dk

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

1982 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE : CRUISE 6

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

STAFF:

J H Nichols
B F Riches
S P Milligan
D B Bennett) to 5 May
C L Whiting) to 5 May
W Leggitt)
B M Thompson)
C Chapman (DAFS)) from 5 May
J Earley (Dublin))

DURATION:

Left Lowestoft 1030 26 April
Arrived Douglas, IOM 1130 4 May
Left Douglas, IOM 1630 5 May
Arrived Barry 0730 14 May

LOCALITY:

Irish Sea

AIMS:

1. To carry out a plankton survey using the new MAFF Guildline 76 cm high speed sampler, to determine the distribution and abundance of Nephrops larvae.

2. To carry out a trawl survey using the Boris 600 mesh fish/prawn trawl, to determine the distribution of adult Nephrops, and to take samples for fecundity and maturity studies.

3. To survey in selected areas with the DAFS underwater television equipment towed close to the bottom, to estimate the abundance of adult Nephrops.

4. To take sub-surface seawater samples for salinity, phosphate, nitrate, nitrite and silicate analysis at each plankton station and to monitor continuously sub-surface seawater for chlorophyll 'a' fluorescence.

5. To collect and deep freeze the stomach contents from selected fish species for predation studies (D Symonds).

NARRATIVE:

RV CLIONE left Lowestoft at 1030 h 26 April. The prototype 76 cm MAFF Guildline plankton sampler (76 cm MG 82) was further tested and calibrated in the English Channel on 27 April. After a fine passage to the Irish Sea with only a three hour delay for minor engine repairs, the plankton survey was started at 2330 h 28 April. Progress was halted at 0130, 30 April by an electronic failure in the Guildline underwater package. After repair the survey was resumed at 0530h and progressed slowly in poor weather conditions until 1030 h 1 May when 60 to 70 knot NW winds forced us to seek shelter south west of the Isle of Man. The opportunity was taken to replace badly worn brake linings on the plankton winch before completing two inshore plankton stations under the lee of the Isle of Man

by 1540 h. After anchoring in Laxey Bay, 1700-2000 h, the weather improved and the survey was resumed at 2300 h 1 May. A further five stations had been completed by 0630 h 2 May, when the underwater package failed again. Repair was effected in worsening weather conditions by 1330h when passage was made for Ramsey Bay, anchoring there at 2030 h 2 May. With a SW wind force 9 gusting to 75 knots, RV CLIONE remained there until 2200 h 3 May when, with a NW severe gale forecast shelter was sought in Laxey Bay anchoring there at 2245 h. With no prospect of workable weather conditions within twenty four hours, CLIONE docked in Douglas, IOM at 1130 h 4 May to take on board stores, water and to exchange some scientific staff.

After leaving Douglas at 1630 h 5 May, six plankton stations were completed to the east of the Isle of Man by 0130 h 6 May, when passage was made for the trawling ground 20 nml W x S of the Calf of Man. Six hauls with the Boris box, fish/prawn trawl were made in this area between 0700 h and 1900 h 6 May. Seven more plankton stations were completed at the northern end of the survey area by 0400 h 7 May.

At 0900 h 7 May, in calm sea conditions, the DAFS underwater television camera sledge was launched. The Nephrops survey with this equipment, in the trawling area of the previous day, continued until 2100 h 7 May. At 0530 h on the following day the survey was resumed 20 nml further south, where four more tows with the sledge were completed by 1800 h. CLIONE then steamed 20 nml south to complete nine replicate plankton hauls, between 2000 h 8 May and 0200 h 9 May, in an area of high Nephrops larvae concentration. Trawling was resumed at 0600 h 9 May when six hauls were made in the vicinity of the television camera tows of the previous day. The final plankton survey was started at 2000 h 9 May. After completing six stations the survey was halted while an echo search for a suitable trawling ground, in the area of peak Nephrops larvae production, was made. The search was unfruitful and the plankton survey was resumed at 0600 h 10 May. Apart from a brief interlude on 11 May for one trawl haul and one television camera tow between 1600 h and 2230 h, the survey progressed in reasonable weather until completion at 1400 h 13 May at the southernmost edge of the grid. CLIONE then steamed to Barry, arriving there at 0730 h 14 May. Crew and scientific staff left the ship at 0930 h 14 May and were transported to Lowestoft by coach arriving there at 1800 h.

RESULTS:

1. The trials with a different towing point, further back on the new 76 cm MG 82 plankton sampler, although not exhaustive, proved unsuccessful for launching at 5 knots. The normal towing point immediately behind the nose cone was used for the remainder of the survey. Apart from minor modifications and adjustments, and a manufacturing fault which caused a three hour delay for repair, the new plankton sampling system worked well. The modified Guildline CTD withstood extensive use, often in adverse weather conditions, proving conclusively that it is well suited to fulfil its new role.

Poor weather delayed completion of the first plankton survey and restricted the coverage at the northernmost end of the grid and to the east of the Isle of Man (fig 1). High numbers of stage I Nephrops larvae were found over most of the area west of the Isle of Man, with peak production occurring in the same place as on the previous survey, some thirty nml west of Dublin Bay (fig 2). It was surprising to find high numbers of stage I larvae at the southernmost edge of the survey area, and unfortunately there was insufficient time to return and extend the grid southwards on the first survey. Stage I Nephrops larvae were found in four of the eight stations to the east of the Isle of Man. No stage II larvae were found at these stations suggesting that hatching had only just begun. Stage II larvae were abundant over the rest of the survey area, and a few stage III larvae were also found. The second survey (fig 3) was completed with four additional stations

at the southern edge of the grid. None of these samples were examined on board for Nephrops larave.

2. In the 13 trawl hauls completed catches of Nephrops were much lower than in the comparable hauls from CORELLA in October 1981. The catches ranged from 0.5 kg to 18.5 kg per 1 hour tow and contained very few hatching or berried females. Carapace length measurements were made from each haul and 21 berried females were returned to the laboratory for fecundity studies.

3. The DAFS sledge fitted with television and photographic cameras was towed at 9 stations varying in depth from 35 m to 135 m. At four of these positions, trawling was carried out to provide a comparison between the size composition of Nephrops from photographs and from the trawl. A total of 200 photographs were taken of Nephrops and burrows and 9 hours of video tape were recorded for later analysis. Nephrops burrows were seen in all areas although Calocaris macandreae appeared to be the dominant burrowing species present, particularly in deep water.

4. Sub-surface salinity samples were taken at 117 of the 126 plankton stations and sub-surface seawater samples for subsequent nitrate phosphate and silicate analysis were taken at 98 stations. Surface temperature and chlorophyll 'a' fluorescence were monitored continuously throughout the plankton surveys using the pumped sea water supply. Water samples at 16 selected stations on the plankton grid were taken for cyanobacterial analysis at the Marine Science laboratory, Menai Bridge.

5, Catches of fish in the trawl were generally poor and only 327 stomachs or whole fish were taken for predation studies. These included 75 from whiting, 48 from cod, 21 from hake and 11 from coley.

About 4 kg of hake liver was deep frozen for analysis by AEP 2.

J H Nichols
27 May 1982

SEEN IN DRAFT:
J R F
G F L

INITIALLED:
D J G

DISTRIBUTION:

Basic List +

J H Nichols
B F Riches
SsP Milligan
D B Bennett
C L Whiting
W Leggitt
B M Thompson
C Chapman
J Earley

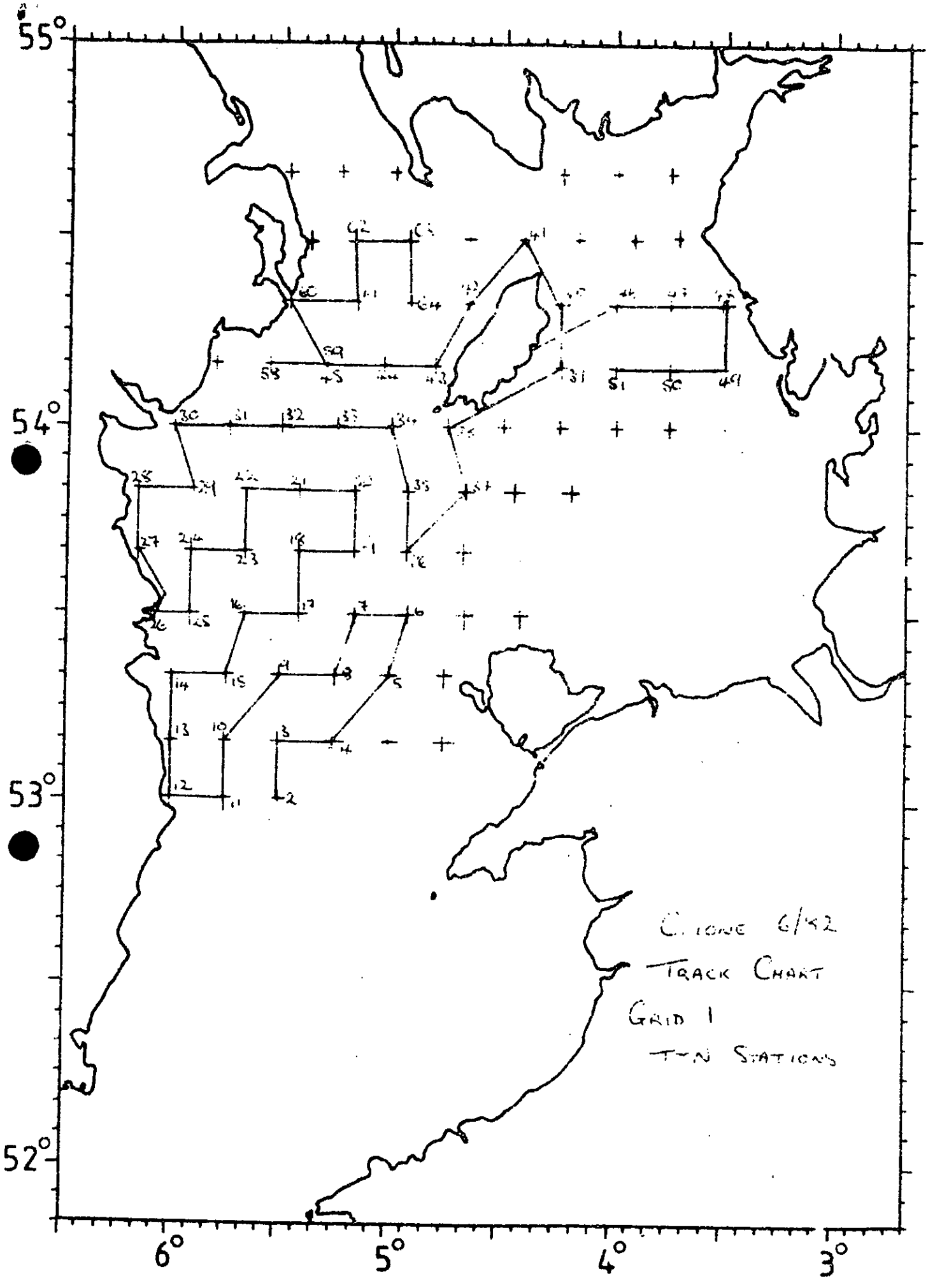

55°
54°
53°
52°
6°
5°
4°
3°
CIONE 6/82
TRACK CHART
GRID 1
T-N STATIONS

fig. 2.

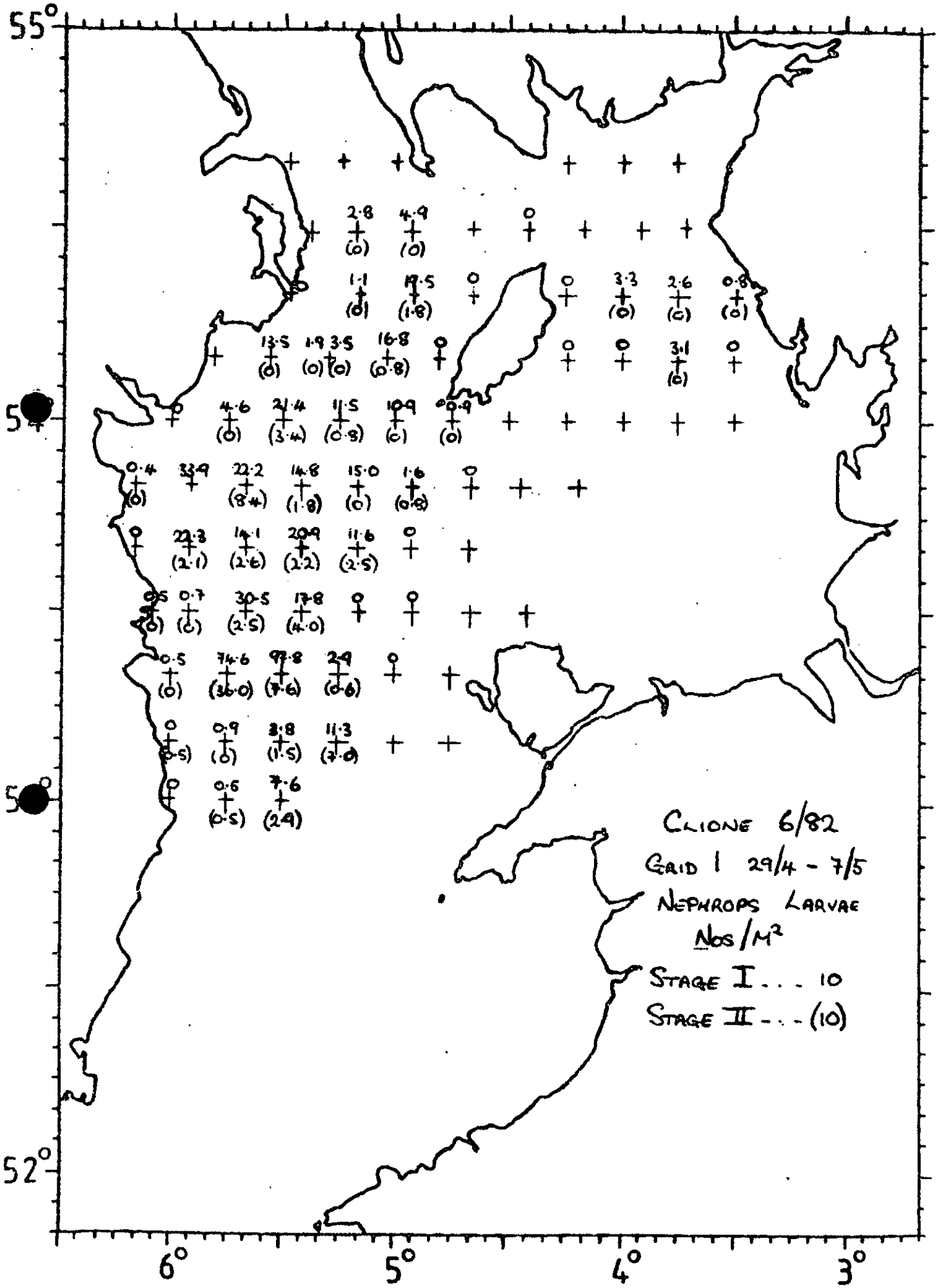
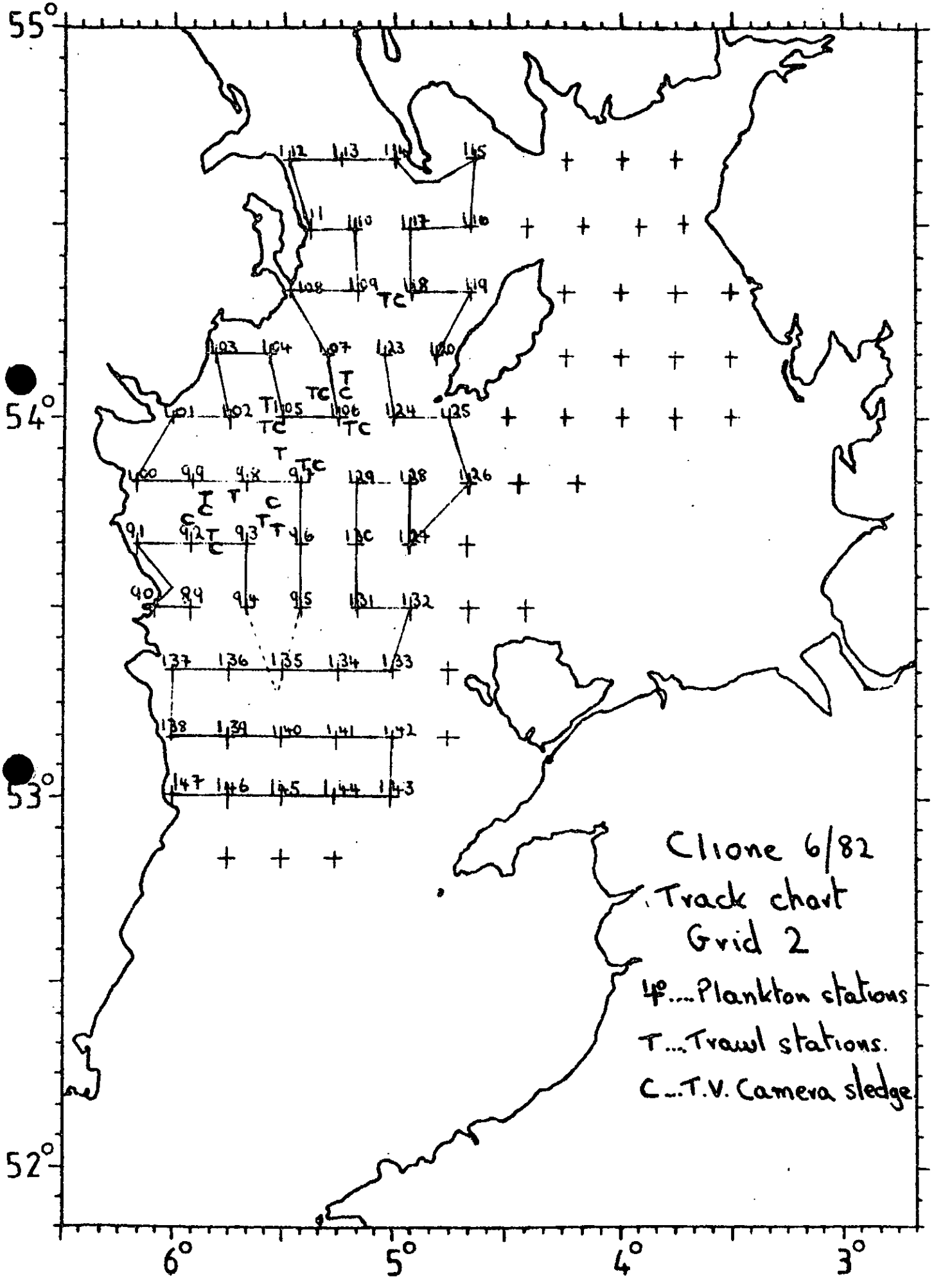

55°
54°
52°
6°
5°
4°
3°
2·8 (0)
4·9 (0)
1·1 (0)
19·5 (1·8)
3·3 (0)
2·6 (0)
0·8 (0)
13·5 (0)
1·9 (0)
3·5 (0)
16·8 (0·8)
3·1 (0)
4·6 (0)
21·4 (3·4)
11·5 (0·8)
10·9 (0)
0·9 (0)
0·4 (0)
33·9
22·2 (8·4)
14·8 (1·8)
15·0 (0)
1·6 (0·2)
22·3 (2·1)
14·1 (2·6)
20·9 (2·2)
11·6 (2·5)
0·7 (0)
30·5 (2·5)
17·8 (4·0)
0·5 (0)
74·6 (36·0)
97·8 (7·6)
2·9 (0·6)
0·9 (0)
3·8 (1·5)
11·3 (7·0)
0·6 (0·5)
7·6 (2·9)
CLIONE 6/82
GRID I 29/4 - 7/5
NEPHROPS LARVAE
NOS/M²
STAGE I . . . 10
STAGE II . . . (10)

Fig 3.


55°
54°
53°
52°
6°
5°
4°
3°
Clione 6/82
Track chart
Grid 2
+....Plankton stations
T....Trawl stations.
C....T.V. Camera sledge