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CRUISE REPORT

FRS "EXPLORER"

14 July - 4 August 1970

OBJECTIVE

To tag herring and roundfish from trawl catches.

NARRATIVE

"Explorer" sailed from Aberdeen at 2215 hours on 14 July. After a stormy passage to the Pentland Firth weather conditions gradually improved as the ship proceeded west to the Butt of Lewis area, where trawling was begun in the morning of 16 July. Grounds between the Butt of Lewis and St Kilda were surveyed for herring concentrations on 16 and 17 July. When good echo-traces and moderate catches of herring were obtained, off St Kilda, the trawl was rigged with a modified extension piece and canvas codend and the tagging experiments were begun. This work continued in the St Kilda/Barra Head area until 20 July when trawling was suspended because of heavy swell and strong to gale force winds. A passage was then made to grounds off the Flannan Isles where one haul was made before the ship berthed at Stornoway on 22 July.

After changes in scientific and ship personnel, "Explorer" sailed from Stornoway in the morning of 23 July. Several hauls were made on North Minch grounds before the ship proceeded to the Stanton Banks area on 24 July. Since catches were relatively poor in this region the ship returned to the grounds between St Kilda and Barra Head where better results had been obtained at the beginning of the cruise. Stormy weather interrupted the work on 29 July and shelter was sought in North Bay, Barra, from a severe gale. When weather conditions began to improve on 31 July a few hauls were made on South Minch grounds before the ship returned to the St Kilda area. On 2 August several hauls were made off the Flannan Isles after which the ship sailed for Aberdeen where she docked about 0330 hours on 4 August.

CAPTURE OF LIVE FISH

Live fish for the tagging experiments were caught with a "French" type trawl fitted with a modified extension piece and canvas codend. Up to 60% of the haddock caught with this gear appeared to be in very good condition, even although a large proportion of the hauls were made at depths between 135 and 160 metres. Whiting were generally less lively and most of them died shortly after they had been taken on board. Only a very small number of the herring caught were suitable for tagging. A large proportion of the herring were still alive when brought aboard and they swam vigorously in the holding tanks on the deck, but inspection showed that most of them had lost at least 50% of their scales.

With a view to improving the condition of the fish, experiments were carried out with various canvas and other fittings in the extension piece and codend. The condition of the fish was improved when a large area of the extension piece was lined with canvas, but better results might have been obtained if a smooth plastic or plastic-coated canvas had been used to line the inside of the extension piece and codend.

TAGGING

A total of 2647 fish were tagged and released during the cruise. Of these, 2,051 were haddock, 339 herring, 182 mackerel, 50 whiting, 12 cod, 10 lemon sole and 3 plaice. Details of numbers of fish tagged in different areas are as follows:

Area	Herring	Mackerel	Haddock	Whiting	Cod	Lemon Sole	Plaice
St Kilda/ Barra Head	339	159	1,413	31	10	9	2
Flannan Isles	-	-	562	5	1	1	-
North Minch	-	-	43	1	-	-	-
South Minch	-	23	33	13	1	-	1

OTHER WORK

In addition to the tagging programme the catches in each of the main areas were sampled. The main concentrations of herring were located in an area extending from St Kilda to about 40 miles NWxN of Barra Head. While only moderate catches of up to 15 baskets per hour were taken with the bottom trawl, echosounding records suggested that there were good concentrations of herring in that area but with most of the shoals distributed in midwater. A number of large foreign stern trawlers were fishing in this area and appeared to be using midwater trawling gear. The herring taken in the St Kilda area were mainly large autumn spawning fish at a modal size of 28-30 cm and in maturity stages III-IV. A good proportion of these fish belonged to the prolific 1963 year class.

Haddock were widely distributed over all the grounds that were fished and were prominent in a large proportion of the catches. The best hauls were obtained about 10 miles ExS of the Flannan Isles. The majority of the haddock taken had a modal size of 28-31 cm. Whiting, mackerel and horse mackerel were important constituents in some of the catches, particularly in the St Kilda area.

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22 September 1970.