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FRV 'Clupea'
Cruise 5 Part 2

5pt2CR89

REPORT

30 April-5 May 1989

Personnel

P W Balls	SSO (in charge)
W R Turrell	HSO
R D Adams	SO
R E Laslett (Miss)	PhD Student

Objective

To locate and examine the physical and chemical structure of the front between the Firth of Clyde and the North Channel.

Narrative

Scientific staff joined 'Clupea' at Troon on 29 April at 1600. Following loading, the vessel sailed at 0630 on 30 April and proceeded to the area of the Great Plateau where a salinity front has previously been observed (Goldseeker 4/88); the front was again located there.

The remainder of the cruise was spent in mapping the front using:

- a. A continuous survey of temperature and salinity in pumped surface sea water (thermosalinograph).
- b. Depth distributions of temperature and salinity (CTD probe).
- c. Water sampling for nitrate, suspended load, particulate organic carbon and particulate trace metals.

On occasion, drogues were deployed to trace water movements. During the cruise the vessel worked out of Campbeltown and the scientific staff disembarked there at 1700 on 3 May. 'Clupea' then proceeded to Buckie in preparation for the start of the next cruise.

Results

Much of the data and samples await analysis in the Laboratory. Initial results, however, show that a strong frontal feature was present to the north west of the Great Plateau at the entrance to the Clyde. Maximum salinity gradients were found at the order of 0.2 km^{-1} . Upwelling was indicated to the south west of the front with downwelling occurring further north as North Channel water submerged below surface Clyde water. The front was observed to alter its structure during the tidal cycle. Evidence of increased mixing induced by the Mull of Kintyre was found, resulting in further northward intrusion of North Channel water.

P W Balls

9 May 1989

Seen in draft: G Calder