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A FISHERIES SURVEY OF THE STONY CREEK WATERSHED,
MACOMB AND OAKLAND COUNTIES, BEFORE THE FILLING
OF TWO NEW IMPOUNDMENTS¹

By

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In 1959 the Huron-Clinton Metropolitan Authority announced plans for the construction of two new dams on Stony Creek in Macomb and Oakland counties, as a part of the new Stony Creek Metropolitan Park. The Institute for Fisheries Research made a fisheries survey of the Stony Creek watershed in August of 1961 to obtain an overall picture of the area for fish management. Information was gathered on the fish present to help determine the kinds of fish and fishing to be expected in the new impoundments once they are filled.

Stony Creek Metropolitan Park covers about 4,000 acres of land in Macomb and Oakland counties. Dam No. 1 (Fig. 1) has been constructed already; it is 15 feet high and will flood about 110 acres. Dam No. 2 will be 24 feet high when completed in 1962 and will flood about 500 acres.

¹ The biological study of this stream, analysis of data and preparation of the report were undertaken with Federal Aid to Fish Restoration funds under Dingell-Johnson Project Number F-2-R.

² The field party consisted of Dr. Gerald Cooper, Percy Laarman, and the author.

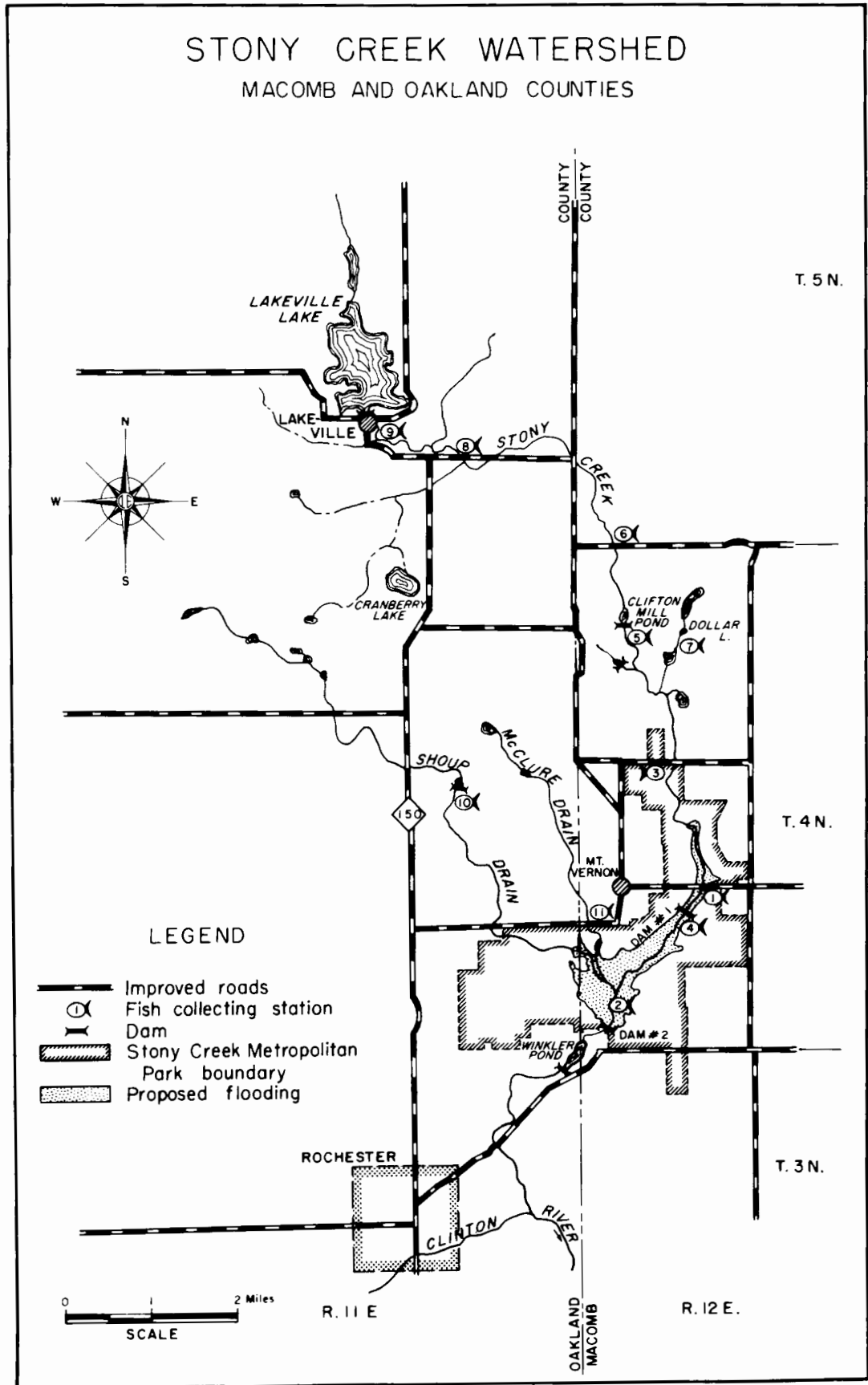


Figure 1

The filling of both basins is scheduled to begin in the spring of 1963. The lake above dam No. 2 will have a boat launching area, a boat livery, and two swimming beaches. Fishing will undoubtedly play an important part in the recreational use of the park.

Stony Creek and its tributaries were sampled at 11 stations to determine the fish distribution in the watershed. The fish were captured by a three-man crew with a 2,500-watt, direct-current generator. The large fish were identified, measured, and returned to the stream. The small fish, such as minnows and darters, were preserved in formalin and identified later at the Institute for Fisheries Research. Records of bottom soils, turbidity, air and water temperatures, conductivity, pH, width, depth, and other information were secured at each collecting station and are recorded in Table 1.

Stony Creek and its tributaries are predominantly warm-water habitat, as shown by the fish fauna listed in Table 2. A small section of McClure Drain, at Station No. 11, contained cold water but no trout were collected there. The 460-acre Lakeville Lake provides the main source of water for Stony Creek. The main stream flows about twenty miles, through two small lakes, and joins the Clinton River (a tributary of Lake St. Clair) just downstream from the city of Rochester. The largest tributary is Shoup Drain, also called the West Branch of Stony Creek. It is about 11 miles long and flows through or drains six lakes and ponds. McClure Drain is 5 miles long, drains three small lakes, and flows through one small pond. Dollar Lake outlet is a small tributary

draining one lake and flowing through two others. Several other small tributaries total about 10 miles of stream and involve five more lakes in the watershed. Altogether, in the Stony Creek watershed, there are roughly 47.5 miles of stream in a drainage basin of about 56 square miles.

There is a moderate flow of water in Stony Creek, Shoup Drain, and McClure Drain. Current is sufficient in many places to keep the gravel bars clean of silt and sand. In general, the stream bottom has from 10 to 40 percent sand and 5 to 40 percent gravel and rubble (Table 1). Silt makes up 10 to 45 percent of the bottom in most streams. At the outlet of Dollar Lake (Station No. 7, Table 1), the collection station was in the outlet bay of the lake which accounts for the unusually high percentage (75) of silt at this station.

The water was quite clear and colorless at most of the stations; McClure Drain was turbid, as was Station 3 on Stony Creek. General observations of the streams in the watershed indicated little or no pollution. The conductivity varied from 250 to 460 micromhos at 18° C. Conductivity is the rough equivalent of total dissolved solids and can be interpreted as an index of water fertility. The conductivity measurements made in the waters of the Stony Creek watershed (Table 1) indicate a relatively fertile stream system compared to measurements from other streams in Michigan.

The pH range in the watershed was from 8.0 to 8.4. Aquatic vegetation was common to abundant in Stony Creek, but absent at the stations on McClure and Shoup drains.

Fish were plentiful throughout the watershed. Minnows were abundant except in Dollar Lake outlet. Darters were numerous, and representatives of the sunfish family were common to abundant. Northern pike were collected only at Station 2 and yellow perch at Stations 2 and 3. Suckers and bullheads were common throughout the drainage system. Carp were collected only at Station 3, but were reported to be abundant in Clifton Mill Pond.

Although there are few northern pike present in the stream now, this species usually does very well in new impoundments and will probably yield good fishing here for some years. Perch, now scarce in the streams, doubtless will be more abundant in the new impoundments; their value as a fishing resource will depend on how well they grow. Smallmouth bass are not likely to increase in the impoundments because of inadequate spawning facilities (scarcity of stony bottom) and other habitat conditions. Even though some of the topsoil is to be removed from the impoundment basins, it is most unlikely that these shallow, weedy (?) impoundments will ever be good habitat for the smallmouth bass. Largemouth bass, now present in goodly numbers in the stream area to be flooded, probably will compose an important part of the fish population in the lakes. Other species which probably will provide fishing are the black crappie, bluegill, and pumpkinseed. Rock bass will likely not be so important. Longear sunfish and green sunfish probably will contribute little to angling; in Michigan they seldom attain a large size, and they could become overabundant and a nuisance in the impoundments.

Among the non-game species present in the drainage now, those which may find suitable habitat and become abundant in the impoundments include the following: black bullhead, yellow bullhead, carp, bluntnose minnow, mimic shiner, sand shiner, blackchin shiner, mudminnow, Johnny darter, and the Iowa darter.

Species which are primarily stream types and undoubtedly will not become abundant in the impoundments are: the madtom, stonecat, hog sucker, white sucker, chub sucker, grass pickerel, creek chub, hornyhead chub, stoneroller, common shiner, most of the darters, and the native lampreys. The emerald shiners, trout-perch, and goldfish that were collected were not considered natural segments of the fauna and no difficulty is anticipated from these species.

One might consider the possibility of cleaning out all fish in the drainage and then restocking only desirable species, but this is impractical primarily because of the large number of lakes and ponds in the drainage. The idea of immediate stocking of some adult pike has merit.

As the impoundments age and the fishing quality declines, there will likely be an increase in the carp population. Control of carp and reduction of excessive populations of pan fish might be advisable in time, and could be effected by drawdown and chemical treatment. After drawdown or chemical treatment, fish from lakes and ponds of the watershed will quickly invade the impoundments. Good fishing in the impoundments will necessitate some fish management as long as the lakes exist.

Table 1.--Locations, physical features, and conditions affecting shocking at the collecting stations on Stony Creek and its tributaries in Oakland and Macomb counties, 1961

	Stream and station number										
	Stony Creek								Shoup	McClure	Dollar L.
	2	4	1	3	5	6	8	9	Drain 10	Drain 11	outlet 7
Town, North	4	4	4	4	4	4	5	5	4	4	4
Range, East	12	12	12	12	12	12	11	11	11	11	12
Section number	31	29	29	17	6, 7	6	35	27	23	25	5
Time shocked, minutes	52	55	30	50	45	50	20	50	40	30	25
Length shocked, feet	1,040	600	520	700	350	550	110	720	500	400	65
Area shocked, acres	0.72	0.22	0.24	0.44	0.12	0.23	0.02	0.20	0.12	0.06	0.04
Average depth, inches	6	8	5	6	4	5	4	4	4	2	28
Average width, feet	30	16	20	27	15	18	15	12	10	7	30
Water clarity	Clear	Clear	Clear	Turbid	Clear	Clear	Clear	Clear	Clear	Turbid	Clear
Conductivity, μ mho	420	410	420	400	375	330	350	300	250	460	360
pH	8.3	8.3	8.3	8.3	8.0	8.1	8.1	8.4	8.4	8.0	8.2
Date, August	14	15	14	14	15	16	16	17	18	18	16
Temperature, °F.											
Air	77	79	71	79	80	69	73	75	71	70	73
Water	67	68	65	71	70	69	75	78	72	59	82
Time recorded	1:50 PM	11:00 AM	10:43 AM	4:05 PM	3:00 PM	11:30 AM	3:30 PM	1:00 PM	11:30 AM	1:00 PM	2:30 PM
Estimated percentage of bottom soils											
Silt	20	45	15	35	20	20	10	25	30	20	75
Sand	65	50	70	55	55	40	55	55	55	60	25
Gravel	10	5	10	5	15	20	20	20	10	10	0
Rubble	5	0	5	5	10	20	15	0	5	10	0
Current flow	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Sluggish
Aquatic vegetation	Com.	Com.	Abund.	Com.	Sparse	Com.	Sparse	Abund.	None	None	Abund.
Cover for fish	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair	Good	Good

Table 2.--Number of fish collected with direct-current shocker, converted to catch per hour, Stony Creek and tributaries, 1961

	Stream and station number										
	Stony Creek								Shoup Drain	McClure Drain	Dollar Lake outlet
	2	4	1	3	5	6	8	9	10	11	7
<u>Game fish</u> [↓]											
Northern pike	2	...	...	...	...	...	...	...	...	...	...
Grass pickerel	...	...	...	...	...	...	...	1	3	...	2
Largemouth bass	5	20	...	...	3	...	...	14	5	...	12
Smallmouth bass	...	...	...	...	...	...	...	6	...	...	...
Pumpkinseed	32	87	34	35	43	12	...	19	15	26	7
Bluegill	22	21	...	...	5	...	...	34	...	4	60
Longear sunfish	...	...	...	...	23	1	...	18	6	...	...
Rock bass	...	...	...	4	7	2	3	2	3	...	2
Green sunfish	...	3	...	1	4	...	...	6	6	2	7
Black crappie	...	1	...	...	...	...	...	...	...	...	...
Yellow perch	1	...	...	1	...	...	...	...	...	...	...
<u>Coarse fish</u>											
Yellow bullhead	1	41	...	...	8	5	...	30	9	...	10
Black bullhead	...	...	...	...	1	...	...	4	...	...	...
Stonecat	3	...	...	2	27	1	9	...	...	...	...
Tadpole madtom	...	2	...	...	...	...	...	...	2	...	...
White sucker	8	3	...	106	15	40	9	37	...	...	...
Hog sucker	12	...	...	26	23	18	6	...	2	...	...
Lake chubsucker	...	1	...	...	...	...	...	...	6	...	2
<u>Obnoxious fish</u>											
Carp	...	...	...	7	...	...	...	...	...	...	...
Goldfish	...	...	...	...	...	...	...	2	...	...	...

[↓] Names follow those given in "A list of Common and Scientific Names of Fishes from the United States and Canada," American Fisheries Society, Special Publication No. 2, 1960.
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Table 2.--continued

	Stream and station number										
	Stony Creek								Shoup Drain	McClure Drain	Dollar Lake outlet
	2	4	1	3	5	6	8	9	10	11	7
<u>Forage fish</u>											
Creek chub	127	145	104	185	17	47	36	29	186	372	...
Hornyhead chub	17	27	80	72	16	53	21	59	66	...	...
River chub	6	1	32	29	109	12	18	...	...	...	...
Blacknose dace	7	1	38	1	1	...	...	...	...	72	...
Redbelly dace	...	...	...	...	...	...	...	...	...	24	...
N. common shiner	204	161	146	161	76	178	45	12	21	32	...
Central common shiner	...	...	2	...	4	...	3	2	40	...	...
Emerald shiner	...	3	8	2	...	...	...	...	...	...	...
Mimic shiner	...	1	...	...	...	...	...	...	...	...	...
Sand shiner	...	1	...	...	...	...	...	...	...	...	...
Blackchin shiner	...	...	...	...	...	...	...	...	...	...	5
Bluntnose minnow	6	8	...	22	1	42	9	4	...	...	...
Fathead minnow	...	...	...	...	...	...	...	53	...	4	...
Stoneroller	149	32	76	25	12	91	9	10	9	4	...
Fantail darter	7	...	...	71	55	85	99	...	79	20	...
Rainbow darter	43	...	...	22	16	30	...	4	8	12	...
Greenside darter	5	...	...	1	20	23	...	22	...	...	...
Iowa darter	...	...	...	...	...	...	...	5	...	...	38
Johnny darter	46	...	...	55	4	40	...	5	2	...	...
Least darter	...	...	...	10	...	...	...	...	...	...	...
Trout-perch	...	...	...	...	...	...	...	2	...	...	...
Mudminnow	29	40	28	...	...	...	...	11	3	14	7
American brook lamprey	7	1	...	...	...	13	...	...	...	...	...
Lamprey (<u>Ichthyomyzon</u>)	6	8	2	4	1	12	12	...	...	...	...

Table 3.--Size ranges of some of the species of fish captured in Stony Creek and its tributaries, 1961

(Total lengths in inches)

	Stream and station number							
	Stony Creek							
	2	4	1	3	5	6	8	9
<u>Game fish</u>								
Northern pike	6.6- 7.5	...	...	...	...	...	...	...
Grass pickerel	...	...	...	...	...	...	...	...
Largemouth bass	2.3- 3.1	1.7-3.1	...	...	4.3- 5.3	...	...	1.9-3.6
Smallmouth bass	...	...	...	...	...	...	...	3.6
Pumpkinseed	2.6- 4.0	2.2-4.4	3.3-4.5	2.9- 4.1	2.8- 4.3	3.5-4.5	...	2.8-5.5
Bluegill	1.7- 4.8	3.3-4.3	...	...	3.0- 4.1	...	...	2.7-6.8
Longear sunfish	...	...	...	...	1.7- 3.3	3.0	...	2.0-3.0
Rock bass	...	...	...	1.4- 6.4	2.3- 6.3	3.0-5.0	3.1	3.3-5.3
Green sunfish	...	3.3-4.5	...	3.8	2.6- 3.7	...	...	...
Black crappie	...	1.6	...	...	...	...	...	...
Yellow perch	5.6	...	...	6.3	...	...	...	...
<u>Coarse fish</u>								
Yellow bullhead	4.7	3.1-7.5	...	...	4.5- 6.9	6.4-7.9	...	1.6-8.3
Black bullhead	...	...	...	...	5.8	...	...	6.0-6.2
Stonecat	1.2- 3.8	...	...	5.0- 5.6	0.9- 8.8	6.1	4.3- 5.9	...
White sucker	2.8-11.7	6.2-8.2	...	2.0- 9.0	2.9-13.3	1.7-7.1	1.9- 5.0	2.5-7.6
Hog sucker	1.7-10.6	2.1-13.1	2.0- 9.0	1.7-7.3	8.2-10.0	...
Lake chubsucker	...	5.7
<u>Obnoxious fish</u>								
Carp	2.0- 3.0

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Table 3. --continued

	Stream and station number		
	Shoup Drain	McClure Drain	Dollar Lake outlet
	10	11	7
<u>Game fish</u>			
Northern pike	...	...	...
Grass pickerel	3.3-4.9	...	2.0
Largemouth bass	2.0-5.1	...	1.7-2.5
Smallmouth bass	...	...	...
Pumpkinseed	1.3-4.2	2.7-3.7	3.2-3.5
Bluegill	...	2.8-3.2	0.8-3.6
Longear sunfish	2.9-3.3	...	...
Rock bass	4.7-5.1	...	1.6
Green sunfish	3.2-4.4	2.5	1.8-3.5
Black crappie	...	...	...
Yellow perch	...	...	...
<u>Coarse fish</u>			
Yellow bullhead	1.0-9.2	...	4.5-7.4
Black bullhead	...	...	...
Stonecat
White sucker
Hog sucker	2.2
Lake chubsucker	4.4-4.7	...	2.0
<u>Obnoxious fish</u>			
Carp

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