

In Confidence: Not to be quoted without reference to the laboratory.

CRUISE REPORT

FRV "CLUPEA"

27 - 31 October, 10 - 21 November 1975

OBJECTIVES

- 1) To make hydrographic and plankton measurements in the Firth of Forth (27 - 31 October, 17 - 21 November) and in Sullom Voe and the JONSIS line (10 - 14 November).
- 2) To lay and recover 4 current meter moorings in the Firth of Forth.
- 3) To evaluate the Inter Ocean STD system.

PROCEDURE

a) Firth of Forth (27 - 31 October)

Clupea sailed from Aberdeen at 1600 on 27 October. The four current meter moorings were deployed on 2^o October and from then until 30 October a grid of stations was worked to collect samples for salinity, nutrient and trace metal analysis, and for plankton analysis.

Clupea docked in Leith at 1000 on 29 October for repairs to a life raft, leaving again at 1500. The ship left the Forth at 0100 on 31 October and proceeded to Aberdeen where she docked at 0700 that day.

b) Sullom Voe and JONSIS line (10 - 14 November)

Clupea sailed from Kirkwall at 0600 on 10 November and completed the JONSIS line by 2330. Deteriorating weather meant that plankton samples could only be taken at the first two stations. Sullom Voe was reached by 0800 on 11 November where unsuccessful attempts were made to recover the box cover lost in April. A section down the axis of the voe was then worked and the night was spent working an anchor station near the mouth of Orka Voe, using the N10 TS bridge and the direct reading current meter. Trials of the STD system were also begun in this period but because of the ship's large distance from Aberdeen and unsettled weather conditions it was decided to continue these trials in the southern Moray Firth. The ship arrived there at 0700 on 13 November but after only four hours of trials the STD developed a fundamental fault. Because of this and unfavourable weather forecasts the ship proceeded to Aberdeen where she docked at 1700.

c) Firth of Forth (17 - 21 November)

Clupea left Aberdeen at 1100 on 17 November in very poor weather conditions. On reaching the Forth further station work was continued but this time samples for heavy metal and plankton analysis were not collected. Calibration samples for heavy metal analysis were, however collected on 1^o November at Cockenzie Road. Advantage was taken of overnight anchoring by taking current and TS measurements at 2 locations in Largo Bay.

Bad weather delayed the recovery of the four current meter moorings until 20 November when conditions were marginal. This resulted in heavy damage, during recovery, of one of the buoys all of which were recovered by 2000. Clupea then sailed for Aberdeen where she arrived at 0600 on 21 November.

RESULTS

a) Firth of Forth

As is usual in the Forth there was a marked longitudinal gradient in its water properties and only very small variations laterally. There was however a sharp front close to the southern shore separating the low saline outflow from the North Sea water present in the Forth. Because of its shallowness and proximity to the coast the current meters were not located in this outflowing water.

Some difficulty is being encountered in extracting the data from the recording current meters. It is therefore not possible to comment on these results.

b) Sullom Voe and JONSIS line

The hydrographic measurements reflected the general lowering in salinity throughout the north east Atlantic. The existence of very weak density gradients in Sullom Voe was further confirmed. In addition the anchor station at Orka Voe demonstrated an almost complete absence of tidal streams there.

c) STD Trials

Six stations were worked using the STD. Many problems were encountered, however, including leaking at the sensors which eventually brought about a curtailment to the trials.

H D Dooley
24 February 1976

Seen in Draft: G Geddes