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FRV *CLUPEA*

Cruise 0792C

REPORT

30 April - 6 May 1992

Personnel

D Seward	SSO	(in charge)
J McKie	HSO	
L Goodwin	ASO	
S Forsyth	SO	30 April - 4 May
N Collie	PTO	30 April - 2 May

Fishing Gear: BT116 *Clupea* wing trawl

Objectives

1. To collect seawater samples from the Garroch Head sewage sludge disposal site, and from areas adjacent to the disposal site, for microbiological analysis.
2. To collect seawater samples from the Garroch Head sewage sludge disposal site, and from areas adjacent to the disposal site, for measurement of suspended solids.
3. To undertake an echosounder survey, supplemented by transmissometer profiles; before, during and following a sewage sludge dumping operation.
4. To collect seabed sediment samples from the Garroch Head sewage sludge disposal site, from areas adjacent to the disposal site and from the sewage sludge disposal site used prior to 1974, for microbiological analysis.
5. To collect seabed sediment samples from the Garroch Head sewage disposal site, from areas adjacent to the disposal site and from the sewage sludge disposal site used prior to 1974, for chemical analysis in the Marine Laboratory, Aberdeen.
6. To undertake a trawl survey at, and in the vicinity of, the Garroch Head sewage sludge disposal site, to collect samples of representative species for chemical analysis in the Marine Laboratory, Aberdeen.

Narrative and Results

Scientific staff travelled to Ardrossan to join the vessel during the evening of 29 April. The vessel left Ardrossan on the morning of 30 April, and proceeded to the sampling area to test scientific equipment. On completion of equipment trials, FRV *Clupea* proceeded to Millport (Keppel Pier) to pick up scientific staff who had travelled from Ardrossan by car and ferry. Shore-based laboratory facilities were set up at the Millport Laboratory.

On 1 May, the water sampling programme was commenced, and samples collected from the Garroch Head sewage sludge disposal site, and from areas adjacent to the disposal site, for microbiological analysis and suspended solids determination. Between 2-4 May, the water sampling programme was completed, and the sediment sampling programme was commenced. Sediment samples were collected from the Garroch Head sewage disposal site, from areas adjacent to the disposal site and from the pre-1974 disposal site, for microbiological and chemical analysis. An echosounder survey, supplemented by transmissometer profiles, was undertaken to complement the water sampling programme. During the period 5-6 May, the sediment sampling programme was completed, and a trawl survey undertaken using the BT116 *Clupea* wing trawl.

All water and sediment samples collected for microbiological analysis were returned to the Millport Laboratory for processing.

A summary of the sampling is detailed below:

1. Twenty water samples were collected for microbiological analysis using NIO bottles. Analyses were performed on FRV *Clupea* and at the Millport Laboratory.
2. Twenty water samples were collected for suspended solids measurements using NIO bottles. Samples were filtered onto membranes on FRV *Clupea*, and returned to the Aberdeen laboratory.
3. At the 20 water sampling stations, an echosounder survey and a vertical transmissometer profile were undertaken. Data was collected before, during and after a sewage sludge dumping operation.
4. Forty six sediment samples were collected using a Day grab. Surface sediment samples were retained for microbiological analysis on FRV *Clupea* and at the Millport Laboratory. Separate surface samples were deep frozen for heavy metal analysis in the Aberdeen Laboratory.
5. Twenty two core samples were collected using a Craib corer. The cores were sectioned at 2 cm intervals, and the samples deep frozen for heavy metal analysis in the Aberdeen Laboratory.
6. Nine hauls were completed using the BT116 trawl. Representative samples of *Nephrops*, cod, hake, haddock, herring, whiting and flatfish were retained for chemical analysis in the Aberdeen Laboratory.

The work programme was completed on time, and FRV *Clupea* docked in Ardrossan on the evening of 5 May. Scientific staff returned to Aberdeen by minibus, after unloading on 6 May.

D Seward
28 January 1993

Seen in Draft: S Clark, OIC *Clupea*

FRV CLUPEA 0792C : CLYDE SAMPLING STATIONS

