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FRV "Scotia" 6SR86
Cruise 6/86

REPORT
13 June - 3 July 1986

Personnel

P Hopkins HSO
A Naha HSO (13-21 June)
J R Hutcheon SO
I Leaver ASO
L Cargill ASO
D Conway (IMER Visitor)
A Sola (Observer) (13-21 June)

Objectives

- 1 To carry out a survey for mackerel eggs on the spawning ground of the western mackerel stock.
- 2 To sample mackerel concentrations in the spawning area.
- 3 To obtain mackerel ovaries for fecundity determination.
- 4 To investigate egg development rates at a range of temperatures.
- 5 To monitor temperature, salinity and chlorophyll in the sampling area.
- 6 To classify and quantify plankton types in the sampling area.
- 7 To obtain samples for radio-caesium monitoring.
- 8 To interface the MNS 2000 navigational system via a Chameleon controller with the monitors and RS232 ports in the scientific spaces.

Narrative

"Scotia" sailed from Greenock at 1500 on 13 June. Three plankton stations north of the survey grid and 59 stations within the grid were completed before docking at Falmouth on 21 June. In addition, 2 Longhurst Hardy plankton recorder hauls, pelagic trawl hauls and 3 handline hauls were completed in the first part of the cruise.

"Scotia" sailed from Falmouth at 1000 on 22 June and resumed sampling at 1700 the same evening. From 22 June - 30 June, 80 plankton stations, 5 LHPR hauls, 1 pelagic trawl haul and 6 handline hauls were taken within the survey area. Six additional plankton samples were taken on the Great Sole Bank and Cockburn Bank to investigate the distribution of mackerel eggs in relation to bottom topography. Between 30 June and 2 July, 16 plankton hauls were made along the 200 m depth contour to the north of the survey grid as far as 58°45'N.

Radio caesium samples were taken at Cape Wrath, the Pentland Firth and Aberdeen. "Scotia" docked at Aberdeen at 0600 on 3 July. Cruise tracks and stations worked are shown on the attached charts.

Results

Almost complete coverage of the survey area was made north of 48°50'N, leaving

RV "Tridens" to cover the southern part of the grid. The highest concentrations of mackerel eggs were associated with the shelf edge, especially in the Sole Bank area. Eggs to the north of the survey grid were not abundant but were present even at the most northerly station. Temperature and depth profiles were logged for each plankton haul using an RS232 output from a 'Scanmar' depth monitor. Salinity and chlorophyll samples were also taken at each station and analyses of the plankton were undertaken by D Conway of the IMER Plymouth Laboratory. Preliminary analysis of the LHPR hauls indicated that mackerel eggs and larvae were concentrated in the top 20-25 metres of water.

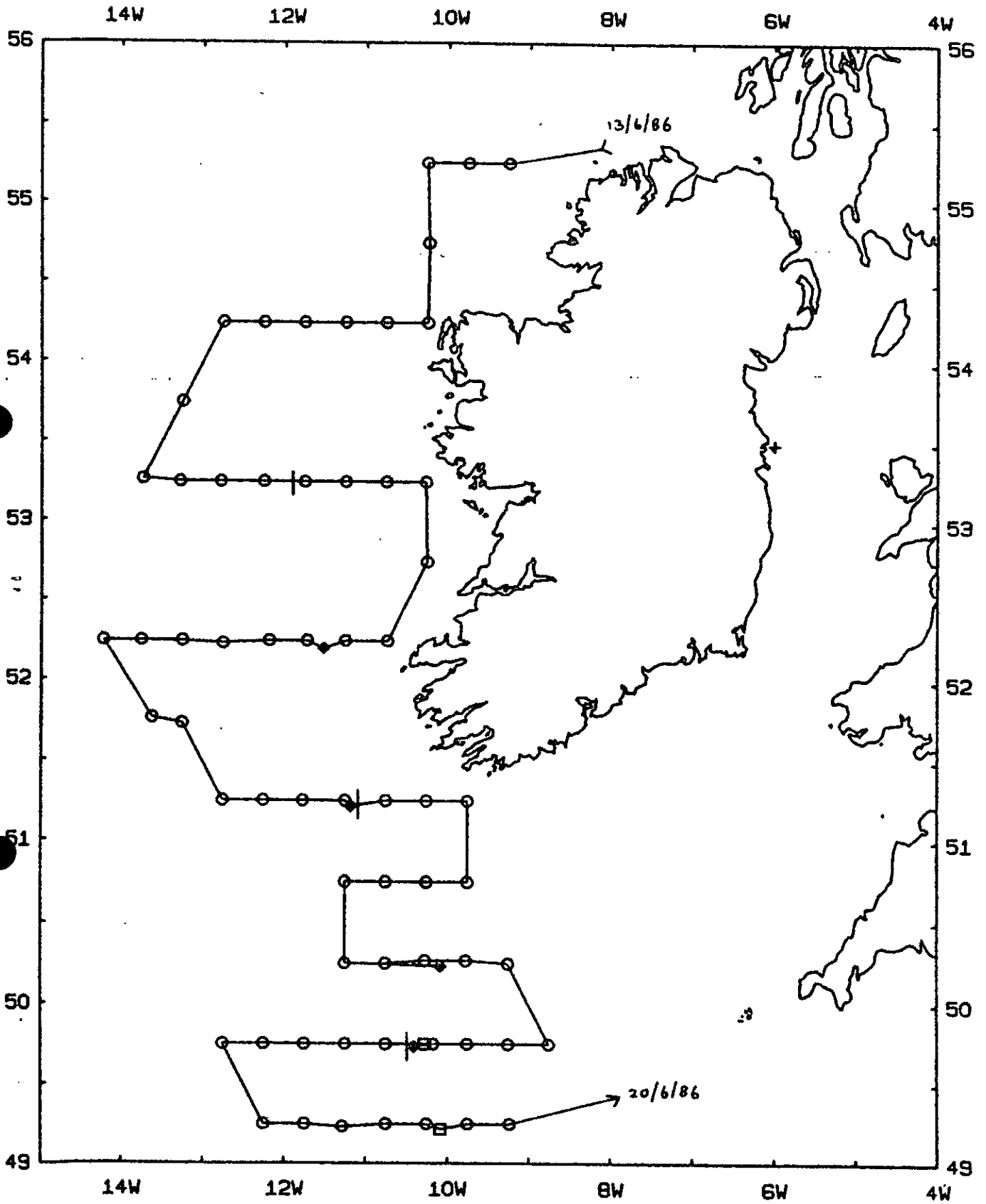
Fishing by pelagic trawl gave poor returns, the main catches being of scad. The handline hauls were more successful, yielding a total of 727 fish ranging in size from 22 cm to 46 cm. Seventy nine ovaries were collected for fecundity and histological analysis.

During the second half of the cruise ripe eggs were collected and fertilised for incubation at temperatures ranging from 6°C to 20°C.

The hardware work on the Chameleon controller was completed during the first half of the cruise, and the RS232 ports were connected. Some work on the software remains to be completed.

P Hopkins
16 July 1986

Seen in Draft: W Findlay, O.I.C



- PLANKTON HAULS
- LNPR PLANKTON HAULS
- ◆ PELAGIC TRAWL HAULS
- | HANDLINE HAULS

12W

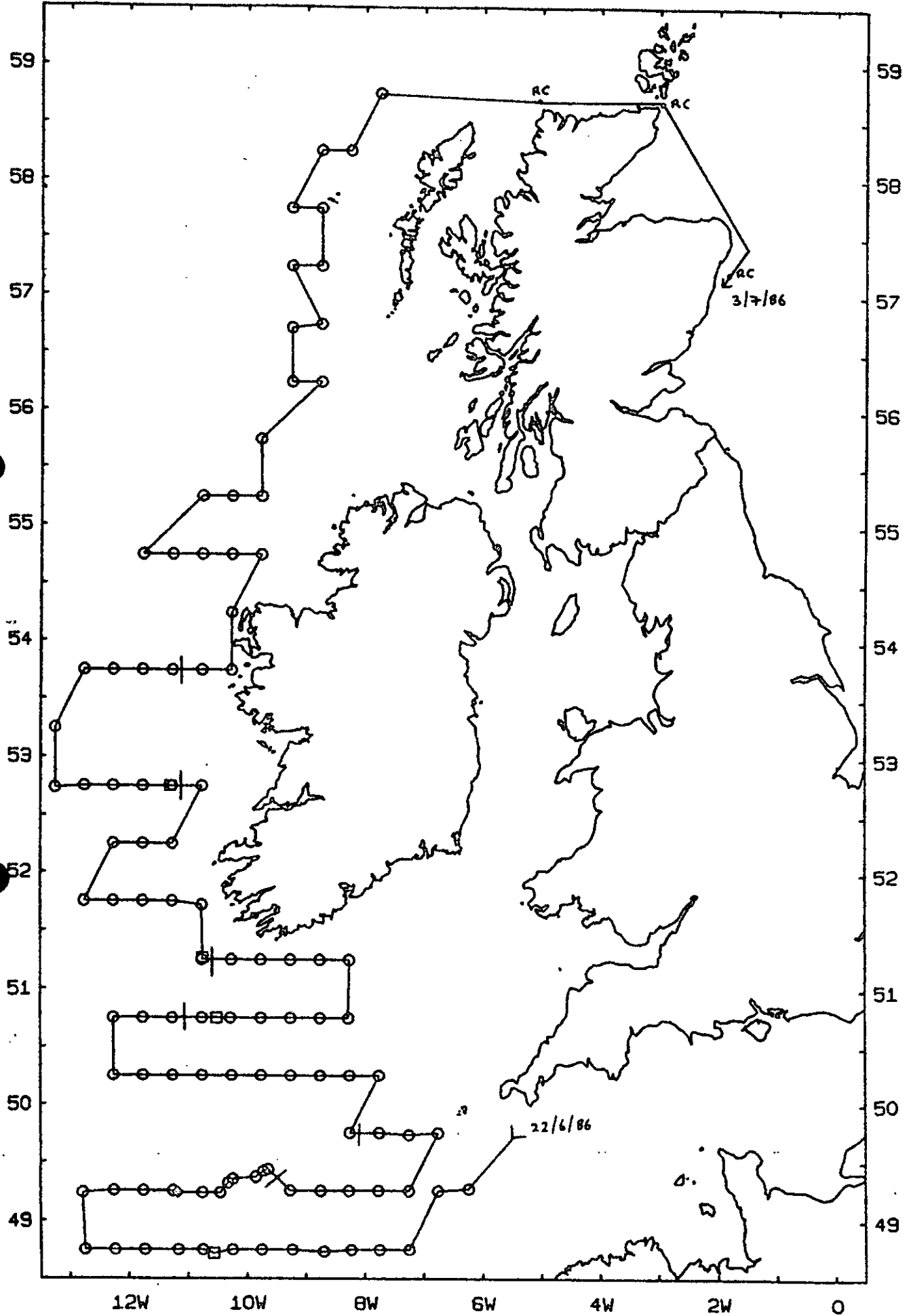
Scotia 6/86
10W

8W Mackerel Egg Survey

6W Part 2

4W 2W

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○ PLANKTON HAULS

◇ PELAGIC TRAWL HAULS

RC RADIO CAESIUM STATION

□ LHPR PLANKTON HAUL

| HANDLING HAULS

0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000