## DEPARTMENT OF THE NAVAL SERVICE

## 8 GEORGE V, A. 1918

Catch 17 was taken on the morning of August 3, 1916, when numerous schools of small pollock were seen close inshore just north of Wilson's bench, and the shore scine was set at low water. One haul yielded fifty-seven specimens ranging between 30 cm. and 47 cm. in total length. The scine was rapidly hauled in over a rocky bottom and the only other fish eaught was one *Pseudopleuronectes americanus* 35 cm. in length. The scales of these pollock all show two winter rings. The length frequencies are given in table 4. The mean total length is 39-5 cm. and the mean standard length is 36-4 cm.

Catch No. 19 has already been described in a previous section. It included sixteen pollock whose scales showed two winter rings. The total lengths of these fish at the ends of their first and second winters, as calculated from their scales, are given in table No. 5. The lengths given arc, in each case, the average of two measurements on different scales. The mean total lengths of two-year old fish of the catch arc, at the end of the first winter, 15.4 cm, and at the end of the second winter, 31.8 cm. The mean length of the fish when eaught on August 4 was 39.2 cm. The mean increase in total length during the second year,  $t_2$ , was 16.4 cm, and the mean increase during the third year up to August 4 was 7.4 cm. The length frequencies of the fish in the different years of their growth are shown in table 6. The corresponding figures for the standard lengths are: mean standard length at end of first winter, 14.1 cm.; mean standard length at end of second winter, 31.3 cm; mean standard length when eaught on August 4, 35.9 em.

## VL-THE FREQUENCY OF THE DIFFERENT VEAR CLASSES IN THE YEARS 1914, 1915 AND 1916.

From measurements made on 1,250 pollock caught in July, 1914, Mr. Douglas Macallum constructed a length frequency curve, given in the paper already referred to. This curve, as Mr. Macallum noted, shows two modes, one at 63 cm., and one at 68 cm., the former being the more prominent one. The mean length of 6-year old fish (67-8 cm.) corresponds closely with the frequency curve at 68 cm., as scale studies show, and the mean length of 5-year old fish (63- cm.) with the mode at 62 to 63 cm. The most prominent mode is at 63 cm., i.e., 5-year old fish, or the class of 1909.

The material for the study of the pollock in 1915 consisted of the measurements and seales of 652 fish obtained in five catches from Casco bay, off Campobello island, New Brunswick. The first two of these catches were made on June 22, and included 331 fish, the other three catches were made on July 16, and included 321 fish. The length frequencies of these pollock, both the actual numbers caught and the per cent in each centimeter class, are given in table 7. In eatches 1 and 2, both the standard and the total lengths were measured while the catches 3 to 5, only the standard lengths were taken. The table gives the standard lengths for all five catches and, in addition, the total lengths for catches 1 and 2. From the column in the table giving the per cent of specimens in each centimeter class for the first two eatches and the similar column for the last three entenes, it will be seen that they agree in showing the most frequent classes at 65 and 66 cm. Since the distribution of lengths in the catches is similar and since the catches were chosen at random, it would seem fair to assume that they r present correctly the distribution in point of size of fish eaught during June and July in the vicinity of Campobello island. The frequency curve for the standard lengths of catches 1 to 5 is shown in the graph where the lengths have been grouped in 2 em. elasses and the frequencies plotted in per cent. This curve has a single mode at 66 em., corresponding to the most frequent class in the per cent column. An examination of the scales of the fish from a typical catch, catch 2, was made in the