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SURVEY OF "TAINTING" IN SAGINAW BAY FISHES

March 1-5, 1943; April 11-12, 1943

by

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A pre-season survey of the yellow perch and yellow pikeperch of Saginaw Bay was planned to ascertain the extent of "tainting" in these fishes. Arrangements were made with the Conservation Officers in the areas along Saginaw Bay to have samples of fish available when I arrived there. I am especially indebted to Conservation Officers A. B. Asman of Bay City, A. J. Neering of Pigeon and M. B. Misener. These men gave splendid cooperation in arranging for collection of samples and in putting me in touch with commercial fishermen in their respective regions.

Methods

Two collections were made at intervals around the periphery of Saginaw Bay from Point AuGres to Bay Port.* The first collection was made during the period of March 1-5, 1943. At this time the tests for "taints" were made in the field. The second collection was made on April 11, 1943, the opening day of the yellow pikeperch season. These fish were returned to East Lansing for testing. In both instances the tests were the same and consisted of pan-broiling a part of the fish. Usually a steak from just behind the head was pan-broiled in hydrogenated fat. Heating drives off the foreign odor and if present it can be detected when the sample is pan-broiled. These samples were also tasted. The foreign flavor is apparently an odor-flavor and in each instance where the foreign odor was present the foreign flavor was also present.

* Field expenses for these collecting trips were paid by the Institute for Fisheries Research.

The foreign odor was also looked for when the fish were cleaned. In all instances where the foreign odor was detected by heating it was also detected when the body cavity was opened.

It appears that this foreign odor, when present in quantities large enough to bring complaints, can be detected by opening the abdominal cavity, and smelling of the contents. This odor is an aromatic volatile substance somewhat suggestive of medicinal odors of hospitals. This probably gives rise to the term "carbolic fish."

At the time of the first trial there were no fish available in the inner end of the bay. No fishing activity was in progress either by anglers or commercial fishermen except for the nets of Ralph McCoy. Mr. McCoy visited his nets but only suckers and carp were taken. The carp were noticeably tainted. An attempt was made to get yellow perch or yellow pikeperch at Linwood and Pinconning, but weather conditions were such that fishermen refused to go out on the ice. They feared the southwest wind would move the ice off shore, thus preventing their return. All fishermen in this area complained of "chemical" in the fish or "carbolic fish."

Result of Tests - March 1-5

A sample of one yellow pikeperch was obtained at Whites Beach in Arenac County. This sample was donated by Mr. Burk of Whites Beach. This proved to have a moderate taint; probably not enough to cause complaints from the markets, however.

A sample of four yellow perch was taken off Greens Point in Arenac County. This sample was donated by the Stevens and LaBrosse fishery. These perch were without any off flavor or "taint."

A sample of six yellow perch was taken near the mouth of the Rifle River in Arenac County. This sample was donated by Mr. H. H. Davis. This sample had no foreign odor or flavor.

A sample of two yellow perch was obtained from the nets of Leo Manor just north of Point AuGres, Arenac County. These fish were donated by Mr. Manor and were found to be free of any foreign odor or flavor. One 3 pound yellow pikeperch was purchased from Mr. Manor at \$0.25 per pound and was found to have a strong "taint." This was strong enough to render the fish inedible.

The Bay Port Fish Company donated a sample of four yellow perch taken outside of North Island, Huron County. There was no trace of foreign odor or flavor in this sample.

Mr. Norman Dutcher of Sebawaing donated a sample of four yellow perch and one small yellow pikeperch taken from nets located north of Fish Point, Huron County. These fish were free of foreign

odors or flavor. There were several reports by commercial fishermen to the effect that fish were occasionally taken that had a "strong chemical." On questioning it was found that during the winter nearly all of these fishermen had speared yellow pikeperch which had a strong aroma of "carbolic" when the body cavity was opened.

There was also a widespread complaint by all the Sebewaing fishermen that nearly all their fish died in the trap nets. They blamed this on the Sugar Plant wastes. They claimed this waste formed a carpet over the bottom for some distance in that region. They were of the opinion that the death of their fish resulted from oxygen depletion.

A single specimen of yellow pikeperch was purchased from a fisherman at Quanicassee. This fish was caught between Corion Reef and the shore at Quanicassee, Tuscola County. It had a moderate foreign odor and flavor. This foreign odor was the same as encountered in the other fish and is what is called a "chemical" or "carbolic" fish.

The map shows where the samples were taken and the triangular symbol indicates the species taken for the first trial while the circular symbol indicates those taken for the second trial. The presence of foreign odor or flavor is indicated by a plus (+) sign, and the absence of foreign odors or flavors by a minus (-) sign.

Results of Tests - April 11-12

Sample 1: Donated by Mr. Leo Manor, commercial fisherman of Point AuGres, Arenac County.

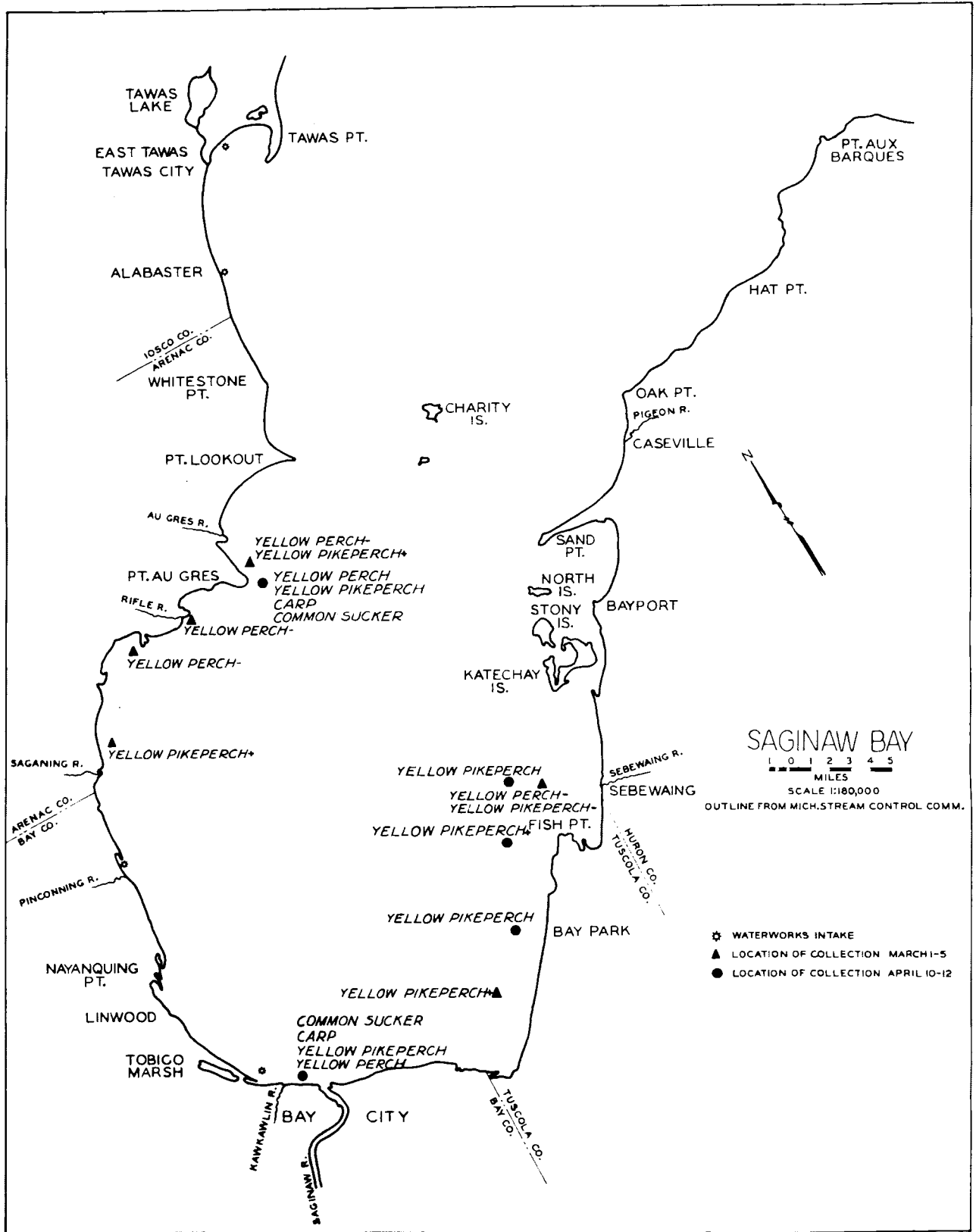
- 1 yellow pikeperch; no foreign odor or flavor.
- 10 yellow perch; no foreign odor or flavor.
- 2 carp; no foreign odor or flavor.
- 1 common sucker; no foreign odor or flavor.

Sample 2: Donated by Booth Fishery Company of Bay City, Michigan. These fish were captured off Aplin Beach, Bay County. This collection consisted of the following:

- 1 carp; no foreign flavor or odor.
- 2 yellow perch; had a distinct foreign odor and flavor as described above.
- 1 common sucker; had a distinct foreign odor and flavor.
- 1 yellow pikeperch; had a distinct foreign odor and flavor.

Sample 3: Purchased from a commercial fisherman at Quanicassee at \$0.30 per pound. These fish were captured seven miles southwest of Fish Point inside of Corion Reef, Tuscola County. The sample consisted of two yellow pikeperch both of which had a distinct and strong foreign odor and flavor similar to that in the other fishes.

Sample 4: This sample consisted of three yellow pikeperch donated by Mr. Norman Dutcher, commercial fisherman of Sebewaing.



These fish were captured five miles west of Sebewaing on Corion Reef, Huron County. These fish were free of any foreign odor or flavor.

Sample 5: This sample was purchased from C. A. Thomas, commercial fisherman at Fish Point near Unionville, Tuscola County. The sample consisted of two yellow pikeperch both of which had a distinct but mild foreign odor and flavor.

Management Suggestions

The south half of Saginaw Bay apparently receives pollution of such a nature as to affect the flavor of a part of the very considerable amount of fish produced in this area. The "tainted" fish cannot be detected without opening the abdominal cavity. The tainted fish in the catch frequently cause an unfavorable price differential against the whole shipment. This situation could be improved very considerably by removing the offending fish from the catch. This would entail at least rough dressing the fish, and inspecting them for foreign odors. These with foreign odors could be discarded or possibly processed in such a way as to overcome the objection. Even better than rough dressing the fish would be filleting and wrapping the fish. This would be a merchandising procedure which could probably not be handled by individual fishermen, but could be handled by cooperative action or by wholesalers.

If this off-flavor difficulty should arise now when the fish is badly needed, some effort should be made to save the usable fish from this area. Carp taken from the area during October 1942 showed a great variability in the intensity of this "taint", and many of them would be usable if separated from the heavily tainted ones.

Report approved by: A. S. Hazzard

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