

# COMMERCIAL FISHERIES REVIEW

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## GEORGES BANK HADDOCK FISHERY--1951

### Part I--Analysis of 1951 Fishery

By John R. Clark\*

Unusual abundance of large scrod was the keynote of the 1951 haddock fishery on Georges Bank. These large scrod were members of the very successful 1948 brood which entered the fishery so spectacularly as small two-year-old scrod during 1950. The increase in size of the fish of this brood was due, merely, to the addition of another year's growth. Some grew enough to be sold as large haddock.<sup>1/</sup>

In a report on the 1950 fishery (Schuck 1951), it was predicted that this 1948 brood would contribute substantial numbers of larger-sized haddock to the fishery in the future and that landings could be expected to increase. That an

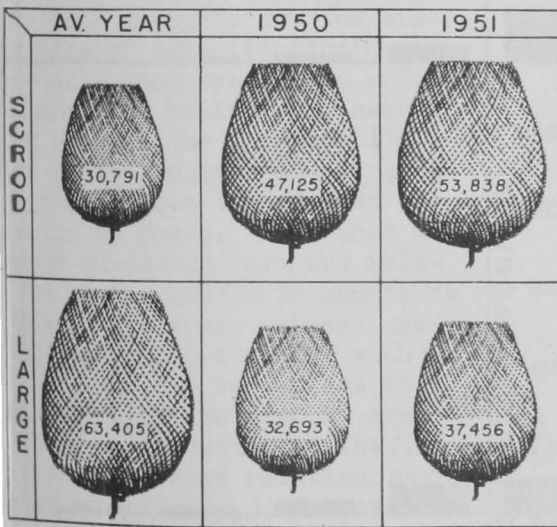


FIG. 1 - HADDOCK LANDED FROM GEORGES BANK-- IN THOUSANDS OF POUNDS.

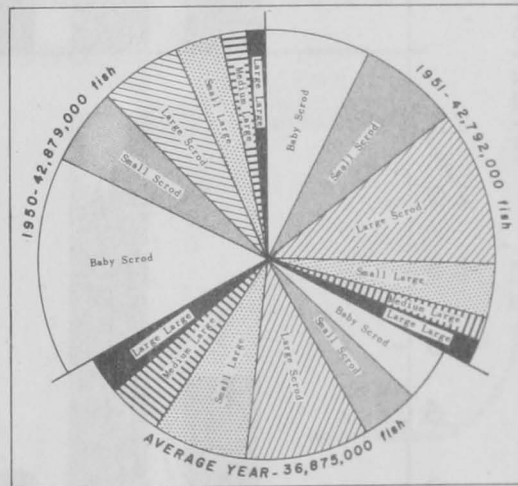


FIG. 2 - NUMBERS OF HADDOCK OF VARIOUS SIZES LANDED FROM GEORGES BANK IN 1951, 1950, AND THE AVERAGE YEAR.

increase did occur is shown by figure 1. It can be seen from the figure that 1951 landings of scrod bettered 1950 by almost 7,000,000 pounds. Landings of large haddock were about 5,000,000 pounds higher than 1950. The average year<sup>2/</sup> is also included in figure 1 for comparison.

The increase in landings of scrod was due, simply, to their larger size, as fewer individual scrod were landed in 1951 than in the previous year. The number of scrod landed in 1951 (32,600,000) dropped off a million from 1950 (33,600,000). The number of large haddock landed in 1951 (10,300,000) increased about a million over 1950 (9,200,000).

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<sup>1/</sup> AS DEFINED BY THE NEW ENGLAND FISH EXCHANGE, SCROD ARE HADDOCK OF 1½ TO 2½ POUNDS, LARGE HADDOCK ARE OVER 2½ POUNDS.

<sup>2/</sup> ALL AVERAGE-YEAR DATA ARE BASED ON THE PERIOD 1931-48.

The average weight of scrod landed in 1951 was 1.65 pounds apiece as compared to only 1.40 pounds in 1950. The 1951 large haddock averaged 3.65 pounds as compared to 3.54 pounds for 1950.

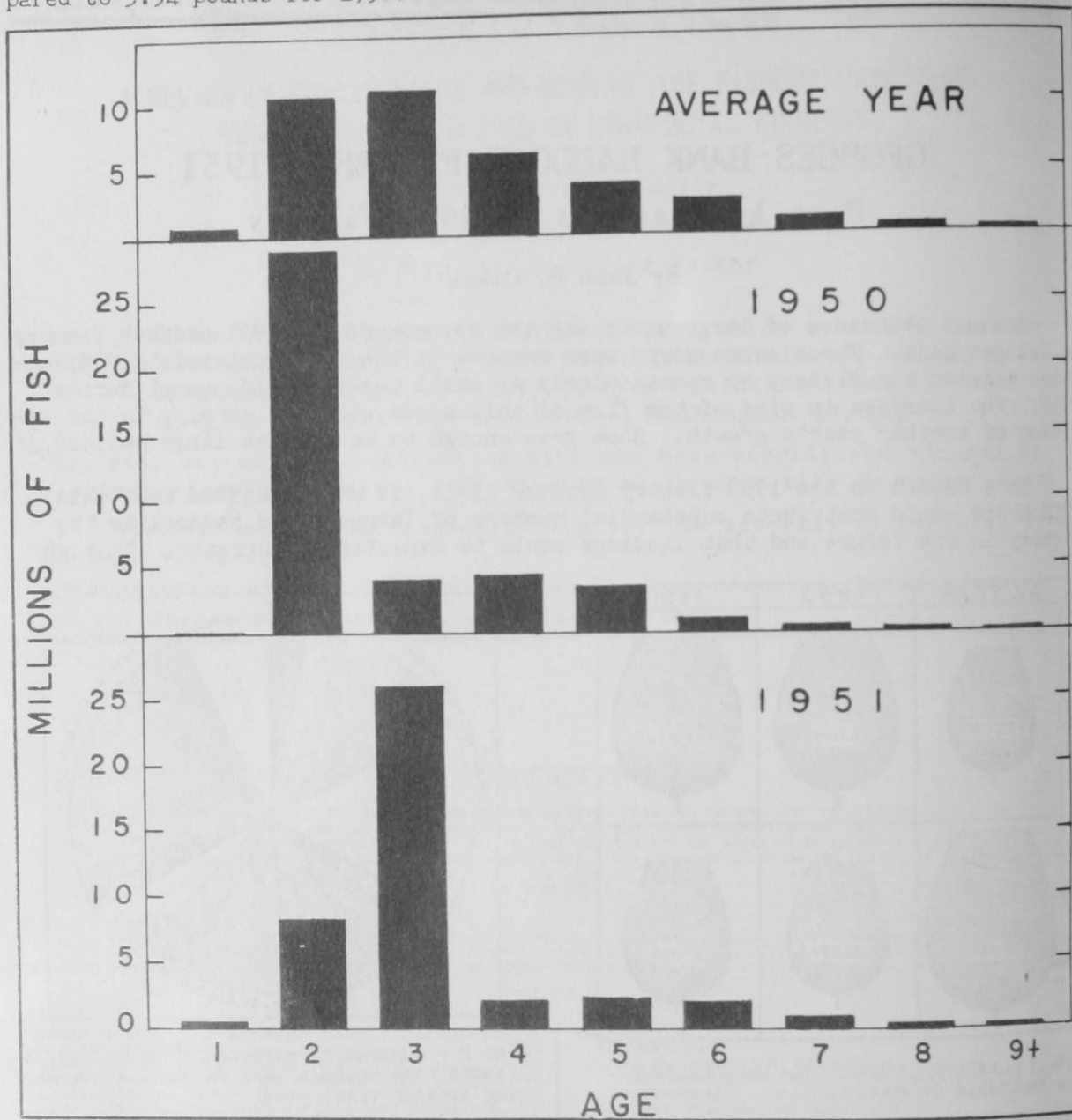


FIG. 3 - AGE COMPOSITION OF HADDOCK LANDINGS FROM GEORGES BANK IN 1951, 1950, AND THE AVERAGE YEAR.

The numbers of the various sizes of fish landed are shown graphically in figure 2. Although the total numbers of fish landed in 1950 and 1951 are almost equal the proportions of the various sizes differ considerably. The most striking difference appears in the decrease in landings of baby scrod and the increase in landings of large scrod in 1951. Inspection of the graph will reveal lesser differences in the other size categories. For comparison, the average year is also shown in figure 2.

The unusually great abundance of the 1948 brood is demonstrated in figure 3, which shows the age composition of the landings. As two-year-olds in 1950 and 3-year-olds in 1951, the 1948 brood was  $2\frac{1}{2}$  times as abundant as the average brood.

Of all other broods to enter the fishery since 1931, three were really outstanding. The large 1936 brood was primarily responsible for increased catches of haddock in the late 1930's and the successful 1939 and 1940 broods provided good catches of haddock in the early 1940's. These three (1936, 1939, and 1940) yielded respectively 181, 181, and 145 percent more 2- and 3-year-olds than the average brood. The 1948 brood has contributed 250 percent more 2- and 3-year-olds than the average brood, far exceeding the yield of any other for which we have records.

## LITERATURE CITED

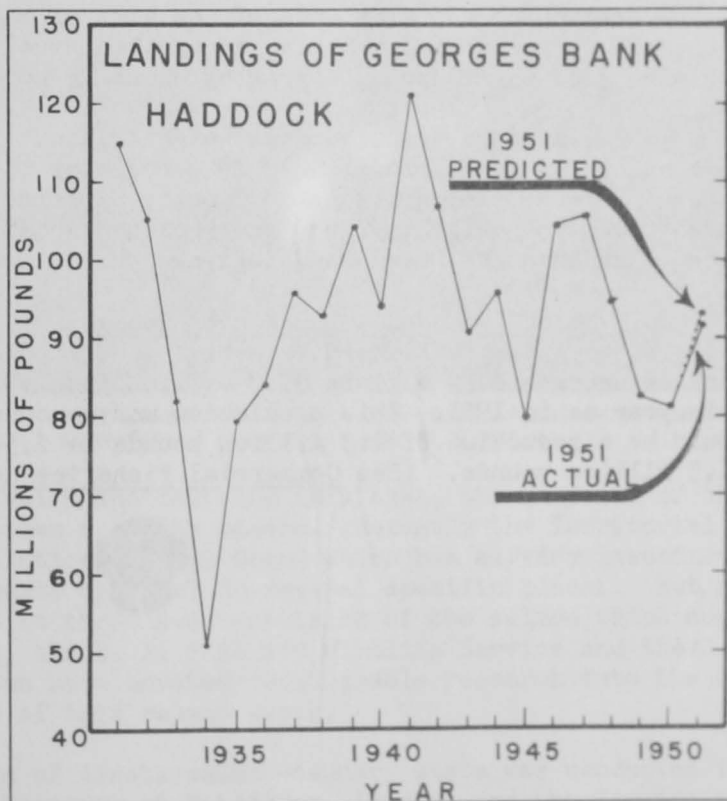
SCHUCK, HOWARD A.

1951. 1950--AN UNUSUAL HADDOCK YEAR ON GEORGES BANK. COMMERCIAL FISHERIES REVIEW, VOL. 13, NO. 6 (JUNE), PP. 27-9.

## Part II--Accuracy of 1951 Prediction

By Howard A. Schuck\*

A method of predicting the catch of haddock from Georges Bank a year in advance has been developed by the U. S. Fish and Wildlife Service's Woods Hole Fishery Laboratory. This method is dependent on the analysis of detailed data which have been collected routinely by the Service since 1931. Required for this analysis are the statistics of catch (including especially measures of the effort expended in making these catches) and data on the age composition and on the lengths and weights of the haddock landed over a period of years. The method depends on establishing the relation of the decline in abundance of each age group between succeeding years, together with establishing the variations in abundance of the several age groups contributing to the fishery. Once these relations have been established, it is possible to predict the landings for any year, providing data on the landings and on the age composition of the year preceding are available.



Although it has not yet been possible to present the full details of this method, it has been used to predict the Georges Bank haddock catch. This prediction was made by Dr. William F. Royce to the National Fisheries Institute at their 1951 annual meeting in Boston, and excerpts of it were subsequently printed in the Food Field Report of April 1951. The prediction was for the "haddock year" of 1951, which differs by one month from the calendar year. The 1951 haddock year began February 1, 1951, and ended January 31, 1952.

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It was predicted that a considerably greater catch would be made from Georges Bank in 1951 than the 80.5 million pounds landed in 1950. Just how much increase could be expected over 1950 obviously depended upon how much fishing would be done on Georges Bank in 1951. Thus, predictions were made for each of several fishing intensities.

If, in 1951, the amount of fishing on Georges Bank were the same as in 1950, the catch to be expected was set at 88 million pounds; for a 10 percent increase in fishing effort, the prediction was set for 93 million pounds; and for a 10 percent decrease in effort, a catch of 83 million pounds was anticipated.

Now that the 1951 haddock year is over, it is possible to make an evaluation of the prediction.

The records show that there were 9.7 percent more days fished in 1951 than in 1950. With this increase in fishing, the catch was predicted to be 92.8 million pounds. Actually, 91.3 million pounds were landed. Thus the landings differed from the predicted by only 1.5 million pounds. The prediction proved 98.4 percent accurate.

The Georges Bank landings of haddock for a 20-year period (1931 through 1950) and the predicted and actual 1951 landings are shown in figure 1.

A prediction was also made of the size of haddock to be expected in the landings. It was predicted that "a larger than usual percentage of the 1951 catch would be good-sized scrod, averaging about  $2\frac{1}{4}$  pounds."

In the average year, haddock weighing about  $2\frac{1}{4}$  pounds (2- to  $2\frac{1}{2}$ -pound range) have accounted for approximately 29 percent of the landings. For 7 trips to sea made by Service biologists in 1951 fully 43 percent of the landings were composed of 2- to  $2\frac{1}{2}$ -pound fish. Thus, as predicted, considerably more of this size group were taken than are taken in an average year.

EDITORS' NOTE: Haddock Catch on Georges Bank to Decrease in 1952: The Service's North Atlantic Fishery Investigations predicts that the 1952 catch of haddock on Georges Bank will be 89.0 million pounds if the fishing effort is the same this year as in 1951. This prediction was announced on April 29 this year. This would be a reduction of 2.3 million pounds or 2.5 percent of last year's catch of 91.3 million pounds. (See Commercial Fisheries Review, May 1952, p. 20.)

