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Research of interest to the Commission is carried out by the Marine Biological Station of the Quebec Department of Fisheries at Grand River, Que., in Divisions 4T and 4S.

Hydrography. As usual, hydrographic sections were taken in Chaleur Bay (4T) from June 7 to August 31, 1961. In general, bottom water temperatures in the Bay were slightly higher than in 1960, but were still low, ranging from -1.0 to 1.0°C. Warming up of the bottom water at the beginning of the fishing season was slow.

Investigations in marine sedimentation of this area, initiated in 1960, have been continued in 1961.

Plankton. Zooplankton production has been studied in Chaleur Bay. In 1961 this production was relatively poor compared to that of 1960, both in the inner part of the Bay and in adjacent waters (0.25 ml/m^3 for 1961; 0.45 ml/m^3 for 1960). Plankton was found to be most abundant in August, water temperature being highest at that time. Copepods and Coelenterata were less numerous; other important groups such as Appendicularia, Cladocera and larval Euphausiacea were found in roughly similar quantities.

Food of cod. The study initiated in 1960, on the food of cod as related to their vertical migrations, was continued in 1961. The main purpose is to study the value of presence or abundance of specific preys, chiefly small crustaceans, as indicators of cod vertical movements. Gill nets and otter trawl were used for the 24-hour observations made twice a month. Two gill nets were used together, one on the bottom, the other at about 5 fathoms from the bottom. The otter trawl was bipartitioned horizontally, each section leading to separate codends, so as to fish from the bottom to one fathom above bottom, and from there to the headrope.

Preliminary analyses indicate that more fish were caught by otter trawl in the daytime (78 per tow) than at night (43 per tow). With both otter trawl and gill nets catches in the lower net were larger than those in the upper net during both day and night sets. A greater proportion of the total catch was caught in the upper trawl and upper gill net in the daytime than at night (43 versus 33% with otter trawl and 46 versus 37% with gill nets).

Main prey animals were much the same as in 1960, except that the euphausiid Thysanoessa was largely replaced by Meganyctiphanes. There was also in 1961 a delay of two weeks, as compared with 1960, in the period of peak abundance of main prey species in cod stomachs, i.e., herring, euphausiids, capelin and the amphipod Paratryphosites abyssi. A similar delay was observed in some hydrographic features of the area.

Survey. In 1961, the groundfish census in Chaleur Bay area, initiated a few years ago, was continued. Two series of observations were made from June 22 to August 5, covering 11 stations on each cruise. The results of the 1961 survey are compared with those of previous years as follows:

Year	Mean length of codfish (cm)	Percentage of codfish measuring less than 38 cm	Average number of fish per one-hour tow
1959	40.6	54	181
1960	41.2	48	185
1961	42.4	40	124

The fishery. As a whole the fishery has been relatively good for the Quebec fishing fleet; increase in catches was slight for cod and greater for redfish, flounders and halibut. The major part of dragger operations was carried out in 4S where draggers found satisfying catches. Contributions of longliners were poor. To be noted also is the development of inshore fishing for cod with gill nets, with reports of good catches of fair-size fish (mean length 67 cm in 4S).

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