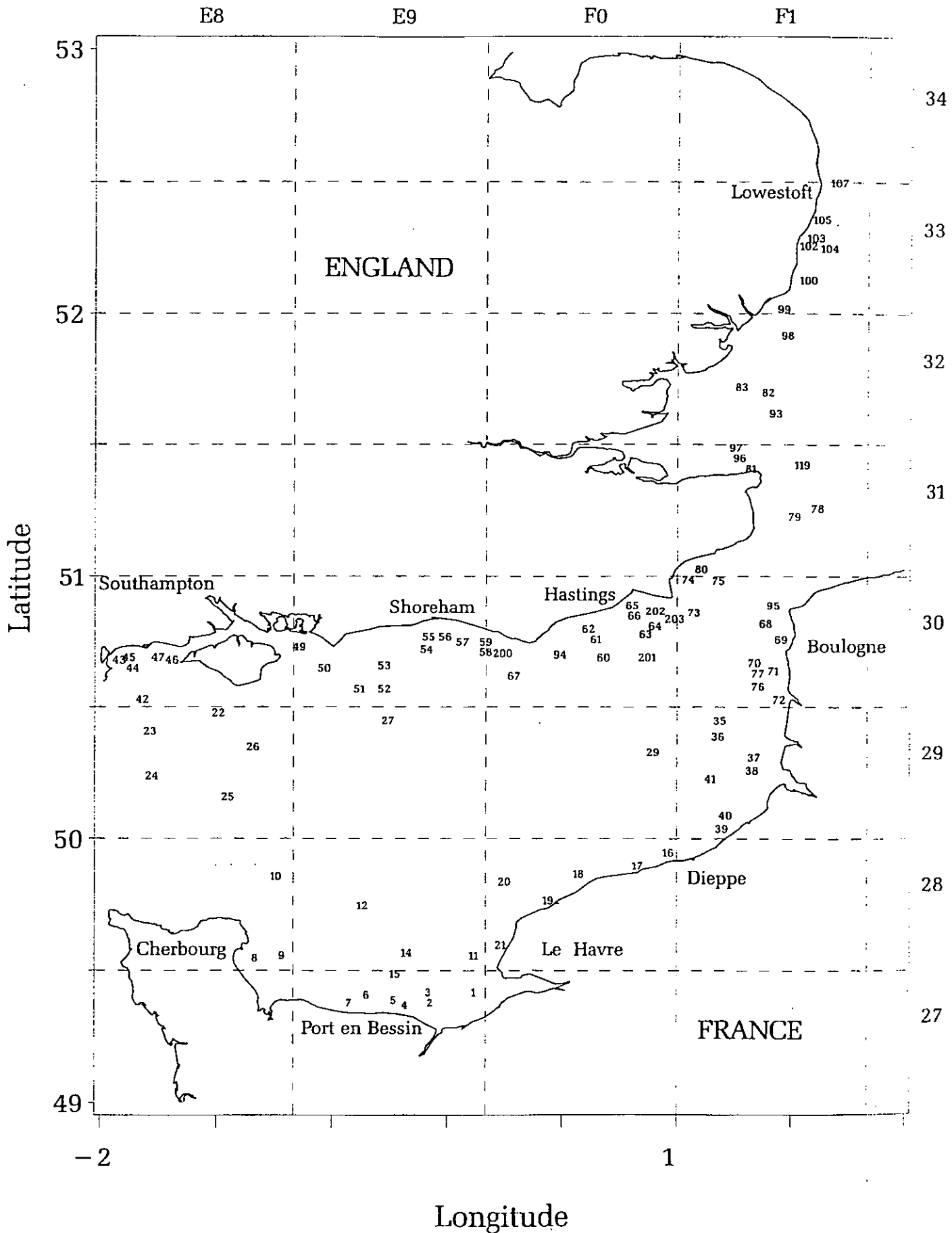


Figure 2

# 1999 BEAM TRAWL SURVEY JUVENILE (0 to 3 - group) SOLE

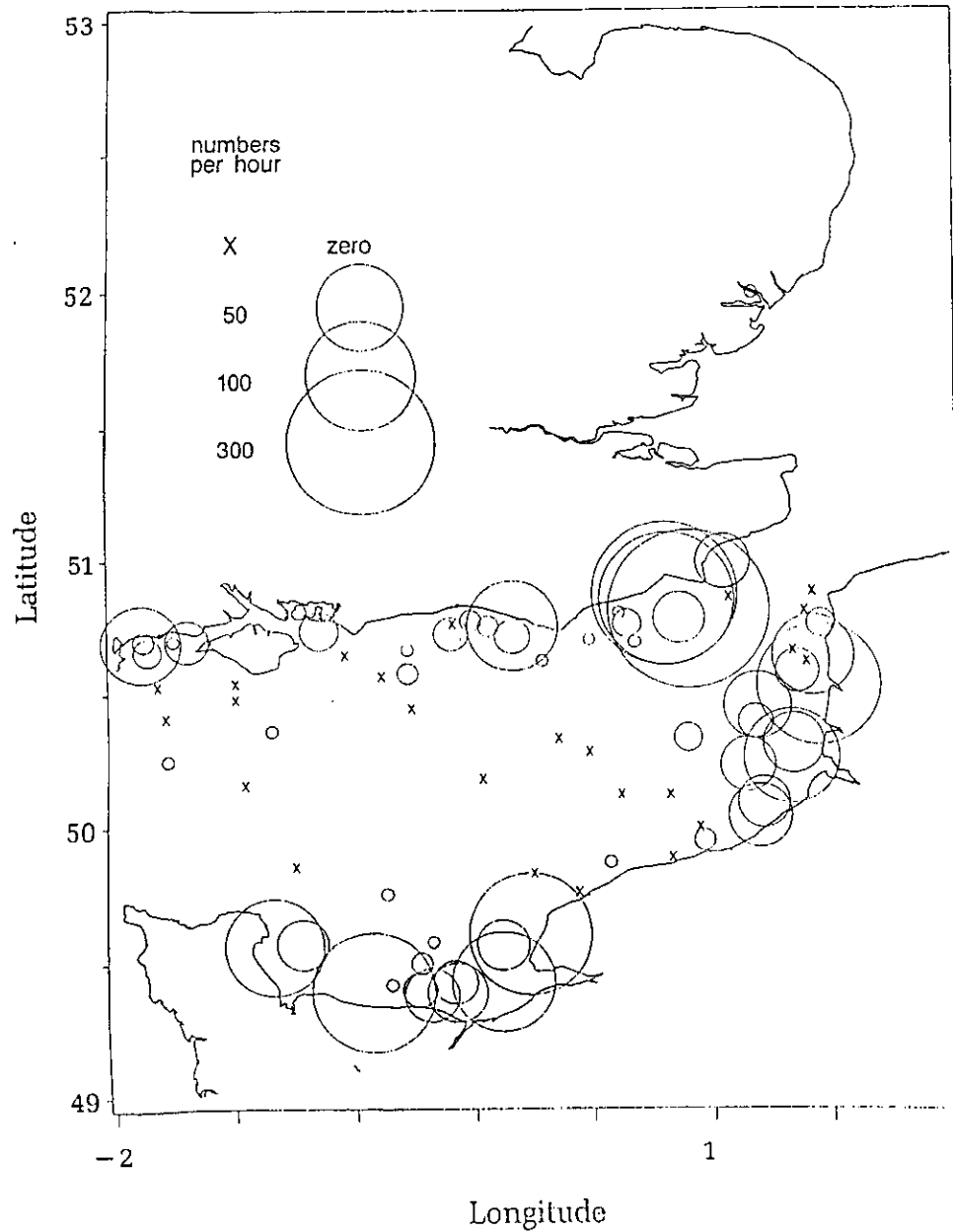


Figure 3

# 1999 BEAM TRAWL SURVEY JUVENILE (0 to 3 - group) PLAICE

