MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1970 RESEARCH VESSEL PROGRAMME

REPORT: R V CORELLA: CRUISE 6

STAFF:

D S Woodhead
A K Steele
C W Baker
R J Read
J R J Tipple

DURATION:

Departed Lowestoft 1000 hours, 22 May 1970
Arrived Lowestoft 2000 hours, 2 June 1970

LOCALITY:

Irish Sea

AIMS:

1. To continue the examination of the budget of artificial radioisotopes in the Irish Sea.
2. To collect seawater samples at selected stations for trace element analysis.
3. Collection of seawater samples in the North Sea and English Channel to determine ^{137}Cs concentrations derived from nuclear weapon-test fallout.
4. Total gamma counting above the sea surface to discriminate between discharge and background situations.
5. Collection of seawater samples to measure dispersion of ^{137}Cs from DERE Dounreay and from UKAEA Windscale to NE atlantic.
6. Collection of starfish at selected sites for trace element analysis.

NARRATIVE

R V CORELLA left Lowestoft at 1000 hours, 22 May, and proceeded northward toward the Pentland Firth. Samples of seawater were taken at five stations en route; a sample of starfish was also collected at the station off Newcastle using a 3 metre Agassiz trawl. All seawater samples were filtered immediately after collection to remove suspended matter. (Filter pore size 0.22 μm).

On 24 May seawater samples were collected for radiometric and trace element analysis on a line of nine stations to the east and west of the outfall from the research establishment at Dounreay. The gamma ray monitor was also operated during this period.

On 25-27 May surface seawater samples were collected at six stations in the Atlantic north-west of the Hebrides (one station was omitted due to adverse weather conditions), and at seven stations in the Sea of Hebrides and North Channel.

On 28-31 May sea water and seabed samples were collected from a grid of stations in the Irish Sea. The $^{134}/^{137}Cs$ was extracted on board from one seawater sample from each station on this grid using an ion exchange technique. During this period the total gamma ray flux above the sea surface was monitored. (Including an eight hour period when the vessel was anchored off the Windscale pipeline outfall.) Two trawls were made on 28 May close to the outfall to obtain samples of plaice for radiometric analysis. At five of the stations in the Liverpool Bay area samples of starfish were also collected.

The ship then returned to Lowestoft via the English Channel collecting surface seawater samples at seven stations en route, arriving at Lowestoft at 2000 hours, 2 June.

Results

As a result of the excellent weather conditions prevailing throughout most of the cruise all but one of the projected stations was worked and the aims of the cruise achieved with two days to spare.

Apart from the gamma ray flux monitoring programme no preliminary results can be given as the samples have to be processed in the laboratory.

In relation to the gammaray flux monitor the indications are that it can be used to detect and delineate contaminated patches of water in the Windscale environment and enable thepatches to be followed until the natural dispersion process reduces the emitted γ-ray flux to background levels.

D S Woodhead
8 June 1970

Seen in draft: A J L

DISTRIBUTION:

Basic List
Mr Woodhead
Mr Steele
Mr Baker
Mr Read
Mr Tipple