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DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

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DIRECTOR

May 3, 1954

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

Report No. 1419

SOME OBSERVATIONS ON THE SPAWNING OF THE SMALLMOUTH BASS,
MICROPTERUS D. DOLOMIEU, IN LAKE ST. CLAIR DURING THE SPRING OF 1953

By

William Carl Latta

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Abstract

FISH DIVISION

In the state of Michigan the opening date for smallmouth bass fishing is the third Saturday in June. This date is considerably earlier than the July 1 opening date in the province of Ontario. The only exception in Ontario to this opening date is in the shared waters (St. Clair River, Lake St. Clair and Detroit River) between lower Michigan and southern Ontario where the season opens on June 25. Some observations were made on the St. Clair Flats, at the mouth of the St. Clair River, to help decide whether the opening date was too early, in Michigan's part of the waters listed above.

The four main nesting areas found were the northeast side of Little Muscamoot Bay, the area between Little Muscamoot and Big Muscamoot bays, the east corner of Anchor Bay, south of Fair Haven--known as Bouvier Bay and the shores of Long Point Bay except the north one, plus the west side of the arm separating Long Point Bay from Goose Bay.

In Little Muscamoot Bay nesting began before May 31 and was finished by June 12.

(W)

Fry were observed over a nest in the area between Little Muscamoot and Big Muscamoot bay on June 11 when the nests were first found. The final check was on June 19. Greenish brown fry were in large masses over the nesting area.

On June 3, in Bouvier Bay, sac fry were found in two nests and viable eggs were observed in one nest. No adults or fry were seen during the final check on June 16.

Three nests with viable eggs were marked on June 11 in the area of Long Point Bay. On June 19 these nest forms were indistinct.

Nesting of the smallmouth bass began before May 31 and was finished by June 19 in 1953 on the St. Clair Flats.

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Introduction

Concern in the state of Michigan and the province of Ontario over the opening date of the smallmouth bass season in the St. Clair River, Lake St. Clair and the Detroit River has led to field work to determine the time of spawning of this species in these shared waters. Throughout the state the opening date for smallmouth bass fishing is the third Saturday in June, whereas in Ontario it is July 1 for all waters except those listed above, where the season opens June 25. During the spring of 1953, the study of the time of spawning was based on: (1) condition of the gonads of bass taken prior to the opening of the season, (2) direct observation, and (3) a check of the gonads of fish taken by anglers during the first two days of the season. The work was centered in Lake St. Clair, largely on the St. Clair Flats at the mouth of the St. Clair River for several reasons. First was the relative ease with which observations could be made in this shallow clear water. Second was the intensity of the sport fishery in this region. The third reason was that "posted" areas have been set up in the past in this region by the

Conservation Department to protect spawning bass. The last reason was that the commercial "carp fisherman," Stanley Lupinski, who works under special permit to control "noxious" fishes and who provided assistance in collecting, worked the St. Clair Flats region extensively.

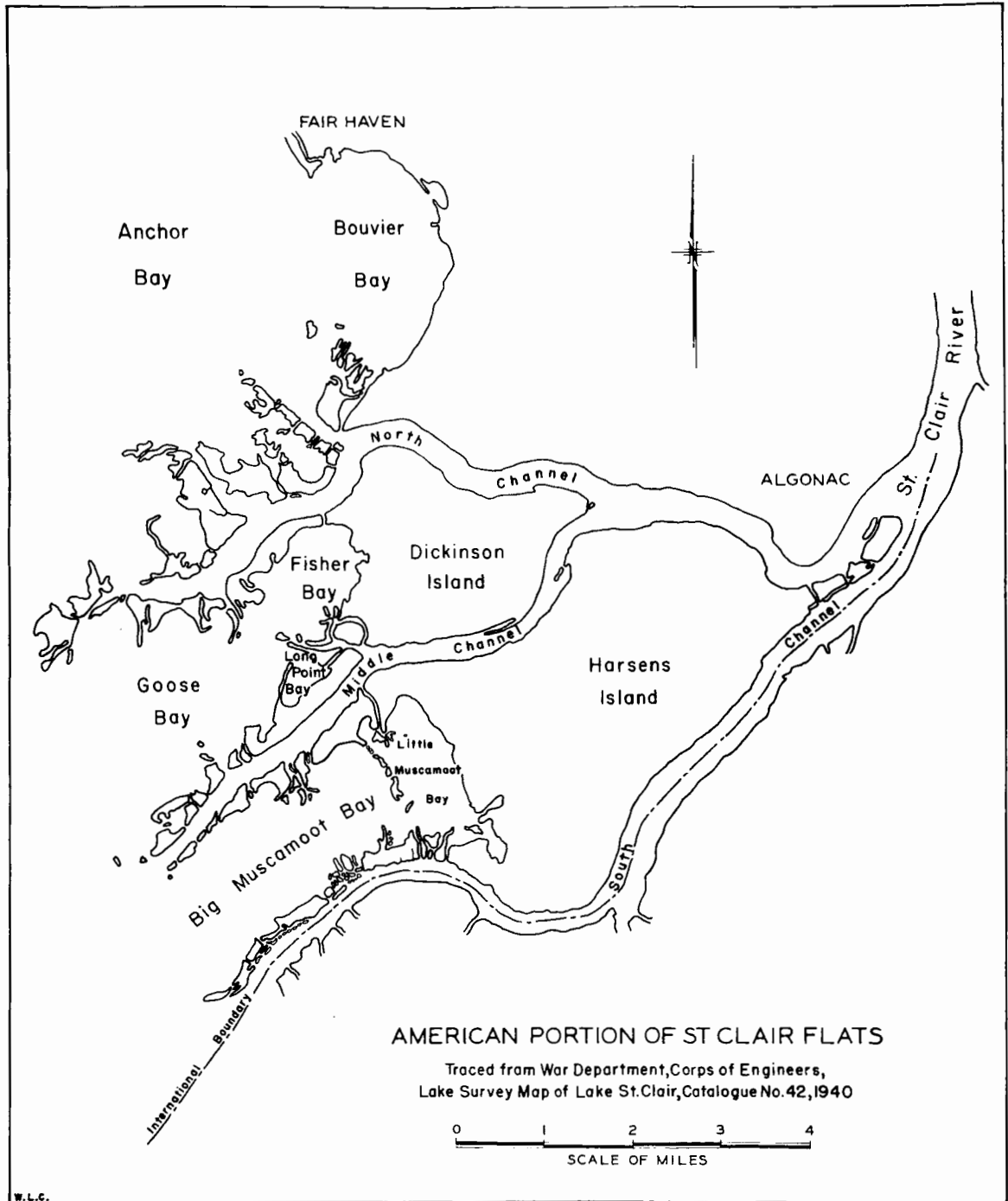
The St. Clair Flats is the delta of the St. Clair River, a broad area of channels (the three largest--North, Middle and South) and low, marshy islands helping to form Anchor Bay on the Michigan side and Mitchell Bay on the Ontario side. The St. Clair River flows south from Lake Huron bringing down cold clear water which spreads out over the shallow Flats to be quickly warmed. (Figure 1 is a map of the region).

Observations

Eighteen days, extending from April 4 to June 21, were spent in the field. The one, early trip in April indicated that the water was as yet much too cold for bass to spawn (45° F. at the surface in a protected spot in Anchor Bay). Arrangements were made with the commercial fisherman to save each week about ten bass of all sizes from his seine hauls for carp, to be used in following the development of the gonads. The first sample of fish was taken during the week of May 2-8. Laboratory inspection indicated that none of the five females, of the nine specimens taken, had spawned. The following week's collection of eight females, among fifteen fish, gave the same result. No more collections, unfortunately, were obtained. The carp moved up into the shallow flooded marshes to spawn, where the fisherman could not effectively seine. He did not fish again until early June.

It had been planned to secure from the commercial seine hauls several hundred smallmouth, to be tagged on the spot and released, to study the movement of this fish. When fishing was resumed on June 3, the haul

Figure 1. Map of the American portion of the St. Clair Flats.



provided only five bass. These were tagged and returned to the water. The next seining, which was the last, took place on the 15th of June. Three female bass were taken, two completely spent and the third partially spent. Discouraged because of the poor catches, the fisherman decided to stop operations until later in the summer when the carp could be baited into an area. This decision brought an end to the plan to tag large numbers of bass.

Detailed observations on bass spawning were possible only under very favorable meteorological conditions. The optimum daytime conditions were a clear bright sun, no wind action on the surface of the water, and no strong wave action or heavy rain to make the water turbid prior to observations. Night observations with a spotlight proved better, but even then a moderate breeze or slight turbidity hampered investigations. A glass-bottomed pail to facilitate observations and an egg-collecting tube were used when advantageous.

Nests were first seen May 31 in the shallows along the northeast shore of Little Muscamoot Bay. Turbid water and a constant drizzle prevented any positive identifications or observations although in all probability the fish were smallmouth. The surface water temperature was 59° F.

On June 3, nests were found in Bouvier Bay, a part of Anchor Bay, south of Fair Haven. Five nests were studied in detail, with either glass-bottomed pail or collecting tube. They were in two to three feet of water, built on the rootlets of aquatic plants (Scirpus sp.) on sand bottom. One of the nests had viable eggs, one nest had dead eggs, two nests had sac fry (the larva with yolk sac attached), and the other nest had nothing visible and no sac fry could be collected. Water temperature was 70° F. over the nests in mid-afternoon.

Nine nests were found in Long Point Bay on June 8. Of these, three had live eggs; apparently in three nests all of the eggs had died, and in the others it was not known whether the fry had descended or dispersed or whether they were old deserted nests. Water temperature was 64° F.

More nests were located in Long Point Bay during the morning of June 9, but a dredging operation in the Middle Channel made the water too turbid for further observations that day. When this area was again checked on June 15 all of the eggs had died, probably due to the excessive turbidity.

Black fry were collected on June 11 in one nest in Bouvier Bay. Several more nests were checked in this area with some dead eggs around their perimeters. Since viable eggs and fry were observed in nests in this area on June 3, it was assumed that the sac fry were still down in the sand and roots in the bottom of the nests. A final casual check was made of this area June 16. No adults or young were seen. Water temperature was 73° F.

Viable nests were located on June 11 on the outside arm of Long Point Bay, toward Goose Bay. At 4:00 p.m. the water temperature was 66° F.

The next important nesting area found was between Big Muscamoot and Little Muscamoot bays. Black fry were above one nest and many nests were seen at dusk on June 11. A return to this area on the 12th of June revealed fry over five nests. These nests were in deeper water, up to four feet, in a fairly heavy growth of Scirpus sp. The temperature was 71° F. at 5:00 p.m.

A check on June 12 of the nests first seen in Little Muscamoot Bay indicated they were finished.

Three active nests with viable eggs, one inside Long Point Bay and two on the outside arm, were distinctly marked on June 11. They were rechecked on the 15th with no eggs or fry apparent, but adults were seen leaving two of the nests. It was assumed because of the presence of the fish and the cleanliness of the nest depressions that all nests were still active. Water temperature in late afternoon was 68° F.

These same nests were checked on the 19th, the day before the season opened. The water temperature was 70° F. No fish were seen and the nest forms were indistinct.

The area between Big and Little Muscamoot bays was again checked and fry were apparent in large masses but they could not be identified with any particular nest. They were about 15 mm. in total length and beginning to appear more greenish brown than black. No males were seen in the vicinity. The water temperature was 73° F.

Many fish were seen while looking for smallmouth bass, both during the day and night. Some of the more common were the carp, Cyprinus carpio, the longnose gar, Lepisosteus osseus, the bowfin, Amia calva, the lake emerald shiner, Notropis atherinoides and the largemouth bass, Micropterus salmoides. Largemouth bass were very abundant, in small schools of from five to a dozen individuals, all averaging approximately eight inches.

Reports from the conservation officers that spawning grounds occur along the St. Clair Shores residential district led to a day, June 4, of checking. It was found that the water was too deep and turbid for direct observation. The most likely area was around old pilings in about five feet of water, five hundred feet from shore, at the foot of Masonic Road. Two partially spent females were taken with hook and line from this area. Water temperature at 1:00 p.m. was 65° F.

The opening day of the bass season was exceptionally hot and the fishing very poor. Sixty-two parties fishing the St. Clair Flats were checked, with a return of only ten smallmouth bass of which three were spent females.

The next day until noon was used in checking fishermen along the St. Clair Shores. Only six fishing parties were contacted. Catches were as rare as fishermen, with the result that only one male smallmouth was examined in four hours.

Summary

The four main nesting areas found and the dates of spawning activity were as follows:

1) The northeast side of Little Muscamoot Bay. Nests first found on May 31. When able to check again on June 12, nesting was finished.

2) The area between Little Muscamoot and Big Muscamoot bays. Nests first observed on June 11. Fry were over one nest at that time. Final check was June 19. Fry were in large masses over nests and appeared more greenish brown than black.

3) The east corner of Anchor Bay, south of Fair Haven--known as Bouvier Bay on some maps. Nests first observed on June 3. Sac fry were found in two nests and viable eggs were seen in one nest. Final quick check on June 16 revealed no fish--adults or fry.

4) The shores of Long Point Bay except the north one, plus the west side of the arm separating Long Point Bay from Goose Bay. Three nests with viable eggs were marked on June 11. Nest forms were indistinct on June 19.

Nesting began before May 31, 1953 and was finished by June 19, 1953, although the fry had not dispersed completely by this date from all nests.

No guarding males were seen with the fry. This may have been caused by the illegal removal of these males or lack of detailed observation. A typical nest was a saucer-like depression built usually near some aquatic plants in two to three feet of water. The bottom of the nest was a mass of rootlets and the edge of the nest a ring of clean sand.

Doan (1940) made similar observations in 1935 and 1936 on the Canadian side of Lake St. Clair (Mitchell Bay). He found fry above the nests and the male guarding on June 12, 1935. Bad weather from June 17 through 23 prevented observations, but after June 23 guarding was finished. In 1936 the smallmouth eggs hatched before May 30. The fry rose from the nest on June 6 and guarding was completed by June 20.

Much help and cooperation in this investigation was given by Kenneth McCord, Conservation Officer of Marine City, by Stanley Lupinski, commercial fisherman from Fair Haven, and by George Sears and family, proprietors of Brown's Livery on Harsens Island.

Literature Cited

Doan, Kenneth H.

1940. Studies of the smallmouth bass. Jour. Wildl. Mgt., 4 (3):
241-266.

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