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FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1976 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA: Cruise 6

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

STAFF

D Harding (NIC)
P Scholes
B Holford
J Last
R Cross

DURATION

Left Lowestoft 1600 h 23 April
Arrived Lowestoft 1015 h 3 May

All times are Greenwich Mean Time

LOCALITY

West central North Sea: N.E. coast Norfolk to 56°N.

AIMS

1. Investigate the distribution and abundance of planktonic fish eggs and larvae, zooplankton predators and competitors and the phytoplankton using the Lowestoft multi-purpose plankton sampler. Including replicate hauls for variance estimates.

2. Monitor sub-surface water continuously along the ship's track for temperature, salinity, transparency and chlorophyll 'a'.

3. Collect water samples from the pump for salinity and nutrient analyses: calibrate the fluorometer with chlorophyll 'a' extracts; measure phaeophytin, and identify the phytoplankton contribution to chlorophyll 'a' fluorescence, including the preparation of slides for electron microscope examination of the micro flagellates.

4. Carry out hauls with a frame net to sample young fish.

5. Use the changing net sampler to investigate the vertical distribution of fish larvae and other zooplankton, alternating with water bottle casts for phytoplankton, chlorophyll 'a' and phaeophytin in relation to temperature and light penetration with the water column over a 26-hour period.

6. Collect samples of fish for stomach content analysis, using the young gadoid midwater trawl.

7. Collect live plankton as required.

8. Collect fish samples (frozen) for metal analysis.

NARRATIVE

RV CORELLA sailed on the afternoon tide at 1600 h B.S.T. Once in Yarmouth Roads the environmental monitoring instruments were switched on, calibrated and recording commenced at 1700 h. The plankton sampler was calibrated in the deep water off the Norfolk coast at 1800 h and the survey grid started at 2200 h. Work continued on the survey grid without interruption from bad weather until 0630 h on 29 April when the grid was completed at station 98. CORELLA then steamed back to a station with high numbers of larval fish at 54°37.5'N 00°7.5'W where ten replicate hauls were made with the standard sampler, which was then recalibrated. The new 2 metre boothbay type frame net was calibrated for depth v.s warp on the trawl winch and the changing net rigged. A twentyfour hour series of samples were collected with the changing net, alternating with water bottle casts for phytoplankton, chlorophyll and nutrients between 2100 h 29 April and 1900 h 30 April. The ship was then rigged for trawling and a series of hauls in the DARK, at DAWN, in DAYLIGHT and at DUSK made with the young gadoid midwater trawl. These were concluded at 2130 h and CORELLA moved south to 54°10'N 00°35.5'E off Flamborough Head where DAWN, DAYLIGHT and DUSK hauls were made before the ship steamed for Lowestoft. Three series of in depth light measurements were made with the quantum cells and radiometer near the Farne Islands, at 55°35.5'N 01°34.7'W, at 54°35.5'N 00°02.5'W with the vertical distribution sampling experiment and off Flamborough Head at 54°09.5'N 00°38.5'E between trawl hauls.

Live plankton was collected at 55°37.5'N 00°45'E and 54°38.5'N 00°04'E for Mrs Thompson. 700 sea bed drifters were released at selected stations. The cruise concluded when CORELLA docked at Lowestoft at 1015 h 3 May.

RESULTS

All aims were achieved. Plankton samples were collected from 89 stations; 5 samples were taken with the Boothbay net and the net was recalibrated at 5 knots; 90 water samples for salinity and nutrients were collected at the surface and 5 water samples were also taken from one of the series of water bottle casts. 7 hauls were made with the young gadoid trawl and fish preserved for stomach content analyses. The environmental monitoring system gave continuous chart records of total incident light with a solarimeter and quantum cell, and continuous records of pH, oxygen saturation, temperature and transparency of the sub surface water on the standard grid. Charts of temperature and transparency are attached. The new fluorometer worked well throughout the cruise and a chart of total fluorescence due to chlorophyll 'a' is appended. Samples were also taken at all stations and from the water bottle casts and measurements made of chlorophyll 'a' after extraction with acetone and of phaeophytins after acidifying the acetone extract. Distribution charts showing the main centres of abundance of plaice eggs and larvae are also appended to this report.

SEEN IN DRAFT GS D Harding
ETB 8 May 1976

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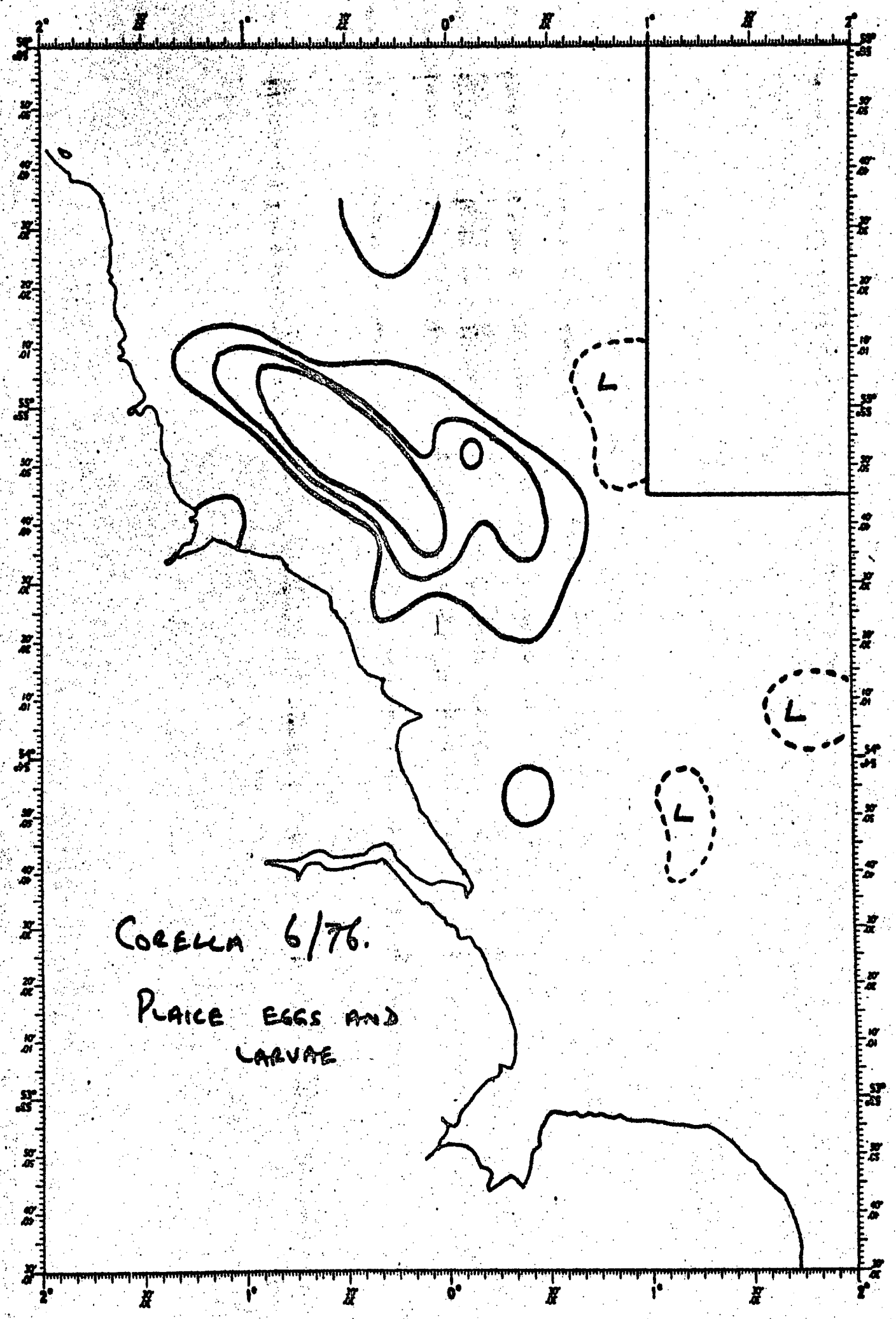
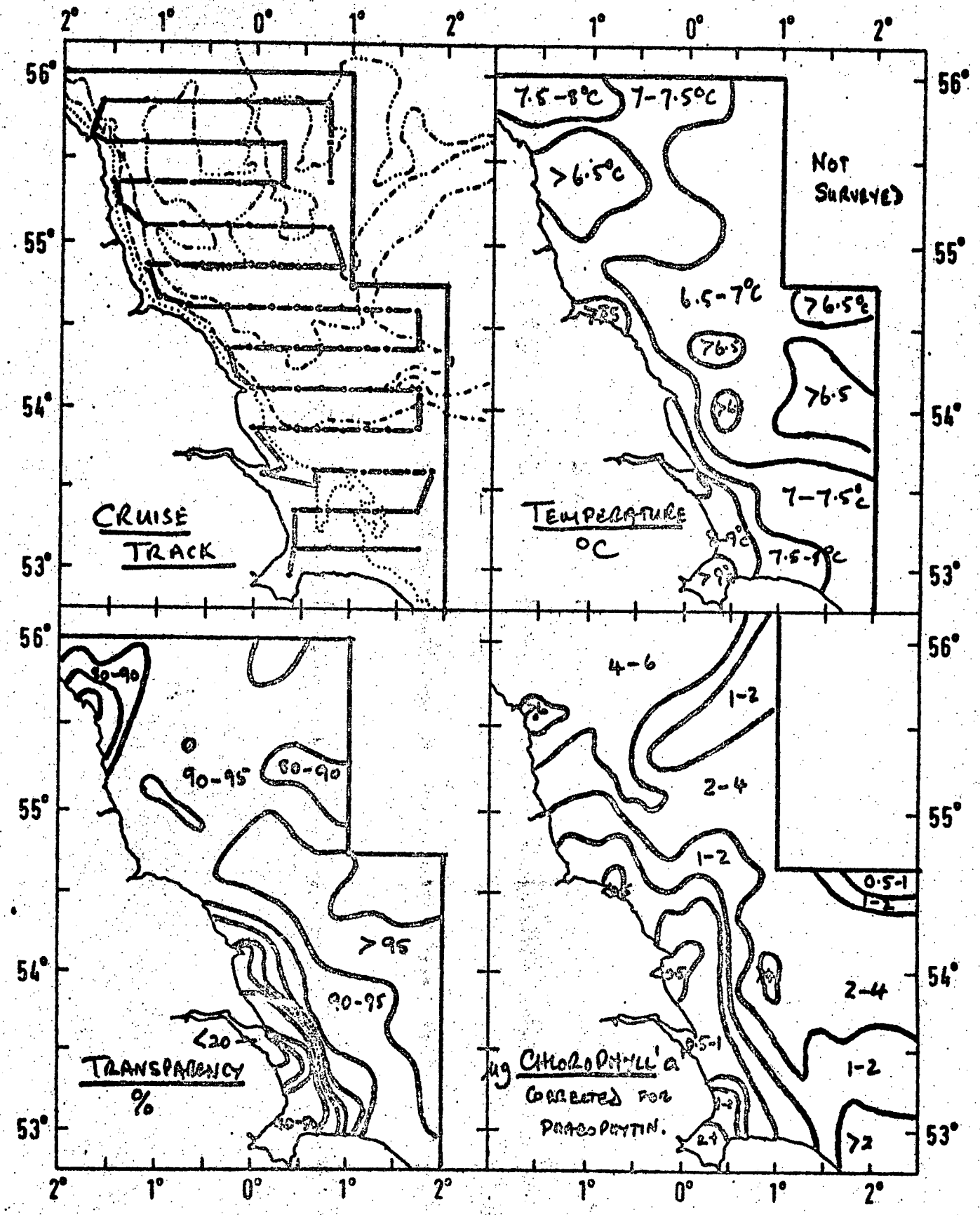

CORELLA 6/76.
PLAICE EGGS AND
LARVAE


2° 1° 0° 1° 2°
56°
55°
54°
53°
CRUISE TRACK
7·5-8°C
7-7·5°C
>6·5°C
NOT SURVEYED
6·5-7°C
>6·5°C
7-7·5°C
7·5-8°C
TEMPERATURE °C
80-90
90-95
80-90
>95
90-95
<20
TRANSPARENCY %
4-6
1-2
2-4
1-2
0·5-1
2-4
1-2
>2
µg CHLOROPHYLL 'a' CORRECTED FOR PHAEOPHYTIN.