

## CRUISE REPORT

## FRS "EXPLORER"

18 July - 2 August 1969

## PRINCIPAL OBJECTIVES

To tag roundfish caught by the detachable codend technique.

## NARRATIVE

Owing to an unsatisfactory forecast, sailing was delayed and departure from Aberdeen did not take place until 19 August.

Fishing was commenced at a position just outside the Moray Firth. Two detachable codends were used and raised slowly from the sea-bed to the surface. Hauls were also made with a new design of codend and much of the first week was devoted to experimenting with this equipment.

On 26 July, "Explorer" made an overnight call at Kirkwall and on the following day fishing was resumed at a position about 14 miles to the east of the Orkneys. The weather throughout the cruise remained very good and a total of 39 hauls, 2 with ordinary codends and 37 with detachable codends, was completed. "Explorer" finally docked at Aberdeen on 1 August.

## TAGGING RESULTS

738 haddock, 138 whiting and 2 cod were tagged during the cruise. These were all fish that appeared to be in good condition and all were of marketable size. In addition 435 fish, mainly haddock, were brought to the surface in good enough condition for tagging but since they were all below marketable size were not tagged. All the fish tagged were raised to the surface in detachable codends, the hauls being classified according to the times spent on the sea-bed and in being raised. There were three categories. In one the codend was detached and raised to the surface immediately. In the second, the codend was detached, allowed to remain on the bottom for a period ranging from 11 to 19 hours, and then raised directly to the surface. In the third, the codend was raised slowly to the surface, after spending only a few hours (from 1 to 5) on the sea-bed. In each case the fish were kept in the release tank on board ship for several hours before they were released and the numbers dying or becoming moribund during this period were recorded. Detailed results are shown in Table 1.

Table 1

Percentage of tagged fish dead or moribund before they were released

	Haddock		Whiting	
	No. Tagged	% Dead or Moribund	No. Tagged	% Dead or Moribund
Fish raised directly to surface immediately after capture	195	23	54	22
Fish left on bottom for various periods and then raised directly to the surface	11-12 hrs	108	10	20
	15 hrs	63	1	0
	19 hrs	140	6	33
Fish raised slowly to the surface after only 1-5 hrs on the bottom	232	12	67	12

## CODEND DESIGN

During the cruise, trials were made with a new design of detachable codend. The original design consists of a single cylinder of approximately 175 gal. capacity with an opening at one end. The new design consists of a number of identical 175 gal. cylinders with openings at both ends. These are so arranged that they can be joined together to form a single codend for the purpose of fishing, detaching, and raising, and yet can be separated at the surface and taken on board one by one. Codends of the original design are limited in size by the size of cylinder that can conveniently be taken on board full, or partly full, of water. Codends of the new design, however, are only limited by the overall size of unit that can conveniently be launched over the side when empty. Their size is therefore potentially much greater. During the cruise it was found possible to launch codends consisting of two and finally of three sections. In no instance was any major difficulty experienced in separating the sections at the surface and taking them on board individually.

## DIGESTION EXPERIMENT

The haddock from one haul were used for a digestion experiment. Approximately half of the catch was retained in the trawl extension piece by throttling the net at the time of detaching the codend, and raising it directly to the surface. The other half was detached in the codend and allowed to remain on the sea-bed for 12 hrs before it too was raised directly to the surface. The stomachs of the fish of these two categories have been preserved for subsequent laboratory analysis. The bottom temperature at the time was 11.1°C.

## LIVE FISH

Live fish in good condition were collected for the aquarium during the cruise. These were mostly haddock of the 1967 year-class.

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8 September 1969