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Observed By-catch in the Flemish Cap Cod and Redfish Fisheries
in 1979 and 1980 by Canadian Observers

by

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INTRODUCTION

The Flemish Cap has been a popular fishing area for many years. Traditionally, cod was the major fishery of the area but as the abundance of this species was reduced redfish became more important. There is overlap in the distribution of these two species and the purpose of this paper is to analyse by-catch in the two fisheries from the limited data available through direct observations.

METHODS

The observers used the same standard procedures used in the Canadian zone to determine size and composition of catch on a set by set basis as follows:

- 1) Bag size estimate of total catch as it comes aboard. This yields a rough preliminary figure only.
- 2) Volumetric estimate of the catch by calculating the volume of bin or holding area where the fish are dumped in preparation for processing. Weight per unit volume for the catch mixture observed is first determined so that catch volume can be converted to catch weight.
- 3) Determination of composition by picking through the catch in the holding bin, observing fish on the belts and tables as they are processed, to determine percent of by-catch, by species. In cases of low by-catch direct weighings are sometimes done. The proportions of species thus determined are then applied to the total estimated catch.
- 4) Observation of daily product figures recorded in the production log, converting to whole weights and cross checking the volumetric figures particularly for the directed species.

The observations are then combined by country, month, and gear and presented in tabular form.

RESULTS AND DISCUSSION

Table 1 summarizes the data collected with respect to the percent of main and total by-catch. Data from observed sets only are used in this analysis.

For most of the cod fisheries observed on the Flemish Cap redfish was the major by-catch and the converse was also true. In most cases the by-catch of cod or redfish exceeded 9 or 10%. The exceptions were for the shallowest areas fished, average 180 m where redfish by-catch was minor or in the deep areas, average depth 538 m for the 1980 Portuguese fishery and average depth 473 m for the 1980 USSR fishery where cod were not taken. The other species which occurred in significant amounts were American plaice, turbot and wolffish.

The topography of the Flemish Cap dictates considerable overlap between the cod and redfish stocks. It is relatively deep (minimum depth 126 m) with only a small shelf area less than 200 m. Below the 200 metre line the slope is gradual to 1000 metres before falling to abyssal depths. It is in this large area where the commercial concentrations of redfish are found. In depths between 180 and 400 metres where the major portion of the fishery is executed there is considerable overlap of the stocks. As a result by-catch is difficult to avoid. Effort in 3M appears to have been large in 1979, 1980 and again in 1981 to date. Even if all vessels were concentrating on the redfish considerable by-catch of cod would be taken unless the fishing areas were very deep. Extremely low catch rates for cod in 1979 and 1980 point to a depressed stock and by-catch in the redfish fishery could play a major role in maintaining this condition.

Table 1. By-catch-3M Fisheries - Summary.

Country	Month	Gear	Directed species	Catch/hr (MT)	Main by-catch species	Mean % by-catch	Total % by-catch
Portugal	Feb.	OT6	Cod	<u>1979</u> .70		0	0
Spain	Aug.	OT5	Cod	.05	Redfish	45.81	76.43
		PT4	Cod	.17	Plaice	2.68	8.84
		PT5	Cod	.27	Plaice	2.05	6.54
		PT4+5	Cod	.20	Plaice	2.41	7.85
	Sept.	PT4	Cod	.13	Redfish	9.64	15.38
		PT5	Cod	.15	Redfish	9.94	23.95
		PT4+5	Cod	.13	Redfish	9.69	17.56
	Oct.	PT4	Cod	.07	Redfish	18.69	27.33
	Nov.	PT4	Cod	.11	Redfish	37.63	50.4
	All	PT4	Cod	.12	Redfish	11.83	18.73
PT5		Cod	.18	Redfish	7.17	18.91	
PT4+5		Cod	.13	Redfish	10.72	18.77	
Romania	June	OT7	Redfish	.47	Squid	0.72	0.72
Portugal	March	OT6	Redfish	<u>1980</u> .33	Cod	3.74	5.43
		OT6	Cod	.12	Redfish	48.0	56.48
	July	GN6	Cod	.59	Plaice	1.56	2.55
	Aug.	OT6	Cod	.29	Redfish	23.09	23.09
	Mar./Apr.	OT6+7	Redfish	.62	Turbot	1.56	4.31
	Mar./Apr.	OT6	Cod	.14	Redfish	44.12	51.29
Poland	Aug.	OT7	Cod	.09	Redfish	89.26	91.96
	Sept.	OT7	Cod	.04	Redfish	88.75	92.62
	Aug./Sept.	OT7	Cod	.08	Redfish	89.21	92.01
USSR	Dec.	OTM7	Redfish	1.34	Cod	1.0	1.0