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

1988 RESEARCH VESSEL PROGRAMME

REPORT : RV CORYSTES : CRUISE 7

(PROVISIONAL : Not to be quoted without prior reference to the author)

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I Laing
S M Stevens (Part 1)
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P F Millican (Part 2)

DURATION : Left Lowestoft 1500h 20 September
Arrived Lowestoft 0950h 13 October
All times are Greenwich Mean Time

LOCALITY : Irish Sea, Bristol Channel

AIMS:

1. To carry out a survey for 0- and 1-group gadoids in the northwestern Irish Sea using the Granton trawl.
2. To carry out a pre-recruit flatfish survey in the eastern Irish Sea using the commercial 4m beam trawl.
3. To carry out a pre-recruit flatfish survey in the Bristol Channel using the commercial 4m beam trawl.
4. To tag pre-recruit soles off the North Wales coast, Red Wharf Bay and off the River Ribble.
5. To investigate the variation in pre-recruit flatfish catch rates over 24h periods.
6. To compare the flatfish catch rates of the 4m and the 3m beam trawls.
7. If time permits, to repeat the gadoid trawl stations in the northwestern Irish Sea using the 4m beam trawl.

NARRATIVE:

A good passage was made to Falmouth where the Marine Superintendent, the designer from Lips (the Dutch propeller manufacturer) and an engineer consultant and cameraman from BMT (British Marine Technology), Newcastle, came on board by pilot boat at 0420h on 22 September. Observations and cine film of the propeller were made throughout the day in fine weather conditions and high water clarity; these personnel disembarked by pilot boat at 1500h the same day.

Conditions deteriorated throughout the night with increasing SW winds and the

proposed trial tows in Cardigan Bay with the commercial 4m beam trawl were cancelled. Instead course was set for the first gadoid survey station off Lambay Island and this was reached at 1652h on the 23rd (figure 1). The 12 stations of this survey were completed using the Granton trawl by the evening of the 25th when CORYSTES proceeded to the North Wales coast where the pre-recruit flatfish survey with the 4m beam trawl was started the following morning (figure 2). Good catch rates of sole were found off Colwyn Bay and the 27th was spent tagging pre-recruit sole in this area combined with a study of the plaice and sole catch rates over an 18 hour period. SW to W gales prevented a continuation of the survey on the 28th so further sole tagging was carried out off Red Wharf Bay. With prospects of NW winds, CORYSTES steamed overnight to the northern end of the survey area and continued to work until 1700h on 30 September when the change of staff was made at Llandudno. The Irish Sea flatfish survey was completed on 2 October and the following three days were spent sole tagging and further 18 hour catch rate studies off the Ribble and a comparison of the catch rates of the 3m and 4m beam trawls off Colwyn Bay, often in conditions made difficult by strong winds.

A break in the cruise was made at Douglas on 6 October to replenish the freshwater supplies and, on leaving at 0630h the following morning, CORYSTES steamed steadily through near gale NW winds towards the Irish coast. The gadoid survey stations were repeated using the 4m beam trawl (figure 1) and three tows for plaice were made off Aberporth, Cardigan Bay, before commencing the Bristol Channel flatfish survey in heavy swell off Carmarthen Bay at 0500h 10 October (figure 3). Trawling continued until 1220h on the 11th, gear was stowed and CORYSTES proceeded to Lowestoft.

RESULTS:

Despite conditions being unfavourable on many occasions throughout the cruise, CORYSTES proved herself to be a stable working platform and little time was lost due to weather. Consequently all aims were attempted and most were achieved.

AIM 1 The 12 stations of the pre-recruit gadoid survey using the Granton trawl produced small catches of commercial size fish; catches of pre-recruit whiting appeared reasonable while those of cod were poor. The provisional mean numbers per 1 h tow of 0- and 1-group cod and whiting are given below:

SECTOR	DEPTH ZONE(m)	COD		WHITING	
		0-GROUP	1-GROUP	0-GROUP	1-GROUP
NW	0-50	1.0	0.5	1208.0	39.8
NW	51+	0.8	0.0	878.5	183.0
NE	51+	0.2	0.0	531.8	182.8

Comparison with previous years' results has not been carried out as this year is the first involving the new vessel with a differently rigged year.

AIM 2 Fifty-five tows were made in the eastern Irish Sea using the commercial 4m beam trawl fitted with a small meshed liner. The catches of pre-recruit plaice and sole confirm the results from last year's survey (CLIONE 12/87) that the main centres of abundance of both species are off the North Wales coast and in Liverpool Bay. The mean catches per 15 minute tow in each depth zone are

given in the following table:

DEPTH ZONE (m)	NO. OF STATIONS	SOLE		PLAICE	
		Kg	No.	Kg	No.
0-20	25	2.45	15.7	7.02	45.1
21-40	21	3.62	25.7	4.53	23.6
41+	9	1.16	6.9	1.34	4.4
Total	55	2.69	18.1	5.14	30.2

AIM 3 The Bristol Channel flatfish survey was partially completed with few of the deep water (40m) stations being sampled. Catches were generally light and only in and around Carmarthen bay were catch rates of plaice and sole significant. The mean catches per 15 minute tow in each depth zone is given below:

DEPTH ZONE (m)	NO. OF STATIONS	SOLE		PLAICE	
		Kg	No.	Kg	No.
0-20	8	1.46	13.1	2.44	14.5
21-40	11	.96	5.8	1.33	5.8
41+	5	.80	3.8	1.56	6.4
Total	24	1.10	7.8	1.75	8.8

AIM 4 A total of 1600 small soles, size range 15-28cm, was tagged with mini-Petersen tags. 1014 were released in shallow water off Llandudno, 52 off Red Wharf Bay and 534 off the Ribble. In general the condition of the soles taken by the beam trawls was good.

AIM 5 Two 18 hour sampling sequences, from 0500h to 2300h, were carried out to study the variation in catch rates of sole and plaice throughout these periods. The results have still to be analysed.

AIM 6 Comparative fishing was carried out in relatively poor conditions with the 3m beam trawl, as rigged on last year's flatfish surveys, and the commercial 4m beam trawl. The alternate hauls approach was generally used but, on 3 tows, the two gears were towed simultaneously from each quarter. First impressions are that the 4m trawl far outfished the 3m.

AIM 7 Ten of the 12 gadoid survey stations were repeated using the 4m beam trawl. It was obvious that this gear does not perform well on muddy substrates which are widespread to the west of the Isle of Man. Shortening the length of towing warp and increasing the towing speed did not improve catches.

MISCELLANEOUS

1. Depth profiles of salinity, temperature and turbidity were recorded at most beam trawl survey stations.

2. Otoliths of 979 fish from 9 species were taken for pre-recruit and biological studies and to augment the market sampling programme:

	107A		107F	TOTAL
	SEPT	OCT	OCT	
Sole	165	142	98	405
Plaice	192	51	60	303
Lemon sole	17	19	1	37
Witch	10	16	0	26
Cod	19	12	5	36
Whiting	139	0	0	139
Hake	58	11	9	78
Ling	3	1	1	5
L.piscatorius	37	13	0	50
Total	530	265	174	979

3. Samples of edible crabs for Dr B Thompson and selected flatfish for the laboratory's Fish Identification course were deep frozen; 0-group cod were preserved in formalin for Mr W McCurdy (DANI).

4. Despite problems, mainly with the electricity supply, all trawl and environmental data were input to the computer and a full set of survey output documents were produced before the ship docked at Lowestoft.

5. This was the first cruise on CORYSTES using the commercially rigged 4m beam trawl. The officers and crew must be complimented on their handling of this heavy gear often in adverse weather conditions. A safe working procedure was quickly adopted and improvements to gear handling were often introduced. There is no reason why the 4m beam trawl should not become the standard gear for sampling flatfish from this vessel.

D J Symonds
1 November 1988

INITIALLED : D J G

SEEN IN DRAFT : Captain G Sinclair
SFS R C Newrick

DISTRIBUTION :

Basic list:
D J Symonds
J G Shepherd
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S M Stevens
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S I Rogers
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South Wales

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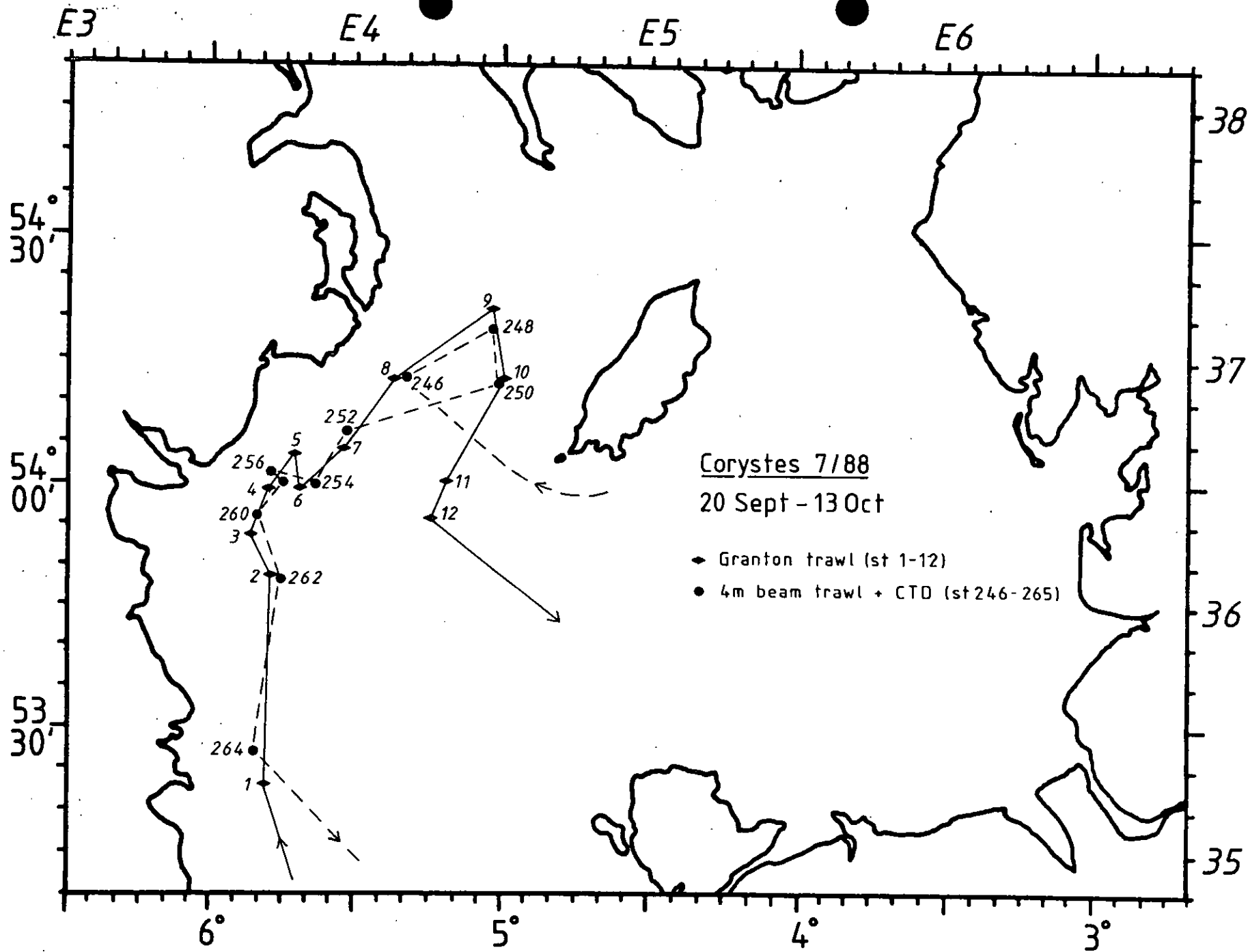


Fig 1

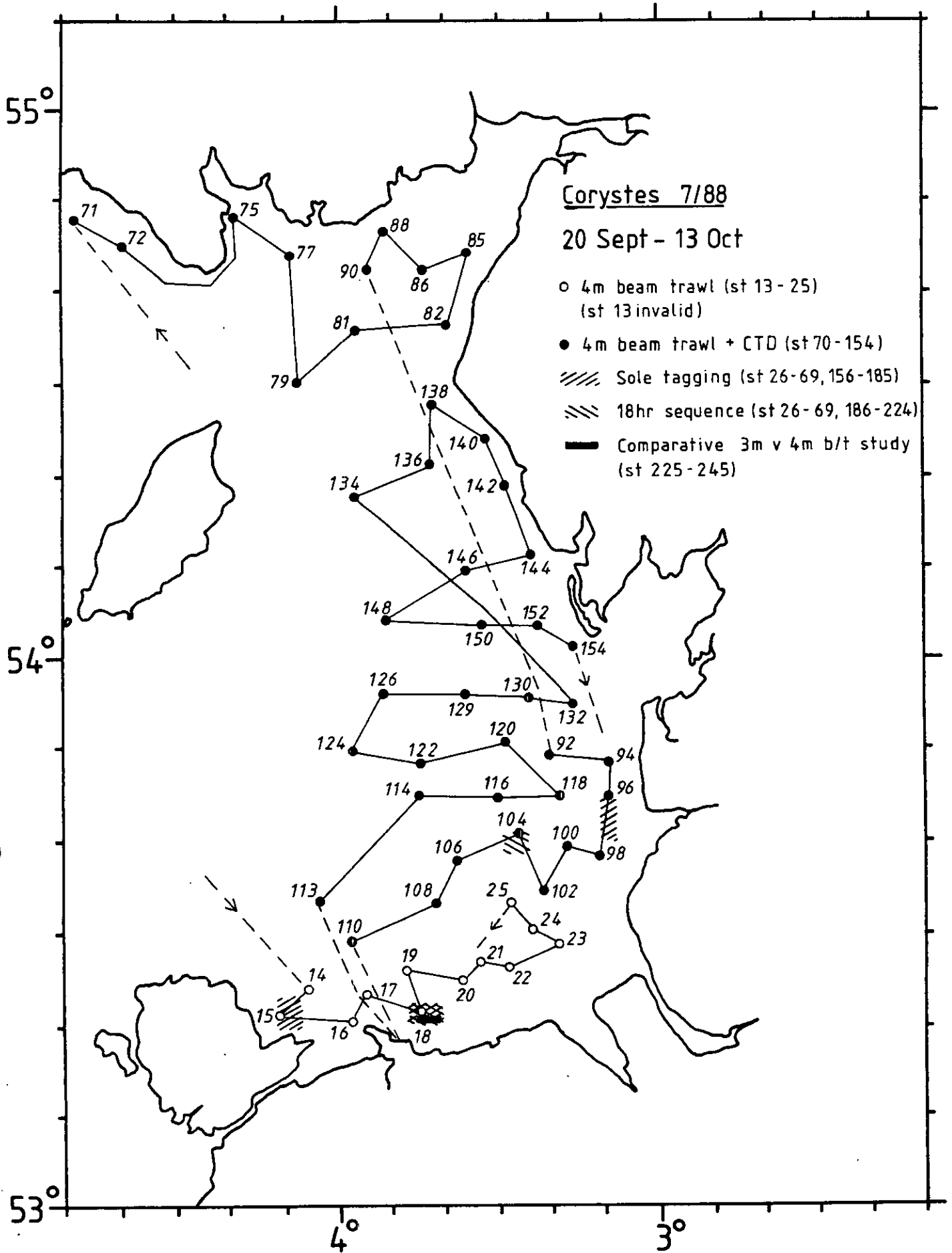


Fig 2

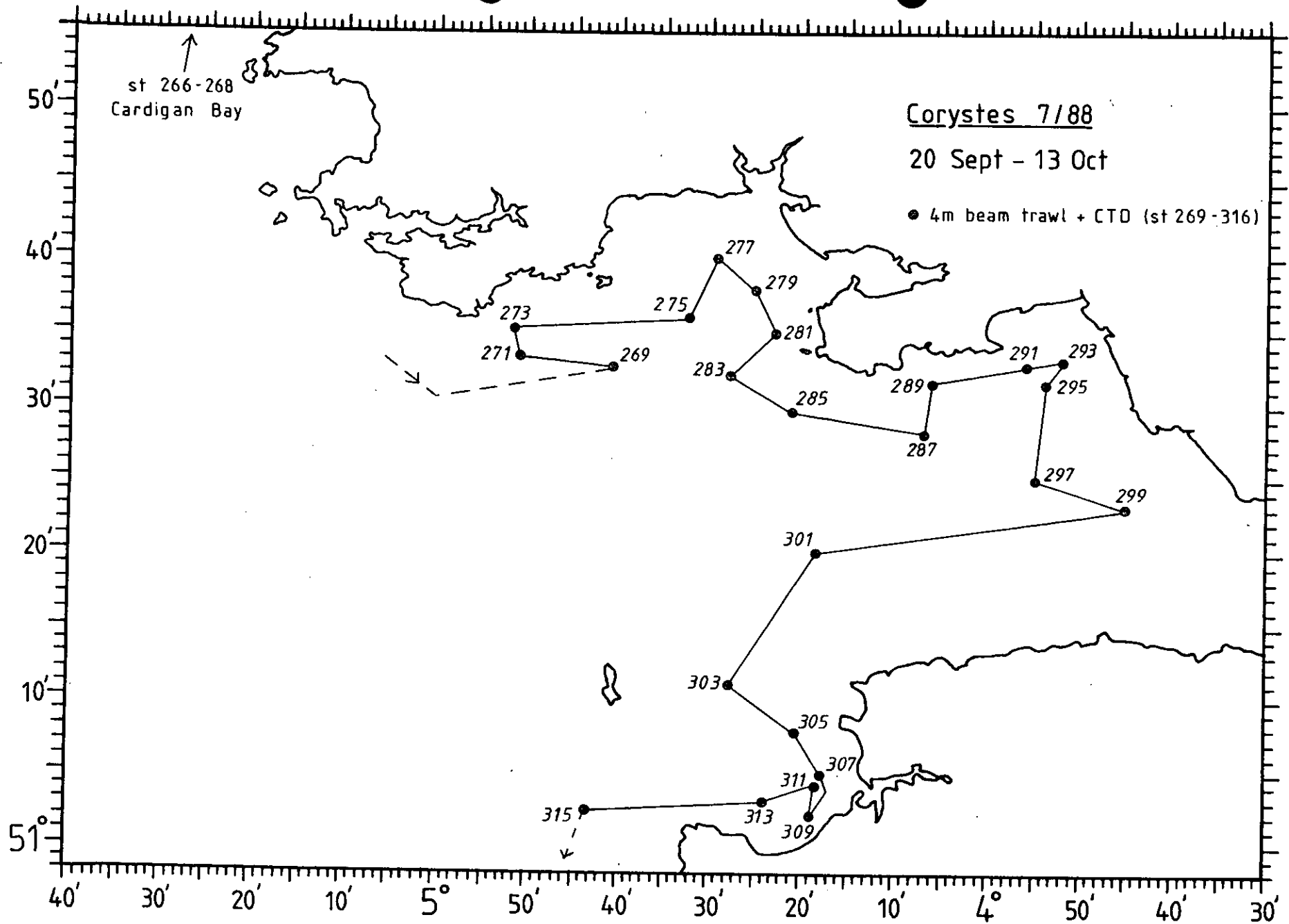


Fig 3