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

1990 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 5
(PROVISIONAL: Not to be quoted without prior reference to the authors)

STAFF:

Part (a)	D J Symonds
	E G Shreeve
	S P Milligan
	M R Vince
	D R Eaton
	R Harrop
Part (b)	M G Pawson
	S Flatman
	S Woods
	D R Eaton
	L Gurney
	R Harrop

DURATION:

Left Lowestoft 1130 h 30 March
Docked Barry 1700 h 12 April
Left Barry 0800 h 14 April
Arrived Lowestoft 0800 h 27 April

All times are Greenwich Mean Time

LOCALITY:

Bristol Channel, English Channel

AIMS:

1. To carry out plankton surveys to assess sole egg production in the Trevose Head spawning area and to determine the extent and timing of bass spawning in the Bristol Channel.

2. To collect ovaries from sole for fecundity estimation and studies on atresia.

3. To carry out a pre-recruit flatfish survey in the Bristol Channel.

4. To sample bass eggs, larvae and adults and investigate spawning behaviour.

5. To deploy sea surface drifters in a bass spawning focus to follow the dispersal of spawning products.

6. To incubate bass eggs at a range of temperatures for development studies.

7. To carry out a plankton survey in the western English Channel and in the Shingle Bank area to assess the distribution and abundance of edible crab larvae.

NARRATIVE:

Part (a)

After compass adjustments in Corton Roads, a good passage was made to the west coast and the first plankton station with the 76cm high speed townet was commenced at 0030h on 1 April, 5 miles west of the Longships. The survey continued uninterrupted, although slowly on the 3rd due to strong NW-N winds, and was completed at 0020h on 6 April. Fishing with the 4m beam trawl was carried out throughout daylight hours on the same day on grounds about 6m NW of Trevose Head with a brief delay during the morning to land a crewman with a fractured wrist at Padstow. A series of tows over a 24h period on the same grounds was started at 0230h on the 7th and, on its completion, CORYSTES proceeded to an anchorage south of Trevose Head so that the remainder of the plankton samples collected earlier could be sorted for bass eggs in relatively calm conditions.

The Bristol Channel pre-recruit flatfish survey with the 4m beam trawl was started at 0530h on 9 April, 8 miles off Hartland Point. After finishing the 5 tows in Barnstable Bay, course was set for Swansea where 2 crewmen were taken ashore for medical attention. The rest of the survey was uneventful and, with good weather prevailing, was completed at 1000h on 12 April when CORYSTES proceeded to Barry for the mid-cruise break.

Part (b)

CORYSTES sailed from Barry Dock at 0800h 14 April and commenced ring net stations along the N Devon coast and across to the Gower, before strengthening SW winds forced a halt on 15 April, when CORYSTES sheltered in Carmarthen Bay. Sampling continued on 16 April where a lee from the W-NW winds allowed, and CORYSTES again anchored off Tenby on 17 April whilst these samples were sorted. At 1800h 17 April CORYSTES steamed to the start of the sole/bass TTN grid, which was sampled, mainly in force 6-8 winds, until completed at 1326h 23 April. CORYSTES then steamed to the start of the W Channel crab larvae TTN grid which was sampled between 1550h 23 April and 2310h 24 April in calm conditions. The ship then steamed to the E Channel crab larvae grid, which was sampled until 2050h 26 April, when CORYSTES returned to Lowestoft, docking at 0800h 27 April.

RESULTS:

Aim 1. The 84 stations of the sole/bass plankton grid were sampled twice and the material from the first grid was roughly analysed at sea for the distribution and abundance of bass eggs. Numbers per sample were low with the main concentration being off Trevose Head (Fig 1.). Surface salinity, temperature and chlorophyll 'a' were monitored continuously throughout the surveys and logged every 15 minutes. Surface salinity samples were taken to calibrate both surface unit and the profiling unit on the plankton sampler.

Aim 2. Twenty 1-hour tows with the beam trawl were made at the Trevose grounds and, despite good sole catches, no ovaries at maturity stage IV were found. Thirty seven ovaries in stages III-VII inclusive (mostly stage VII) were collected for atresia studies.

Aim 3. The 33 stations of the pre-recruit flatfish survey were fished with $^{1}/_{2}$-hour tows (Fig 2). Catches were poor and only in, or near,

Carmarthen Bay were quantities of plaice (up to 11.4 kg -139 fish) or sole (up to 1.8kg - 31 fish) taken.

Aim 4. Ring net samples were obtained at 41 positions (at 5 and 15m depth where possible), and sorted as the opportunity arose. Bass larvae were scarce and those found were newly hatched (4.5-5.0 mm), but some aggregations of bass eggs were located (100-300 per sample). Persistent 6-8 force SW-NW winds during the first week of the second part of the cruise precluded any further bass spawning studies.

Aim 5. Sea surface drifters were deployed in batches of 50 at each of 5 stations (see Fig 1), where the highest densities of bass eggs had been recorded during the first sole/bass TTN grid.

Aim 6. A successful natural spawning of bass at the Lowestoft laboratory enabled an egg incubation experiment to be carried out before the second part of this cruise, and arrangements for the back-up study at sea were cancelled.

Aim 7. The western and eastern English Channel crab larvae TTN grids were sampled during the passage back to Lowestoft. A total of 57 stations (24, W and 33, E) was completed.

MISCELLANEOUS:

1. In addition to the otoliths taken from the female sole sampled for maturity studies, otoliths were also taken to augment the market sampling and biological research programmes:

	107F	107G
Plaice	140	6
Sole	359	5
Lemon sole	74	0
Megrim	20	0
Cod	5	1
Lophis piscatorius	15	0
Bass (scales)	1	0

2. Samples of edible crab (for B Thompson), whiting and cod (for A Franklin), scallop shells (for P Dare) and selected species for the Laboratory's fish identification courses were deep frozen; live spider crabs (*Maia*) were collected for UEA.

3. The MAFF Sector Scanner stabilization package, with tilt and mode stretchers in place, was run for a total of 160 hours with the package secured at the top of the tube, and for 5 hours with the package downlocked at the bottom of the tube while CORYSTES was at anchor.

Measurements of the spacing between the inner and outer hydraulic slip ring turret assembly were taken at regular intervals. No detectable movement from the original recorded spacing was observed.

D Symonds
M Pawson
30 April 1990

SEEN IN DRAFT: Captain J French (Master)
Mr P Mackay (Fishing Skipper)

INITIALLED: JGS

DISTRIBUTION:

Basic List +
D J Symonds
M G Pawson
E G Shreeve
S Flatman
S P Milligan
M R Vince
S Woods
D R Eaton
L Gurney
R Harrop
B Thompson
Sea Fisheries Committees: Cornwall
Devon
Isles of Scilly
South Wales

Fig 1. Corystes 5/90. T.T.N. grid stations

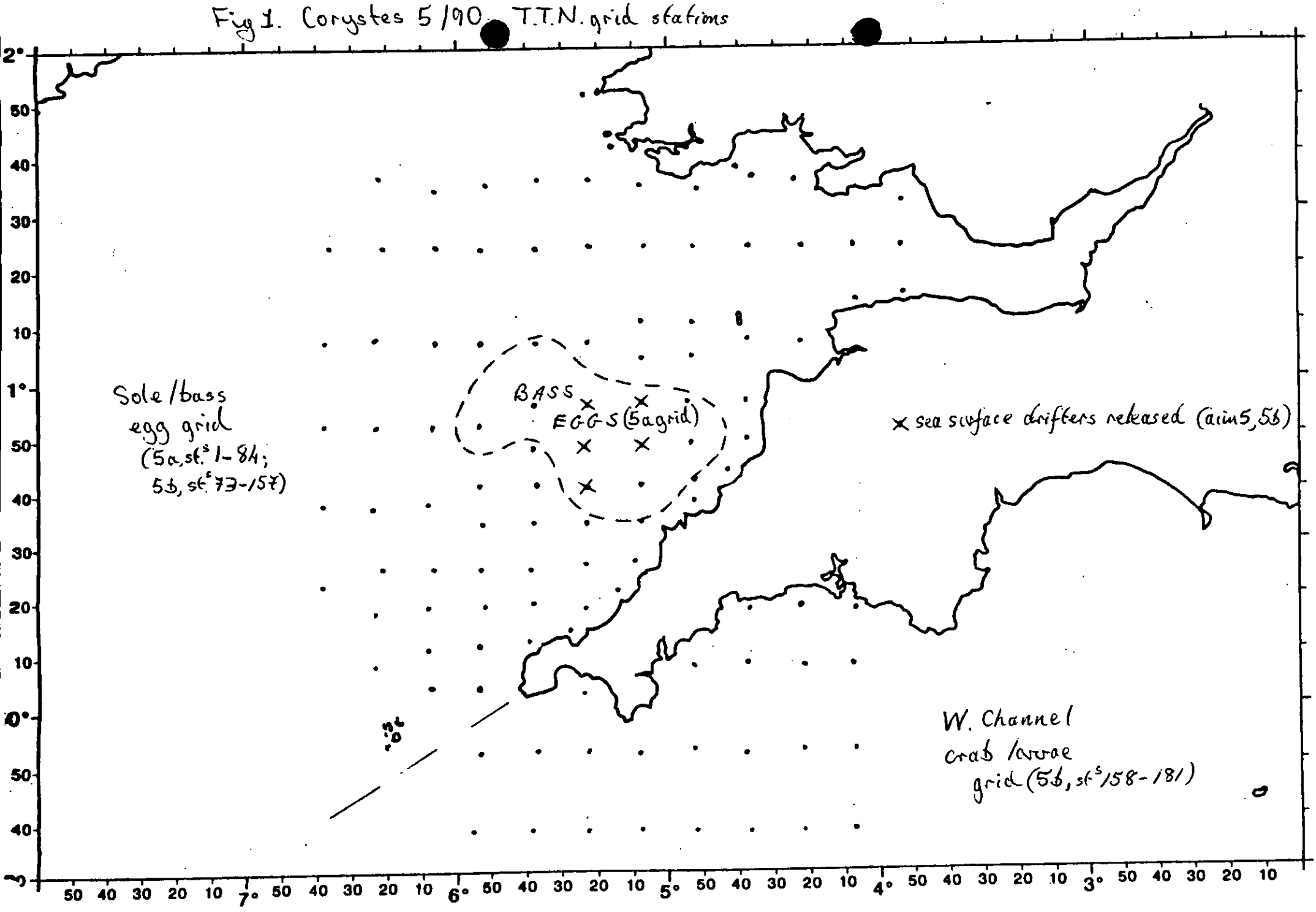


Fig 2.

CORYSTES 5/90 4M BEAM TRAWL STATIONS

SHOWING :

CRUISE TRACK, BRISTOL CHANNEL RECRUIT FLATFISH SURVEY (STNS 105-137)

TREVOSE TRAWLING AREA //// (STNS 85-104)

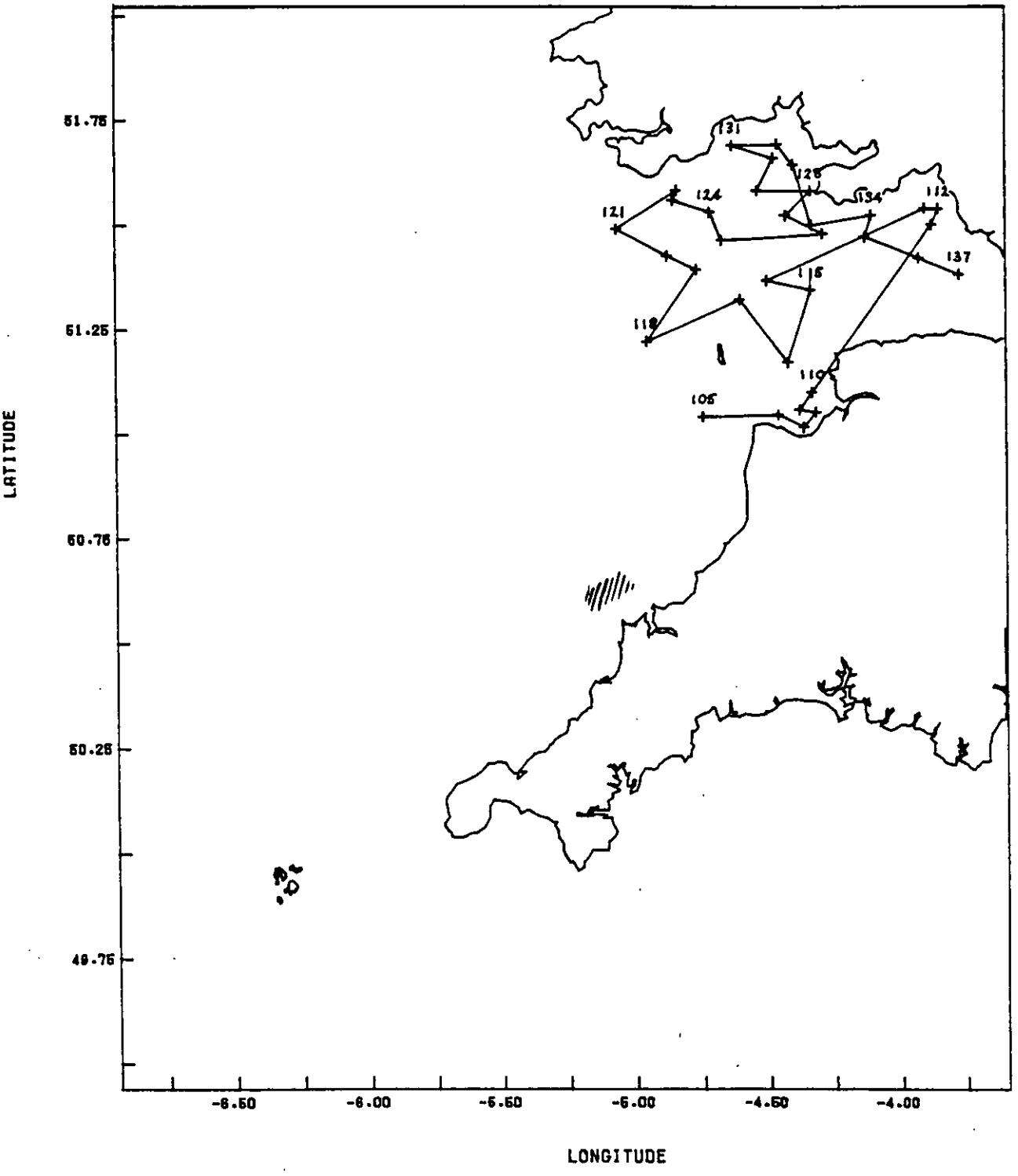
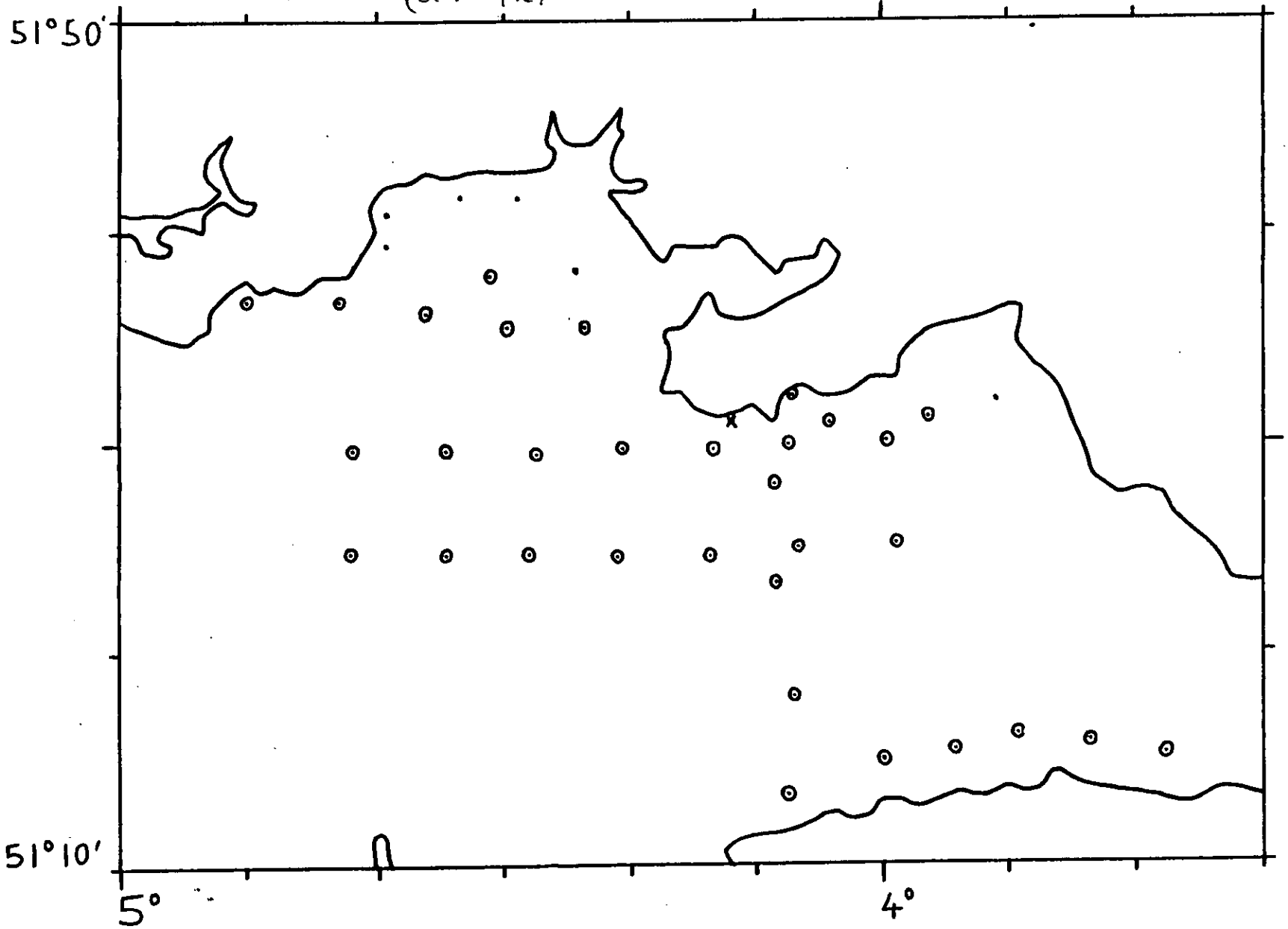


Fig 3.

Bass ring net Station Positions, CORYSTES 5B 1990

(St's 1-72)



SAMPLES AT: (·)-5m, (⊙)-5m & 15m, (x)-15m

Fig 4. Corystes 5/90. E. Channel crab larvae FTN grid (Sts 182-214)