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IN CONFIDENCE - NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY

FRV EXPLORER

4ER81

CRUISE 4/81

REPORT:

20-29 May 1981

OBJECTIVES

1. To carry out a bottom trawling survey in the northern North Sea and to the north of Scotland to determine the effect and distribution of infection of two diseases, Ichthyophonus and Lernaeocera in haddock and Ichthyophonus in plaice.
2. To carry out an echo survey for herring in the Shetland area.
3. To sample pure North Sea stocks of mackerel for biological tag studies.
4. To sample gadoids from the vicinity of oil fields and remotely for oil degrading enzyme analysis.
5. To carry out experimental studies on post mortem migration of larval Anisakis.
6. Tagging trials with a new dogfish tag.
7. To sample gadoid stomachs from selected stations for food analysis.

NARRATIVE

'Explorer' left Aberdeen at 1500 hours on 20 May and proceeded to the Norwegian zone, 4 stations being worked in the 'Patch' area on 21.5. One station close to the Beryl oil field was worked on 22.5 and stations then worked in a line across towards Fair Isle. The herring echo survey was started on 23 May continuing until 26 May with particular attention being given to locations where information from fishermen suggested there may be accumulations of herring. Eleven hauls were made in the Shetland area including three specifically on fish marks. Four stations were trawled west of Orkney on 27.5 and 3 in the Moray Firth (including one beside the Beatrice oil field) on 28.5 before docking at Aberdeen early on 29.5.

During the cruise 26 stations were worked, a total made possible by the good weather conditions, and the excellent cooperation of the officers and crew of 'Explorer'.

## RESULTS

1. A total of 1150 haddock were examined for Lernaeocera and Ichthyophonus, samples of kidney being removed for microscopic determination of the latter. 92 plaice were similarly sampled for Ichthyophonus and gel diffusion antibody tests carried out on serum from all plaice and 50 haddock. Samples of juvenile lemon sole were preserved for determination of early stages of Lernaeocera.
2. Echo sounder papers were annotated at 30 mins intervals from 23.5 to 26.5 inclusive and all fish marks recorded and categorised regarding size and density. Extensive mid water and bottom traces were only observed in the Scalloway Deep area but trawls in that area and at other locations around Shetland did not reveal any quantities of herring.
3. A full sample of 350 mackerel was obtained from the eastern North Sea for biological tag studies on a known North Sea mackerel population.
4. Samples consisting of liver homogenate frozen in liquid nitrogen for enzyme analysis and fixed pyloric caeca for pancreas histology were taken from 29 cod, 64 whiting and 65 haddock caught in 12 trawls in close proximity to the Beryl and Beatrice oil platforms and from remote areas as controls.
5. Six experiments were performed to investigate reasons for the mass migration of larval Anisakis into the fish of 'oily' fish (eg mackerel) but not into 'non-oily' fish (eg whiting) during ice storage of ungutted fish.
6. 224 Squalus and 79 Scyliorhinus from 9 hauls were double tagged and released.
7. Gadoid stomach samples were taken from 7 statistical squares and preserved according to ICES recommendations for subsequent food analysis.

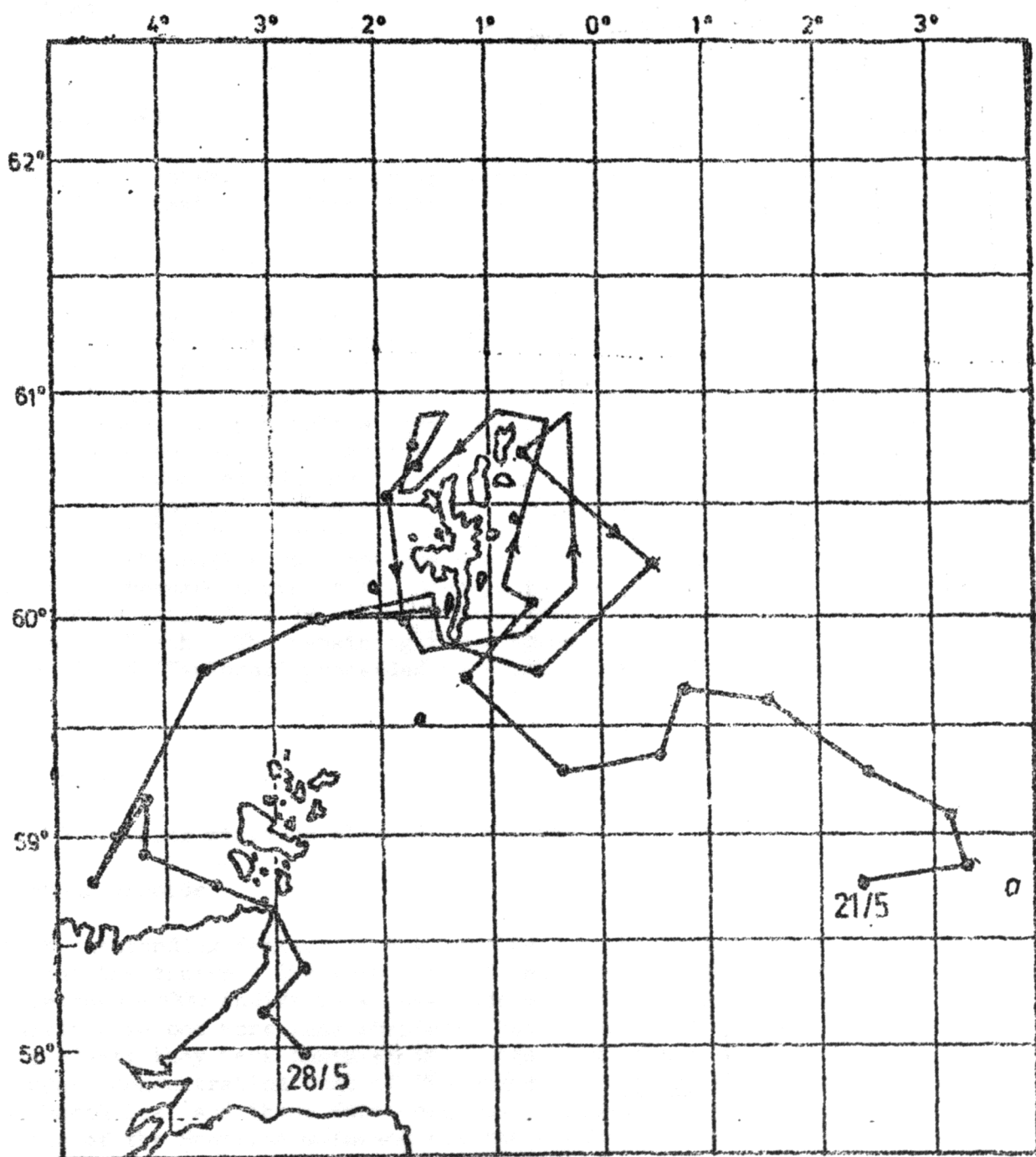
## GENERAL

Skin ulceration in Limand limanda - levels of 4.0% off S.W. Shetland, 2.2% off Wick and 7.5% close to the Beatrice oil platform were recorded. Bacteriological cultures were made for laboratory identification of infectious organisms.

Visiting scientists from the National Museum in Wales collected parasite samples from various species of fish taken from all hauls for ecological and taxonomic studies.

Alasdair H McVicar  
29 June 1981

Seen in draft: Capt. T. Henderson



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