MINISTRY OF AGRICULTURE FISHERIES AND FOOD
FISHERIES LABORATORY LOWESTOFT SUFFOLK ENGLAND

1973 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 8/1973
(Provisional: Not to be quoted without prior reference to the author)

PART (b)

STAFF

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DURATION

Left Greenock 1300 h 6 October
Arrived Grimsby 0700 h 16 October
All times are Greenwich Mean Time

LOCALITY

Firth of Clyde, North Channel North-east Atlantic Scottish Coastal waters and the northern North Sea.

AIMS

1. To collect seawater samples in the North-east Atlantic and British Isles coastal waters to determine caesium-137 concentrations.

2. To collect seawater samples for trace element analyses.

3. To collect seawater samples from the Firth of Clyde and approaches for Dr G Topping (DAFS).

4. To collect seawater samples at 4 positions in coastal waters of northern Scotland on behalf of Dr H Kautsky (DHI) for North Sea radio caesium studies.

5. To collect seawater samples at depth at one position in the North-east Atlantic on behalf of Mr A T Murray, Dept of Oceanography, Liverpool for chlorinated hydrocarbon determinations.

NARRATIVE

R V CIROLANA sailed from Greenock at 1300 h 6 October and worked a grid of 16 stations in the Firth of Clyde and approaches until 1200 h 7 October. At all stations seawater was sampled, filtered, deep frozen and retained for Dr G Topping (DAFS) for a Clyde trace metal budget study. The filtrates will be analysed by FRL Lowestoft and the particulate fraction by DAFS Aberdeen. At selected stations 50 litre samples of seawater were collected and processed on board by filtering through 0.22 μm membrane filters. The filtrate was then passed through ASG ion exchange columns for the selective extraction of the caesium radionuclides for subsequent gamma counting at Lowestoft.

At 1400 h 7 October CIROLANA proceeded to return to Grimsby collecting large volume seawater samples, for caesium-137 analysis, on a grid of 70 stations in the North Channel of the Irish Sea, North-east Atlantic, Scottish coastal waters and the northern North Sea. 12 stations of the original proposed grid line have already been worked on Part (a) of the cruise. At approximately 50% of all stations water was also collected at mid-depth and bottom of the water column in addition to surface water sampling. The samples at depth were obtained using Niskin water bottles of 30 litre capacity. At 66 stations seawater was retained, deep frozen, after filtration through membrane filters. The filtrate and filter papers will be analysed for the following trace elements:-

Zn, Mn, Cd, Ni, Cu, Co, Hg and Pb.

RESULTS

All the aims of the cruise were completed although 4 stations between 60°N-61°N and 5°W-7°W were omitted from the original proposed cruise track. 4 additional stations were worked between the Orkneys and Shetlands.

1. The caesium-137 work is the continuation of the project to examine and delineate the spread of the ^{137}Cs, derived from BNFL, Windseale, Cumberland, outside the confines of the Irish Sea. The opportunity was also taken to obtain samples to examine the distribution with depth in the North-east Atlantic of ^{137}Cs derived from nuclear weapon test fallout.

2. In conjunction with the results to be obtained, from trace element analyses on samples obtained on Part (a) of the cruise, the analytical data will be used to establish trace metal baseline concentrations in the North-east Atlantic and to compare inshore and offshore levels. The distribution of ^{137}Cs obtained in the Orkney-Shetlands area will be used to delineate areas of water of coastal and oceanic origins and to compare with the distributions of trace metals in those areas.

The opportunity was also taken, as on Part (a) to obtain water samples to compare the effect of different sampling techniques on the trace element concentrations measured.

D F Jefferies
29 October 1973

INITIALLED A J L

DISTRIBUTION
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Mr H Howells (BNFL, Windscale)
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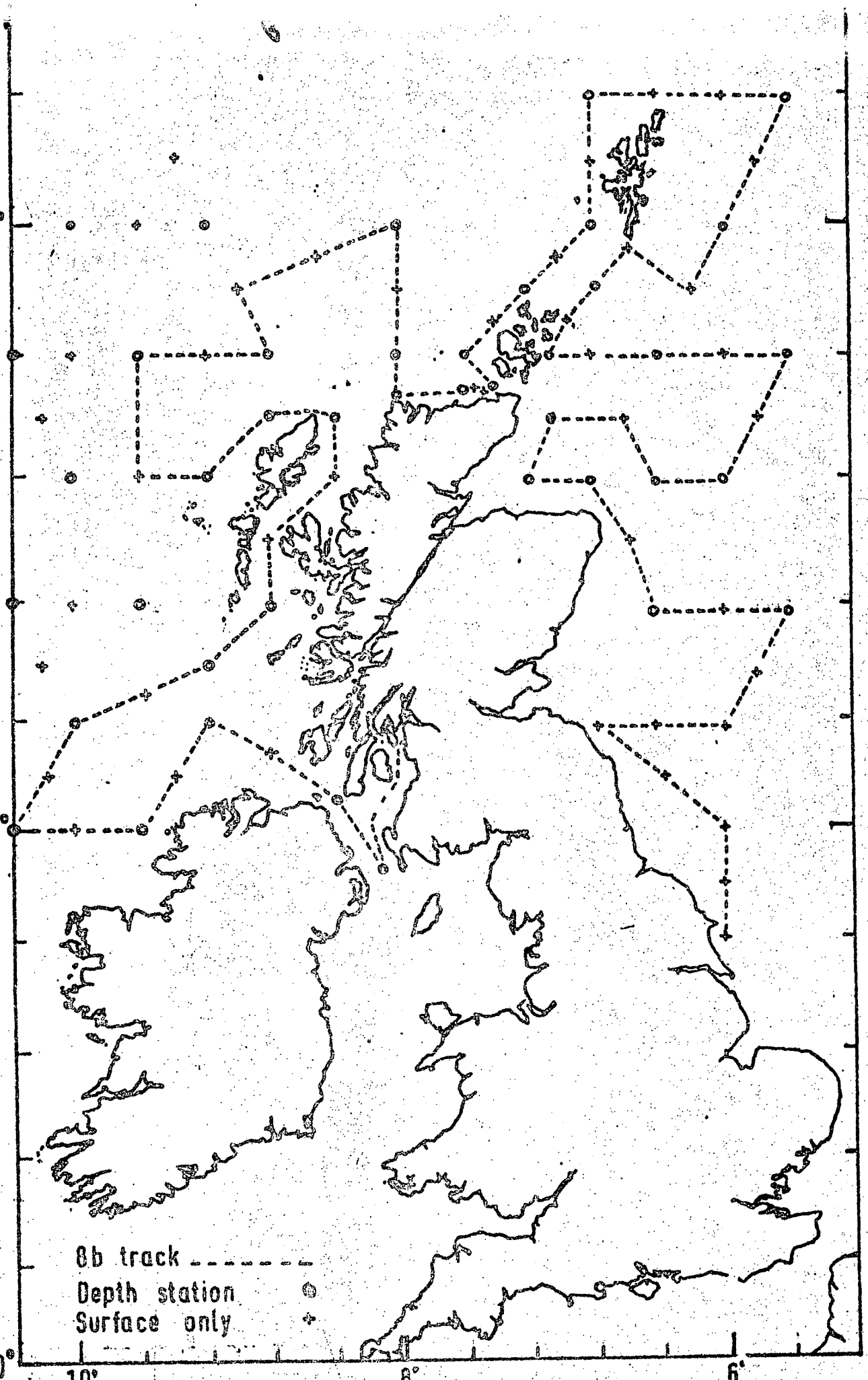

Cirolana 8a and 8b 1973 Station positions for Caesium-137 and trace element sampling