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Results of Determining the Abundance of Young of
Commercial Fishes in the Labrador and Newfound-
land Areas / December, 1962/January, 1963/.

by

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With the aim to reveal the areas where concentrations of the young of commercial fishes occurred and to determine their abundance, investigations were continued on board the R.V. "Pobyeda" in the areas of Northern, Central and Southern Labrador, the Newfoundland Bank, the St. Pierre and the Flemish Cap Banks in December, 1962.

A bottom 25-metre trawl (110-mm mesh cod-end/with a cotton fine-mesh net (8 mm knot-to-knot measurement) inserted into the cod-end was used.

Specimens of cod and haddock up to 35 cm in length, and red-fish up to 15 cm long were studied. The charts and diagrams showing the length composition of the young, drawn up on the basis of materials collected, illustrate the distribution of the young by areas and their relative abundance.

Cod.

Labrador and the North Newfoundland Bank.

The trawlings made in the Northern and Central Labrador showed that in December, 1962, cod, up to 36 cm long, were dispersed over the whole area and the amount of them was not more than 25 specimens per one-hour trawling. Only on the slopes of the underwater channel, entrenching into the shelf from the side of the Atlantic Ocean, about 150 specimens were caught per one-hour trawling at depth of 120-225 m, the temperature being +0.8 (Fig.1).

The amount of young cod in the catches, taken to the south, steadily increased and reached its peak on the Hamilton Bank, where up to 300 specimens were taken with a trawl at the depth of 150-200 m (temperature up to 2.0°). The same situation was observed in January, 1962 (Nevinsky, 1962). On the whole, in Division 2J the average catch of cod, up to 36 cm long, per one-hour trawling composed 108 specimens (Table I).

In the Northern Newfoundland Bank area the average number of the young per hour trawling made up 31 specimens and it was smaller than in January 1962 (38 specimens). The young were most frequent (up to 150 specimens) in the given area at the depth of 180-230 m, the temperature being 1.0°.

In the Labrador area cod of 30-35 cm size prevailed (Fig.2). On the Northern Newfoundland Bank percentage of cod, having the smaller length, increases compared with the Labrador area, though specimens of 30-35 cm long predominate. The 0-group cod were observed individually in those areas.

Grand Newfoundland Bank.

St. Pierre and Flemish Cap Banks.

In December 1962/January 1963, the amount of the young was less (the average number of cod in that area composed 25 specimens per one-hour trawling) than in January 1962 (39 specimens) on the north-eastern slope of the Grand Newfoundland Bank. The young of 0-group were caught near the coast but their total abundance was low. Fish of 17-35 cm long were mainly found in the catches, individuals of 30-35 cm long being predominant.

On the eastern and mainly on the south-western slopes of the Grand Bank, the amount of 0-group young in the catches increases compared to that in the northern areas. In the southern parts of the St. Pierre and Green Banks the young up to 12 cm size constituted 84% of the whole catch of young cod. The largest catches of 0-group (up to 940 individuals per hour trawling) were observed at 150-170 m depth with temperatures 0.6-1.3°. Individuals of 18-20 cm size predominated among the older young.

On the Flemish Cap Bank the young remained at the depths less than 300 m over the whole area but they were encountered in greater numbers on the south-eastern slope. Average catch taken per hour trawling in that area made up 49 individuals. 9 to 40 specimens of 0-group-cod were taken by a trawl per hour haul.

The depths, at which the young occurred, varied by areas: in the northern areas the young were taken by trawls at the depth of 100-350 m, in the southern ones - at 50-250 m, but considering the whole area, they were caught mainly at the depth of 150-200 m. Only on the Flemish Cap Bank the young remained somewhat deeper; at 250-350 m. 0-group-cod were observed at the same depths, but in the catches, taken at the depth more than 250 m the young were not found except the Flemish Cap Bank where they were encountered at the depth up to 350 m.

The largest amount of the young were taken by trawls in the morning hours: from 5 to 8 (Divisions 30, 3P, 3M).

In all the areas feeding of the young was not intensive, they fed mainly on amphipods, shrimps and worms. In 3K, 3L and 3N areas capelin and sand eel were also food items.

Investigations carried out in December 1962/January 1963 showed that in the Labrador and Newfoundland areas the distribution of young cod was similar to that observed in January 1962 but abundance of the young was somewhat less in January 1963.

Haddock

In January 1963, as in January 1962, the young of haddock occurred on the south-western slope of the Grand Bank and on the southern slope of the St. Pierre Bank (Fig.1).

On the south-western slope of the Grand Newfoundland Bank 200 individuals of the young were taken per one-hour trawling at the depths of 155-165 m with temperature 1.3°. The specimens 15 cm in size, constituted one-third the total numbers of the young. The fishes of 15-17 cm long dominated in catches (Fig.2).

On the St. Pierre Bank up to 430 individuals of the young were taken by trawls at the same depths but the young had a greater length (24-26 cm).

The amount of the young in catches was higher in the morning hours. The feeding of the young was not intensive. Amphipods, worms and brittle stars were more often found in stomachs of young haddock.

Redfish

The young of Smentella Travin of 15 cm long were found in trawls (not over than 30 individuals per one hour trawling) in the Northern Labrador Area.

The concentration of small redfish is marked on the Flemish Cap Bank where up to 100 individuals were found in trawls per one hour-trawling at the depth of 250-350 m, with the temperature of 3.9°.

In the southern part of the St. Pierre Bank up to 500 individuals occurred in trawls per one hour-trawling at the depths of 150-200 m (temperatures 0.3° - 5.4°)(Fig.3).

The largest catches of the young were observed in the morning and at night.

The feeding of the young was not intensive, krills and Calanus prevailed in stomachs. S. marinus of 15 cm long remained at the depths of 250-350 m in the areas of the Southern Labrador, North Newfoundland Bank and also on the Flemish Cap Bank. The amount of the young was not over 30-50 individuals per one-hour trawling (Fig.4).

Conclusions

1. The largest concentrations of the young cod were observed in the Hamilton shallow water, on the southern slopes of the St. Pierre and Green Banks and on the Flemish Cap Bank. The great amounts of the 0-group young were taken by trawls on the southern slopes of the St. Pierre and Green Banks and on the Flemish Cap Bank; the larger individuals prevailed in the northern areas. The young remained at the depths of 150-200 m.

2. The young haddock occurred on the south-western slope of the Grand Newfoundland Bank and on the southern slope of the St. Pierre Bank.

3. The young redfish were found in trawls in the areas of Labrador, Grand Newfoundland Bank and on the St. Pierre and Flemish Cap Banks.

4. Distribution of the young of commercial fishes in January 1963 was similar to that in January 1962, but abundance of the young was somewhat less in January 1963.

REFERENCES.

- NEVINSKY, M.M. Preliminary estimation of young cod, haddock and redfish found in the North-West Atlantic Ocean. ICNAF, Redbook 1962, Part III, December, 1962.

HEADINGS FOR FIGURES

to the contribution by A. Yu. Bulatova "Results of Determining the Abundance of Young of Commercial Fishes in the Labrador and Newfoundland Areas/December, 1962/January, 1963/.

- Fig. 1 Distribution of the young cod and young haddock in the Labrador and Newfoundland areas in December 1962/January 1963.
- Fig. 2 The length composition of the young cod and young haddock in December 1962/January 1963.
- Fig. 3 Distribution of the young of S. mentella in December 1962-January 1963.
- Fig. 4 Distribution of the young of S. marinus in December 1962-January 1963.

Table I

Average catch of the young of cod and haddock per one-hour trawling by areas for December 1962/January 1963.

Areas	Number of trawlings	C o d		Haddock	
		Total catch of the young	Amount of specimens per one-hour trawling	Total catch of the young	Amount of specimens per one-hour trawling
2	14	100	7	-	-
2	14	412	29	-	-
2	40	4336	108	-	-
3	27	832	31	-	-
3	33	813	25	15	1
3	16	191	12	279	17
3	20	1705	85	446	22
3	25	181	7	23	1
3	17	825	49	3	1

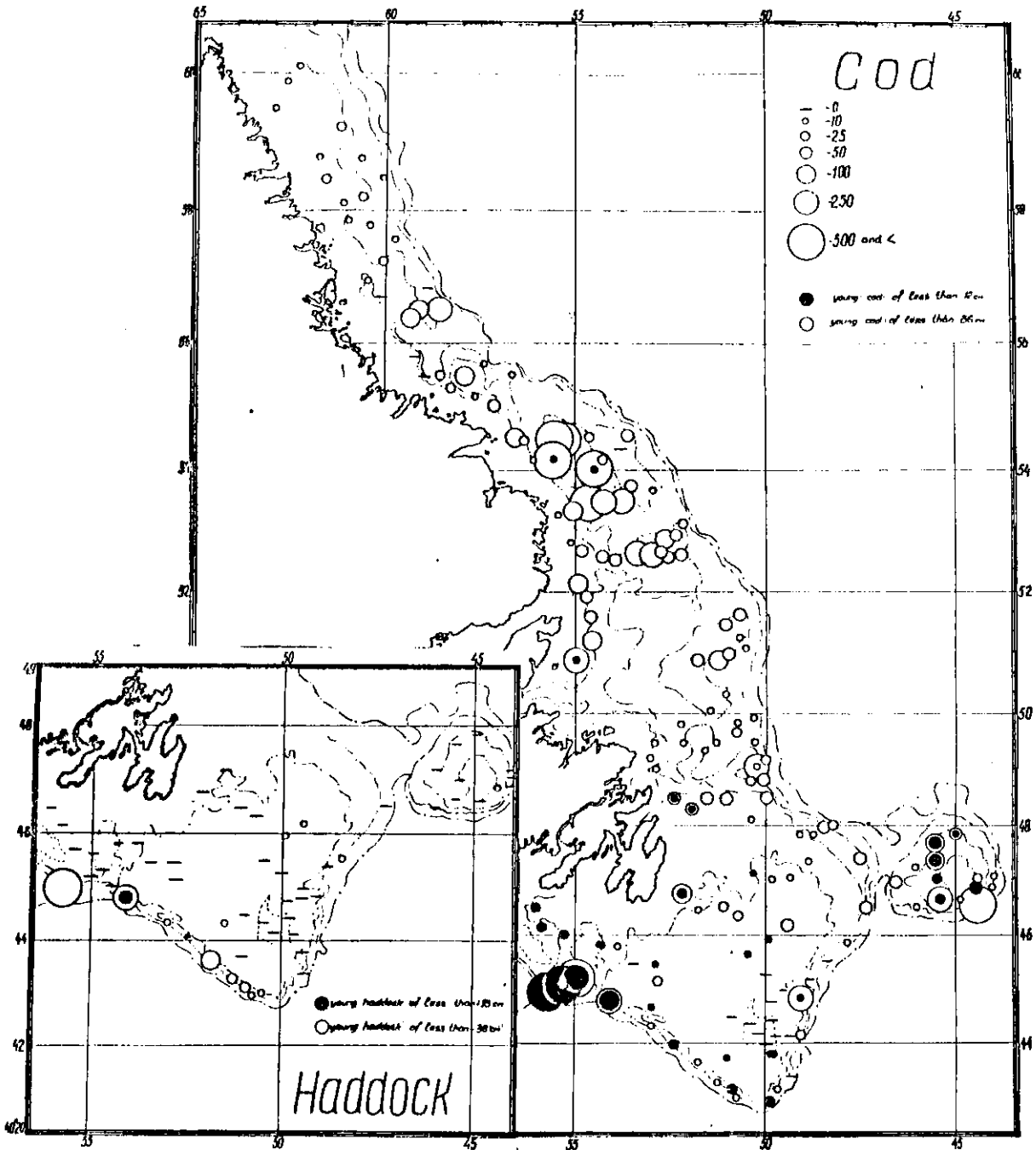


Figure 1. Distribution of the young cod and young haddock in the Labrador and Newfoundland areas in December, 1962/January, 1963.

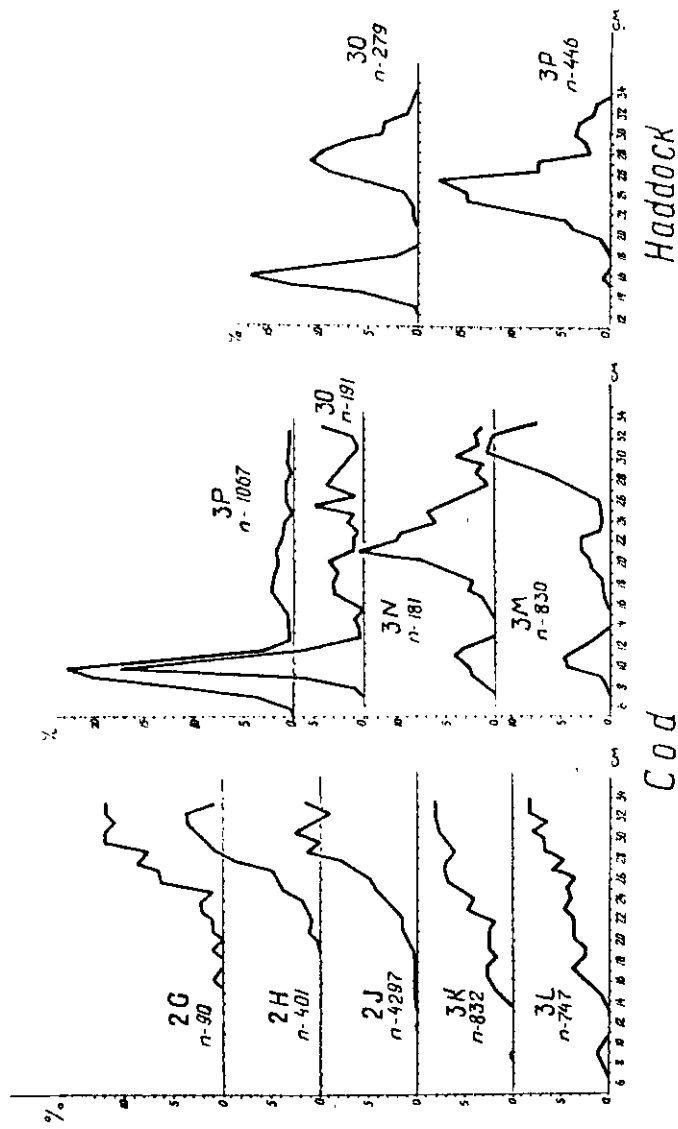


Figure 2. The length composition of the young cod and young haddock in December/January, 1963.



Fig. 4. Distribution of the young of *S. marinus* in December, 1962-January, 1963.

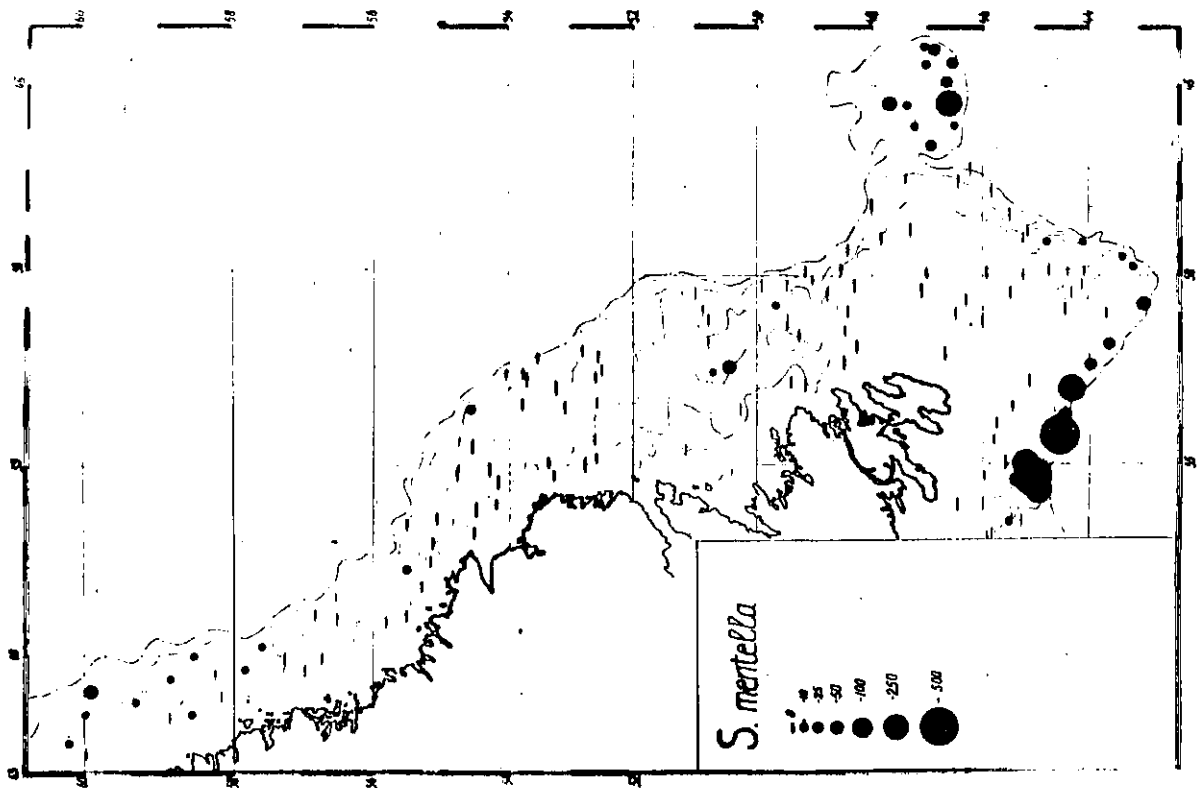


Fig. 3. Distribution of the young of *S. mentella* in December, 1962-January, 1963.