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Status of the Fisheries and Research carried out in Subarea 4 in 1970

by

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1. Status of the fisheries

Landings from Subarea 4 reached an all-time high in 1970 (Table 1.). In addition to the absolute increase in the landings, the relative importance of the Subarea 4 landings also increased. In the period 1961-1968, Subarea 4 provided about 24 percent of the catch from the Convention Area; this increased to 30 percent in 1969 and 37 percent in 1970.

Table 1. Annual landings from Subarea 4 (thousands of metric tons).

Species	Average 1961-64	Average 1965-68	1969	1970
Cod	219	220	206	256
Haddock	50	61	42	28
Redfish	49	92	111	119
Silver hake	53	16	46	169
Herring	112	262	422	416
Other	159	165	175	164
Total	642	816	1,002	1,152

Since the earlier period, cod landings have increased slightly, haddock landings are half what they were, redfish landings have doubled, silver hake landings have tripled, and herring landings are four times what they were.

2. Research during 1970

In addition to the National Research Reports, there are 26 Research Documents and 4 Commissioner's Documents reporting matters of interest to Panel 4.

	<u>Comm.Doc.No.</u>	<u>Res.Doc.No.</u>
Cod		12
Haddock	9,10	13,42
Mixed groundfish	1	15,16,37
Redfish		83
Herring	17	6,40,95,97,98,99,100,101,107,108,109, 113,120,122
Miscellaneous		26,32,35,41,62,82

In the following sections, I have extracted what I consider to be the most pertinent conclusions in the research documents.

Groundfish

Research vessel surveys have been expanded by Canada, USA, and USSR so that they now cover 4T, V, W, and X.

Comparison of research vessel survey data with commercial catch-per-unit of effort for cod and haddock in 4T, W, and X show generally good agreement. Further, more refined analysis should improve the relationship.

Cod

The 4T stock showed adequate recruitment to the 1971 fishery.

Abundance in 4X showed a 30% decrease in abundance from 1965 to 1969 with E considerably above that giving maximum yield per recruit. Catch-per-unit of effort of Canadian trawlers in 1970 was 23% less than in 1969.

Haddock

The 4X stock is declining and will continue to decline unless the present annual quota of 18,000 tons for 1970-72 is reduced. The stock in 4VW is also declining and if fishing mortality remains at the present level, or increases, this stock will not recover and may well decline even further.

Herring

Stocks in the Nova Scotia region of 4X are being maintained by the 1966 year-class. The fish which are taken as "sardines" off New Brunswick may be a separate stock from those off Nova Scotia.

Otolith comparisons seem to show that the herring found on Banquereau and Emerald Banks in March - April are of different stocks.

Tagging in the Gulf of St. Lawrence (4T) and off the south coast of Newfoundland has further defined the movement of herring within the Gulf and out to the south coast of Newfoundland (3P).

A study of the occurrence of the parasitic larval nematode Anisakis sp., in herring from East Coast of Maine, Western Gulf of Maine, Georges Bank and Nova Scotia gives further support to the separation of these stocks.

Other studies of this parasite demonstrate its value as a biological tool in helping to separate the stocks of the northern part of the Subarea and confirm the identity of those fish caught off southern Newfoundland in winter and in Div. 4T the rest of the year.

Analysis of the year-class distribution of fish from Georges Bank, Jeffreys Ledge, coastal Gulf of Maine, and Nova Scotia catches showed each area to be different from all others.

Silver Hake

The large increase in silver hake landings was the result of increased effort by the USSR and the presence of two good year-classes in the stock. The 1966 year-class made up 42.4% and the 1967 year-class, 35.9% of USSR catches.

Redfish

The increase was caused mainly by a diversion of Canadian effort to the deeper waters of Div. 4Vs, 4W and 4X because of poor availability of haddock. Landings would have been much higher in 1970 except for strikes by fishermen and handlers during part of the year.