

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

1978 RESEARCH VESSEL PROGRAMME

REPORT: RV. CIROLANA: CRUISE 2

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

STAFF

H W Hill (11-18 February)
D Harding
D S Tungate
A R Folkard
G C Baxter
P G Griffiths (31 January-11 February)
D Hughes
B F Riches
A R Burgess
J Woollorton
R Tucker

DURATION

Left Grimsby 0920 h 31 January
Arrived Great Yarmouth 0725 h 18 February

LOCALITY

Southern North Sea

AIMS

1. To locate and survey a suitable plaice egg distribution in the southern North Sea, measuring and data logging a variety of biological, physical and chemical parameters.
2. To lay a current meter array around the selected distribution and to follow the associated water movements using current meters and dye tracer techniques.
3. To compare the results of subsequent plaice egg surveys with predictions made from the water movement measurements.
4. To collect water samples for hydrocarbon analysis for MEP2.

NARRATIVE

CIROLANA sailed from Grimsby at 0920 h, 31 January and proceeded to the survey area to being the first plaice egg survey grid which was begun at 0835 h, 1 February after a passage which included 12 hours dodging in a southerly gale. The survey grid was completed using the Lowestoft high speed plankton sampler by 0030 h, 3 February and a suitable patch of plaice eggs selected, around which 5 current meter stations were deployed at stations E, F, G, H & I as indicated on the attached chart. A trial Rhodamine release was then made to test dye release and tracking techniques before the second survey grid was carried out between 2154 h, 5 February and 0237 h, 7 February. During the period until 1420 h, 8 February current meter stations I, G and E were recovered and redeployed together with three new current meter stations at C, B and D. The third survey grid was then made between 0834 h, 9 February and 1630 h, 10 February when CIROLANA proceeded to Great Yarmouth Roads.

During each of the tow net surveys plaice eggs sampled at each station were counted, and the data fed into the computer system for contouring. Environmental data from the environmental package, TSD and fluorometers, including sea surface temperature, salinity, pH, transparency, oxygen and chlorophyll were monitored and data logged along the ship's track, together with particle size as recorded by the HIAC particle size counter, ship's position, current speed and direction from the electromagnetic log and, when appropriate, rhodamine concentration. Distributions of plaice eggs - total count and by stages - and the environmental data were contoured via the graph plotter within a few hours of the completion of the survey grids after some initial data logging difficulties were overcome. Nitrate, nitrite, silicate and ammonia were also monitored via the auto-analyser and contoured as required. Current meter records were translated and processed to give tidal stream plots and progressive vector diagrams within a few hours of recovery, which allowed predictions to be made of the likely location of the selected plaice egg patch. Data was normally logged at 5 minute intervals between stations and at 20 sec intervals on grid stations when the sampler depth was also monitored and logged.

After embarking Mr Hill and disembarking Mr Griffiths, CIROLANA left Great Yarmouth Roads at 1000 h, 11 February and returned to the survey area to recover current meter stations F, I and H. The main Rhodamine release of 100 gallons was made at 0723 h the following morning and tracked until 0025 h, 14 February. The fourth plaice egg survey was then completed between 1016 h and 1257 h, 16 February, the remaining current meter stations being recovered en route on 15 February, with the loss of one current meter and sub-surface float from station B. The meter tow at this station was severed between the upper and lower current meters and may have been run down by one of the Dutch pair trawlers seen in the vicinity. The bottom current meter was also slightly damaged at this station.

Tracking of the Rhodamine patch was continued from 1500 h, 16 February until 0850 h, 17 February with reasonably good grid coverage of the patch at three consecutive slack water periods; the contoured distribution of one of these is attached to give an illustration of the usefulness of the shipboard contouring program based upon about 7 east-west tracks of the patch.

After completing hydrographic stations to determine the extent of the vertical mixing of the Rhodamine and collecting some plaice larvae for the Laboratory, CIROLANA set course for Great Yarmouth, and anchored in the Roads at 1608 h. The scientific equipment aboard was unloaded, and scientific staff disembarked after the vessel came alongside in Great Yarmouth the following morning at 0725 h.

RESULTS

After some initial difficulties with the data logger and intermittent minor faults on the computer and graph plotter, all the data logging, processing and plotting procedures worked extremely well allowing graphical representation of any parameter required within a few hours. Typical examples for temperature and total plaice eggs for survey 4 are attached. It proved possible to predict water movements reasonably well and co-ordinate these with the position of the selected patch of plaice eggs.

Eleven current rigs were deployed, with two meters on each rig. One meter was lost and one damaged at station B which gave no data. All other stations gave a high data return. Good correlation was obtained between the mean residual drift of the centre of the Rhodamine patch and the nearest current meter station, the drift being of the order of 2 miles per day towards 040°.

Water samples for hydrocarbon analysis were collected for MEP2 along a line of stations from 52°30'N, 2°40'E to 52°02'N, 3°58'E.

H W Hill
22 February 1978

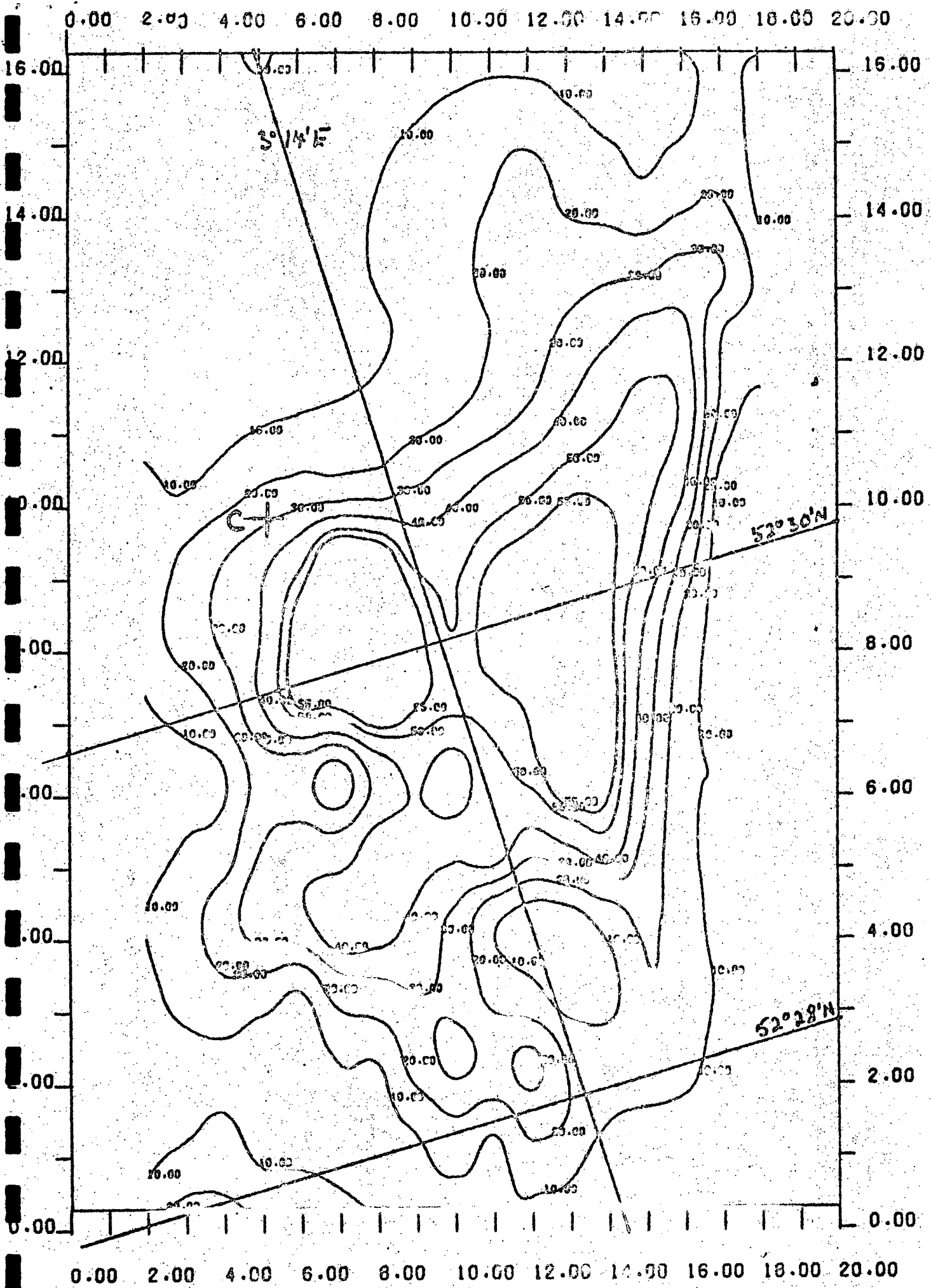
SEEN IN DRAFT: Captain T H Finn
W J Saxby - Fishing Skipper

INITIALLED: AJL

DISTRIBUTION:

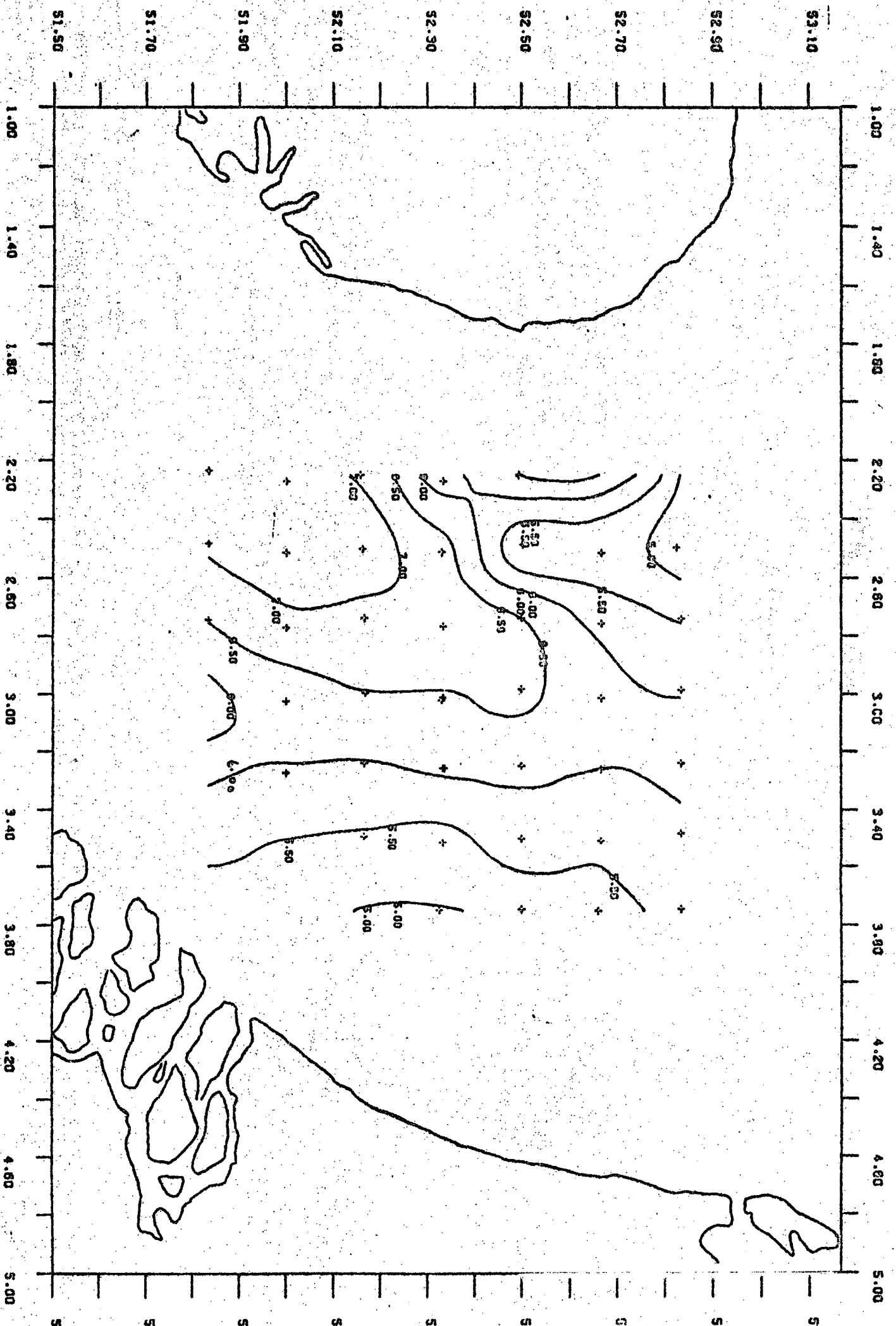
Basic List

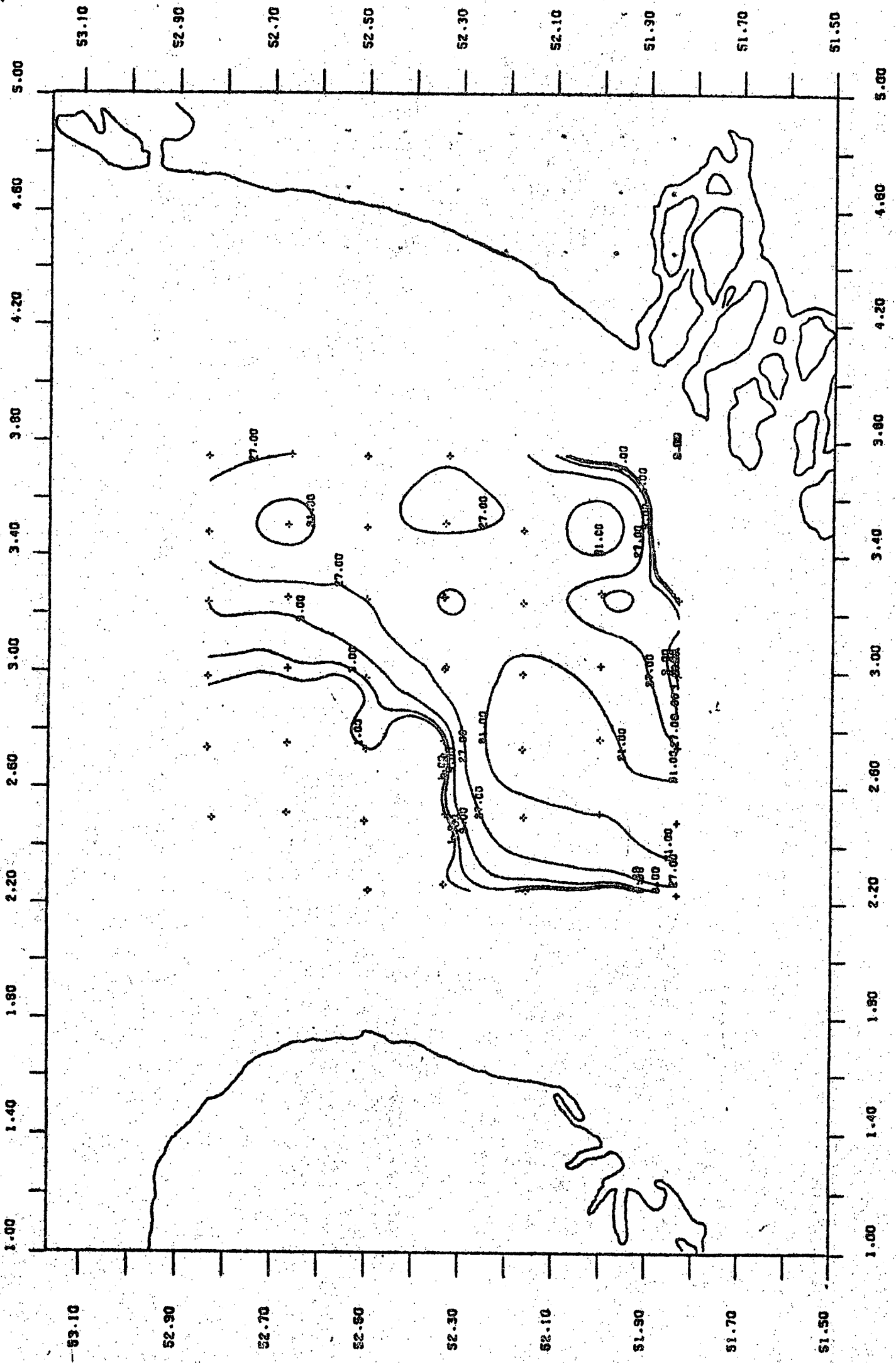
H W Hill
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R Tucker



CIROLANA 2/78 RMCORLINE 1710-2010H 16/2/79. NOT TIDALLY CORRECTED HH 1840H

CIRCULANT 2/10 PLANNING GRID 4 ENVIRONMENTAL DATA TEMPERATURE

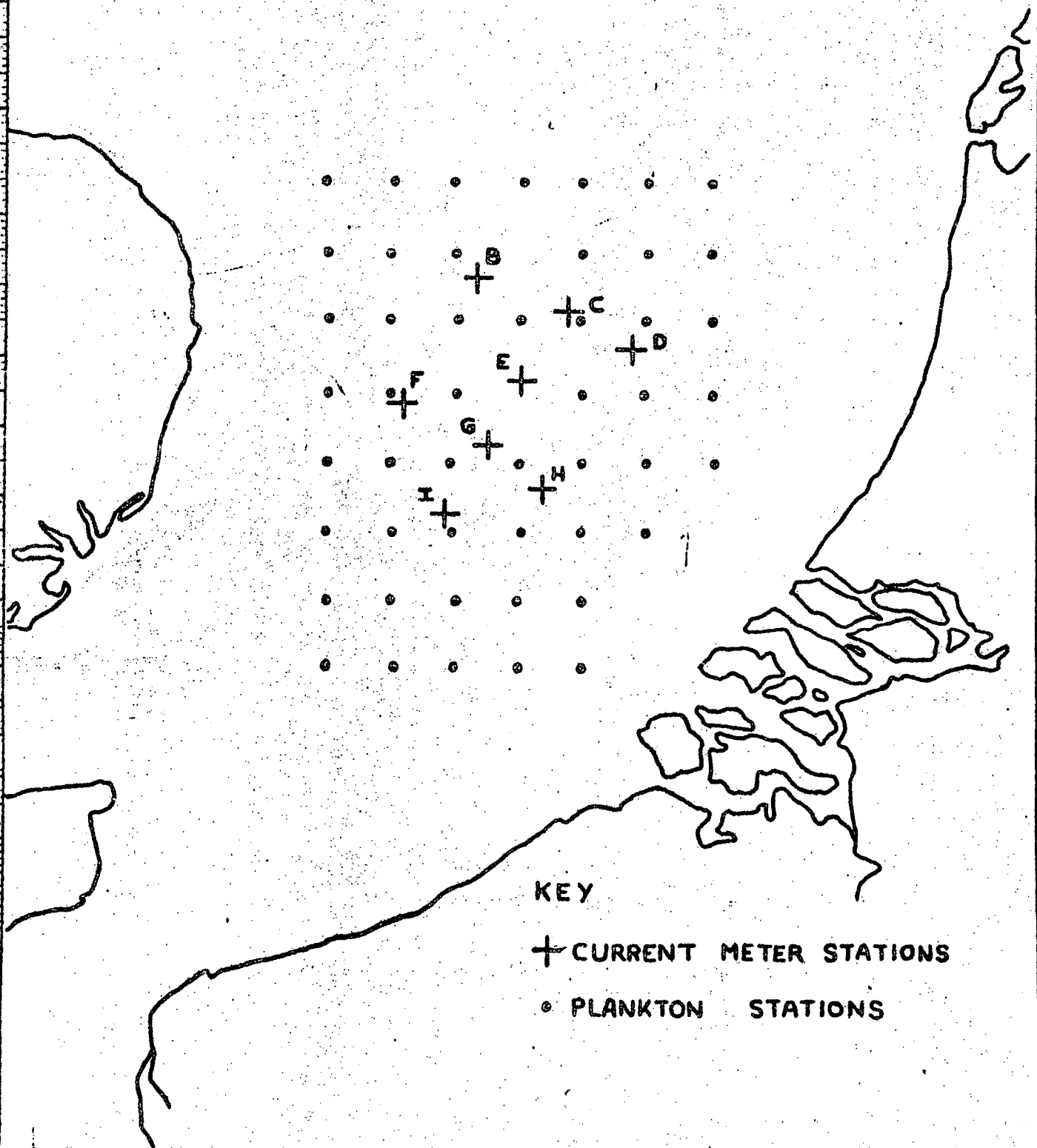




CIROLANA 2/78 PLANKTON GRID 4 NUMBERS/METRE SQUARED TOTAL PLAICE EGGS

BASIC SAMPLING NETWORK

CIROLANA 2/78



KEY

+ CURRENT METER STATIONS

• PLANKTON STATIONS