

In Confidence - Not to be quoted without prior reference to the Laboratory

R1/10

Cruise Report

FRV 'Goldseeker' 3/83

3CR83

15 March - 1 April 1983

Firth of Forth Environmental Investigations

Personnel

I M Davies	SSO		
J C McKie	ASO		
D Seaton	SSO	Part-time	Shore-based
D Seward	SSO	"	"
A Smith (Miss)	ASO	"	"
J H A Martin	SSO	"	"
W Balls	SO	"	"

Objectives

1. Hydrochemical surveys of the Forth estuary west of Musselburgh.
2. Collection of radio-caesium sample off Arbroath.
3. Crab fishing in Leith-Seafield area.
4. Collection of samples for Micro-tox analysis.
5. Calibration of quantum meter.

Narrative

Equipment was loaded at Buckie on 10.3.83. 'Goldseeker' proceeded to the Forth on 15.3.83, and arrived in Granton on 16.3.83 where she was joined by the full-time scientific staff. In the meantime laboratory facilities had been established in a mobile laboratory at Port Edgar at the Forth River Purification Board.

Sampling was carried out as planned with only one day (22 March) being lost through bad weather. 'Goldseeker' left the Forth on 30 March, and was unloaded at Buckie on 4 April.

Results

Objective 1 a) On 21 March P W Balls joined 'Goldseeker' and samples were collected for trace metal analysis between Seafield and Port Edgar. Results are not yet available.

b) Considerable effort was expended on the investigation of the distribution of mercury on particulate material in the estuary in relation to tidal state, currents, and grain size. Two full tidal cycle (13 hr) stations were worked in conjunction with the FRPB vessel 'Forth Ranger' at Neaps (24.3.83) and Springs (29.3.83) at positions near to Rosyth.

On both occasions, the main movement of mercury on particles occurred during the latter half of the ebb, and early part of the flood. During this period suspended solids concentrations were high, and they contained higher concentrations of mercury. A more complete analysis of the data is being made, aimed towards first estimates of mercury transport rates.

- Objective 2 The necessary sample was collected off Arbroath on 30 March. Some leakage of the sample container occurred during subsequent transport.
- Objective 3 Grab pots were worked in the Leith - Seafield area between 18 and 28 March. The small sample collected will enable a initial assesment to be made of possible cadmium contamination in the area. Contact was made with local commercial fishermen with a view to obtaining additional material later in the year.
- Objective 4 Samples for Micro-tox analysis were collected between Grangemouth and Granton on 17 March, and around Seafield and Leith on 18 March. Analysis was completed by D Seward on 19 March, together with some methodological studies of the effect of reduced salinity on the technique. The results are not yet fully analysed.
- Objective 5 Work to meet this objective was carried out by J H A Martin on 28 March. Conclusions are not yet available.

Ian M Davies

21 April 1983

Seen in draft: G Calder