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FRV "SCOTIA"

CRUISE 6/87

6SR87

Report

17 June-7 July 1987

Personnel

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 R D Adams
 J C McKie
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Objectives

Part 1

1. To undertake hydrochemical and benthic surveys in the Clyde, particularly in the Garrach Head area.
2. To deploy and recover sediment traps and parachute drogues.
3. To make observations of the distribution of sewage sludge after its release from the dumping vessel.
4. To collect water samples for radio-caesium analysis.

Part 2

1. To complete the hydrochemical survey of the Clyde Basin and recover 2 current meter moorings on the Great Plateau.
2. To work Faroe-Shetland hydro lines and deploy 2 current meter moorings with additional chemical and plankton sampling work.
3. To carry out a mini hydro survey of the Fair Isle area.
4. To work standard hydro lines in northern North Sea.

Narrative

"Scotia" left Aberdeen pm 17 June and proceeded to the Clyde, collecting 2 caesium samples and undertaking transmissometer trials in the Minch. Intensive survey work was carried out between 19-24 June involving drogue tracking, the handling of sediment traps, water sampling, craib and gravity coring and hydrographic measurements, all of which were carried out in the area of the sewage sludge dumping grounds, south of Garroch Head. The survey ended early on 25 June. Final docking for the half landing in Greenock was slightly delayed by an electrical malfunction and fire in the engine room.

The engine room fire delayed the start of the second half of the cruise until 1 July and with the bow thruster out of action the programme for part 2 had to be severely revised. It was impossible without the bow thruster to do hydrography in confined areas and the survey of the Clyde Basin had to be abandoned. However a CTD survey of the North Channel/Clyde frontal area was carried out before the "Scotia" sailed to the Faroe-Shetland Channel and after the 2 moorings in the Clyde were uplifted. Two moorings were laid in the Faroe-Shetland Channel and limited hydrography was carried out there. Further hydrography using a CTD was done in the North Sea before "Scotia" docked in Aberdeen am 7 July.

Results

One of the primary objectives of the cruise was to follow the settlement and dispersion of dumped sewage sludge in the water column. The hydrographic measurements and parachute drogue studies demonstrated that the water column was stratified and that considerable variation in both strength and direction of the currents occurred within the water column.

Under favourable circumstances, however, it was found possible to follow the patch of water contaminated by sludge. In the surface waters the sludge formed a patch of approximately one kilometer diameter. The settlement of the sludge was followed readily by the transmissometer but the rapid dispersion of solids during settlement resulted in only low concentrations of sewage solids in deeper water. Garroch Head data await completion and further analysis.

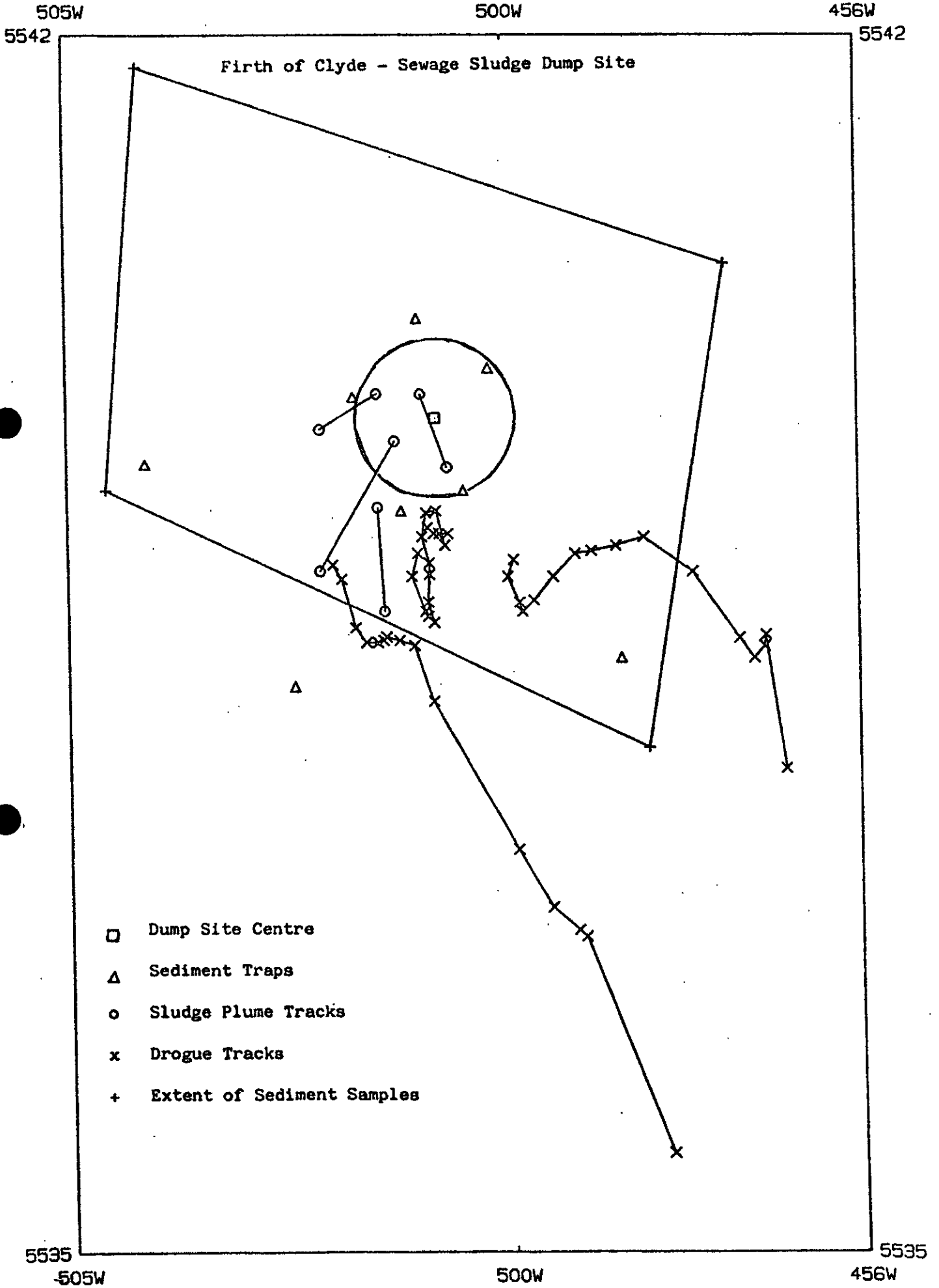
The survey of the North Channel/Clyde frontal area showed that temperature and salinity gradients were most marked at the southern end while at the northern end off the Mull of Kintyre gradients were not only much more diffuse but the front itself penetrated on to the Great Sill area. The data collected will be used for future modelling of the area.

I M Davies
J H A Martin

12 November 1987

Seen in Draft: N E McInnes, CO

FRS SCOTIA CRUISE 6 (PART 1) 17-25 JUNE 1987



F.R.S. SCOTIA CRUISE 6 (PART 2) 2-7 JULY 1987

