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D R A F T

Report of Chairman of Scientific Advisors to Panel 3

(to be considered at Meeting of Scientific Advisors)

I Landings, 1964 and 1965, with comments

Stabilisation of Fisheries

Subgroup 3. Landings 1964 and 1965.

All species

Country	1964	1965	% change
Canada (M & Q)	21,414	16,804	- 21.5
Canada (H)	233,969	226,608	- 2.8
Denmark (F)	22,008	15,507	- 29.5
Denmark (G)	"	"	"
France (M)	60,918	50,735	- 16.7
France (St P & M)	7,033	8,153	+ 15.9
Germany, Fed Rep.	5,435	10,400	+ 91.4
Iceland	2,916	3,315	+ 13.7
Norway	6,961	6,414	- 7.9
Poland	30,091	29,126	- 3.2
Portugal	102,559	48,973	- 52.2
Spain	120,295	126,029	+ 4.7
USSR	96,923	144,028	+ 48.6
UK	19,634	30,335	+ 54.5
USA	4,722	798	- 83.1
Non-members	559,214	29,000	" 42.2
Total	784,124	746,228	- 4.8

Cod

Country	1964	1965	% change
Canada (M & O)	4,587	3,328	- 27.4
Canada (Z)	159,924	131,586	- 17.7
Denmark (F)	21,689	14,429	- 33.5
France (M)	60,820	50,688	- 16.7
France (St. P & M)	2,629	3,529	+ 34.3
Germany, Fed. Rep.	1,771	7,264	+ 310.2
Iceland	709	1,235	+ 74.2
Norway	6,842	6,379	- 6.8
Poland	8,668	7,778	- 10.3
Portugal	102,559	48,973	- 56.2
Spain	117,245	122,139	+ 4.2
USSR	56,464	69,679	+ 18.6
UK	17,293	27,424	+ 58.6
Non-members	20,151	9,823	- 51.3
Total	581,351	504,254	- 13.3

The cod catch dropped about 13 per cent in 1965 due primarily to smaller catches taken by Canada, Denmark, France and Portugal. Increases are noted by Spain, USSR, and UK.

In the Spanish Research Report (Doc. 66-38) trends in the catches are presented for the years 1952-1965 for trawlers and pair trawlers. The catches of pair trawlers increased steadily until they equaled that of trawlers in 1964 and has exceeded catches of trawlers in 1965.

The U.K. reported (Doc. 66-49) a drop in catch per hour fishing of 16% to 1.0 tons.

Also, in the Portuguese Research Report (Doc. 66-37) presents extensive information on the length and age composition of cod in Div. 3P, 3N and 3M. He also provides age and maturity

information for these areas.

Jensen, in the Icelandic Report (Doc. 66-24) reported a slight increase in the catch per 100 hours which rose from 52 tons in 1964 to 58 tons in 1965.

Jorgensen, in the Canadian Research Report (Doc. 66-30), states that inshore Newfoundland catch of cod in 1965 was generally low and that the fish were small due to the young 1961 year-class entering the fishery.

Horsted, in the German Research Report (Doc. 66-33b) provides catch per fishing day for five divisions and seven months of the year in the subareas as a whole the average catch per day of cod was 10.9 tons live weight.

Cieglo, in the Polish Research Report (Doc. 66-26) gives figures for catch per day of Polish fishing trawlers on fishing in May, in Div. 3K, generally poor (2.9 tons per 100 hours fishing); in autumn on Flemish Cap between 114 and 160 tons per 100 hours. In other areas and in other months the catches were quite poor.

Information on age composition and dominant year classes of cod in different areas of the Grand Bank are given in the report

Konstantinov and Noskov (USSR Research report, Doc. 66-39) reported on assessment of young cod in Division 3 over the last five years. These estimations are made each year in winter. Division 3K always has about 2-3 year old fish, but eggs and larvae drifting in from spawning grounds in Division 2. Young cod in the winter 1965/66 appeared to be more abundant than in the previous four years but this recruitment from Labrador is very considerable compared with the distribution in Division 3K.

The study of size distribution of young cod migrate northward. An extensive tagging program in the area provided much valuable information on movements of cod. Among other conclusions, evidence

is given that the cod of Flemish Cap are isolated; there is no migration between that area and the Grand Bank.

Cendero, in Doc. 66-77 presents data on cod from Divisions 3K and 3F, giving length compositions, age compositions, morphometric characters, and sex ratios.

Stanek (Poland), Doc. 66-47 presents extensive data on length composition, age composition and sexual maturity for nine different parts of Subarea 3.

Haddock

Country	1964	1965	% change
Canada (M & O)	1,753	113	- 93.5
Canada (M)	5,116	2,599	- 49.2
Denmark (F)	45	-	
France (M)	6	15	+ 150.0
France (St. P & M)	977	518	- 46.9
Germany	2	-	
Iceland	52	79	+ 51.9
Spain	1,904	3,230	+ 69.6
USSR	1,943	1,416	- 27.1
UK	385	550	+ 42.9
USA	1	-	
Non-members	169	-	
Total	12,353	8,520	- 31.0

Haddock landings were down 31 per cent over 1964. All countries landing substantial catches landed less except Spain whose catches increased 70 per cent.

Templeman (Doc. 66-30) reports that haddock on the Grand Bank and St. Pierre Bank are still very scarce. Research vessel surveys show that no good year classes have occurred since 1955 and 1956. The spawning stock is at a low level and unusually favourable environmental conditions will be required to produce a good year class.

Messtorff (Doc. 66-33b) reports few haddock on Flemish Cap.

The USSR (Doc. 66-39) also reported little haddock in Subarea 3. The strongest year classes were those of 1961 and 1962. On the basis of otolith structure and vertebree count they conclude that haddock cross the Labrador Current from St. Pierre Bank to Grand Bank.

Redfish

Country	1964	1965	% change
Canada (M & Q)	559	950	+ 69.9
Canada (N)	15,048	19,872	+ 32.1
Denmark (F)	-	-	
Denmark (G)	-	-	
France (M)		10	
France (St.P.& M.)	943	992	+ 5.0
Germany	2,928	2,104	- 28.1
Iceland	1,998	1,941	- 2.9
Norway	4	-	
Poland	17,230	16,348	- 5.1
USSR	31,339	54,313	+ 73.3
UK	241	467	+ 93.8
USA	4,694	772	- 83.6
Non-Members	19,602	10,832	- 44.7
Total	94,588	108,601	+ 14.8

Total redfish landings from the subarea were up 15 per cent over 1964 due to the considerable increase in landings by the USSR.

Although Iceland's catch changed very little their catch per 100 hours fishing dropped from 117 to 92 tons. (Doc. 66-34).

Germany also reported lower catch per effort; 1.4 tons per day as compared with 8.6 tons per day in 1964 (Doc. 66-33b).

Poland (Doc. 66-36) found the catch per 100 hours trawling drop from 217 tons in April to 133 tons in August.

Netzel of Poland (Doc. 66-45) presents a study of redfish obtained during selectivity studies on various parts of Grand Bank and Flemish Cap. He reports on length composition, sexual maturity,

and feeding habits.

Sidorenko (USSR, Doc. 66-68) presents a comprehensive study of the migrations of Hippoglossoides platessoides (the Dabed Redfish) in the Newfoundland Bank Area. The limits of mass occurrence are depths between 200 m. and 800 m. Young redfish descend to greater depths as they grow. At maturity there is a reverse migration to lesser depths. During the cold part of the year the fish descend to greater depths.

	Halibut		
Country	1964	1965	% change
Canada (M & O)	222	101	- 54.5
Canada (M)	250	125	- 50.0
Denmark (M)	-	-	
France (M)	53	22	- 73.5
Germany (W. P & M)	31	19	- 38.5
Germany, Fed. Rep.	18	38	+ 111.1
Iceland	74	5	- 93.2
Norway	63	35	- 44.5
Poland	-	559	
USSR	544	799	+ 46.9
UK	517	435	- 15.7
USA	2	-	
Non-members	26	-	
Total	1,830	2,139	+ 16.9

Total halibut landings were 17 per cent in 1965 due to increases by Poland and USSR.

Kohler (Doc. 66-69) reported that landings of halibut from Subarea 3 increased greatly through 1964. This increase was due to a great increase in the trawl caught fish; the long line catch

Greenland. He pointed out that the board caught fish are smaller on the average and that many are immature. No information is available on the effect of fishing on those stocks concerned but Kohler suggests the effect of taking the small fish should be studied.

Greenland Halibut

Country	1964	1965	% change
Canada (M)	3,773	8,182	+ 358.1
Denmark (G)	-	-	
Germany, Fed. Rep.	1	4	+ 300.0
Norway	-	-	
Poland	1,403	92	- 96.4
Total	5,177	8,278	+ 157.4

The Canadian increase in landings of Greenland Halibut was the result of new markets for the Canadian product in Europe; the increased catch was taken mainly with long line and gill net (Div. 6G-3O).

American Plaice

Country	1964	1965	% change
Canada (M & G)	9,946	9,654	- 2.8
Canada (M)	27,697	37,772	+ 39.4
France (St. P & M)	1,734	2,225	+ 28.3
UK	300	70	- 76.6
Total	39,317	49,721	+ 27.1

Most of the increase in catch was due to an increase in the Canadian catch.

Fish of Canada (Doc. 6-4) presented an information study of the diurnal variation in catches of American Plaice with commercial and research vessels. The catches were larger at night, the mean

somewhat less, and the diurnal variability less in shallow water than in deeper water. The author concludes that the fish move off the bottom at night.

Konkov of Poland (Doc. 66-46) presents extensive data on length composition, age composition, and sexual maturity of American Plaice from various parts of Subareas 3 and 4. They compare the fish from the two subareas indicating that in Subarea 3 the fish are larger, and older and the catch per day greater in Subarea 3.

Plaice

Country	1964	1965	% change
Canada (M & O)	531	343	- 36.1
Canada (N)	1,634	1,668	+ 2.1
Germany, Fed. Rep.	-	2	
Iceland	3	-	
UK	83	76	- 8.4
USA	-	-	
Total	2,254	2,087	- 7.4

The Canadian catch is associated with the haddock catch and will remain low until haddock becomes more abundant (Doc. 66-30).

Iceland found the species only on St. Pierre Bank and on southern slopes of Grand Bank (Doc. 66-36).

Yellowtail

Country	1964	1965	% change
Canada (M & O)	170	1,093	545.9
Canada (N)	56	2,077	3580.0
Total	226	3,125	1283.0

Canada discovered yellowtail flounder in October-November at 40-75 meters on the southeastern slope of the Southeast Shoal of

The Czech Trade and Indust Image exhibits compared with 1964.

Flowers (not specified)

Country	1964	1965	% change
Canada (F & O)	-	84	
Denmark	-	-	
Denmark (F)	16	-	
France (F)	-	-	
France (Gr. F & L)	369	223	- 38.1
Iceland	4	2	- 50.0
Ireland	2,706	4,260	+ 57.2
Italy	8,897	30,643	+ 263.7
Malta	-	357	
Netherlands	2,329	1,165	- 50.2
Total	5,811	36,875	+ 89.8

Mixed

Country	1964	1965	% change
Canada (F & O)	20	-	
Canada (F)	469	364	+ 85.3
Denmark (F)	-	3	
France (Gr. F & M)			
Germany, Fed. Rep.	29	59	+ 103.4
Ireland	14	8	- 42.9
USSR	1,430	1,859	+ 83.0
UK	196	246	+ 80.9
Total	1,731	3,065	+ 73.1

[illegible] (mid-month)

[illegible]	1964	1965	% change
[illegible] (P & O)	321	-	
[illegible] (Br. C & H)	134	-	
[illegible], Ind. Pop.	-	74	
[illegible]	-	-	
Total	455	74	- 83.4

[illegible]	1964	1965	% change
[illegible] (P & O)	-	5	
[illegible] (T)	38	-	
[illegible], Ind. Pop.	4	14	+ 250.0
[illegible]	-	1	
Total	42	20	- 52.4

[illegible] (mid-month)

[illegible]	1964	1965	% change
[illegible] (P & O)	331	355	+ 7.3
[illegible] (T)	9	-	
[illegible] (Br. P & M)	-	393	
[illegible], Ind. Pop.	633	740	+ 16.2
[illegible]	23	5	- 80.4
[illegible]	1,070	-	
[illegible]	-	1,337	
[illegible]	-	430	
[illegible]	-	7,159	
Total	2,077	12,237	+ 488.1

Herring

Country	1964	1965	% change
Canada (E)	3,335	8,128	143.7
Total	3,335	8,128	143.7

The increased Canadian catch of herring is due to the development of a fishery for meal close to shore on the western part of the South Coast of Newfoundland (Div. 3O-3O).

Redfish

Country	1964	1965	% changes
Canada (M & Q)	-	-	
Canada (N)	819	183	- 77.7
France (St. P & M)	27	3	- 88.9
Poland	-	-	
USSR	-	-	
USA	-	-	
Non-members	-	-	
Total	846	186	- 78.0

Swordfish

Country	1964	1965	% change
Canada (N & O)	520	587	+ 12.9
Canada (N)	ø		
USA	22	26	+ 23.8
Total	542	613	+ 13.1

Tuna (mixed)

Country	1964	1965	% change
Canada (N & O)	2	ø	
Canada (N)	66		
Norway	ø	-	
USA	1	-	
Total	69	ø	

Sharks

Country	1964	1965	% change
Canada (N & O)	1	5	+ 700.0
Denmark (E)	-	1078	
France (St.P.& M.)	67		
Germany	7	10	+ 72.9
Iceland	7	1	- 85.7
Norway	52	-	
Poland		7	
USSR		13	
Total	134	1114	+ 731.3

Skate

Country	1964	1965	% change
Canada (M & G)	-	-	
Denmark (F)	-	17	
France (St.P. & M.)	54	99	+ 89.3
Germany	6	6	
Ireland		3	
UK	193	236	+ 22.3
USA	7	7	
Total	247	355	+ 43.7

Salmon

Country	1964	1965	% change
Canada (M)	705	709	+ 0.6
Total	705	709	+ 0.6

Smelt

Country	1964	1965	% change
Canada (M)	7	7	=
Total	7	7	=

Capelin

Country	1964	1965	% change
Canada (M)	3931	3754	- 4.5
France (St.P. & M.)	5	3	- 40.0
Total	3936	3757	- 4.5

Other Species

	1964	1965	% change
Squid	10,408	7,785	- 25.2
Lobster	1,183	883	- 25.4

Sea Scallop

Country	1964	1965	% change
Canada (M & O)	2,336	173	- 95.2
Canada (N)	653	161	- 75.3
Total	2,989	274	- 90.8

Canadian landings decreased in 1965 apparently due to decreased effort.

III. Assessments

The Assessments Subcommittee has not made any new studies of exploitation rates on Subarea 5 stocks but it does reaffirm its conclusions of last year that the effort now being applied to the major stocks of fish in the Subarea is or beyond the level giving maximum sustainable yields.

IV. Measures that might be taken to increase yields.

IV. Researches carried out in the subarea

Germany had three research vessels working in the subarea in 1965 conducting environmental studies (Doc.66-29).

Poland conducted hydrographic, plankton, and biological studies with the research vessel "Z. Klumpp" (Doc.66-36).

Canada conducted research with the [illegible] and the A.T. Cameron. The Bedford Institute of Oceanography conducted hydrographic surveys (Doc.66-30 and 66-43). Considerable fishery biological research is also reported in this document.

The USSR (Doc.66-39) conducted hydrography, plankton, and fishery biological research in the subarea. It continues to report in their conclusion that the Atlantic Current was weak in 1965 which resulted in ice under shielding the Grand Bank in an unusual extent. A special study of the capelin fishery was conducted and reported in Doc.66-53 by S.V. Tkachenko.

The U.K. (Doc.66-[illegible]) collected its plankton collections in the subarea by means of the continuous plankton recorder. The mileage sampled in 1965 was 15,764. The material is being analyzed by the Edinburgh Oceanographic Laboratory.

The U.S. (Doc.66-[illegible]) conducted its usual studies of hydrography in the Newfoundland area in support of the International Ice Patrol.

Pinhorn and Dunne (Doc.66-65) reported on the catches of Canadian (Newfoundland) vessels fishing with small mesh nets. Landings of regulated species (cod and haddock) were less than 0.4 per cent of total landings.