Stringy Lakes
Oakland County, T05S R10E Sec. 28,29
Clinton River Watershed, last surveyed 2013

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Environment

Stringy Lakes Chain is a chain of interconnected lakes located one mile west of the Village of Oxford in northeast Oakland County (Figure 1). In total, Stringy Lakes Chain has a surface area of 164 acres, which is made up of five small lakes; Squaw Lake (28 acres), Clear Lake (32.5 acres), Long Lake (34.5 acres), Cedar Lake (47 acres), and Tan Lake (22 acres). The lakes are connected by broad shallow connections, with the exception of Clear and Long lakes, being connected by a narrow culvert (Figure 2). Surprisingly, these small lakes have sharp drop-offs. Each lake has multiple deep basins, ranging in depth from 45 feet in Squaw Lake to 55 feet in Cedar Lake.

Stringy Lakes Chain is located in the upper part of the Paint Creek sub-watershed of the Clinton River Watershed. The headwater of the tributary stream originates just north of the Oakland County border in Lapeer County. The stream flows a distance of 7.25 miles before entering into Lake Michelson. Lake Michelson is connected to Tan, Long, and Squaw lakes, but culverts prevent access to boats into Lake Michelson. There is another small inlet into the north end of Tan Lake, coming under Seymour Lake Road. There are also a number of springs that feed the lake. There is one outlet on the south side of Cedar Lake. Approximately 1/3 of a mile downstream of the outlet is the Oxford Multi-Lakes Dam. From the dam, the unnamed stream flows through a number of lakes including Duck Lake, Indianwood Lake, and Lake Orion. The outlet of Lake Orion is Paint Creek.

There is a DNR boat launch located on 133 acres of state-owned property on the west side of Squaw Lake. It is a gravel launch with enough parking for around 50 vehicles with trailers. This is the only public access to the chain of lakes. Additionally, the culvert that connects Clear and Long lakes is low, limiting the size of boat that can access the other three lakes (Figure 2).

The surface geology of the surrounding area is glacial outwash sand, gravel and end moraines of course-textured till. This type of geology is well drained and allows good movement of groundwater. The land cover for the surrounding area and portion of the watershed that is upstream of the Stringy Lakes Chain is 41% agriculture, 20% urban, 23% forest, 14% wetland, 1% grassland, and 1% barren (Fry et. al. 2011). The urban land cover is much higher (over 80%) throughout the watershed below Stringy Lakes Chain but since the chain is located in the headwaters portion of Paint Creek resulting in a lower percentage of urban land cover.

There has been a significant amount of development in the area throughout the years. During the 1951 fisheries survey there were only 24 cottages on the system; however , the 2013 survey indicated 232 dwellings around Stringy Lakes Chain with 180 small docks (1 to 2 boat slips), 42 large docks (3 or more boat slips) and an estimated 55% of the shoreline being armored. Though there has been a significant amount of development the average woody material density was 4.3 trees per mile as compared to the Lake Erie Management Unit (LEMU) average of 3.6 trees per mile.

On August 29, 2013, limnological sampling was completed in Clear and Cedar lakes. At the deepest portion of each basin, data was collected that included temperature, dissolved oxygen, and pH throughout the water column. At these same locations water samples were collected from the surface for analysis of nutrients (Table 1). The temperature profile for each lake ranged from 79° F at the surface to 45° F near the bottom (Figure 3 and Figure 4). Fish require dissolved oxygen levels of around 3 ppm or higher for suitable habitat (Schneider 2002). In Clear Lake, that dissolved oxygen threshold was at a depth of 11 feet (Figure 3) and in Cedar Lake, that dissolved oxygen threshold was at a depth of 14 feet (Figure 4). The pH measured in Stringy Lakes Chain was just over 7 and remained consistent through the water column. The alkalinity was at a normal level for a lake in southeast Michigan (Table 1). Sufficient alkalinity levels create a situation where a lake is less susceptible to changes in pH. Chlorophyll a is used to measure productivity of the lake and was at a typical level (Table 1). Total phosphorus is often the most limiting factor for plant growth, but it was at a normal level in the Stringy Lake Chain (Table 1). Nitrogen can be another limiting factor for plant growth, but the level found in the Stringy Lakes Chain was actually above average relative to other lakes in Michigan (Table 1). Aquatic vegetation appears abundant and may have increased recently as residents of the lake chose to treat nuisance vegetation in 2013.

History

The earliest fisheries management recorded for Stringy Lakes Chain was a regulation from 1948 to 1952 that allowed for the spearing of Cisco, Lake Whitefish, Carp, Bowfin, and Gar. Today the Stringy Lakes Chain is managed with the general spearing regulations for waterbodies in Michigan. This spearing regulation appears to have been established more specifically to target Carp, Bowfin, and Gar while using a broader spearing regulation that included cisco and whitefish. There was a report of cisco present in 1955, but the lakes lack the summer cold water refuge with sufficient dissolved oxygen needed to support a Cisco population. There has never been a cisco captured in any of the fisheries surveys conducted, beginning in 1951. There are no records of fish being stocked into Stringy Lakes Chain.

Before the 2013 survey, there was one mapping survey (January 1955) and four fisheries surveys (1951, 1970, 1985, and 1994) conducted on the Stringy Lakes Chain. A variety of fish were caught in all of the surveys but six species of fish were recorded during each fisheries survey; Black Crappie, Bluegill, Largemouth Bass, Northern Pike, Pumpkinseed, and Yellow Perch. Different gear types were used among surveys as a result of changes to inland lake sampling techniques. During each fisheries survey more fish species were found present in Stringy Lakes Chain, likely due to differences in effort and sampling gear (Table 2).

Biological samples of fish (length and aging structures) were collected beginning with the survey in 1970. Three surveys (1970, 1985, and 1994) used different types of gear which makes it difficult to directly compare the catch among the surveys due to the individual biases of different gear types. However, some comments can be made about certain species. Bluegill averaged around 6 inches for each survey and in 1994 had a mean growth index (average deviation from the state average length-at-age) of -0.1. The size structure of the 374 Bluegill caught in 1994 was good with 33% over 7 inches. The Bluegill population was evaluated using Schneider's Index (Schneider 1990). This index provides a relative measure of the quality of the Bluegill fishery based on a scale of 1-7. The Bluegill fishery in the Stringy Lakes Chain received a 4 or "satisfactory" ranking for the trap net catch. Black Crappie had a good size structure ranging from 4 to 12 inches in length with a mean growth index of +0.4 in 1994.

There were few Largemouth Bass caught in any of the three surveys and each survey only yielded one largemouth bass over the minimum size limit (14 inches). Pumpkinseed ranged from 2 to 7 inches and grew slightly faster than the state average (mean growth index of +0.2). Yellow Perch ranged in size from 2 to 12 inches but not many were caught in the 1994 survey. Northern Pike were captured in 1970 and 1994, although in low numbers; only two were caught in 1994 measuring 20 and 22 inches.

Current Status

A fish community survey was conducted on the Stringy Lakes Chain in May and June of 2013 by DNR Fisheries Division as part of the Status and Trends program (Wehrly et al. 2010). A variety of sampling gear was used including three large-mesh fyke nets, two small-mesh fyke nets, two experimental gill nets, a 25-foot small-mesh seine and an electrofishing boat. During the week of May 28-31, 2013, both types of fyke nets and experimental gill nets were deployed, as well as three seine hauls. Two more seine hauls were completed during the day and electrofishing efforts were conducted on the night of June 13, 2013. The effort locations were randomly selected throughout the Stringy Lakes Chain and the electrofishing stations were limited to Clear and Squaw lakes due to access limitations through the culvert between Clear and Long lakes. The goal of this survey was to evaluate the current fish community and determine future management needs for the fishery.

All gear combined captured a total of 1,895 fish for an estimated total weight of 333 pounds. The catch was comprised of 24 species (Table 3). Panfish such as Bluegill, Rock Bass, and Pumpkinseed accounted for 84% of the catch by number and 66% of the catch by weight. Predators like Largemouth Bass, Smallmouth Bass, Northern Pike, and Brown Bullhead added up to 12% of the catch by number and an estimated 33% of the catch by weight. There was a diverse assemblage of forage species including Blackchin Shiner, Golden Shiner, and Bluntnose Minnow that made up 3% of the catch by number and an estimated 1% by weight.

Bluegill were the most abundant fish captured during the survey, making up 65% of the catch by number and 42% by weight (Table 3). They averaged 5.5 inches in length with 35% exceeding the minimum size acceptable to anglers (6 inches) and 2% (24 fish) over 8 inches (Table 4). Bluegill catch per unit effort (CPUE) for large-mesh fyke nets were 52.4 fish per net night, significantly higher than average for lakes in the LEMU (Table 5). Growth was acceptable with a mean growth index of -0.3 (Table 6). The Bluegill population was also evaluated using Schneider's Index (Schneider 1990) which resulted in a "satisfactory" rating (4.25) based on the large-mesh fyke net catch.

Pumpkinseed made up 7% of the total catch by number and 9% of the total catch by weight (Table 3). The average length for pumpkinseed was 6.1 and 71% exceeded the minimum size acceptable to anglers (6 inches; Table 4). The CPUE of Pumpkinseed in small-mesh fyke nets was average relative to LEMU lakes, but the CPUE was significantly higher in large-mesh fyke nets compared to lakes in LEMU and statewide (Table 5). The mean growth index of 0.4 was good (Table 6) and sizes ranged from 1 to 8 inches. This was the first record of Pumpkinseed measuring larger than 8 inches in Stringy Lakes.

The 56 Yellow Perch made up 3% of the total catch by number and 1% by weight. The size ranged from 1 to 8 inches and they averaged 6.5 inches (Table 3). The Yellow Perch CPUE during the survey is slightly higher than average for a lake in LEMU (Table 5). Yellow Perch exhibited slow growth, growing 0.5 inches slower than the state average (Table 6).

There were 11 Black Crappie caught in the survey (Table 3). However, Black Crappie are not as susceptible to netting as bluegill, so this may not be a true representation of their relative numbers. Black Crappie ranged in size from 7 to 11 inches, with three exceeding 11 inches (Table 4). Although the catch was low, there were five age-classes represented, ranging from 2 to 8 (Table 6).

Rock Bass were the second most abundant fish caught with 153 individuals making up 8% of the total catch by number and 12% by weight. Their size ranged from 2 to 10 inches while 60% were greater than 6 inches. Other panfish captured included, 6 Green Sunfish (2-7 inches) and 1 hybrid sunfish that was 7 inches long (Table 3).

Largemouth Bass made up 3% of the catch by number and 5% of the catch by weight, averaging 7.8 inches in length (Table 3). Three Largemouth Bass exceeded the minimum size limit of 14 inches (Table 4). The largemouth bass ranged from 1 to 7 years, with a mean growth index of -0.5 (Table 6). The CPUE for largemouth was average for the LEMU at 1.4 fish per minute of electrofishing and 2.2 fish per net lift in large-mesh fyke nets (Table 5).

All three bullhead species native to Michigan were caught during the survey. A total of 160 bullhead made up 8% of the catch by number and 21% weight (Table 3). Brown Bullhead was the most abundant of the bullhead species, followed by Yellow Bullhead and Black Bullhead.

Two other large predators were captured during the 2013 survey, Northern Pike and Smallmouth Bass. There were five Northern Pike ranging from 21 to 28 inches in length and each fish represented a different age-class ranging from 3 to 7 years. Three of the five Northern Pike surpassed the minimum legal size of 24 inches (Table 3). The three Smallmouth Bass ranged from 12 to 20 inches in length and represented three age-classes (IV, V, and IX).

Forage species were few in numbers but fairly diverse, being comprised of 10 species. Blackchin Shiner was the most abundant, followed by Golden Shiner (Table 3). Other forage species include; Banded Killifish, Bluntnose Minnow, Blacknose Shiner, White Sucker, Greenside Darter, Iowa Darter, Johnny Darter, and Lake Chubsucker.

A total of 44 turtles were caught, comprised of 4 species (Table 7). Musk Turtles were the most commonly observed, followed by Snapping Turtles, Painted Turtles, and Blanding's Turtles. Blanding's Turtles are a species of special concern in Michigan and to observe two during a fisheries survey is rare.

Analysis and Discussion

With multiple efforts being effective at capturing smaller fish (seine, small-mesh fyke net and electrofishing) there was a larger number of small Bluegill that resulted in the reduction of the average size in 2013. As Bluegill approached 7 inches the growth rates began to improve (Table 6). This could be due to angler harvest of larger Bluegill resulting in less competition or there could be a food source that becomes available for larger Bluegill. The large-mesh trap nets used in 1994 are selective for 3 inch fish and larger as are the large-mesh fyke nets used in 2013. Accordingly, the average size of Bluegill from large-mesh fyke nets in 2013 (6.5 inches) was similar to the average size in large-mesh trap nets in 1994 (6.3 inches). The mean growth index for Bluegill was below the state average for the

three surveys (2013, 1994, and 1985), but as previously mentioned, as Bluegill approach 7 inches the growth rates increase. This suggests that the Bluegill population has not significantly varied throughout the years and is a stable population.

In addition to Bluegill, other panfish in the Stringy Lakes Chain contribute toward the fishery. Pumpkinseed have shown growth at a faster rate than the state average in 1985, 1994, and 2013 while also showing an increase in growth rates through the respective years. The relative abundance of Pumpkinseed was much higher in 2013 than in any other year, but that may be due to the 1985 and 1994 survey efforts being conducted during the month of September, as well as the single gear type used for both surveys. There appears to be a fair number of Rock Bass that reach an acceptable size (greater than 6 inches) accompanied by smaller numbers of Black Crappie and Yellow Perch. The diversity of panfish species and their size range exhibit a healthy panfish community in the Stringy Lakes Chain.

Largemouth Bass have historically grown slower in the Stringy Lakes Chain and that continued through 2013 with a mean growth index of -0.5. The 2013 survey yielded three 14-inch Largemouth Bass; there has not been a Largemouth Bass larger than 14 inches caught in any of the fisheries surveys. Reports from anglers suggest that the Largemouth Bass population provides a fair angling opportunity to catch multiple legal-sized Largemouth Bass in one trip. The relative abundance of Largemouth Bass was average for lakes in the LEMU, also suggesting that the population is of average size in the Stringy Lakes Chain.

The Smallmouth Bass population continues to be found in relatively low abundance but provides additional angling opportunities. Northern pike have been documented in Stringy Lakes since the earliest fisheries survey, but never in large numbers. The evidence of five age-classes suggests that Northern Pike continue to have a moderate level of natural reproduction. For both fish species the timing of the survey and gear bias may have contributed to the small numbers observed. The temperature profile for the lake suggests there is not a large amount of cool water refuge during the heat of summer and may be a limiting factor for Northern Pike and Smallmouth Bass.

Development has increased significantly along the shoreline of the Stringy Lakes Chain. Research indicates that alterations or development of shoreline that is higher than 25% can have detrimental effects on a lake's nearshore ecosystem through habitat degradation and loss of woody material (O'Neal and Soulliere 2006). Stringy Lakes Chain has two times the recommended maximum development. Of the remaining undeveloped shoreline there is a fair amount of wetland that still provides benefits for the nearshore ecosystem. The high amount of human impact around the lake may be the leading factor causing elevated levels of nitrogen in this chain of lakes. High levels of phosphorus and nitrogen can lead to eutrophication and result in changes in aquatic habitat. This eutrophication can be characterized by an increase of production in the lake, often times to nuisance levels of phytoplankton and aquatic macrophytes.

Stringy Lakes Chain has a diverse fish community with a fair balance of panfish and predators. The 24 fish species caught in 2013 is high species richness for lakes in the LEMU and this species richness helps to maintain a balanced fish community. With public access, this waterbody provides a good warm water fishery with the occasional opportunity of catching a cool water species as well. This is supported by reports to the Master Angler Program that shows multiple entries of Bluegill greater than

10 inches, Rock Bass greater than 11.5 inches, and Northern Pike greater than 40 inches over the last 20 years

Management Direction

The general fishing regulations provide sufficient protections for the fish community and the expectation is that this will continue into the future. Management of the Stringy Lakes Chain should continue as a warm water fishery that provides opportunities to target panfish, bass, and the occasional Northern Pike. There should be another fisheries survey conducted on this system after 15 or 20 years to evaluate the fish community and identify if there have been any changes. If there are reports of drastic changes, then earlier action may be warranted and should be determined by the Lake Erie Management Unit. Any further development of the shoreline is discouraged so that the integrity of the nearshore ecosystem does not receive further impact. The opportunity to provide outreach to riparian land owners should be utilized in order to convey the importance of best management practices for riparian vegetation management.

References

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Table 1. Stringy Lakes Chain water chemistry results along with the statewide median, 25th percentile, and 75th percentile for each parameter. Results at a level between the 25th percentile and 75th percentile are considered typical.

Parameter	Result	Statewide Median[1]	Statewide 25th Percentile[1]	Statewide 75th Percentile[1]
Chlorophyll a	1.63 µg/L	2.8 µg/L	1.6 µg/L	5.15 µg/L
Total Kjeldahl nitrogen	1200 µg/L	522 µg/L	393 µg/L	681 µg/L
Total phosphorus	12.9 µg/L	14 µg/L	8 µg/L	23 µg/L
Total alkalinity	140 mg/L	111 mg/L	48 mg/L	143 mg/L

[1]Based off of chemistry results from 233 lakes statewide.

Table 2. Fish species reported during fish surveys, Stringy Lakes Chain.

	Year of fisheries survey				
Species	1951	1970	1985	1994	2013
Black Crappie	X	X	X	X	X
Bluegill	X	X	X	X	X
Green Sunfish		X	X		X
Hybrid Sunfish					X
Pumpkinseed	X	X	X	X	X
Rock Bass		X	X	X	X
Yellow Perch	X	X	X	X	X
Largemouth Bass	X	X	X	X	X
Smallmouth Bass				X	X
Northern Pike	X	X		X	X
Grass Pickerel			X		X
Blackchin Shiner					X
Bluntnose Minnow			X		X
Blacknose Shiner					X
Spottail Minnow			X		
Golden Shiner		X		X	X
Brook Silverside			X		
Greenside Darter					X
Iowa Darter					X
Johnny Darter					X
Banded Killifish					X
White Sucker		X			X
Lake Chubsucker		X	X	X	X
Black Bullhead		X		X	X
Brown Bullhead				X	X
Yellow Bullhead		X	X	X	X

Table 3. The species composition and relative abundance of fish with all gear combined during the Stringy Lakes Chain fisheries survey, May 28 – June 13, 2013.

Species	Number	Percent by number	Weight (lb.)	Percent by weight	Length range (in.)	Average length (in.)	Percent legal size
Bluegill	1,230	64.9	137.7	41.7	1-8	5.5	35*
Rock Bass	153	8.1	39.3	11.9	2-10	6.2	60*
Pumpkinseed	139	7.3	29	8.8	1-8	6.1	71*
Brown Bullhead	94	5	45.4	13.7	2-13	9.9	99**
Largemouth Bass	64	3.4	16.2	4.9	0-14	7.8	5
Yellow Perch	56	3	4.5	1.4	1-8	6.5	13**
Yellow Bullhead	56	3	17.8	5.4	3-10	8	96**
Blackchin Shiner	26	1.4	0.1	0	1-2	1.8	--
Black Crappie	11	0.6	5.5	1.7	7-11	8.8	100*
Black Bullhead	10	0.5	5.3	1.6	8-12	10	100**
Golden Shiner	10	0.5	0.4	0.1	2-8	6.2	--
Bluntnose Minnow	9	0.5	0	0	1-2	2	--
Banded Killifish	7	0.4	0	0	1-2	2.4	--
Grass Pickerel	7	0.4	0.7	0.2	5-10	7.5	--
Green Sunfish	6	0.3	0.9	0.3	2-7	5	67*
Northern Pike	5	0.3	17.4	5.2	21-28	25	60
Smallmouth Bass	3	0.2	6.7	2	12-20	16.8	33
White Sucker	2	0.1	3.2	1	15-16	16	--
Iowa Darter	2	0.1	0	0	1-2	2	--
Blacknose Shiner	1	0.1	0	0	2-2	2.5	--
Greenside Darter	1	0.1	0	0	2-2	2.5	--
Hybrid Sunfish	1	0.1	0.3	0.1	7-7	7.5	100*
Johnny Darter	1	0.1	0	0	2-2	2.5	--
Lake Chubsucker	1	0.1	0.4	0.1	8-8	8.5	--
Total	1,895	100	330.6	100			

*Percent angler acceptable size of 6 inches or greater.
**Percent angler acceptable size of 7 inches or greater.

Table 4. Number per inch group of significant game fish collected with all gears combined during the Stringy Lakes Chain fisheries survey, May 28 – June 13, 2013.

Length (in)	Black Crappie	Bluegill	Largemouth Bass	Northern Pike	Pumpkinseed	Smallmouth Bass	Yellow Perch	Rock Bass
0			1					
1		87			1		1	9
2		196			15			11
3		132	10		7		7	18
4		257	7		1		9	23
5		127	8		16		23	20
6		264	13		72		9	33
7	3	143	4		24		3	26
8	1	24	9		3		4	12
9	4		4					1
10			2					
11	3		3					
12						1		
13						1		
14			3					
15								
16								
17								
18								
19								
20						1		
21				2				
22								
23								
22								
24								
25				1				
26				1				
27								
28				1				
Total	11	1230	64	5	139	3	56	153

Table 5. Comparison of catch-per-effort (CPE) for selected species caught in the 2013 Stringy Lakes Chain survey. The statewide and LEMU CPE's were obtained from Wehrly et al. (In Press).

		Statewide CPE				
Species	Gear	25th percentile	Median	75th percentile	**Stringy Lakes 2013**	LEMU Mean CPE
Bluegill	Large-mesh Fyke	2.5	8.5	25.9	**52.4**	23.6
	Small-mesh Fyke	1.5	6.3	19.5	**27.3**	39.8
Largemouth Bass	Electrofishing	0.4	0.7	1.6	**1.4**	0.8
	Large-mesh Fyke	0.4	1.4	2.8	**2.2**	1.9
Pumpkinseed	Large-mesh Fyke	0.4	1.7	4.7	**10.0**	0.6
	Small-mesh Fyke	1.0	1.9	5.6	**1.8**	1.2
Yellow Perch	Electrofishing	0.3	1.0	2.5	**1.6**	0.47
	Large-mesh Fyke	0.2	0.7	4.0	**0.4**	0.2

Table 6**.** Weighted mean length and age composition of selected species collected in the Stringy Lakes Chain, May 28 to June 13, 2014.

Species	Age	Number Aged	Length Range (in)	Weighted Mean Length (in)	State Avg. Length (in)	Weighted Age Frequency	Mean Growth Index*
Black Crappie	II	1	7.6-7.6	7.6	6	6%	--
	III	4	7.4-9.1	8.3	7.5	44%	
	IV	2	9.4-9.7	9.6	8.6	19%	
	VI	2	11.4-11.6	11.5	10.2	25%	
	VIII	1	11.6-11.6	11.6	11.4	6%	
Bluegill	I	12	1.1–2.6	1.6	1.8	17%	-0.3
	II	9	2.4–3.5	2.7	3.8	10%	
	III	21	3.6–5.1	4.1	5.0	30%	
	IV	12	5.1–6.9	5.7	5.9	10%	
	V	23	5.8–7.9	6.7	6.7	18%	
	VI	15	6.4–8.2	7.4	7.3	7%	
	VII	7	7.4–8.1	7.9	7.8	3%	
	VIII	8	7.8–8.3	8.1	8.2	5%	
Largemouth Bass	I	22	3.2–6.4	4.1	4.2	40%	-0.5
	II	15	5.4–7.3	6.4	7.1	26%	
	III	15	6.1–10.2	8.6	9.4	27%	
	IV	4	9.6 –14.1	11.4	11.6	3%	
	V	2	11.0–11.1	11.1	13.2	2%	
	VI	2	11.6-14.4	13.2	14.7	1%	
	VII	1	14.6-14.6	14.6	16.3	1%	
Pumpkinseed	I	1	1.6-1.6	1.6	1.8	3%	+0.4
	II	6	2.0-3.1	2.4	3.8	9%	
	III	28	2.7-6.9	4.8	4.9	64%	
	IV	11	5.7-7.3	7.0	5.6	16%	
	V	5	7.0-8.2	7.8	6.2	7%	
	VI	1	8.2-8.2	8.2	6.6	1%	
Yellow Perch	I	8	3.1-4.4	3.5	3.3	24%	-0.5
	II	9	4.3-5.2	4.7	5.2	19%	
	III	18	4.9-7.0	5.7	6.5	37%	
	IV	11	5.9-8.7	6.9	7.5	18%	
	V	1	8.0-8.0	8.0	8.5	2%	

*Mean growth index is the average deviation from the state average length at age.

Table 7. Turtles observed during the 2013 Stringy Lakes Chain fisheries survey.

Species	Number observed	Carapace length (inches)
Snapping Turtle	6	4-13
Blandings Turtle	2	7-8
Painted Turtle	5	4-6
Musk Turtle	31	2-4
Total	44	

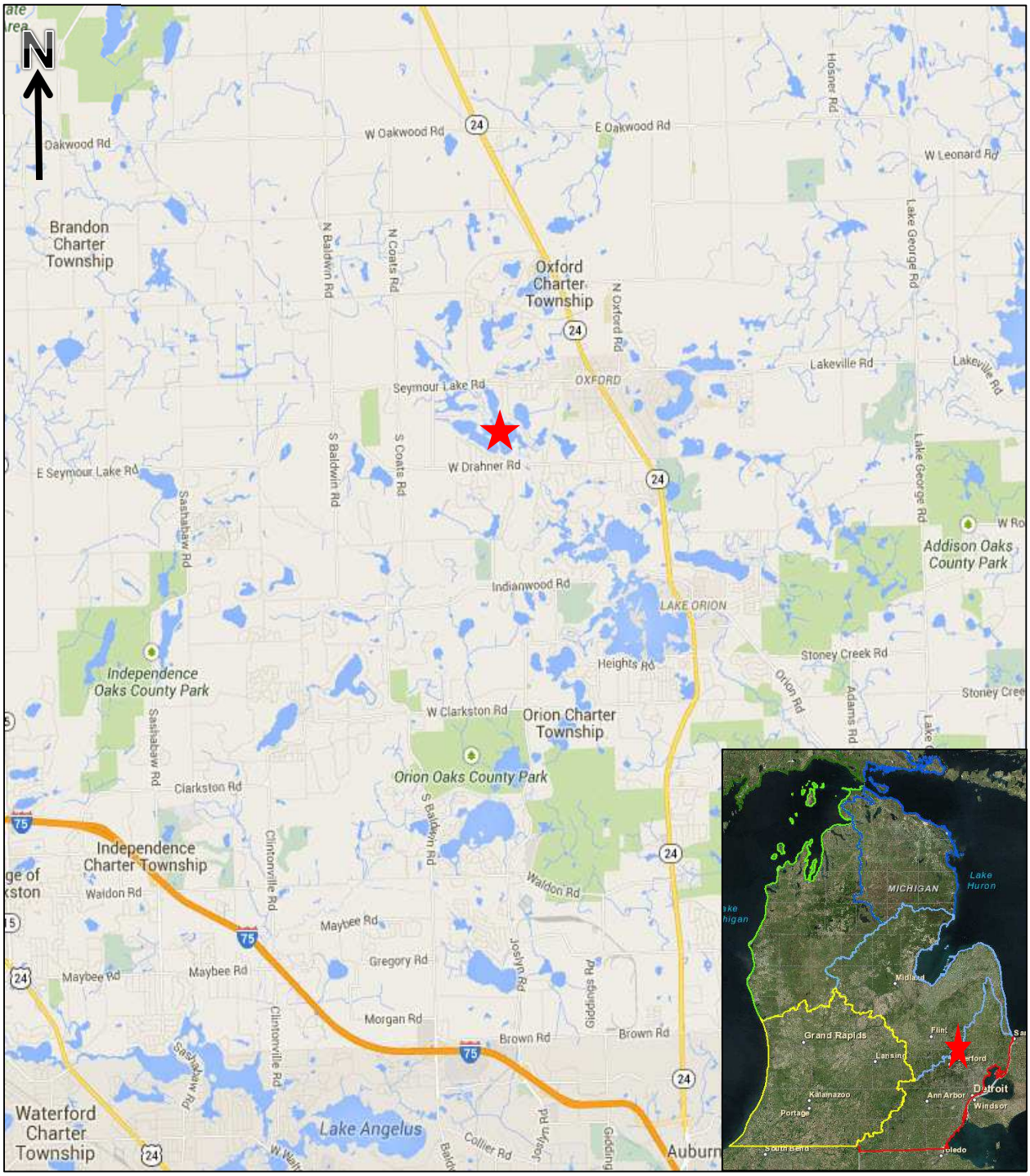

Figure 1. Map showing the location of Stringy Lakes Chain (marked by the red star).

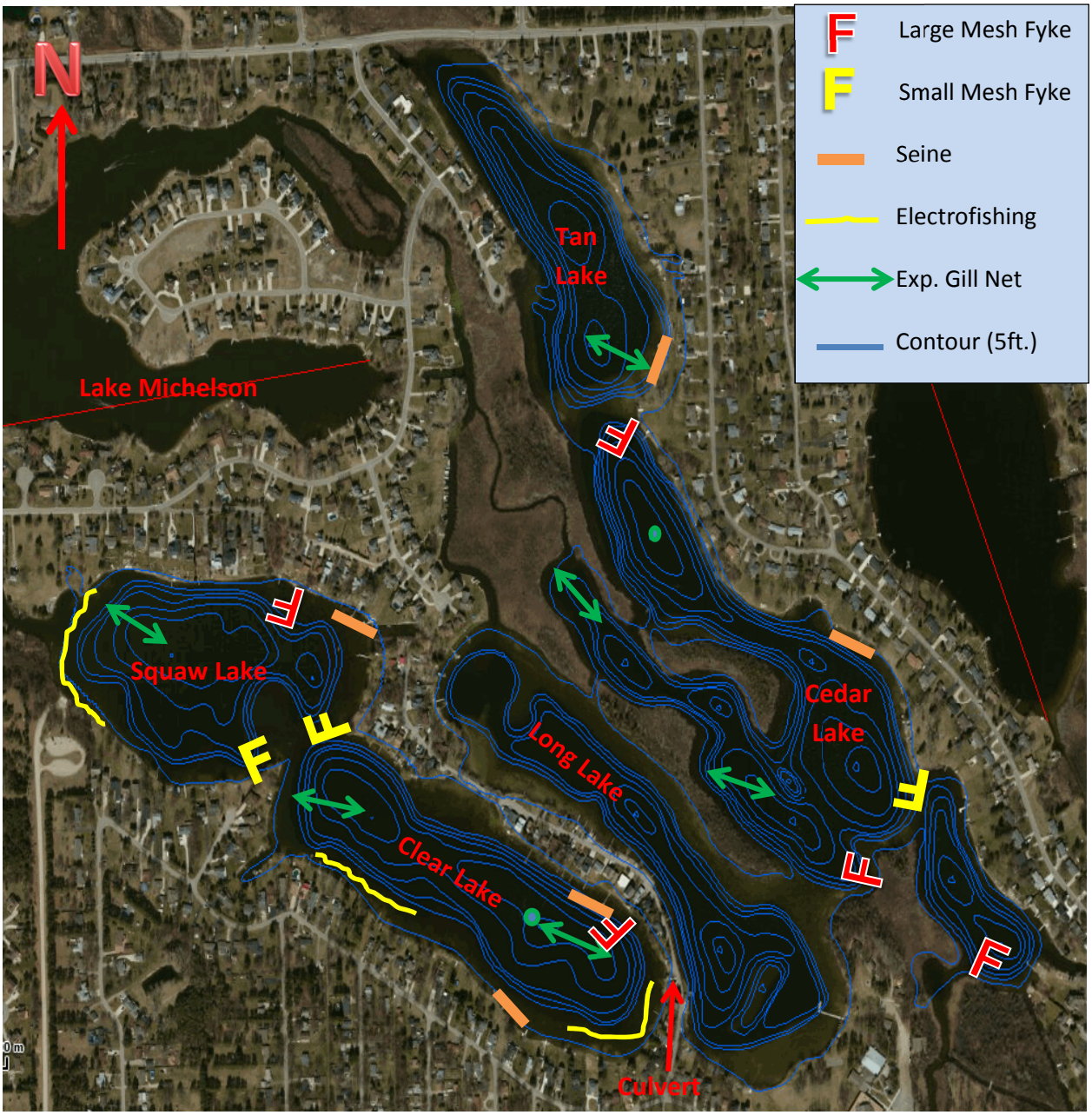

Figure 2. Map of Stringy Lakes Chain, Oakland County with net locations and contour lines representing 5 ft. increments.

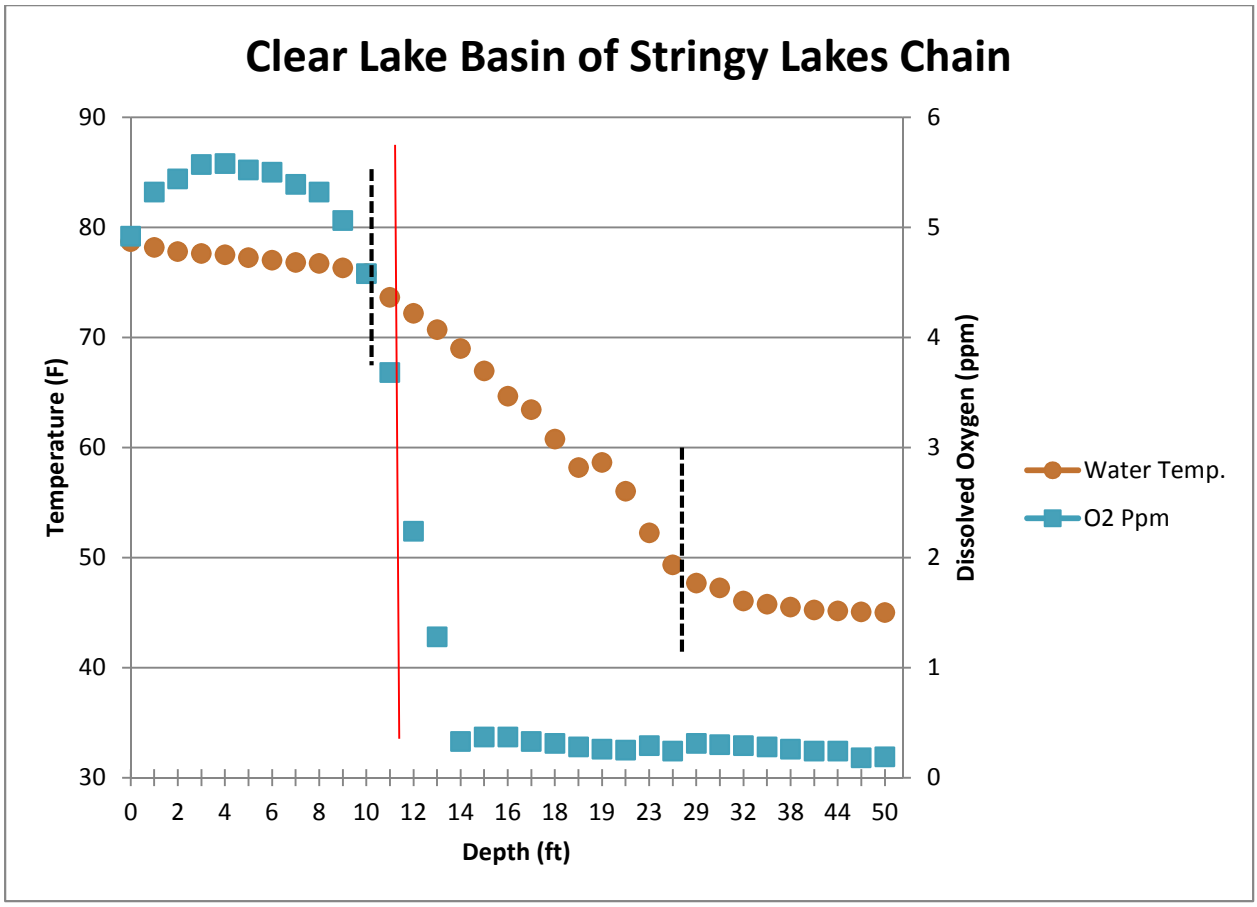

Figure 3. Temperature and oxygen profile of the Clear Lake basin. The dashed black lines represent the upper and lower levels of the metalimnion. The solid red line identifies the minimum acceptable dissolved oxygen level for fish.

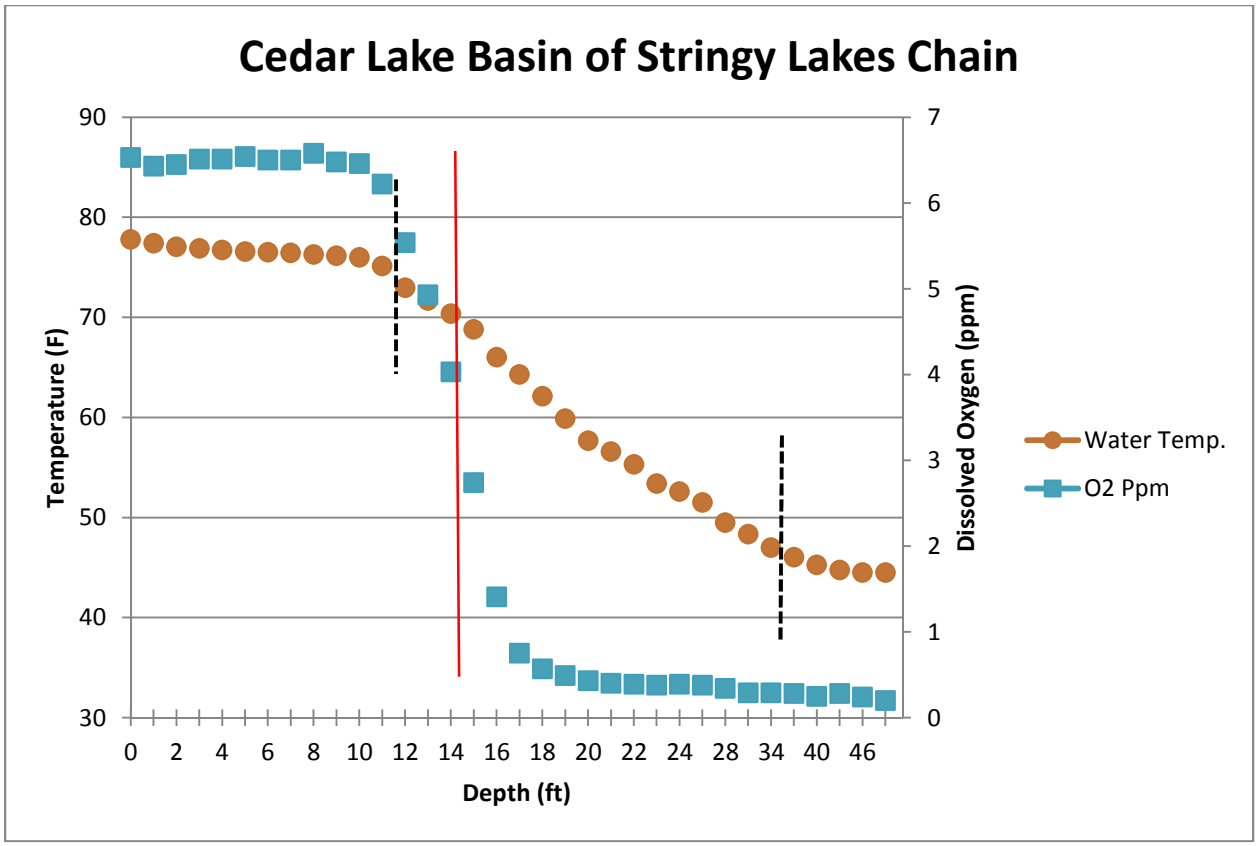

Figure 4. Temperature and oxygen profile of the Cedar Lake basin. The dashed black lines represent the upper and lower levels of the metalimnion. The solid red line identifies the minimum acceptable dissolved oxygen level for fish.