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In confidence: Not to be quoted without reference  
to the Laboratory

FRV EXPLORER

CRUISE 3/79

REPORT

16 March-30 March 1979

OBJECTIVES:-

To undertake a trawling survey to the north and west of Scotland to determine (a) the distribution and abundance of adolescent and adult mackerel, (b) the abundance and geographical distribution of larval nematodes in cod, whiting and mackerel and to carry out experiments on the migration of worms in flesh, (c) the abundance and distribution of the parasitic fungus Ichthyophonus in haddock and plaice.

NARRATIVE:-

EXPLORER was due to sail on Friday 16 March but crew shortages delayed sailing until 1430 on Monday 19. Northerly gales caused EXPLORER to seek shelter off Clyth Ness and Sanday until it was possible to work one station to the east of Orkney on Wednesday 21. After passage through the Westray Firth towards stations west of Orkney severe weather again forced EXPLORER to seek shelter east of Orkney until 23 March. Moderation in conditions allowed 1 station to be worked off the north coast on 23 March, and 3 North Minch stations on Saturday 23 before shelter was again sought south of Skye. A new station, with some shelter, was worked in the South Minch on Sunday 25 and with moderation in gales 2 further North Minch stations and 2 south of North Rona were worked on Monday 26. Two stations in the region of the Flannans were worked on Tuesday 27 before deteriorating weather forced EXPLORER to seek shelter in Broad Bay. Passage along the north coast was made in poor weather conditions on Wednesday 28 and part of Thursday 29 while lying in shelter was used for preparing gear for shipping ashore. EXPLORER docked in Aberdeen early on 30 March.

The persistent northerly gales during the period of the cruise made it possible to only work 12 stations.

RESULTS:-

Catch and catch composition

Catches varied between 3 and 24 baskets of fish per hour trawling. The largest individual catch was taken south of North Rona and catches to the north and west of the Hebrides were in general higher than those in the Minch.

Of the pelagic species some herring were taken at all stations except to the east of Orkney with the largest catches in the North Minch and in one station near North Rona. The latter, with a modal length of 28-29cm were larger than the North Minch herring (16-21cm modal length). Some sprats were taken in most hauls but the best catches were confined to the North Minch. No trawls were made in areas where adolescent mackerel could be expected and only one adult

mackerel was landed from west of Lewis. A malfunction of the echo sounder/integrator prevented the location and recording of any midwater echo traces but some handlining was attempted on a random basis without success.

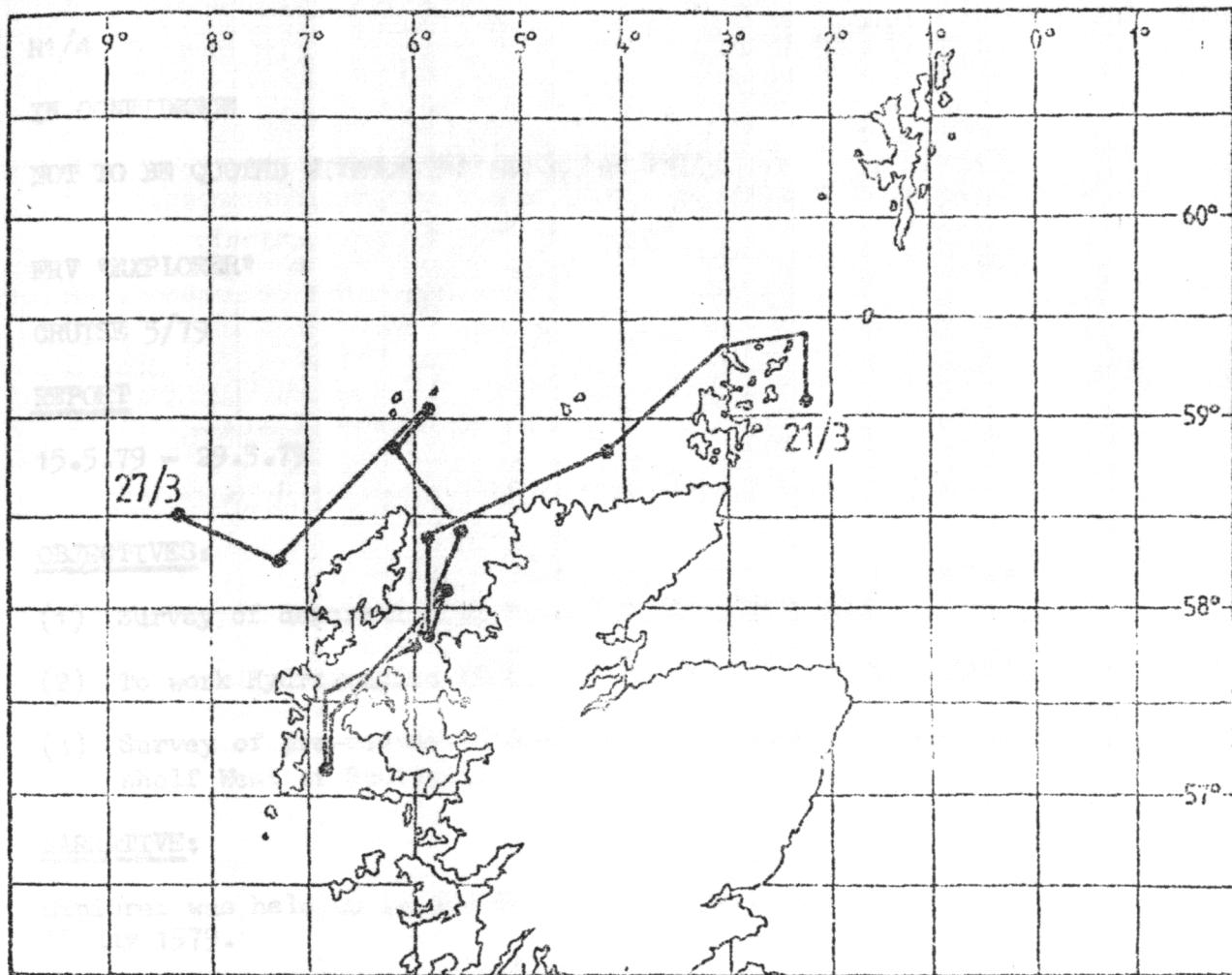
A wide variety of demersal species were taken. The two largest hauls, to the north and west of the Hebrides respectively were dominated by haddock. Twenty three cod from the North Minch were examined for larval anisakine nematodes and experiments carried out on the post-mortem migration of larval Anisakis from viscera to flesh of whiting: viscera and flesh of 40 whiting were deep frozen separately shortly after capture and batches of 40 fish were similarly treated 12 hours and 32 hours after capture and storage on ice. The material will be examined subsequently by pepsin-HCl digest. A batch of 50 squid (Loligo forbesii) was deep frozen for subsequent examination for larval anisakines.

Samples of kidney were taken from 390 measured haddock and all (61) plaice and examined for Ichthyophonus infection. Gell diffusion antibody tests were carried out on the blood serum of 30 haddock and all plaice using fungal antigen from plaice. Sterile cultures of Ichthyophonus from plaice were prepared, and samples of infected tissues were fixed for subsequent light and electron microscopic studies.

Samples of 10 haddock per cm for almost the complete length range were deep frozen for subsequent length-weight/maturity studies.

A. H. McVICAR  
1 June 1979

Seen in draft:- W Watt



F.R.S. Explorer 19/3 — 30/3/79

3EP 79

After only five hours the  
 North & East lines of the  
 track completed at 1:00 am 19/3.