

18
In Confidence - not to be quoted without reference to the laboratory

R1/12

FRV Scotia
Cruise 2/83
Report
23 March - 1 April 1983

2SR83

Objectives

1. To collect samples of sediment and fish from selected stations at the Bell Rock and St Abbs Head sewage sludge dumping grounds.
2. To investigate the distribution of hydrocarbons in the water and sediments along the Forth-Forties line.
3. To collect samples of benthos and sediments on the JONSIS line.
4. To collect samples of benthos and sediments at selected stations in the northern North Sea generally.
5. To test plankton gear instrumentation.
6. To collect surface water samples for radio-caesium monitoring at Aberdeen ($57^{\circ} 10' N$ $1^{\circ} 55' W$), Arbroath ($56^{\circ} 32' N$ $2^{\circ} 20' W$) and Fair Isle ($59^{\circ} 30' N$ $2^{\circ} W$).

Narrative

Scotia sailed from Aberdeen at 1730 on Wednesday 23rd March and proceeded to Aberdeen Bay to calibrate the vessel's e-m log using a trisponder system. It became apparent however that the aerial on the Marine Laboratory roof was not working properly and Mr Urquhart was landed by pilot boat to investigate. The fault was soon rectified but the calibration had to be abandoned when it was found that, at the chosen settings of the log's electronics unit, adequate adjustment could not be made to the bridge repeater. The vessel therefore returned to port to await completion of previously arranged repairs to the hydraulics of the plankton winch; in port advice was obtained from the manufacturers of the e-m log.

On completion of repairs, Scotia sailed at 1530 on 24th March and returned to Aberdeen Bay where reasonable calibrations were obtained before the vessel set course, at 2130, for the Bell Rock sewage sludge dump site.

The Bell Rock grounds were reached at 0245 on 25th March and the survey completed about eight hours later. The site at St Abbs Head was then visited but adverse weather forced the vessel to leave the area and seek more sheltered waters (Largo Bay) where plankton gear instrumentation tests were carried out during the evening. Thereafter Scotia proceeded to the area of the Forth road and rail bridges to commence the Firth of Forth section of the Forth-Forties line during the ebb tide; the appropriate stations were completed between 0230 and 0540 on 26th March. Scotia then returned to the St Abbs Head site. On completion of the stations at the latter site (0730-1230) the seaward stations of the Forth-Forties line plus (i) an additional trawl haul and (ii) further improved e-m log calibrations in Aberdeen Bay, were undertaken before the vessel left the southern half of the operational area at 0720 on 27th March.

The JONSIS benthos line was occupied between 2015 on 27th and 1650 on 28th March. In turn the stations north of Orkney were worked but at 0900 on 29th, with weather conditions deteriorating, a decision was taken to steam to the area off north-east Shetland where work recommenced at 1740 with further work on plankton gear instrumentation. At 1960 work on the general benthos survey started once more and continued in ever improving weather conditions until 1830 on 31st March when Scotia set course for Aberdeen where the vessel docked at 0300 on 1st April.

At 1230 on 31st March Scotia recovered a liferaft at $58^{\circ} 30'N$ $00^{\circ} 51.5'E$.

Results

The concentration of mercury in flounders from Bell Rock ranged from 0.01 to 0.21 ppm and were therefore not elevated above what could be considered as background levels.

Hydrocarbon levels (as oil equivalents) along the Forth-Forties line were as tabulated below.

	In water ($\mu g\ l^{-1}$)	In sediment ($\mu g\ g^{-1}$)
Bridges	71	4154
Hound Point	42	
Port Seaton	17	2795
Bass Rock	7	180
Bell Rock	2	22
FFL 3	1	6
FFL 2	1	5
FFL 1	2	5

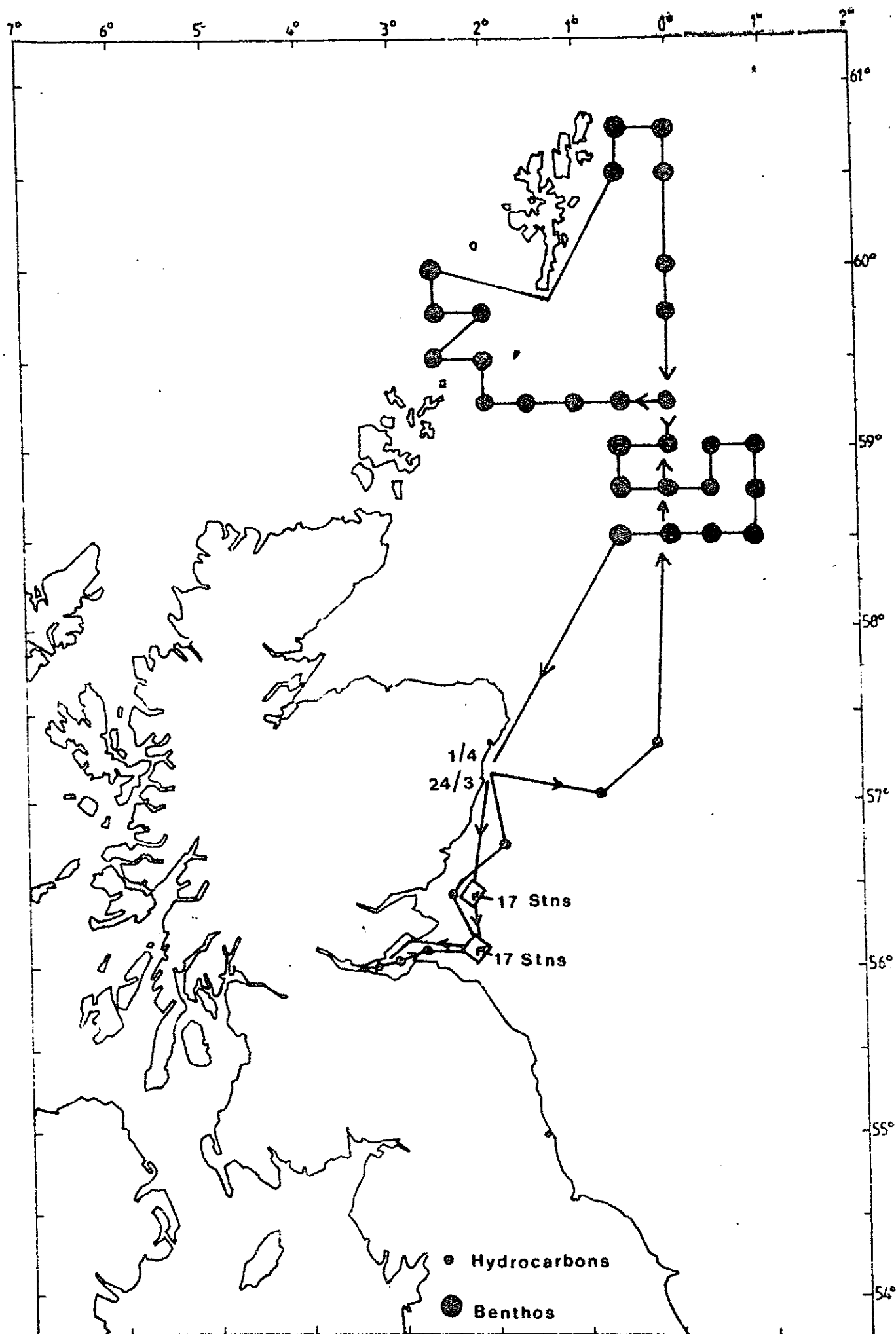
The benthos samples are being worked up.

J A Adams

1 March 1984

Seen in Draft

I C MacLeod



SCOTIA CRUISE 2/83