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

1992 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 8
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF:

B M Thompson (SIC)
P J Dare P/T
E G Shreeve P/T
A R Lawler
S R J Lovewell P/T
D W Palmer
P Walker
P M Hudson P/T
B F Riches P/T

DURATION:

Left Lowestoft, 1732h 26 June
Arrived Lowestoft, 1230h 21 July
All times are Greenwich Mean Time

LOCALITY:

English Channel

AIMS:

1. To carry out two plankton surveys using a 53 cm high speed tow net fitted with the Guildline CTD monitoring system to:-

   a) locate a patch of crab (*Cancer pagurus*) larvae in unstratified water in the eastern English Channel;

   b) locate a patch of crab larvae in stratified water in the western English Channel.

2. To study the vertical distribution of crab larvae in both areas using the LHPR sampler.

3. To obtain stock indices of abundance for pre-recruits and fishable scallops on standard survey grids in the western English Channel, using dredges and underwater cameras.

4. To collect samples from scallop grounds in the eastern English Channel for ageing studies.

5. To test modifications to the underwater sledge.

6. To do a trial survey of the sea bed sediments using the Rox Ann system and underwater camera sledge.

7. To test a new dredge for sampling off-shore clam populations.

8. To continuously monitor the chlorophyll "a" fluorescence temperature and salinity of sub-surface sea water.

9. To take discrete sub-surface sea water samples for salinity determination at each plankton station and throughout the working area.

10. To collect specimens of molluscs for the Conchological Society and English Heritage.

NARRATIVE:

RV CORYSTES sailed from Lowestoft at 1732h on 26 June and proceeded to the first station of the plankton survey grid in the eastern English Channel (Fig 1). Sampling began at 0326h on 27 June and continued until 2106h on the same day. Crab larvae were present in sufficient numbers for vertical distribution studies at a station 50°45.41'N 00°55.19'E. As this lay within the traffic separation scheme the LHPR was used at an adjacent position 50°47.45'N 00°49.70'E, outside the separation zone. Sampling took place over the period 1300h 28 June to 1300h 2 July.

CORYSTES then steamed to the Fowey-Eddystone area where a series of scallop dredge stations were worked. Mr Lovewell and Mr Riches were put ashore at Mevagissey during the evening of 4 July and Dr Dare, Mr Shreeve and Mr Hudson joined the ship. Modifications to the underwater camera sledge were tested and video recordings made of sea bed substrate during 5 and 6 July.

On 7 July Mr Shreeve disembarked at Charlestown and Rox Ann engineer Mr T Egon joined the ship on a daily basis for the period 7 to 9 July inclusive. Instruction was given to all scientific staff on the use of the 120 KHz Rox Ann sea bed classification system. The underwater video camera sledge was run along a series of transects in Veryan Bay and the Fowey-Eddystone area and Day Grab samples were also taken to provide calibration data for Rox Ann.

From 0516h 10 July to 1222h 13 July CORYSTES worked a series of scallop dredge stations in the Fowey-Eddystone area. CORYSTES docked at Falmouth at 1405h 13 July. Dr Dare disembarked and Mr Lovewell rejoined the cruise. CORYSTES sailed from Falmouth at 0820h 14 July and proceeded to the first station of the second plankton survey grid (Fig 1). Sampling began at 0935h and continued until 1837h 15 July. A suitable station for LHPR work was located west of Start Point at 50°07.93'N 003°52.72'W. As this lay within a static gear zone an adjacent point 50°06.5'N 003°52.5'W outside the zone was selected for vertical distribution studies. Sampling with the LHPR began at 0342h 16 July and continued until 0009h 20 July when course was set for Lowestoft. RV CORYSTES docked at 1230h 21 July.

RESULTS:

Aims 1 a) and 2. A total of 20 plankton stations were sampled on the survey grid in the eastern English Channel. The water column was relatively unstratified with a ΔT^{o} of 0° to 2°C and phi (stratification parameter) values of 0-25 joules m^{-3}. 16 valid LHPR hauls were made at Mid-day - 1230h (5), Dusk - 2030h (3), Darkness - 2330h (4) and Dawn - 0230h (4).

Aims 1 b) and 2. 28 plankton stations were sampled in the western English Channel. The water column was stratified with a ΔT^{o} of 3° to 4°C and phi values of 30 to 50 joules m^{-3} at the majority of stations. 16 valid LHPR hauls were made at Mid-day - 1230h (4), Dusk - 2000h (4), Darkness - 2330h (4) and Dawn - 0330h (4).

A seabed sediment structure of sand ridges interspersed with shelly sand and soft sand was recorded using the underwater camera sledge and Rox Ann simultaneously along the transect sampled by the LHPR.

Aim 3. 113 scallop dredge stations were worked in the Eddystone/Fowey/Falmouth area. Data from the stations comprising the standard Fowey-Eddystone survey grids enabled stock indices of abundance for pre-recruits and fishable scallops to be obtained.

Stations were also worked in an area where high densities of juveniles had ben found on previous surveys. Preliminary results suggest that there may be no new settlement in this area but evidence of the 1990/91 settlement was detected.

Overall numbers of commercial sized scallops were considerably lower than recorded during previous surveys of the area in 1990 and 1991.

Aim 4. This was not completed as a higher priority was given to sampling scallops in the western English Channel.

Aim 5. Trials of the modified underwater camera sledge showed that further adaptations of the design are needed before the full potential of the system can be realised.

Aim 6. Trial surveys of sea bed sediments were made along 15 specific transects using the Rox Ann system, underwater camera sledge and Day Grab. Once Rox Ann had been calibrated it was possible to obtain a good indication of sea bed sediment type. Further work is necessary with this system. Full details of its use on CORYSTES 8/92, and an assessment of the potential of the system will be circulated separately from this cruise report. Rox Ann recorded sea bed sediments during the passage from Start Point to Lowestoft.

Aim 7. Freshening 28 to 30 kts south westerly winds on 13 July prevented the planned use of the new clam dredge.

Aim 8. Chlorophyll "a" fluorescence, temperature, and salinity of sub-surface sea water were monitored throughout the cruise.

Aim 9. Discrete sub-surface sea water samples were taken for salinity determination throughout the working area.

Aim 10. Samples of molluscs and shell gravel were collected for the Conchological Society from scallop dredge hauls made between Start Point and the Lizard.

A small number of mollusc shells were collected for the English Heritage reference collection.

ADDITIONAL RESULTS:

a) Samples of scallops were obtained for A Franklin (Burnham-on-Crouch) from the western English Channel.

b) Photographs of benthos were taken for ICES.

c) Photographs of Day Grab samples were taken, and samples of sediment frozen for future reference.

d) 48 *Cancer pagurus* were obtained from scallop dredge tows. These were examined for signs of external damage. Biometric and physiological data were recorded.

e) Temperature, salinity and light attenuation profiles were recorded at mid-day during the LHPR sampling periods.

f) Incident light was continuously monitored at deck level using a LICOR cell.

Brenda M Thompson
24 July 1992

SEEN IN DRAFT:
Captain M J Willcock - Master
Mr R F Graham - Senior Fishing Mate

INITIALLED: J G S

DISTRIBUTION:
Basic List +
B Thompson
P Dare
E Shreeve
A Lawler
S Lovewell
D Palmer
P Walker
P Hudson
B Riches
DIs Hastings, Poole, Plymouth, Brixham, Newlyn
SFC's Devon, Cornwall, Isles of Scilly, Channel Isles, Southern, Sussex

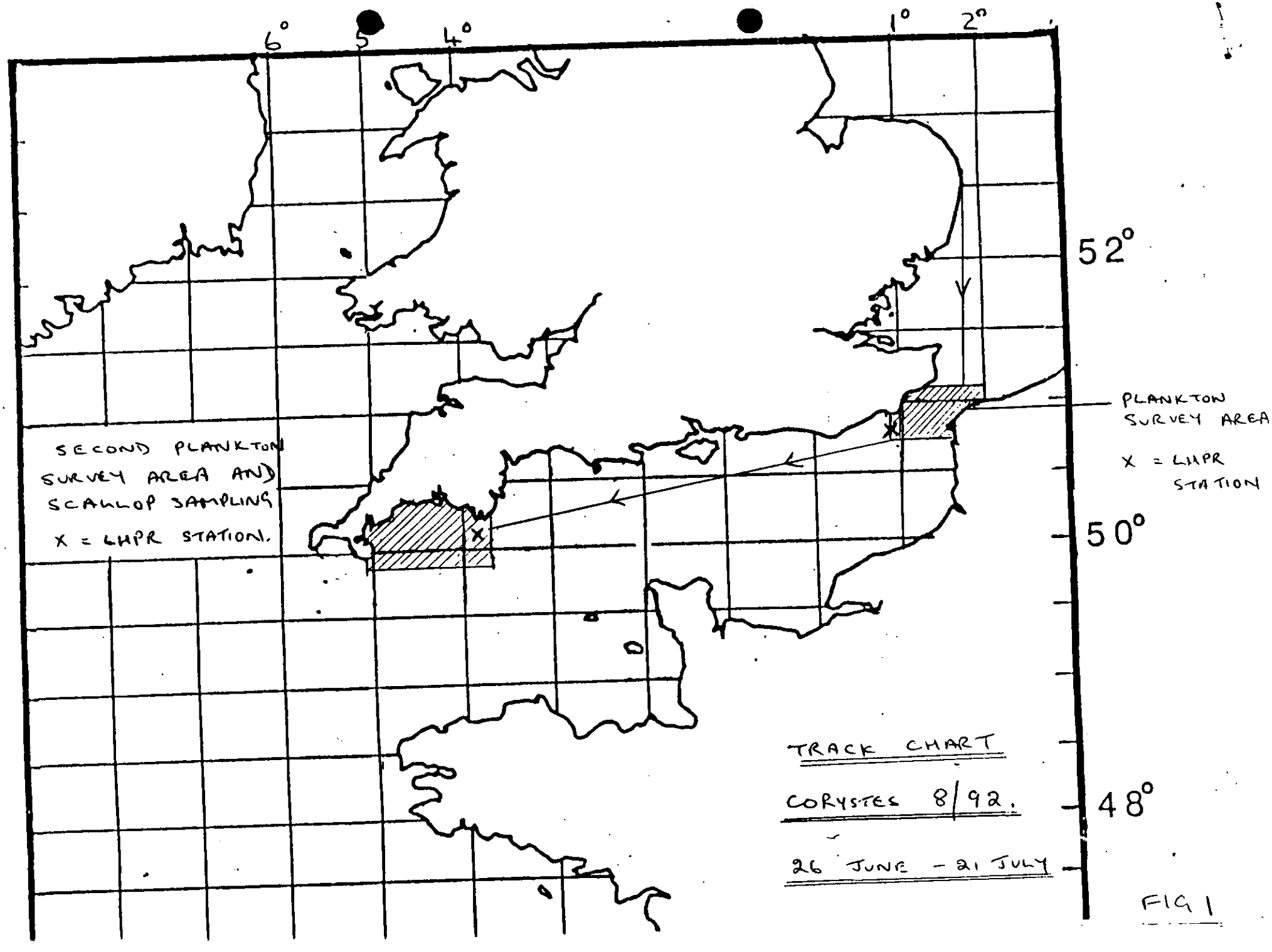
6°
5°
4°
1°
2°
52°
50°
48°
SECOND PLANKTON SURVEY AREA AND SCALLOP SAMPLING
X = LHPR STATION.
PLANKTON SURVEY AREA
X = LHPR STATION
TRACK CHART
CORYSTES 8/92.
26 JUNE - 21 JULY

FIG 1