

COREGONUS LABRADORICUS, THE SAULT WHITEFISH, AN INTERESTING ADDITION TO THE FRESHWATER FISH FAUNA OF NOVA SCOTIA.—By HARRY PIERS, Curator of the Provincial Museum, Halifax, N. S.

(Read 14 May, 1924)

Up till now, no indigenous form of the genus *Coregonus*, or Whitefishes, of the family Salmonidae, has been reported from the waters of Nova Scotia.

*Economic importance of the Whitefish.*—The genus is of much economic value elsewhere in the northern part of North America, so that the occurrence here of any form of the genus is a matter of much interest, and would suggest that any such form might be successfully transplanted to other suitable localities in the province, where it might thrive, increase, and become a food-fish of considerable value.

About 1877, an effort was first made by the Fishery Department of the Dominion, to introduce into Nova Scotia the Common Whitefish, *Coregonus clupeiformis* (Mitchell), of the Great Lakes, which has also been found as far east as New Brunswick. After several such attempts on the part of the Department, to introduce that species here, the effort utterly failed to be successful and probably not an example of the fish is now to be found in our waters.

*Coregonus labradoricus* of Richardson, the Sault Whitefish, occurs from Lake Winnipeg and the Great Lakes region, to the lakes of the Adirondacks and White Mountains, and northeastward to Quebec Province, Labrador, and New Brunswick. Dr. Philips Cox has found it in some of the lakes of the upper St. John River, New Brunswick. It is generally abundant, particularly at Sault Ste. Marie, between Lakes Superior and Huron, in cold, clear lakes and large streams. It is of good flavour and is valued as food, and reaches a length of 21 inches. It is a variable form, as most of the Whitefishes are, and possibly embraces several recognizable, but trivial, varieties, dependent probably on the conditions as to food, water, etc.

The group to which it belongs is an extremely difficult one to diagnose, as there seems to be much intergradation, so-called species seeming to blend with other so-called species. Even *Coregonus labradoricus* is by some regarded as a mere variety of *C. clupeiformis*.

*Specimens from Lunenburg Co., N. S.*—On 9th May, 1923, S. Edgar March, C. E., of Bridgewater, N. S., took with hook and worm some fish in the swift water from the spillway of the dam at the outlet or eastern end of Millipsigate Lake, not far from the Micmac Gold Mines, near the headwaters of the Petite Riviere,  $4\frac{3}{4}$  miles southwest of Bridgewater, in Lunenburg County, N. S. The lake, which is situated 11 miles from the sea-coast, is about  $1\frac{1}{2}$  mile long, and its waters pass into Hebb Lake which is of about the same size. Mr. March only knows of this one place where this species of fish is found, although he has been an angler for forty years and is familiar with the waters of the district. It is possible for it to reach the waters above, and as very small fry it might make its way below.

In order to give a clear idea of the location, it may be said that Manamki, Millipsigate, and Hebb Lakes form a chain, in the order named, connected by streams. They are controlled by the town of Bridgewater and are the source of its water-supply and electric-light system. At the foot of the lowermost or eastern lake, Hebb's, where the power-house is located, is now an 18 to 20 ft. concrete dam, with no fishway, which replaced an old wooden dam which was about 14 feet high. No fish can pass this point upward, and possibly only a very few may be able to go down during great freshets. Fish in this lake should, however, be able to pass up the stream and so into Millipsigate Lake by way of the gates in the dam at the foot of the latter lake, which open up from the bottom. One or two of these particular fish have also been taken in the stream below Minamki Lake.

Mr. March sent a specimen of the fish to the Provincial Museum (acc. no. 5225), which was readily identified as one of the Whitefishes, but owing to certain variations which it presented, it was considered unwise to attempt to determine the species to which it belonged, from a single example. Dr. Philip Cox, of Fredericton, N. B., to whom I also submitted the specimen for examination, was likewise not quite sure as to what form it was. A reference was made to it in the Report of the Museum for 1923, page 16.

On 5th May, 1924, Mr. March obtained two more specimens at the same place, which be forwarded to the Museum (acc. nos. 5454 and 5455). With these three specimens before us, it is now possible to determine the form as a variant of *Coregonus labradoricus* of Richardson, from which it differs mostly in possessing a high scale-formula for the lateral-line, and in seemingly lacking the teeth on the tongue. The supplemented bone of the superior maxillary is well defined, and is of the *Coregonus* type.

The colour of the back is bluish-black, with blue reflections; sides, silvery with blue reflections; belly, silvery with slight bluish reflections; gill covers, yellowish; sides punctated with black; dorsal fin, blackish with black punctations; lower fins, white with black punctations, the other two-thirds blackish; caudal blackish; iris yellow.

Comparative table of size, proportions, and formulae of fin-rays, scales, and gill-rakers:—

|                                  | Typical<br>(Jordan<br>and<br>Evermann) | Millipsisgate Lake, Lun. Co., N. S. |                         |                       |
|----------------------------------|--|-------------------------------------|-------------------------|-----------------------|
|                                  |  | Acc. No.<br>5225                    | Acc. No.<br>5454        | Acc. No.<br>5455      |
| Total length .....               | 21 ins.                                | 10.30 ins.                          | 11.25 ins.              | 10.60 ins.            |
| Length to base of caudal .....   |  | 9.15 ins.                           | 9.90 ins.               | 9.22 ins.             |
| Weight .....                     |  | 5 ozs.                              | 6½ ozs.                 | 5½ ozs.               |
| Head in length .....             | 5                                      | 4.94                                | 4.87                    | 4.63                  |
| Depth in length .....            | 3 1-5 to 4                             | 4.81                                | 4.71                    | 4.73                  |
| Maxillary in head .....          |  | 3.36                                | 3.22                    | 3.58                  |
| Eye in head .....                | 4½ to 5                                | 4.60                                | 4.95                    | 4.93                  |
| Gill rakers in eye .....         | 2 to 2½                                | 2.35                                | 2.00                    | 2.00                  |
| 1st Dorsal, number of rays ..... | 11 or 12                               | 11½                                 | 10½                     | 10½                   |
| Anal, number of rays .....       | 11 or 12                               | 12½                                 | 11                      | 11                    |
| Ventral, number of rays .....    |  | 12                                  | 11                      | 12                    |
| Scales:                          |  |                                     |                         |                       |
| Lateral line to 1st dorsal ..... | 10                                     | 9 or 10                             | 11                      | 11                    |
| Lateral line .....               | 71 to 76                               | Right, 100<br>Left, 101             | Right, 100<br>Left, 103 | Right, 97<br>Left, 98 |
| Lateral line to vent .....       | 9                                      | 9                                   | 9                       | 9                     |
| Gill rakers above angle .....    | 10                                     | 11(?)                               | 10                      | 10                    |
| Gill rakers below angle .....    | 15 or 16                               | 16(?)                               | 14 or 15                | 15                    |
| Back .....                       | Not<br>elevated                        | Not<br>elevated                     | Not<br>elevated         | Not<br>elevated       |

We thus see that the only points of difference from the typical *C. labradoricus*, seem to be in the apparent lack of teeth on the tongue, and in having from 21 to 24 more scales in the lateral line than that species normally has—which is relatively a large increase in the number. It is, however, a species which is quite variable.

*Habits.*—Nothing is known of their habits here, except that it is said that they occur in schools.

*Size and weight.*—From Mr. March's personal knowledge, 18 inches is the greatest length they attain at Millisigate. As usually caught, they vary from 7 to 16 inches. Of specimens measuring 10 or 11 inches, he has not seen more than half a dozen; and smaller than that, only one. In 1921 he weighed several taken from a more than usually successful catch and they ran from  $1\frac{1}{4}$  to  $1\frac{1}{2}$  pounds, but they have been taken as light as half a pound. The general proportions and form of the larger fish, are practically the same as those sent to the Museum—that is, the back is not elevated.

*Flesh.*—They are an excellent table fish. The flesh when cooked is about the same colour as that of a herring, but the bones are small and seem to be no more evident than those of a trout.

*Mode of capture.*—The three specimens which have been described were taken with a hook baited with a worm, but Mr. Marsh has taken them also with a small minnow, small artificial fly, and with tiny natural flies upon very small bait-hooks. The small artificial fly used was dull yellow and grey, with black body. The natural flies used had black or grey wings. The fish usually take bait a short way below the surface, in swift running water. The fly is taken from two to six inches above the water and occasionally on the surface. They are gamey fighters, and when hooked almost always leap from the water as a salmon does, and pursue the same tactics till exhausted. No great catches have been made.

(Provincial Museum, Halifax, N. S.)