

**CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE
SCIENCE LOWESTOFT LABORATORY, LOWESTOFT,
SUFFOLK NR33 0HT**

1997 RESEARCH VESSEL PROGRAMME

REPORT : RV CORYSTES: CRUISE 10a/97

STAFF: M R Vince
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M J Brown
K Turner

DURATION: 15 September-6 October 1997

LOCALITY: Irish Sea (VIIa), Bristol Channel and Celtic Sea (VII f & g)

AIMS:

1. To carry out beam-trawl surveys of groundfish in the Irish Sea, Bristol Channel and Celtic Sea.
2. To collect data on maturity and weight-at-age of sole, plaice and lemon sole.
3. To determine the distribution and abundance of juvenile and adult sole and plaice.
4. To quantify the seabed sediments and epibenthos using the ROXANN acoustic seabed discrimination system and trawl by-catch.
5. To collect surface sea water samples for processing on return to Lowestoft for the analysis of Cs radionuclides.

NARRATIVE:

CORYSTES sailed from Lowestoft at 2030h on 15 September and a reasonable passage was made to the Bristol Channel. Due to the survey commencing three weeks later than usual, it was decided to work into the Irish Sea early in the cruise in order that the North Eastern sector was completed as near as possible to the usual period. The survey commenced in the Bristol Channel Outer sector and progressed through Cardigan Bay prior to fishing the first stations in Irish Sea South (ISS) on 19 September. Work continued uninterrupted in the North Eastern Irish Sea until 1300h on the 26th when CORYSTES docked in Douglas. After water and stores had been taken, CORYSTES left the Isle of Man at 0818h on 27 September and recommenced the survey at 0920h. The stations in the Bristol Channel were completed by 2000h on 2 October. The following three days were spent completing

stations off south-east Ireland and in St. Georges Channel. The survey ended at 1400h on 5 October and CORYSTES steamed to Liverpool where she docked at 0012h on 6 October.

RESULTS:

Aims 1,2 and 3

A total of 110 valid hauls were completed out of the 121 standard survey stations. Two other hauls were made but deemed to be void due to damage or excessive bulk of dead shell in the net. The remainder of the stations were not completed because of static gear or lack of time. The survey gear was the usual 4m beam trawl employed on previous surveys. The majority of tows were of 30 minutes duration at a speed over the ground of around 4 knots. A track chart indicating the position of each station is attached. Progress was not as rapid this year as in previous September surveys due to the order in which the stations had to be completed, and the extra amount of work involved on every haul. Station details together with all catch and length details were input to the Fishing Survey System database (FSS). About 70% of the 3919 otoliths taken were input to the FSS, with completion precluded due to overtime restrictions. The Guildline CTD profiler was deployed on the first and last station each day to give temperature and salinity by depth. On all stations the surface temperature and salinity was recorded from the continuous monitoring system.

In the north eastern Irish Sea (Sectors ISN + ISS) the distribution of sole and plaice was similar to previous years, but the mean numbers per haul were up. Whether this is due to the survey being later or some other factor is a matter of conjecture until all the otoliths have been read. In the Bristol Channel (BCI) the distribution and densities of sole and plaice were similar to previous September surveys. All otolithed fish were sexed and their maturity estimated, and all but whiting were weighed individually.

A table showing the numbers of all species otolithed from each sector and ICES area is attached. The composition of the catches was much the same as other years, and all fish species were identified, weighed, and measured. All lobsters and edible crab (*Cancer pagurus*) were sexed, weighed and measured.

Aim 4

The by-catch of benthos from all 110 valid hauls was put in fish baskets and weighed. A total of 59 hauls were either fully sorted, or sub-sampled for all fauna and flora prior to counting and weighing. Sampled stations were spread over all sectors and depth bands and are shown on the attached table and chart 2. The data from these hauls were put on a PC based spreadsheet using a waterproof keyboard. On all other hauls on which a close examination of the benthos was not carried out, the main species were noted after the total weight had been recorded. As found on previous surveys covering this area a wide range of benthic communities were found. Hauls made in the north-eastern Irish Sea on muddy sand substrates comprised mainly starfish (*Asterias rubens*), brittlestar (*Ophiuroids*) and swimming crabs (*Liocarcinus* spp). In contrast, hauls made in deeper water on much harder substrates yielded numbers of large sea urchins (*Echinus* spp), dead-mens fingers (*Alcyonium* spp) and

squat lobsters (*Munida rugosa*). The ROXANN seabed discrimination system was not used on this survey due to a problem that was not identified during the cruise.

Aim 5

Surface seawater samples of 50 litres and two of 1 litre were collected on behalf of Environment Group 1 from 37 stations mainly in the Irish Sea (Chart 3). These samples will be used to extract Cs radionuclides, and for tritium assay as required for the monitoring programme. Time did not permit the collection of a further 15 samples requested from Scottish waters in ICES area VIa. On all surface water sampling positions and CTD stations a separate water sample was taken for salinity calibration purposes.

Miscellaneous Aims and Requests:

A small number (5) of diseased plaice samples were collected for S Feist (Weymouth). Samples of commercial-sized dab, plaice, sole, flounder, cod, and whiting were collected on 9 stations and frozen for A Franklin (Burnham).

Samples of whelks (*Buccium undatum*) and hermit crabs (*Paguridae*) were collected on 28 stations and frozen for M Kaiser (Conwy). Numbers caught were recorded on most stations.

Incidence of damage to starfish was only recorded on 2 stations due to time constraints.

Liver and gill samples were collected and preserved from 38 brill and 8 turbot for R Millner.

All lesser weever fish (*Trachinus vipera*) caught were frozen for R Nash (Port Erin). Samples of heart, liver, eye and white muscle tissue were collected from thornback ray (*Raja clavata*) and frozen. (38-VIIa; 30-VIIIf; 8-VIIg) (M. Pawson).

Length, total width, weight and maturity stages of all but a few rays caught were recorded (M. Vince).

Small bags of crabs were frozen for lobster feeding (R Turner).

About 20 spider crabs (*Maia squinado*) were saved alive (R. Turner).

All anglerfish (*Lophius piscatorius*) caught were sampled for otoliths and vertebrae for ageing studies (T Watson).

A total of 60 species of fish and shellfish was collected for fish identification courses. (T Watson).

At least 20 bull rout (*Myoxocephalus scorpius*) were frozen for Prof. Liz Canning (Imperial College).

Finally the laboratory staff would like to acknowledge the help and assistance given to them by the officers and crew of CORYSTES and without which less aims would have been accomplished.

M R Vince (SIC)
9 October 1997

SEEN IN DRAFT: BAC, MR

INITIALLED: J G P

DISTRIBUTION:

Basic list +
M R Vince
L E Woolner
M J Boon
I D Holmes
A J Winpenny
M J Brown
K Turner
B D Smith
D McCubbin
S I Rogers
M G Pawson
M J Kaiser
S Feist
A Franklin
M J Armstrong (DANI,Belfast)
R Nash (Port Erin)
FCO (for Republic of Ireland)
Sea Fisheries Committees:
Cumria
North Western and North Wales
South Wales
Devon
Cornwall

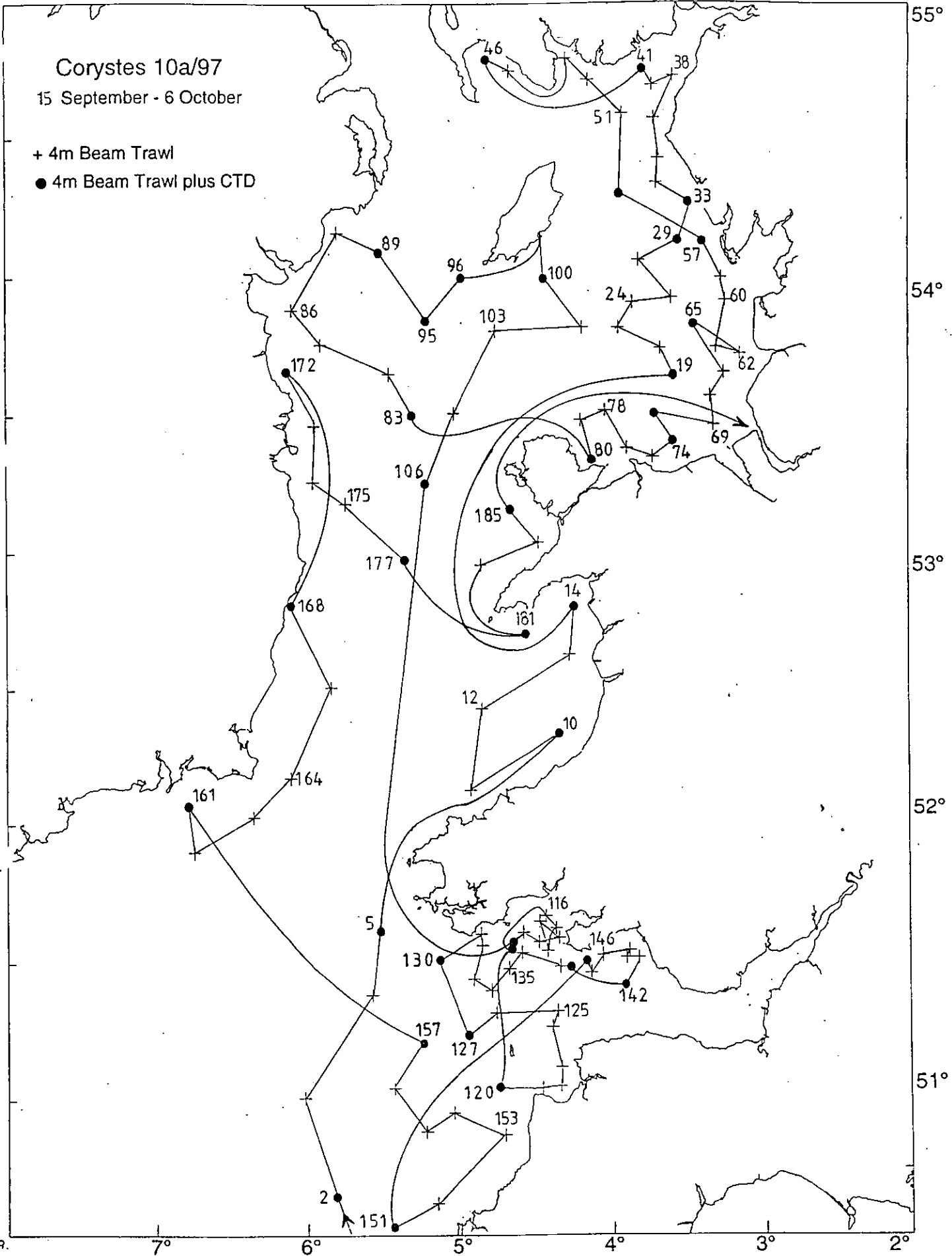
E2 E3 E4 E5 E6 E7

Corystes 10a/97

15 September - 6 October

+ 4m Beam Trawl

● 4m Beam Trawl plus CTD



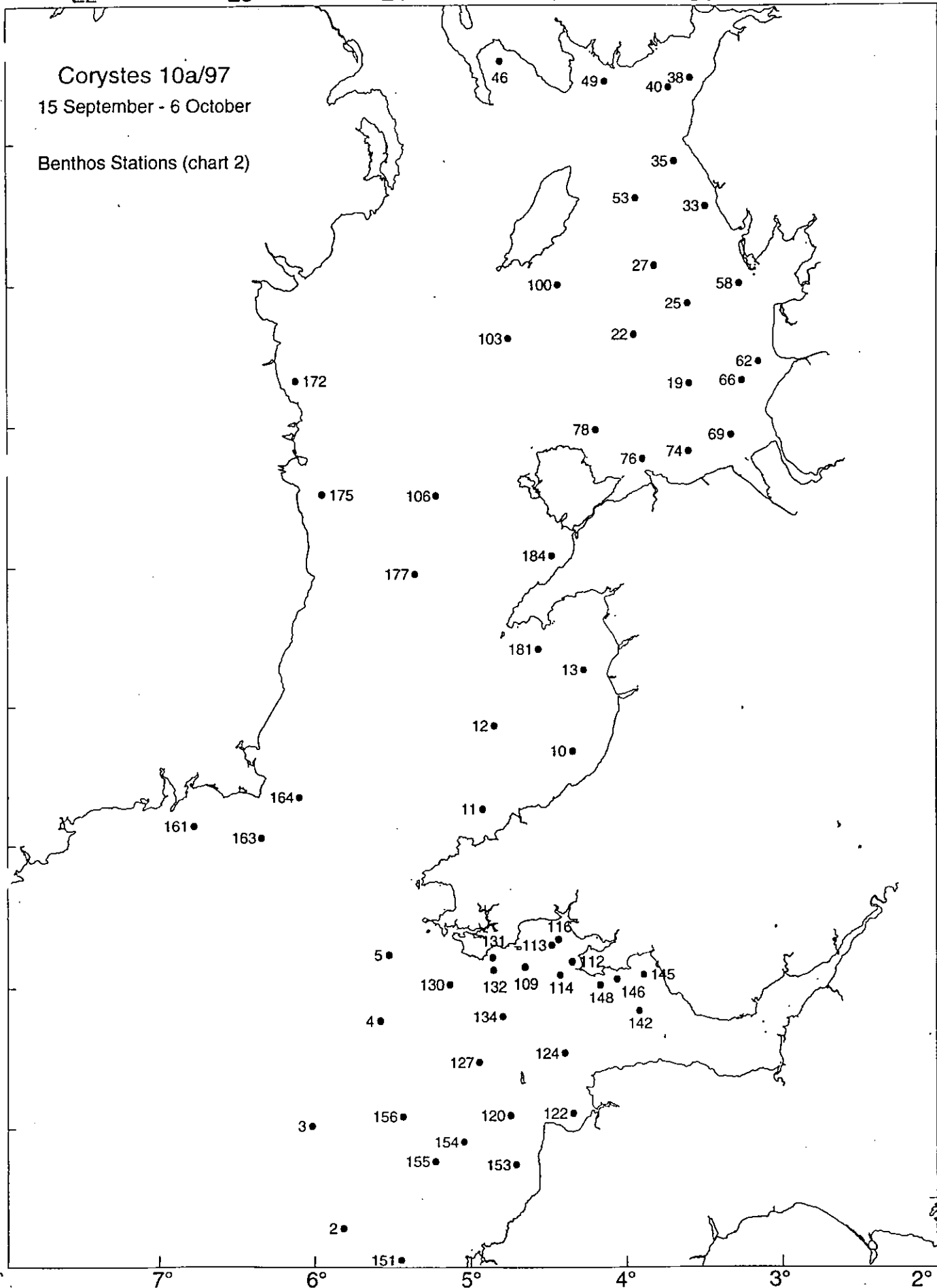
Corystes 10a/97 Otolith tally

		ISN (7a)	ISW (7a)	ISS (7a)	SGC (7a)	BCI (7f)	BCO (7f+7g)	SEI (7a+7g)	107a total	107f total	107g total	total nos
Plaice	m	206	208	158	177	137	11	19	760	143	13	2042
	f	266	240	195	243	139	14	29	964	144	18	
	total	472	448	353	420	276	25	48	1724	287	31	
Sole	m	97	7	195	43	176	12	3	343	178	12	1244
	f	101	18	248	94	217	33	0	461	224	26	
	total	198	25	443	137	393	45	3	804	402	38	
Whiting		34	35	52	43	98	46	10	174	95	49	318
Cod		-	-	-	-	-	-	-	59	6	1	66
Lemon Sole		-	-	-	-	-	-	-	92	42	10	144
Megrim (L whiff)		-	-	-	-	-	-	-	1	11	12	24
Anglerfish (L pisc)		-	-	-	-	-	-	-	31	9	8	48
Turbot		-	-	-	-	-	-	-	4	4	0	8
Brill		-	-	-	-	-	-	-	19	20	0	39
											3933	



E2 E3 E4 E5 E6 E7

Corystes 10a/97
15 September - 6 October
Benthos Stations (chart 2)



55°
54°
53°
52°
51°

7° 6° 5° 4° 3° 2°

46 49 40 38

35

53

33

27

100

58

25

103

22

19

62

66

172

78

76

74

69

175

106

184

177

181

13

34

12

10

33

11

161

163

164

32

5

4

31

131

113

116

112

114

148

146

145

130

132

109

114

148

146

145

134

142

127

124

30

3

156

154

120

122

155

153

29

2

151

Corystes 10a/97 Distribution of stations sampled for Benthos

Total number of stations sampled = 59

area	depth band			total
	1	2	3	
ISN (7a)	5	3	1	9
ISS (7a)	5	2	1	8
ISW (7a)	1	1	3	5
SGC (7a)	3	3	3	9
BCI (7f)	5	7	5	17
BCO (7f+7g)	0	1	8	9
SEI (7a+7g)	0	1	1	2
total	19	18	22	59

