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INSTITUTE FOR FISHERIES RESEARCH  
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DATA ON THE SMELT, PREPARED FOR THE INSTITUTE FOR FISHERIES RESEARCH  
BY PROF. C. W. CREASER, JULY 6, 1931

The four large specimens from the mouth of Bear River, Petoskey, Michigan, a sample of the run which developed in 1931, were measured, sexed, and aged. The data are presented in the tables. The three year old fishes are of record length for that age, and are also very fat and plump, being  $1\frac{3}{4}$  in. in width just in front of the dorsal fin. Larger smelt have been taken from Crystal Lake, but these are of greater age and not so heavy-set. Two of the specimens showed three growing seasons, being a full three years old, while the others were four years old showing four growth seasons. All were about the same size, and all were ripe males. One of the four year olds showed unusually slow initial growth as compared with the others of this lot, but had recovered in the subsequent year. The size of the three year olds (231 and 240 mm. standard length) is much above the average for Crystal Lake (171 mm.) and just about the maximum of 228 found for the three year old fishes of that lake. The four year olds are about the same size as four year olds from Crystal Lake.

It might be said in conclusion that the growth of these smelt show a highly favorable condition for smelt in the Lake Michigan and Little Traverse Bay waters adjacent to Bear River. They will undoubtedly populate Walloon Lake if existing obstructions are not maintained in this river. Favorable ice fishing should develop in Little Traverse Bay and runs on the several small streams tributary to this bay

can be expected to develop in a year or so. All of these streams including Bear River were inspected during the 1930 run but no smelt were discovered.

The record of a smelt south east of Kenosha, Wisconsin, is also entered in the table. This specimen is a small ripening female with a record of two growing seasons, the first of which showed very little increase. The fish was taken in January 1931. Its length, 172 mm., is above the average size of Crystal Lake two year olds but is not above the maximum of 189 mm.

This is the farthest south the smelt has been taken in Great Lakes waters and we may look for the completion of the invasion of Lake Michigan at an early date.

The smelt is now establishing runs in many of the north Lake Michigan streams according to local reports. From Cecil and Big Stone Bays they are reported in numbers and Mr. Bronson of the Wilderness State Park of this region records a small run on the Carp Lake River. This stream is ideal for breeding purposes although not very large. These bays are suitable for some ice fishing.

We may also predict an invasion of the several streams in and about Cheboygan, as the fish is already common in Duncan Bay. It can be prevented from entering the extensive Cheboygan River System only by the paper mill dam at Cheboygan. Mullet Lake, Burt Lake, and Crooked Lake of this system seem to have all the characteristics necessary for good smelt lakes, being deep and having suitable spawning conditions.

We may now summarize the existing status of the smelt in the Great Lakes waters. Lake Michigan has been invaded as far south as Kenosha, Wisconsin on the west shore and below Frankfort on the east shore. Extensive runs have been developed in the Green Bay and Big Bay De Noc regions of northern Lake Michigan with new runs recorded for the Bear River at Petoskey and Carp Lake River at Cecil Bay. Smelt are being taken extensively from these waters through the ice in the winter, and command a good price on the late winter and early spring market.

Lake Huron has been invaded south along the west shore to Saginaw Bay and the

smelt is rather abundant at Duncan Bay, Cheboygan, and in the harbor at St. Ignace. Ice fishing will develop in the many bays of the northern part of Lake Huron and an increasing number of runs in the numerous streams may be expected in the next few years.

All lakes connected with Lake Michigan or Lake Huron by short unobstructed streams will soon be populated with smelt. Extensive ice fishing will develop in all bays, lakes, and other waters where ice and bottom condition are satisfactory for such fishing. It is now inevitable that the smelt will pass from the present phase as a sport fish with interesting and exciting spring runs into a commercial phase with the development of ice fishing for the late winter and early spring fish market. The fish already has a well established market and it is to be hoped that the utilization of the smelt will be extensive enough to offset any damage it may do to the commercial fisheries. Toward this end an effort should be made to locate new runs and to locate waters where ice fishing might be profitable. In the opinion of the writer, there is no hope in proposals for the extermination of the species, and not much hope in proposals for control measures.

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Data on size and age of Lake Michigan smelt, 1931 run

No.	Locality	Date	Total length in inches	Standard length in mm.	Age	Sex and maturity
1	Petoskey, Mich.	April, 1931	10 1/4 in.	225	3 an. (sp.) 4 growth seasons	Male, mature
2	" "	" "	10 5/8 in.	231	2 an., 3 gr. seasons	Male, mature
3	" "	" "	10 7/8 in.	240	2 an., 3 gr. seasons	Male, mature
4	" "	" "	10 5/8 in.	232	3 an.	Male, mature
5	Kenosha, Wisc.	Jan., 1931	7 3/4 in.	172	1 an. 2 gr.	female, approaching maturity