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FRV *CLUPEA*

Cruise 0797C

REPORT

24 April - 6 May 1997

Ports

Loading: Lochinver, 24 April

Unloading: Ardrossan, 6 May

Personnel:

I M Davies	PSO (in charge)	25 April - 6 May
P J Hayes	Student	24 April - 6 May
L A Burns	Contract	24 April - 6 May
R Mortimer	Visitor	27 - 28 April
M Spence	Visitor	27 - 28 April
A Shine	Visitor	27 - 29 April
L Johnson	Visitor	27 - 29 April
P Edgar	Student	1 May - 5 May
F Armstrong	SO	27 April

Objectives

To collect sediment samples from selected sea lochs including Loch Duich, Loch Striven and Gareloch, and the Clyde estuary. To process the samples to extract interstitial water and undertake chemical analysis in support of programmes to describe the chemical composition of sea bed sediments.

Out-turn days per project: 11 days, BGA1, 2 days BGM1

Narrative

The port of loading was changed from that in the cruise programme (Ullapool) as *Clupea* had been unable to obtain a berth at Ullapool to cover the period between cruises 0697C and 0797C. Loading was completed on 24 April, and *Clupea* made passage to Loch Laxford. On 25 April, scientific gear malfunctions prevented the planned programme from being completed, and *Clupea* made passage to Kyle of Lochalsh. I Davies joined the vessel at Kyle on the evening of 25 April.

Between 26 and 28 April, various sediment sampling and analysis exercises were carried out in Loch Duich. On 27 April, a detailed RoxAnn survey of the loch was completed, with a view to assessing whether RoxAnn might be useful in the identification of sediments amended by fish farm waste, at distance from the source farm. The acoustic data were supplemented by a surface sediment grabbing programme on 28 April (project BGM1). A large box corer borrowed from the British Geological Survey proved to be a reliable sampling tool in the soft muds of the

sea lochs, and collected cores 30 x 30 x 80+ cm deep. This enabled comparisons to be made between gel probe (Mortimer and Spence) and classical pore water sampling techniques, whilst limiting the difficulties that arise from spacial difference in pore water chemistry, and also to correlate reliably between several different gel probes, sampling for different pore water constituents (project C096).

A Shine and L Johnson were able to use a new design of modified Kullenberg corer to recover coherent sediment cores up to 3.5 metres deep from the deepest part of Loch Duich. These samples enabled the studies of pore water chemistry to be extended below the sulphate reduction zone. The longer cores also provided samples of sediment representing pre-industrial conditions, which will permit estimates to be made of background conditions from which to view current surface sediment chemistry (projects BGA1, C096).

On 29 April, *Clupea* made passage to Loch Linnhe, and on 30 April undertook sediment sampling in Loch Linnhe and the Firth of Lorne (project C096) on passage to Cambeltown.

On 1 and 2 May, sediment samples by box corer, gravity corer, and Day grab were collected in Loch Striven, and processed for the recovery of pore waters (project C096) and subsequent chemical analysis of solids (projects C096, BGA1). This work was continued in the Gareloch, Clyde estuary, and the inner Firth of Clyde on 3-5 May, in support of various projects (C096, BGA1), and associated research studentships (P Hayes and P Edgar). It included the collection of large sediment samples for use in the preparation of Laboratory Reference Materials (project BGA1) and QUASIMEME test materials.

Clupea docked in Ardrossan on the evening of 5 May. The equipment was unloaded, and the remaining scientists left the vessel on 6 May.

The nature of the work is such that the samples collected await analysis in the laboratory.

Ian M Davies
10 June 1997

Seen in draft: M Beedie