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The Longline Fishery at Bonavista, Newfoundland, 1952-1958

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Bonavista, on the east coast of Newfoundland, is one of the most important centres of the Canadian inshore cod fishery. Because of this, observations on the fishery have been carried out there for a number of years, particularly on the longline fishery.

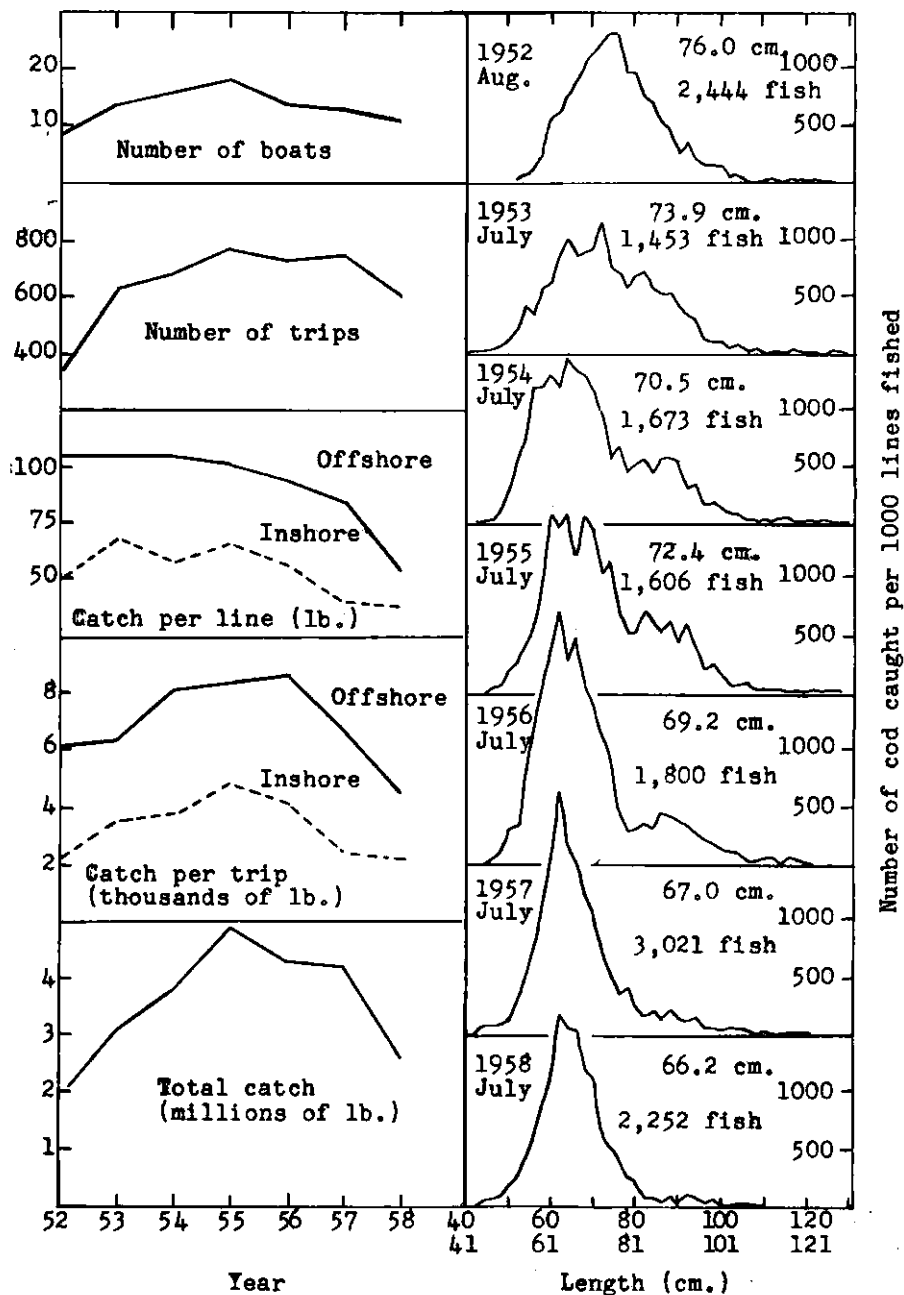
The commercial longline fishery at Bonavista began in 1952 as a direct result of experimental longline fishing carried out by the Fisheries Research Board of Canada through its Biological Station at St. John's in 1950 and 1951. During the experiments excellent longlining grounds for cod were found off Bonavista in an area that had not been fished previously.

The Labrador Current flows southward off the east coast of Newfoundland. In spring, summer and autumn the landward portion of the current is present as a cold, middle layer of water with temperatures below 0°C. which enters all the bays on the east coast of Newfoundland, extends to the bottom in the inshore areas and to seaward for many miles. Near shore at shallower depths than those of the cold layer there is a warmer, surface layer with temperatures suitable for cod. In this warmer, shallow water the inshore fishery for cod is carried on using traps, handlines and longlines hauled by hand.

Further seaward, and below the cold, middle layer of water, there is a bottom layer of warmer water. Close to the boundary between the cold, middle layer and the warmer, deep layer of water the best deep-water longline fishing for cod is generally found.

Inshore the warm, surface layer of water extends deeper as it is warmed by the sun with the advance of summer. Typically, however, not until August does it extend deep enough to cover inshore grounds where the length of line used in the longline method can be set successfully.

In the accompanying figure the results of the Bonavista commercial longline fishery since 1952 are summarized. Boats used are from 40 to 50 feet (12 to 15 m.) in length. These make daily trips to the grounds and usually set from 80 to 100 fifty-fathom (91.5 m.) lines (50 hooks per line) per trip. The bait used is generally squid, or herring when squid are not available. Fishing begins yearly in June and continues until stormy weather in the autumn brings it to a close. Most of the fishing up to the end of August is on the deep-water grounds 15 to 20 nautical miles offshore. From August until the end of the season, more trips are made closer to shore.



Catch and effort, and length distribution of cod landed in the commercial longline fishery at Bonavista, 1952-1958. Weights are of head-on, gutted fish. In length distribution graph the average length and number of fish measured for each sample are recorded.

From 1952 to 1955, for trips to the offshore grounds the average catch of cod (head-on, gutted weight) per 50-fathom line (50 hooks per line) amounted to just over 100 lb. (45 kg.), but since 1955 a rapid decline is evident. Catches from inshore trips are invariably lower than from offshore, averaging 50 to 70 lb. (23 to 32 kg.) per line of gear up to 1955 but declining to a much lower level since.

A comparison of the yearly average catch per trip shows a steady increase for offshore trips from just over 6,000 lb. (2,720 kg.) of cod per trip in 1952 to over 8,000 lb. (3,630 kg.) in 1956. Following this a decrease occurred, and in 1958 the average catch per trip offshore was down to about 4,500 lb. (2,040 kg.), the lowest since the beginning of the fishing. For inshore trips the average catch per trip increased to nearly 5,000 lb. (2,270 kg.) in 1955, but has declined to the low level of just over 2,000 lb. (910 kg.) per trip in 1958.

Generally, the results from the longline fishery in 1958 were considerably poorer than for previous years. The landings were 45% lower than in 1957, and the catch per unit of effort was much reduced in comparison with previous years.

When the longline fishery began in Bonavista in 1952, the deep-water stocks of cod had not been fished previously and until 1956 the Bonavista longliners were the only boats fishing the area. In 1956, however, a few large European otter trawlers began fishing in the area and in 1957 and 1958 there was a much larger concentration of effort by a larger number of European trawlers. In addition, a fleet of large longliners from the Faroe Islands and from Norway fished off Bonavista and in neighboring deep-water areas in 1957 and 1958.

Length measurements were obtained from cod landed by the Bonavista longliners each year since 1952. In the accompanying figure a comparison is made of the length distribution in summer of each year. The 1952 measurements are for August, and in all other years, for July. In the first year of fishing, 1952, a large proportion of the fish landed were 80 cm. and larger, and the average length was 76.0 cm. Each year that followed, the proportion of these larger fish in the catch has been reduced and by the end of July, 1958, their contribution to the catch was a minor one. The average size of the cod has been reduced by about 10 cm. in the 1952-1958 interval and the fish landed in 1957 and 1958 were mainly between 50 and 80 cm. in length, with greatest numbers at 62 cm. In 1958 it is apparent that even these fish were caught by the Bonavista longliners in smaller numbers than in 1957.

Though it is as yet possibly too early to say whether or not this fishery has passed the peak of production, it is highly probable that the increased fishing pressure by large otter trawlers in the past two years has decreased the deep-water stock of cod in the area considerably.

