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CRUISES 5A and B.

R1/12

SSR85

In Confidence - not to be quoted without prior reference to the Laboratory LD

FRV "Scotia"

Cruise 5/85

Report

17 May - 6 June 1985 Part 1: 17-25 May Part 2: 26 May - 6 June

Personnel:

Part 1.	A D McIntosh	HSO in charge
	D M Finlayson	SSO
	D C Moore	HSO
	J G McHenery	SO
	S Aitchison (Miss)	ASO
	P R Mackie	TRS
	J Clinton (Mrs)	Student
	S J Hall	JRF
	M Leaver	Student
Part 2:	A H McVicar	PSO in charge
	J W Smith	HSO 29 May - 6 June
	D W Bruno	HSO
	C O Fraser (Miss)	ASO 29 May - 6 June
	R Bray	Visitor (British Museum)
	M Spencer-Jones (Miss)	Visitor (British Museum)
	L McFarlane (Mrs)	ASO 26-29 May
	A D McIntosh	HSO 26-29 May
	J G McHenery	SO 26-29 May
	J Clinton (Mrs)	Student 26-29 May

Fishing gear: Aberdeen 48' trawl (BT 101) plus tickler chains (Pt 2)

Objectives: Part 1

1. To investigate the distribution of hydrocarbons in sediments around Beryl the east Shetland Basin, Beatrice and the Forth Forties line.

2. To monitor the benthos around the Beryl field.

3. To measure hydrocarbon levels in water samples from the predicted outfall flume from a production platform in the east Shetland Basin.

4. Biological monitoring of natural populations of infauna, epifauna and fish species from areas close to oil activity and in areas distant from such activity.

5. Collection of water for radio-caesium analysis.

Part 2:

To survey the Northern North Sea and areas west and north of Scotland to determine the prevalence of various pathological conditions and parasites of gadoids and flatfish. Where possible fish catches will be treated according to standing instructions.

Narrative:

"Scotia" departed Aberdeen at 1700 hours on 17 May on Part 1 of this cruise and headed towards the Thistle oilfield, taking in 2 'clean' stations for sediments and 3 Agassiz trawls en route. "Scotia" arrived on station at Thistle at 0130 on 19 May where 29 sediment and 24 water sampling stations were occupied, 3 Agassiz trawls were taken and 3 fish traps deployed. Sampling was completed at Thistle by 0830 on 20 May when passage was made toward the Beryl field where 42 sediment stations were occupied, 4 Agassiz trawls taken, a long line was laid and the fish traps deployed. Sampling at the Beryl field was completed at 2300 on 22 May and "Scotia" headed west for the Beatrice oilfield where sampling commenced at 1245 on 23 May. Thirty-nine sediment stations were occupied and 3 water samples taken and this was completed by 0200 on 24 May. Sampling on the BACO dump ground commenced at 0800 on 24 May and after 29 sediment stations had been occupied and 5 Agassiz trawls taken by 2000 "Scotia" made passage for Aberdeen to dock at 0700 on 25 May.

"Scotia" left Aberdeen at 0900 on 26 May and after swinging the compass proceeded towards the Thistle oilfield trawling one station en route. Four trawling stations were performed on 27 May in the vicinity of the Thistle platform for hydrocarbon analysis associated studies, a departure from the programme brought about by inability to trawl during part 1 of the cruise. After fishing in the Fair Isle and outer Moray Firth areas 4 scientists were dropped off and 2 uplifted at Buckie on 29 May. Trawling continued in the Moray Firth, proceeding to west Orkney, west and south of the Outer Hebrides and finishing in the north Minch on 5 June.

Forty-two trawling stations were worked, a total made possible by the good weather prevailing for most of the cruise, and the excellent cooperation of the officers and crew of "Scotia".

Results

Over 160 sediment samples were collected for subsequent analysis for total hydrocarbon concentration and heterotrophic mineralisation. Twenty-seven water samples were extracted by closed loop stripping and will be analysed by gas chromatography. Thirty of the cores were measured for redox potential and kept for subsequent meiobenthic examination.

Fishing by trawl was not possible during Part 1 due to technical difficulties and the use of fish traps and long lines yielded only 5 fish and was disappointingly unsuccessful.

During Part 2, trawl's were taken around the Thistle platform and 'clean' areas and provided over 100 fish samples for investigating various parameters including genotoxic effects of pollutants, induction of aryl hydrocarbon hydroxylase (AHH), lysosomal cytochemistry and assessment of taint by a trained taste panel.

Over 5,100 haddock from 41 hauls were examined for pseudobranch lesions and vertebral deformation and samples of the kidney of 1829 taken for subsequent microscope analysis for Ichthyophonus. A total of 2300 haddock from 23 hauls were examined for Lernaeocera branchialis infection. From these same hauls 200 lemon sole were preserved for subsequent examination for Lernaeocera infection. In order to examine the effects of Lernaeocera infection on the blood picture of haddock, 30 infected and control fish from 4 hauls were blood sampled.

Examination for pseudobranch lesions was performed on over 700 cod and the kidneys of over 300 plaice examined for Ichthyophonus infection with gel diffusion antibody tests being carried out on serum of all infected plaice. All common dabs caught (1690 total) were examined for Lymphocystis infection, skin hyperplasia and papilloma, skin ulceration and x-cell lesions of the gills.

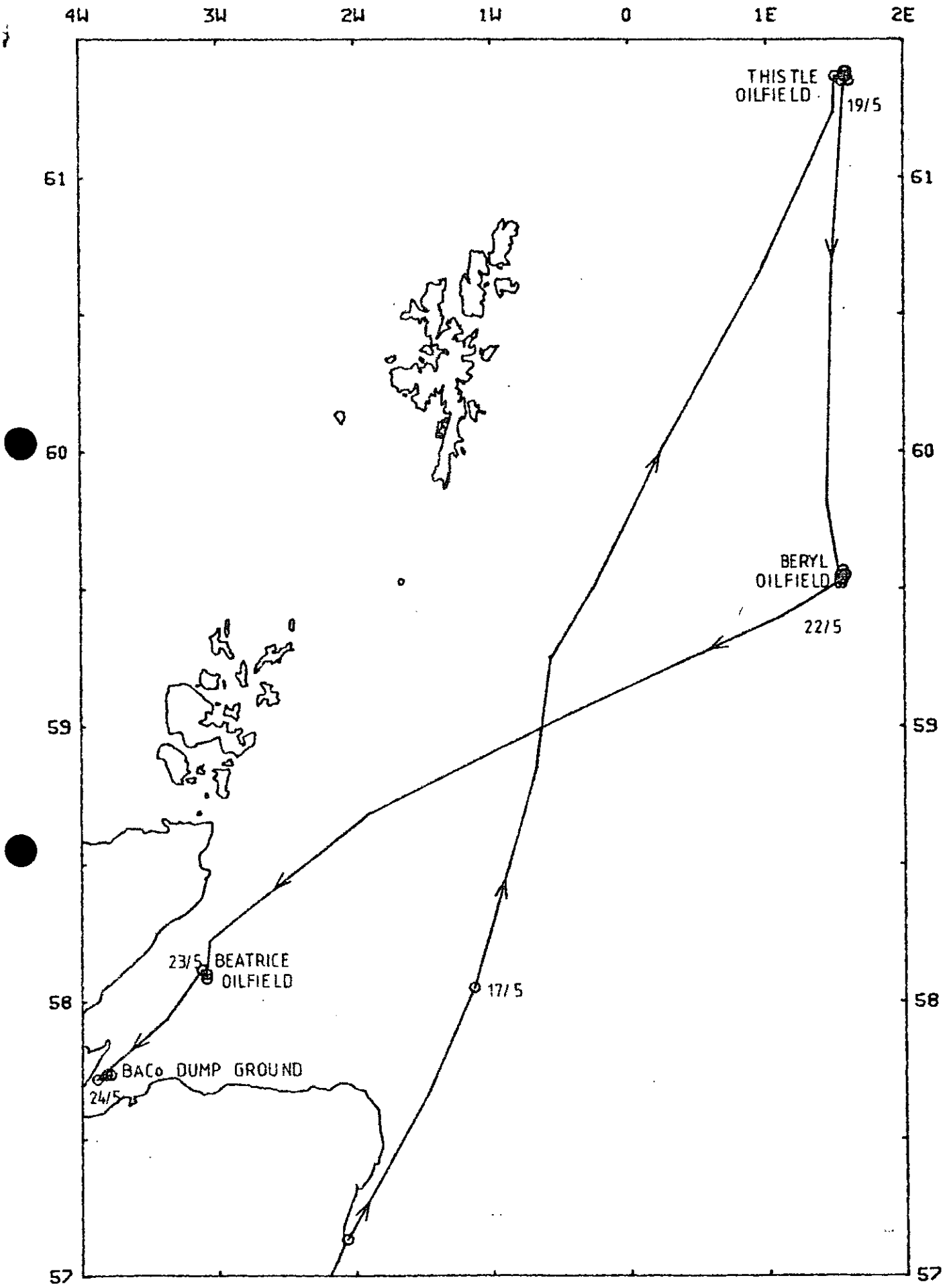
All mackerel caught were examined for mycobacteriosis using gross signs, bacteriological methods and histological methods.

As appropriate, lesions and other tissues were sampled for bacteriology using several media, and for light and electron microscopy. Pathological signs of disease were photographed, together with rare and interesting fish species. Water for radio caesium analysis was collected at 4 locations.

A D McIntosh
A H McVicar

27 August 1985

Seen in draft: J Gillon OIC



SCOTIA 17 — 25 MAY 1985

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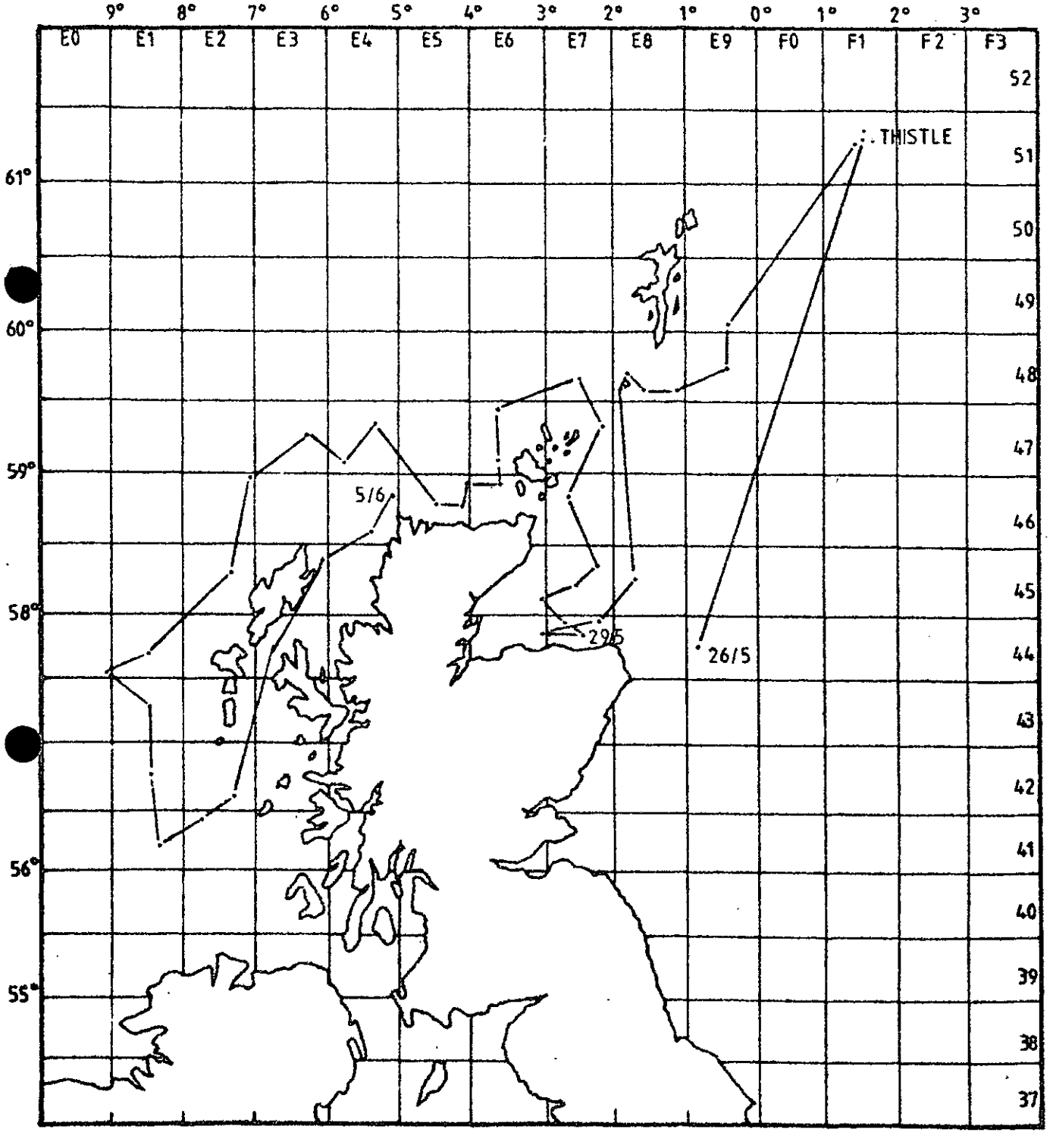

SCOTIA 26 MAY — 6 JUNE 1985

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