

Date: December 28, 1999

File Ref: 3600

To: Bill Smith - Regional Director, Northern Region

From: Thomas (Skip) Sommerfeldt
Senior Fisheries Biologist, Park Falls

Subject:
1998 Lake Survey Summary - Fishtrap Lake, Sawyer Co.
(T40N, R5W, sec. 11,14; WBIC - 2401100)
Upper Chippewa GMU

This report is submitted with the approval of Basin Supervisor (GMU Team Leader), Bruce Swanson and Regional Fisheries Expert, Steve AveLllemant. The report was written and work supervised by Thomas (Skip) Sommerfeldt, Senior Fisheries Biologist under the Chequamegon and Nicolet National Forest contract fisheries program.

APPROVED BY:

Upper Chippewa Basin Supervisor, Bruce Swanson

Date

Fisheries Expert, Steve AveLllemant

Date

Bureau of Fisheries and Habitat Protection

Date

cc: Bureau of F & H Prot.
Park Falls DNR (Skip)

USFS S.O. - Sue R.
Hayward DNR (Frank)



BACKGROUND INFORMATION

Fishtrap Lake is a 216-acre, drainage impoundment in the east central part of Sawyer County, about 9 miles north of the town of Winter. It is on the Hayward side of the Great Divide District of the Chequamegon and Nicolet National Forest. The lake has a maximum depth of 11 feet and the majority of the main lake area is in the 5 to 10 foot range. The water has a medium to dark brown stain, with a pH near 7 (neutral) and an alkalinity of 29 mg/l (soft). The lake has a total shoreline length of 6.84 miles, but this includes about 3.5 miles on the narrow inlet and outlet areas of the impoundment. The U.S. Forest Service controls approximately 54% of the shoreline (3.7 miles), mostly on the northeast shore around the inlet area (Fishtrap Creek). Nearly 3/4's of the shoreline consists of bog/swamp edge with the remaining portion comprised of upland hardwoods/conifers. Public access is provided via a gravel ramp near the outlet dam on the southeast side of the lake. Private development consists of 2 resorts and about 6 cottages and homes.

Other than the stocking of fish, there has been little past fisheries management activities conducted on Fishtrap Lake. The first recorded stocking occurred in 1935 and consisted of walleyed pike, pickerel, bluegill, and black bass. From 1937 through 1972, muskellunge constituted the majority of the stocking with occasional plants of walleye and largemouth bass also occurring. No stocking of fish was recorded from 1973 to 1984 and muskellunge were stocked in alternate years from 1986 to 1997. Past fisheries surveys consisted of one-night electrofishing runs and were conducted in October 1963, July 1985, and 2 runs in June 1987. The 1985 survey found that northern pike had recently invaded the lake. The pike appeared to be establishing a self-sustaining population and were hybridizing with the musky in the lake. The shockers run in June 1987 found low numbers of bass, musky, and pike with 'lots' of 2" to 6" forage fish in the shallows. No specific management recommendations resulted from these surveys and the alternate year stocking of musky was continued until 1997.

A survey was initiated in 1998 to inventory the fishery in Fishtrap Lake and identify potential management problems. The survey was conducted through the Chequamegon and Nicolet National Forest contract fisheries program. To gather data on the fish populations, the survey utilized 35 fyke-net lifts in late April, electrofishing runs in May and September, and an additional 12 fyke-net lifts in June, 1998. Also, dissolved oxygen levels were measured during ice cover in March, 1998.

RESULTS

The following fish species were found during the 1998 survey on Fishtrap Lake:

Northern pike	<i>(Esox lucius)</i>
Largemouth bass	<i>(Micropterus salmoides)</i>
Walleye	<i>(Stizostedion vitreum)</i>
Muskellunge	<i>(Esox masquinongy)</i>
Smallmouth bass	<i>(Micropterus dolomieu)</i>
White sucker	<i>(Catostomus commersoni)</i>
Bluegill	<i>(Lepomis macrochirus)</i>
Black crappie	<i>(Pomoxis nigromaculatus)</i>
Pumpkinseed	<i>(Lepomis gibbosus)</i>

Yellow perch	(<i>Perca flavescens</i>)
Rock bass	(<i>Ambloplites rupestris</i>)
Yellow bullhead	(<i>Ameiurus natalis</i>)
Brown bullhead	(<i>Ameiurus nebulosus</i>)
Black bullhead	(<i>Ameiurus melas</i>)
Central mudminnow	(<i>Umbra limi</i>)
Golden shiner	(<i>Notemigonus crysoleucas</i>)

Northern pike were the most abundant gamefish found in 1998, with lesser numbers of largemouth bass, walleye, musky, and smallmouth bass being collected. A total of 251 northern pike were collected during the various survey efforts and they had a length range of 9.9 inches to 28.9 inches. The April fyke-net effort provided the best sample of the pike population with 214 fish being handled (85% of the total). The spring catch yielded only a fair size structure ($PSD_{21} = 18\%$) with most of the fish being in the 16 to 21 inch size. The spring population estimate was 1,433 pike $> 10"$ (6.6/acre), using the Darroch-Schnabel model and the spring fyke-net data. Age and growth analysis indicated below average growth for Wisconsin (Figure 1). Pike reached a mean length of 16.1 inches after 3 summers of growth and increased to 23.1 inches by age 6. Natural reproduction and recruitment were evident and were sustaining the population in Fishtrap Lake.

Largemouth bass were second in abundance to the pike with a total of 90 bass being measured during the 1998 survey. The largemouth ranged from 2.4 inches to 20.5 inches long and had an overall PSD_{12} of 53%. Growth rates were above average for the first 5 years of life (Figure 2), but declined slightly thereafter. Largemouth reached a mean of 8.0 inches after 2 summers of growth and improved to 13.6 inches after 5 summers. Natural reproduction was considered good for 1998 and 1997, and it remains to be seen if these 2 strong year classes will recruit significantly into the fishery. There was a relatively low abundance of larger bass and indicated that past recruitment beyond the 13-inch size was low. This may be the result of predation/competition from the northern pike and musky in the lake. However, the lake did produce trophy-size fish as evidenced by the capture of several 20" + bass.

Totals of 26 walleye, 21 musky, and 1 smallmouth bass (15.5") were sampled in 1998. The walleye ranged from 11.0 inches to 21.6 inches long and had an overall PSD_{15} of 46%. Growth rates were below average for Wisconsin (Figure 4), with walleye reaching a mean length of 17.3 inches after 6 summers of growth. Current year natural reproduction was not documented and it was suspected that most of the walleye were the result of unauthorized plants or downstream emigration from Black Lake (where stocking has occurred since 1994).

The musky ranged in length from 10.0 to 39.5 inches and the total included 3 hybrid or tiger musky (lengths of 16.2", 30.2", & 31.1"). Growth rates were generally average for the first 5 years of life, but slowed markedly thereafter (Figure 3). Musky reached a mean length of 27.3 inches after 4 summers of growth, but improved to just 29.8 inches after 6 summers. Current year natural reproduction of pure musky was not evident but the presence of tiger (hybrid) musky indicated that the species consistently cross-breeds with the northern pike in the lake.

Black crappie and bluegill were the predominant panfish in 1998, with lesser numbers of bullhead, yellow perch, and pumpkinseed. Black crappie were the more numerous species with 1,569 fish being collected. The crappie ranged 2.5 inches to 12.3 inches in length, with most fish in the 6 to 8 inch size. Growth rates were below average for Wisconsin (Figure 6). Crappie reached a mean

length of 7.0 inches after 4 summers of growth and improved to 9.5 inches by age 7. Bluegill were second in abundance with 1,130 fish sampled. They ranged from 1.8 inches to 9.3 inches long and the population had a very good size structure. The summer fyke-net effort produced a CPE of 63 bluegill per net-day, with a PSD₆ of 98% and a RSD₈ of 28%. Growth rates were generally above average for Wisconsin (Figure 5), as bluegill reached a mean length of 6.6 inches after 4 summers of growth and increased to 8.4 inches by age 9.

A total of 879 bullhead were sampled during the survey. The population was comprised mainly of yellow bullheads (98%), with much lower numbers of brown (2%) and black (<1%) being found. The bullhead ranged in length from 4.6 to 11.8 inches and most fish were in the 6 to 9 inch size. No age and growth data were collected from the bullhead species. Yellow perch were next in abundance with 553 fish being handled. They ranged from 2.7 to 10.7 inches long, with most perch measuring in the 5 to 7 inch size. Growth rates were below average for Wisconsin as perch reached a mean length of 7.3 inches after 6 summers of growth.

Totals of 225 pumpkinseed and just 3 rock bass were tallied during the 1998 survey. The 'seeds' ranged from 2.2 to 7.5 inches in length, with most measuring in the 6-inch size class. The rock bass were from 7.5 to 8.0 inches long. No growth data were collected from either of these species.

The abundance of other forage species could be considered relatively low. Golden shiner and mudminnow were rated as 'common' in the lake and crayfish were 'present'. White sucker density was very low as only 2 individuals were collected during the 1998 survey efforts.

Winter oxygen conditions were considered good in March 1998. The DO concentration was above 2 mg/l down to a depth of 7 feet and was below 1 mg/l in a 3-foot layer above the bottom in 11 feet of water. As such, no winterkill would be expected for the 1997-98 season. In addition, no winterkills in the past 10 years were evident. Partial winterkills have been reported in the past and these should be documented when they occur.

SUMMARY/DISCUSSION

The 1998 survey on Fishtrap Lake found a fishery dominated by northern pike with a significant and expanding population of largemouth bass. Walleye and musky were present in much lower numbers and neither species was considered self-sustaining in the lake. The panfishery consisted mainly of black crappie and bluegill, with lower densities of bullhead, yellow perch, and pumpkinseed. The crappie were the more abundant species but they had below average growth rates and a fair number of quality size fish (>8"). Bluegill were slightly less abundant than crappie, but they exhibited good growth rates and had a high-quality size structure.

The dominant northern pike population was an unexpected finding in the 1998 survey. The survey was designed to assess a musky/bass fishery, as it was anticipated that musky would be the predominant gamefish with musky being stocked on an alternate year basis since 1986. As such, spring netting was delayed to 2 weeks after ice-out in hopes of capturing good numbers of musky during the vulnerable spawning period. It was known that northern pike had invaded the lake in the mid-1980's but the extent of their establishment had not been determined. Thus, the April netting caught the end of the pike spawning run and failed to collect significant numbers of musky. And it

quickly became apparent that northern pike were the predominant gamefish and musky were a lesser component of the fishery.

The northern pike population in Fishtrap Lake in 1998 was considered moderate to high density and consisted mainly of fish in the 16 to 21 inch size. Some larger pike (>26") were present but the overall quality of the size structure could only be considered fair. The lake did not provide ideal habitat and forage conditions for pike, and with the species being a recent invader of the system, it is recommended that the lake not be managed for the species. Northern pike will likely always maintain a significant presence in the lake but no management efforts should be expended to protect the species. Liberal harvest regulations should be maintained and anglers should be encouraged to harvest the pike that they catch from the lake.

Based upon the available habitat and forage conditions, it is recommended that Fishtrap Lake be managed as a largemouth bass and panfish fishery. Musky and walleye were not ideally suited for the lake and any future management for these species should be minimized. Musky do best in large bodies of water with an abundance of large forage items (especially white sucker) - conditions not provided by Fishtrap Lake. Walleye also need large bodies of water with expanses of deep water to thrive and Fishtrap Lake did not provide these types of habitat either. As such, management emphasis should be placed on improving the bass fishery and maintaining the quality panfish populations. It is likely that northern pike, musky and walleye will always maintain a presence in the lake but any efforts to increase their numbers should be discouraged.

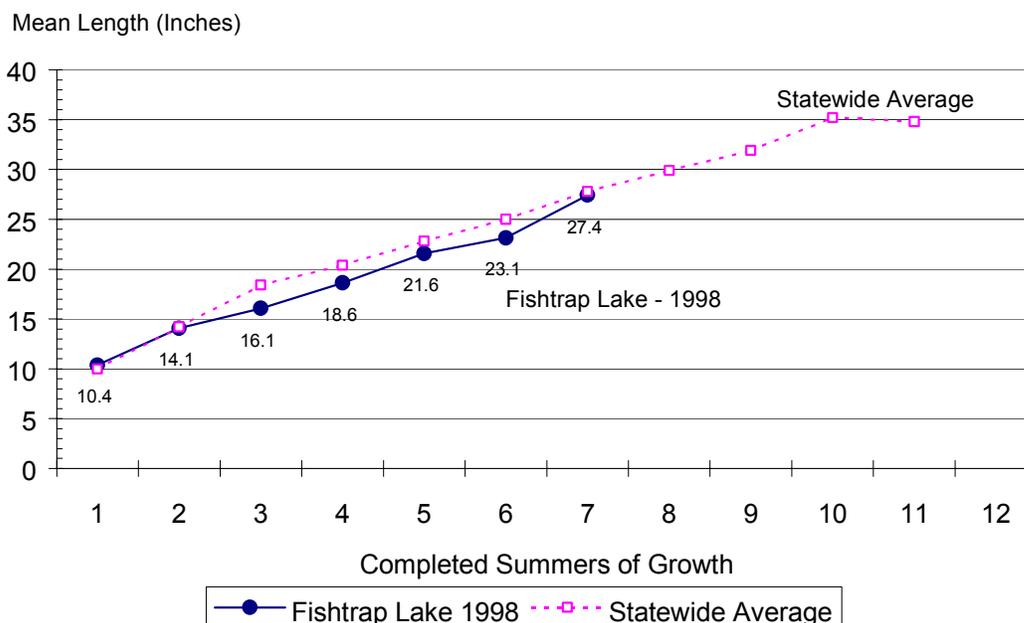
It was felt the fishery in Fishtrap Lake in 1998 was still in the process of change following the northern pike invasion in the 1980's. While the density of northern pike seemed to have leveled off at a moderate to high density, the largemouth bass population appeared to be gaining a stronger foothold in the lake. Ideally, the bass population will expand to fill in the niche that the pike, walleye and small musky have been occupying and result in a lower pike density, a dominant largemouth population, and low numbers of walleye and musky. This scenario would help to maintain a healthy predator/prey balance and continue to provide a good quality panfishery in the lake. As such, no active management efforts are recommended at the present time and the fishery be allowed to further evolve and stabilize. Regular periodic monitoring should be conducted to assess the status of the fishery and alter management direction as needed.

MANAGEMENT RECOMMENDATIONS

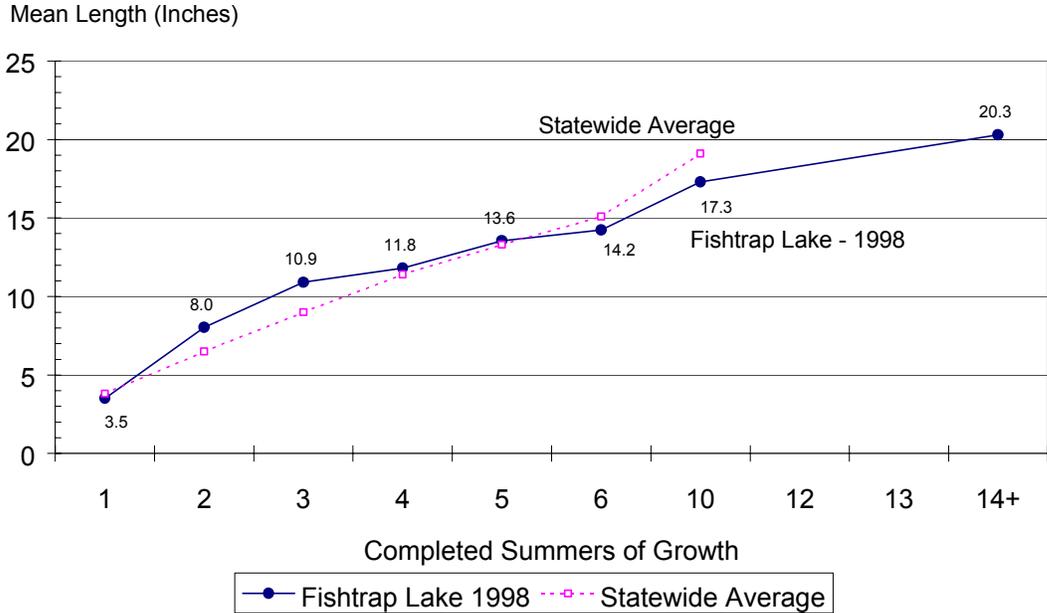
1. Manage Fishtrap Lake primarily as a largemouth bass and panfish fishery. It is likely that northern pike will always be present in a moderate density but no special protection should be extended toward the species (i.e. maintain liberal season, size, and bag limits). In addition, the harvest of pike, especially fish in the 15 to 21 inch size, should be encouraged.
2. The current harvest regulation for bass (14-inch minimum, 5 bag limit) was felt to be adequate to allow continued expansion of the largemouth bass population. Natural reproduction and recruitment have been on the increase and there was no need for any supplemental stocking at the present time. Periodic monitoring should be used to assess natural reproduction and recruitment in the bass population.

3. Discontinue active management for musky and curtail any future stocking of the species in Fishtrap Lake. This 216-acre lake does not offer adequate habitat for musky and the abundance of large forage was very limited (only 2 white suckers collected during the entire survey). While the species will likely maintain a presence in the lake, a low density should have minimal impact on the overall fishery and provide a few 'bonus' trophy fish to the angler.
4. Provide no management emphasis or special protection for walleye in Fishtrap Lake. Again, the lake does not provide ideal habitat for the species and panfish control was not a desired goal at the present time. Like the musky, walleye will likely maintain a presence in the lake for years to come and offer 'bonus' sportfish to anglers on the lake.
5. The panfishery was considered in good shape in 1998. Maintenance of a healthy predator/prey balance will sustain good growth rates and provide quality-size fish to the angler.
6. Shoreline and littoral cover (both woody structure and vegetation) were adequate and no habitat improvements were recommended.
7. Conduct periodic monitoring runs to assess the status of the fishery and alter management direction as needed. A fall electrofishing run every 2 to 3 years is recommended (the USFS contract fish program will incorporate this into its work plans).

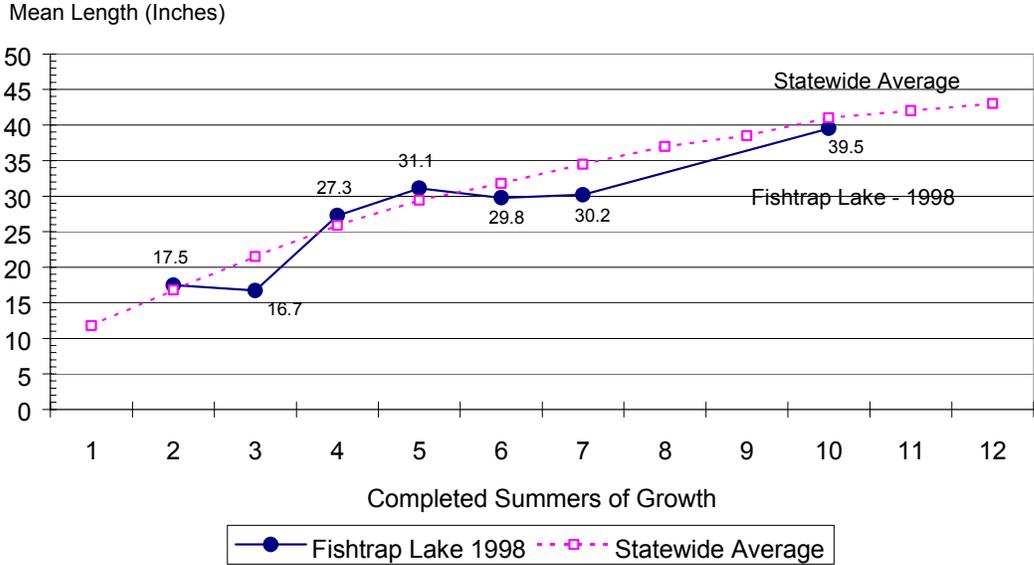
**Figure 1. Northern Pike Growth Rates
Fishtrap Lake, Sawyer Co.**



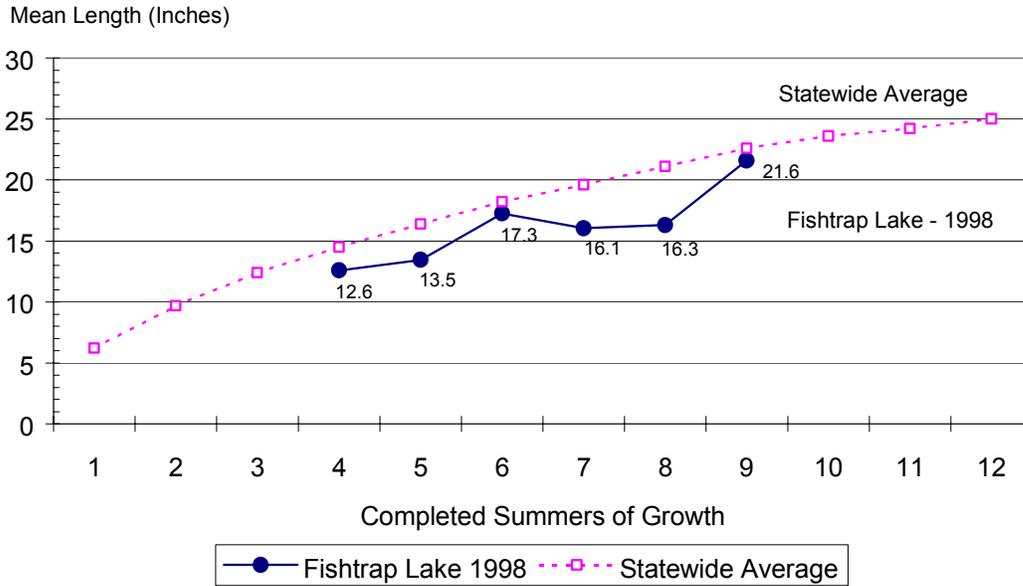
**Figure 2. Largemouth Bass Growth Rates
Fishtrap Lake, Sawyer Co.**



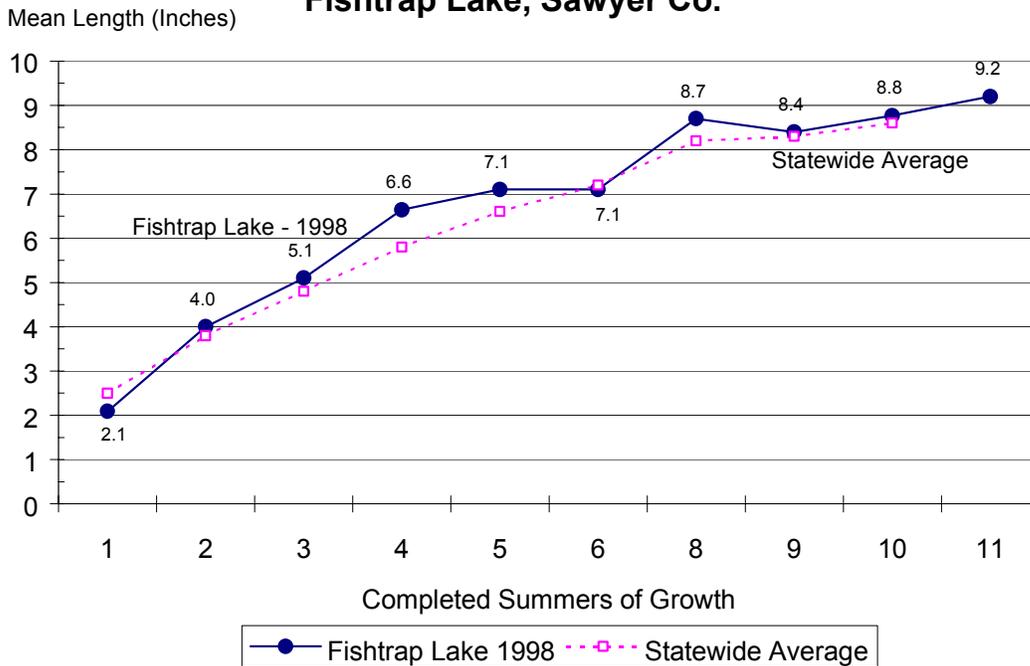
**Figure 3. Muskellunge Growth Rates
Fishtrap Lake, Sawyer Co.**



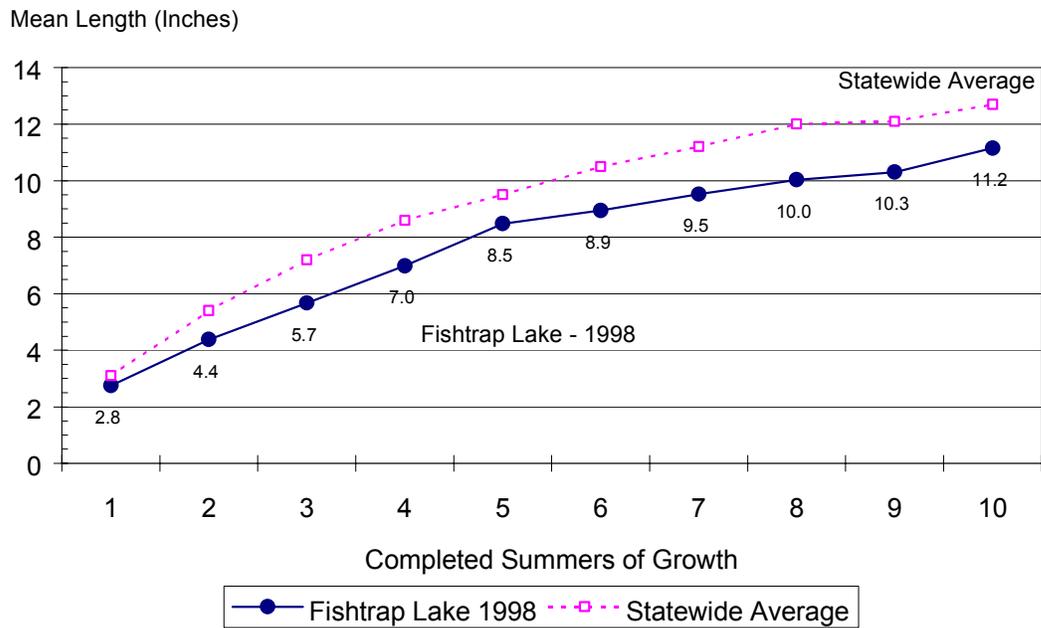
**Figure 4. Walleye Growth Rates
Fishtrap Lake, Sawyer Co.**



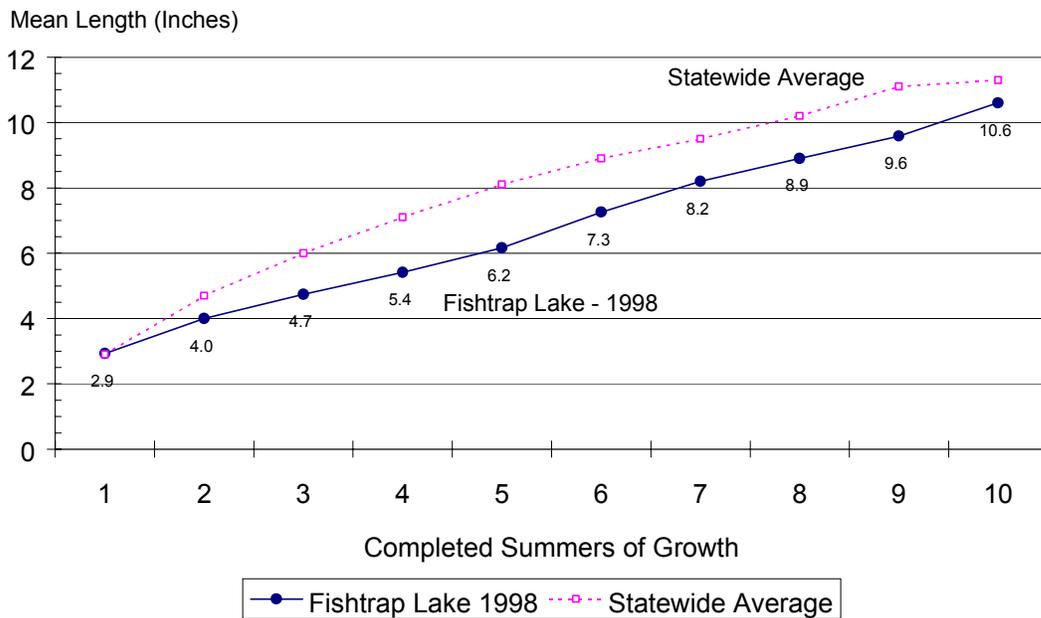
**Figure 5. Bluegill Growth Rates
Fishtrap Lake, Sawyer Co.**



**Figure 6. Black Crappie Growth Rates
Fishtrap Lake, Sawyer Co.**



**Figure 7. Yellow Perch Growth Rates
Fishtrap Lake, Sawyer Co.**



Fishtrap Lake -- 1998

Fish Survey Totals

Species	Spring Netting	Spring BS	Summer Netting	Fall BS	Totals
Largemouth Bass Mode: Length range	30 10.5 - 20.5	2 3.3 - 12.4	5 11.0 - 12.9	53 3.7, 8.2; 2.4 - 20.2	90
Northern Pike Mode: Length range	214 10.2 - 28.9	9 14.0 - 21.4	14 12.0 - 25.9	14 17.7; 9.9 - 19.4	251
Walleye Length range	6 11.0 - 13.9	4 12.5 - 19.4	6 13.0 - 18.4	10 15.8 - 21.6	26
Musky Length range	4 16.7 - 31.1	8 10.0 - 39.5	2 13.7 - 30.2	7 15.8 - 30.3	21
Smallmouth Bass Length range	1 15.5				1
Sucker Length range	0	1 19.3		1 15.3	2
Bluegill Mode: Length range	288 6.8, 4.7 - 9.3	34 6.1 - 8.6	756 6.8, 8.4; 4.8 - 9.1	52 1.9, 4.0; 1.8 - 8.9	1130
Black Crappie Mode: Length range	1272 6.8, 4.0 - 12.3	8 4.5 - 9.6	277 7.5; 3.5 - 11.4	12 2.5 - 9.9	1569
Pumpkinseed Mode: Length range	78 4.1 - 7.5	21 3.7 - 7.0	112 6.4; 5.0 - 7.0	14 3.4; 2.2 - 5.9	225
Yellow Perch Mode: Length range	478 5.3, 6.1; 4.7 - 10.7	44 2.7 - 7.9	20 4.8 - 8.3	11 4.3 - 7.7	553
Rock Bass Length range			3 7.5 - 8.0		3
Hybrid Sunfish Length range					0
Golden shiner		C	P	C-A	
Bullhead	808	C	71	4.6 - 11.8	879
Creek chub					
Bluntnose minnow					
Mudminnow				C	
Sculpin					
tadpole madtom					
Crayfish				P	

State of Wisconsin
Department of Natural Resources

Gamefish Length Frequency
Form 3600-65 Rev.7-93

County		Water					Date:				Gear:		Survey Totals	
SAWYER		Fishtrap Lake					1998				Hours		Somm/Bunde/Wallner	
Size Range Inches	Total LMB	Total N Pike	NP Spg Net	NP Spring BS	NP Sum Fyke	NP Fall BS	LMB Spg Net	LMB Spg BS	LMB Sum Net	LMB Fall BS	Size Range Inches	Total N Pike		
<3.0	5									5	27.0 - 27.4	2		
3.0 - 3.4	5							1		4	27.5 - 27.9			
3.5 - 3.9	5									5	28.0 - 28.4	1		
4.0 - 4.4	1									1	28.5 - 28.9	1		
4.5 - 4.9	4									4	29.0 - 29.4			
5.0 - 5.4	1									1	29.5 - 29.9			
5.5 - 5.9	1									1	30.0 - 30.4			
6.0 - 6.4											30.5 - 30.9			
6.5 - 6.9											31.0 - 31.4			
7.0 - 7.4	3									3	31.5 - 31.9			
7.5 - 7.9	1									1	32.0 - 32.4			
8.0 - 8.4	8									8	32.5 - 32.9			
8.5 - 8.9	5									5	33.0 - 33.4			
9.0 - 9.4	2									2	33.5 - 33.9			
9.5 - 9.9		1				1					34.0 - 34.4			
10.0 - 10.4		1	1								34.5 - 34.9			
10.5 - 10.9	2	1				1	2				35.0 - 35.4			
11.0 - 11.4	7						4		3		35.5 - 35.9			
11.5 - 11.9	4						4				36.0 - 36.4			
12.0 - 12.4	10	3	1		1	1	6	1	1	2	36.5 - 36.9			
12.5 - 12.9	7	1	1				5		1	1	37.0 - 37.4			
13.0 - 13.4	4	3	3				4				37.5 - 37.9			
13.5 - 13.9	3	2	1		1					3	38.0 - 38.4			
14.0 - 14.4	4	10	7	2	1		1			3	38.5 - 38.9			
14.5 - 14.9	2	11	9	1		1				2	39.0 - 39.4			
15.0 - 15.4		8	6		1	1					39.5 - 39.9			
15.5 - 15.9		10	8	1	1						40.0 - 40.9			
16.0 - 16.4		9	8	1							41.0 - 41.9			
16.5 - 16.9		16	13	1	1	1					42.0 - 42.9			
17.0 - 17.4	1	20	19	1			1				43.0 - 43.9			
17.5 - 17.9		19	13		1	5					44.0 - 44.9			
18.0 - 18.4	1	18	15	1		2	1				45.0 - 45.9			
18.5 - 18.9		16	16								46.0 - 46.9			
19.0 - 19.4	1	17	16				1				47.0 - 47.9			
19.5 - 19.9		11	11								48.0 - 48.9			
20.0 - 20.4	2	13	11			2				2	49.0 - 49.9			
20.5 - 20.9	1	18	17			1	1				50.0 - 50.9			
21.0 - 21.4		13	10	1		2					51.0 - 51.9			
21.5 - 21.9		4	4								52.0 - 52.9			
22.0 - 22.4		5	4			1					53.0 - 53.9			
22.5 - 22.9		2	2								54.0 - 54.9			
23.0 - 23.4		2	2								55.0 - 55.9			
23.5 - 23.9		2	2								56.0 - 56.9			
24.0 - 24.4		2	2								57.0 - 57.9			
24.5 - 24.9		3	3								58.0 - 58.9			
25.0 - 25.4											59.0 - 59.9			
25.5 - 25.9		5	4			1					60.0+			
26.0 - 26.4														
26.5 - 26.9		1	1											
TOTALS	90						30	2	5	53	TOTALS	251		

OBSERVATIONS:

LMB PSD12 = 53%
(6" stock size)

NP PSD21 = 18%
(14" stock size)

State of Wisconsin
Department of Natural Resources

Gamefish Length Frequency
Form 3600-65 Rev.7-93

County		Water					Date:			Gear:		Survey Totals	
SAWYER		Fishtrap Lake					1998			Hours		Somm/Bunde/Wallner	
Size Range Inches		Total Musky	Musky Spring Net	Musky Spring BS	Msky Sum Fyke	Musky Fall BS				Size Range Inches	Total Musky		
<3.0										27.0 - 27.4			
3.0 - 3.4										27.5 - 27.9			
3.5 - 3.9										28.0 - 28.4			
4.0 - 4.4										28.5 - 28.9			
4.5 - 4.9										29.0 - 29.4	1		
5.0 - 5.4										29.5 - 29.9			
5.5 - 5.9										30.0 - 30.4	3		
6.0 - 6.4										30.5 - 30.9			
6.5 - 6.9										31.0 - 31.4	1		
7.0 - 7.4										31.5 - 31.9			
7.5 - 7.9										32.0 - 32.4			
8.0 - 8.4										32.5 - 32.9			
8.5 - 8.9										33.0 - 33.4			
9.0 - 9.4										33.5 - 33.9			
9.5 - 9.9										34.0 - 34.4			
10.0 - 10.4		1		1						34.5 - 34.9			
10.5 - 10.9										35.0 - 35.4			
11.0 - 11.4		1		1						35.5 - 35.9			
11.5 - 11.9		1		1						36.0 - 36.4			
12.0 - 12.4		1		1						36.5 - 36.9			
12.5 - 12.9										37.0 - 37.4			
13.0 - 13.4		3		3						37.5 - 37.9			
13.5 - 13.9		1			1					38.0 - 38.4			
14.0 - 14.4										38.5 - 38.9			
14.5 - 14.9										39.0 - 39.4			
15.0 - 15.4										39.5 - 39.9	1		
15.5 - 15.9		1				1				40.0 - 40.9			
16.0 - 16.4		1	1							41.0 - 41.9			
16.5 - 16.9										42.0 - 42.9			
17.0 - 17.4		1				1				43.0 - 43.9			
17.5 - 17.9		1				1				44.0 - 44.9			
18.0 - 18.4		1				1				45.0 - 45.9			
18.5 - 18.9		1				1				46.0 - 46.9			
19.0 - 19.4										47.0 - 47.9			
19.5 - 19.9										48.0 - 48.9			
20.0 - 20.4										49.0 - 49.9			
20.5 - 20.9										50.0 - 50.9			
21.0 - 21.4										51.0 - 51.9			
21.5 - 21.9										52.0 - 52.9			
22.0 - 22.4										53.0 - 53.9			
22.5 - 22.9										54.0 - 54.9			
23.0 - 23.4										55.0 - 55.9			
23.5 - 23.9										56.0 - 56.9			
24.0 - 24.4										57.0 - 57.9			
24.5 - 24.9										58.0 - 58.9			
25.0 - 25.4										59.0 - 59.9			
25.5 - 25.9										60.0+			
26.0 - 26.4		1				1							
26.5 - 26.9													
TOTALS										TOTALS	21		

OBSERVATIONS: