

R1/10 In Confidence: Not to be quoted without prior reference to the Laboratory
Cruise Report

'Goldseeker' 5/83

3-20 May 1983

Firth of Forth Environmental Studies

Personnel

I M Davies	SSO - part-time
P W Balls	SO
C R Falconer	SO - part-time
J C McKie	ASO - part-time

Objectives

1. Collection and analysis of water samples for trace metals between Crombie and Dunbar.
2. Collection of fish samples for Joint Monitoring Group and other monitoring projects.

Narrative

Equipment was loaded and 'Goldseeker' left Buckie on 3 May and arrived at Granton on 4 May. The sampling of water to meet objective 1. occupied most of the cruise, with samples being collected between Queensferry and Pittenweem in the north, and the Bass Rock to the south. Fish sampling by Agassiz trawl and beam trawl was performed sub-tidally and inter-tidally in the inner Firth on 10-12 May. Further sampling to meet objective 2. was undertaken from a small boat between 13 and 16 May and did not involve 'Goldseeker'.

Results

Objective 1. Surface water samples in the outer Firth (east of Queensferry) were analysed in a mobile laboratory at Port Edgar for dissolved cadmium, lead, and copper.

Copper concentrations decreased gradually eastwards from ca $0.5 \mu\text{g dm}^{-3}$ at Queensferry to ca $0.15 \mu\text{g dm}^{-3}$ at the Bass Rock and Pittenweem. Lead and cadmium showed no such clear trend; both elements being present at about $0.04 \mu\text{g dm}^{-3}$. Higher concentrations of lead and cadmium were observed on occasions, generally close to the south coast around Leith. Dissolved metal concentrations were generally higher near the south coast than the north.

Objective 2. Samples of flounders and plaice were obtained by trawling and line fishing from the Tancred Bank area, and around Alloa/Middle Bank. Catches were poorer than expected and this was thought to be due to the large tides, and high freshwater flow. Line catches strongly selected for large specimens, and additional smaller fish were obtained from salmon fishermen at Alloa.

I M Davies
13 June 1983

W B Reid 10 June 1983