

ANNUAL MEETING - JUNE 1967Summary of Research and Status of Fisheries in Subarea 3During 1966

by

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Reports on researches carried out in the Subarea in 1966 were submitted by the following member countries: Canada, France, Poland, Portugal, Spain, USSR, UK, USA.

This summary is based on 1967 Research Documents 67/11 - 67/22, 67/26, 67/49, and 67/50.

I. Status of the Fisheries

Total landings from the Subarea were 720 thousand metric tons, down 20 thousand metric tons, or 2%, from the preceding year (Table 1). This is, however, higher than the average for the last five years. The drop was occasioned primarily by a drop in redfish landings. The USSR reported an over-all catch per one hour trawling of 2.33 tons.

Catch per unit effort of groundfish in 1965 declined for the third year in succession, and although fishing activity has increased to a new peak, the fall in groundfish catches in 1965 shows that this was not enough to offset the reduced "abundance" of the stock.

Cod

Catches were about the same as in 1965 and represented about 70% of the total catch of all species. Canada reported 141 thousand metric ton and Spain 124 thousand; both catches similar to those of the previous year. Portugal's catch increased from 49 to 70 thousand metric tons due to an increase in the trawler fishery; USSR's catch decreased from 70 to 49 thousand tons. France's catch of 56 thousand metric tons was about the same as in 1965. Denmark and U.K. had substantial cod fisheries in the Subarea, while minor amounts were taken by Germany, Iceland, Norway, and Poland.

Haddock

Catches continued at a low level. Landings amounted to only 10 thousand metric tons which were taken primarily by Canada, Spain, and USSR. The low catches are the result of poor recruitment in the Subarea.

Redfish

Catches dropped from 112 thousand metric tons in 1965 to 70 thousand metric tons in 1966, due primarily to a drop in the USSR catch. The USSR reported that the stock on Flemish Cap has decreased markedly, and fishing there has about ceased. They also reported that redfish age-size composition does not change despite intensive long-time fishing and that this peculiarity of the redfish is common in all areas of the North Atlantic.

American Plaice

Catches increased from 50 thousand metric tons in 1965 to 58 thousand metric tons in 1966. These catches were taken primarily by Canada in both years.

## Greenland Halibut

This fishery is also almost entirely a Canadian fishery. Catches in 1966 were 17 thousand metric tons; up from 9 thousand tons in 1965.

## II. Work Carried Out

### 1. Hydrography

Canada occupied the hydrographic section running from St. John's to Flemish Cap. Over most of this section temperatures were higher than in 1965 and higher than usual. However, near St. John's the deeper water temperatures were higher than usual throughout the year. Salinities were generally similar to those in 1965. Drifter experiments were initiated to study surface and bottom non-tidal drift in Divisions L, O, and Ps. The Bedford Institute of Oceanography continued the bathymetric and current studies of Sir Charles Hamilton Sound. A major hydrographic charting survey on the tail of the Grand Bank was completed and bottom grab samples taken. Limited physical oceanographic studies were undertaken in the deep water off the southwest side of the Grand Bank. Daily charts of sea-surface temperature and surface layer depth covering Subareas 3, 4, and 5 are broadcast on radio facsimile. A program of research to improve the accuracy of the charts is continuing. (Res. Doc. 67/11 and 67/26)

France occupied 46 hydrographic stations in four oceanographic sections in the Subarea and presented both horizontal and vertical distributions of temperature in their national report (Res.Doc.67/13). They also plotted the distribution of capelin, cod, redfish, and plaice. France also reported unusually high temperatures on the Grand Bank.

The USSR occupied standard Sections 1A, 2A, 3A, and made observations in other areas as well (Res.Doc.67/21). They also reported on ice conditions, noting that in the 1965-66 ice season, conditions were unusually favorable to navigation and that this was caused by a slackening of the influx of Arctic waters to the Labrador Current. (Res.Doc. 67/50).

The United States Coast Guard carried out the usual surveys in connection with the Int. Ice Patrol. 1966 was the lightest ice season in the history of the Patrol; not a single berg was sighted in the Labrador Current south of 48°N. During August, 1966 the Icebreaker Edirto made an oceanographic survey of the Baffin Bay- Nares Strait area. Observations were continued at Ocean Station Bravo, and the program of oceanographic work at weather stations increased (Res.Doc.67/22).

### 2. Plankton

The USSR collected fish eggs and larvae in May-June on the Grand Bank to determine more exactly the area of haddock spawning and the areas of dispersion of the developing eggs and larvae. (Res.Doc. 67/21).

The Edinburg Laboratory of the U.K. continued the Hardy Plankton Recorder Program and has made good progress in preparation of an atlas of the plankton of the North Atlantic covering 200 species. In 1966 the spring outbreak of phytoplankton was about a month late on the Grand Bank, occurring in May instead of April. The important copepod Calanus was abundant throughout the year on the Grand Bank, but just east of Newfoundland the spring increase was about one month late, occurring in April. Planktonic redfish larvae appeared to be below average abundance. (Res.Doc.67/20).

### 3. Cod

Canada reported the size of cod in the commercial fishery unchanged except in the trap fishery in which the size was smaller. During a research cruise of the A.T.Cameron to the southwestern part and northeastern part of the Grand Bank, catches were generally small (Res.Doc.67/11).

Poland examined 5,681 cod in May in Div. 3K. Predominant lengths were 35-65 cm. with a mean at 52.7 cm. Ages were mostly 4 to 8 years. Examination of gonads showed 87.2% of the fish in the juvenile (I) stage of maturity (Res.Doc. 67/17).

Portugal examined a number of samples from Div.3K, 3L, and 3M from March to November 1966. Mean length of samples ranged from 51.1 cm. to 61.7 cm. Ages ranged from 2 to 20 years, with a predominance of the 1959, 1960, 1961, and 1962 year-classes. In Div.3K in May, 55% of the males and 80% of the females were in the recovering or resting stage. In Div. 3L in March only about 4% of males were spawning.

In Div.3M in March about 50% of the males and 40% of the females were in the spawning stage. Portugal also reported on age at first maturity studies in Div. 3K, 3L, and 3M (Res.Doc.67/18)

Spain reported on samples taken from the commercial catch providing length, age, and sex ratio data for each month and area (Res.Doc.67/19).

The USSR again studied the abundance of young cod in the Subarea. They reported extremely high abundance of the 1964 year-class on the south of the Grand Bank and on St.Pierre Bank (Div.3O & 3P and especially in 3N). They forecast that this year-class will increase catches on the Grand Bank in 1968-1969, although the mean length of cod in trawl catches will be somewhat lower because of the predominance of young fish (Res.Doc.67/21). The USSR also reported on cod tagging experiments (Res.Doc. 67/49).

#### 4. Haddock

Canada investigated the biology and distribution of haddock on the southwestern part of Grand Bank in May. The average catch per 1/2-hour haul was about 18 kg compared with 250 kg in 1960. There was no indication of a strong new year-class in the stock (Res.Doc.67/11).

The Soviets also reported poor year-classes of haddock on the Grand Bank (Res.Doc.67/21).

#### 5. Redfish

Poland examined several thousand redfish taken mainly in Div. 3K. About 49% of the females of mentella-type were in the running stage during March to May. Marinus-type were also producing larvae during this period. In April 67% of females were in the running stage (Res.Doc.67/17).

The USSR noted that the age-size composition did not change on Flemish Cap in spite of intensive and long-time fishing. This peculiarity is common to all other areas of the North Atlantic (Res.Doc.67/21).

#### 6. American Plaice

Canada reported on her continuing spawning studies of this species. Large, old fish spawn earlier, as do fish in shallower water. Plaice on Flemish Cap mature at an earlier age than plaice from other areas (Res.Doc.67/11).

Poland found plaice on Ritu Bank (Div.3K) which were 28 to 45 cm. in length (average 38.2 cm.) and on Grand Bank-St.Pierre (Div.3Ps) 18-61 cm. (average 34.5 cm)(Res.Doc.67/17).

USSR measured 1500 specimens from the southern slope of the Grand Bank and found 50% of them 40 cm. to 50 cm. in length (Res.Doc.67/21).

## 7. Greenland Halibut

Canada intensified its research on this species and conducted surveys in White, Notre Dame, and Trinity Bays. The sizes caught by gill nets were smaller than those taken with long line. The largest taken with 178 mm. mesh was 57.5 cm. The Trinity Bay commercial catch was composed principally of 8- to 12-year-old fish (Res.Doc.67/11).

Poland reported catches of 800-1000 kg per hour on Woolfall Bank (Div.3L). The length range of these fish was 25 cm. to 95 cm. with mean at 55.2 cm. Poland also measured Witch Flounder and Yellowtail Flounder from the Subarea (Div.3Ps). Witch had a mean length of 33.9 cm. and Yellowtail 39.7 cm.(Res.Doc.67/17).

## 8. Herring

Canada intensified research on this species and found that extensive changes have taken place in the areas of major catches from the south and west coasts of Newfoundland in the composition and location of the stocks over the past two decades. The fish are smaller and younger than during the period of highest catches (1942-48) and there are fewer year-classes contributing to the present population. A change in spawning time is also evident: spring spawners dominated in the late 1940's but autumn spawners now appear to be the dominant group (Res.Doc.67/11).

## 9. Atlantic Salmon

Canada fished experimentally for salmon over oceanic depths east of the Northeast Newfoundland Shelf with surface drift nets between March 21 and April 16, 1966; 38 salmon were taken. Most of them were taken inside the 1000 fathom isobath. Water temperatures were 3.7-6.1°C (Res.Doc.67/11).

## 10. Pink Salmon

Canada reports (Res.Doc.67/11) on plantings of eggs of this species in North Harbour River which resulted in heavy runs of fry and runs of returning adults. Spawning of adults appeared normal (Res.Doc.67/11).

## 11. Capelin

Canada studied Capelin from representative areas of Newfoundland the Labrador Coast and the Grand Bank with a view toward determining differences in stocks. No differences in meristics were found, although there were differences in sizes of fish. Age composition indicate a very successful 1962 year-class and a relatively poor 1963 year-class. Accompanying the dominance of the four-year-olds in the spawning schools was an increase in the average size and fat content of the Capelin (Res.Doc.67/11).

TABLE 1 NOMINAL CATCHES IN 1965 AND 1966 IN SUBAREA 3 BY SPECIES AND COUNTRY

Thousand Metric Tons Round Fresh

Species	Year	Total	Canada	Denmark	France	Germany	Iceland	Norway	Poland	Portugal	Spain	USSR	U.K.	USA	Non-Members
Cod	1965	496	135	14	54	8	1	8	49	122	70	27	-	-	8
	1966	498	142	15	57	9	1	5	70	124	49	25	-	-	x
Haddock	1965	9	3	8	1	-	8	-	-	3	1	1	-	-	-
	1966	10	2	8	1	-	8	-	-	2	4	1	-	-	x
Redfish	1965	112	21	-	1	2	2	16	-	-	54	1	1	1	14
	1966	70	20	-	2	8	2	14	-	-	32	8	8	8	x
Greenl. Halibut	1965	9	8	-	-	-	-	1	-	-	-	-	-	-	-
	1966	17	16	-	-	-	-	1	-	-	-	-	-	-	x
Amer. Plaice	1965	50	48	-	2	-	8	-	-	-	-	-	8	-	-
	1966	58	56	-	2	-	8	-	-	-	-	-	8	-	x
Other Flounders	1965	22	5	-	8	-	8	4	-	-	11	1	8	1	1
	1966	35	7	-	8	-	8	3	-	-	24	1	1	1	x
Other Groundfish	1965	17	2	8	8	1	8	-	-	1	7	8	8	8	6
	1966	9	2	8	8	8	8	8	-	1	6	8	8	8	x
Herring	1965	8	8	-	-	-	-	-	-	-	-	-	-	-	-
	1966	9	8	-	-	-	-	-	-	-	-	-	-	-	x
Total All Species	1965	740	244	15	59	11	3	29	49	126	144	30	1	29	
	1966	720	266	16	62	10	3	23	70	127	115	27	8	29	

Remarks: 8 = 500 tons  
 - = no catch  
 x = data not available for the time being