

Friess Lake, Washington County
 WBIC # 853100
 Fish Community Survey – 2007
 John E. Nelson

ABSTRACT

We conducted a fish population survey of Friess Lake during the spring of 2007. The survey documented the existence of a healthy and well balanced fish community. Friess Lake has potential to produce trophy size largemouth bass, northern pike and walleye. We caught individual largemouth, pike and walleye up to 21.4", 47.0" and 28.5", respectively. The size structure of northern pike was especially impressive. The bluegill population also had a very good size structure with PSD values of 44.0% for fyke net samples and 49.2% for electrofishing samples. The crappie samples were dominated by a strong 2004 year class in the 5" to 6" size range. Forage in the form of minnows and zooplankton was apparently abundant to produce good quality gamefish and panfish. Management recommendations included a possible reduction in panfish bag limits, retention of the 26" minimum size limit on northern pike and alternate year stocking of 35 small walleye fingerling per acre. The walleye population goal from stocking should be 2 adults/acre.

INTRODUCTION

Friess Lake is a 117 acre drainage lake on the Oconomowoc River (Figure 1). The river enters the lake on the north central shore and exits the lake in the southeast corner. The river then flows into Little Friess Lake and flows to the south.

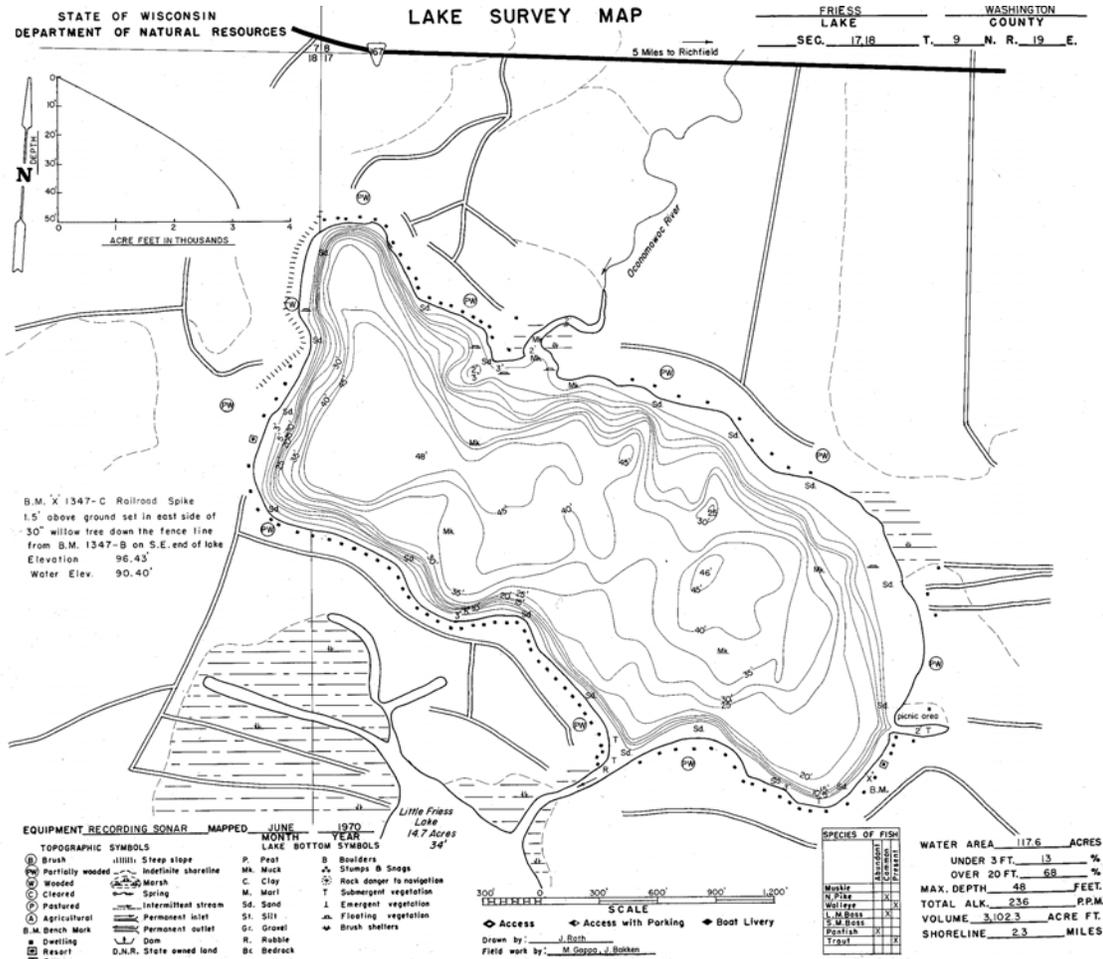


Figure 1. Friess Lake, Washington County.

Friess Lake is a fertile lake with a fair amount of submerged vegetation. The water is somewhat turbid due to the high fertility, soft bottom and carp activity. The maximum depth is 47'. The lake is roughly oval shaped in a northwest to southeast orientation (Figure 1). Anglers generally access the lake at Wally and Bee's Resort on the west shore of the lake. A public access is scheduled to be constructed on the canal between Friess Lake and Little Friess Lake by 2009. Roughly 80% of the shoreline has been developed for residential use. A county park is located on the northwest corner of the lake.

The Department has not previously performed fish management services on the lake with the exception of a single night electrofishing run on September 28, 2004. Walleye stocking has been done on a fairly regular basis by the Richfield Sportsmen's Club. The stocking has successfully established a population of walleye in the lake. No evidence of natural reproduction of walleye is evident however. Good quality spawning habitat for walleye was not apparent in the lake. Carp are likely fairly common in the lake since they can access favorable spawning habitat in the Oconomowoc River system. However, we have not received many complaints related to carp and the presence of submerged aquatic plants indicates that they are not present in "problem" numbers.

METHODS

We used fyke nets and electrofishing to sample the fish population of Friess Lake in the spring of 2007. Five fyke nets were set on March 26th. Those nets were fished until April 3rd. Some nets were moved during the survey to maximize the catch of fish. They were initially set to target spawning northern pike and then moved to target walleye as the water warmed. Electrofishing was conducted on April 17th with a focus on catching marked northern pike and walleye. A second electrofishing run was conducted on May 21st to focus on largemouth bass and bluegills.

RESULTS AND DISCUSSION

We caught 14 species of fish during the spring, 2007 survey of Friess Lake. The major species caught during the survey are listed in Table 1. Additional species included common carp (14), yellow bullhead (10), black bullhead (1), golden shiner (12), and longnose gar (1). The carp ranged in size from 17.2" – 27.5" with most of the carp near 25" long.

Table 1. Catch per effort for fyke netting and electrofishing on Friess Lake in spring, 2007.

	Fyke Net								
	Bluegill	LM Bass	N. Pike	Walleye	Crappie	P. seed	Y. Perch	R. Bass	Sucker
# Caught	167	27	28	34	22	20	17	28	9
Catch/NN	4.2	0.7	0.7	0.9	0.6	0.5	0.4	0.7	0.2
Size Range	3.1" – 8.7"	5.6" – 21.4"	10.9" – 47.0"	17.6" – 28.5"	3.7" – 10.7"	3.8" – 6.2"	5.9" – 8.7"	3.8" – 7.3"	7.5" – 19.3"
Mean Length	5.6"	10.7"	26.7"	20.6"	7.7"	4.8"	6.6"	5.3"	13.6"
PSD	44.0%	36.4%	100%	100%	52.4%	5.0%	5.9%	13.0%	---
RSD	4.2%	36.4%	37.5%	64.5%	14.3%	0%	0%	0%	---
	Electrofishing								
# Caught	170	46	3	10	235	0	58	0	69
Catch/hr	81.0	21.9	1.4	4.8	111.9	0	27.6	0	32.9
Catch/mi	37.0	10.0	0.7	2.2	51.1	0	12.6	0	15.0
Size Range	3.0" – 8.6"	6.9" – 18.8"	21.9" – 29.0"	9.4" – 25.5"	3.9" – 10.0"	---	4.5" – 8.8"	---	6.9" – 20.2"
Mean Length	5.7"	12.8"	25.2"	15.9"	6.0"	---	6.0"	---	13.7"
PSD	49.2%	77.5%	---	---	2.9%	---	1.8%	---	---
RSD	3.9%	32.5%	---	---	0%	---	0%	---	---

Bluegill

Bluegill was the most common species captured in the survey. We caught 167 bluegill in fyke nets at a rate of 4.2/Net Night (NN) (Table 1). We caught 170 while electrofishing at a rate of 81.0/hr. Surprisingly, no bluegill were captured during the April 17th electrofishing run. The bluegill were not in shallow water on

that night when the water temperature was 47.5° F. We had a very small catch of bluegill at Silver Lake on April 19th with similar temperatures.

Both fyke net and electrofishing samples of bluegill from Friess Lake documented a well structured population that should provide good fishing results to anglers. Bluegill ranged in size from 3.0” to 8.7” long (Table 1). Length modes were evident at 3.5” and 7.0”, representing good recruitment from the 2005 and 2001 year classes, respectively (Figure 2). The bluegill PSD values were 44.0% for fyke net samples and 49.2% for electrofishing samples. Both values were in the desired range. The RSD (percentage of bluegill over 8” long) values of 4.2% and 3.9% were somewhat low and probably reflect the heavy fishing pressure that suppresses the number of 8” and larger bluegill able to survive the fishing effort and harvest. Friess Lake would be able to produce many more bluegill larger than 8” long if harvest by the most successful anglers could be reduced by smaller bag limits or size limits.

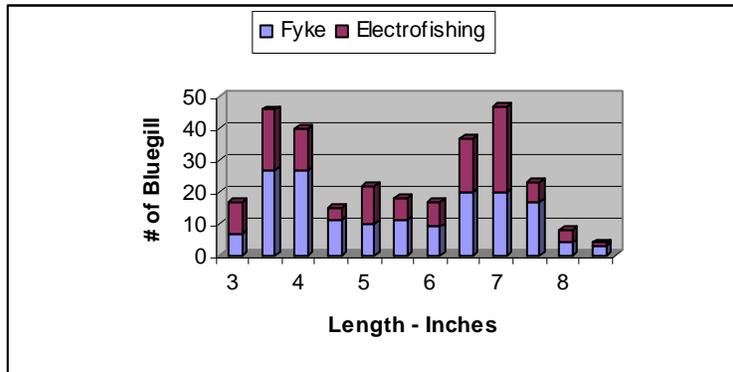


Figure 2. Length frequency distribution of bluegill from Friess Lake in Spring, 2007.

The growth rate of Friess Lake bluegill was below the state average through age 3 and then exceeded the state average at ages 4 and beyond (Table 2). The shift towards faster growth at older ages is an indication that fish growth increases as the bluegill move out of weed cover to feed on zooplankton. The shift likely occurs as the fish are large enough to leave the security of near-shore areas and feed in the pelagic zone (over deep water). Clearly, the high fertility of the Friess Lake environment is suitable for production of larger size bluegill.

Table 2. Length at age for Friess Lake fishes. Back-calculated averages are presented and number of fish in the sample are in parenthesis.

Species / Age	1	2	3	4	5	6	7	8	9
Bluegill	2.1" (26)	3.3" (26)	4.7" (20)	6.0" (14)	6.6" (9)	8.1" (2)	---	---	---
BLG State Ave	3.3"	4.0"	4.8"	5.8"	6.4"	7.0"	---	---	---
Largemouth Bass	4.4" (42)	7.5" (42)	10.3" (37)	12.3" (30)	13.7" (21)	14.4" (10)	15.8" (7)	16.4" (3)	17.3" (2)
LMB State Ave.	4.9"	7.0"	9.3"	11.2"	12.9"	14.7"	16.2"	17.5"	18.1"
Black Crappie	3.5" (43)	4.7" (43)	6.4" (37)	8.7" (6)	9.4" (6)	---	---	---	---
BLC State Ave.	4.7"	5.8"	7.4"	8.5"	9.4"	---	---	---	---
Walleye	7.3" (7)	10.6" (7)	14.6" (4)	17.6" (4)	20.4" (4)	21.0" (3)	23.9" (2)	---	---
WE State Ave	7.0"	9.9"	12.2"	14.4"	16.4"	17.9"	19.5"	---	---
Yellow Perch	3.8" (39)	5.2" (39)	6.1" (34)	7.3" (4)	---	---	---	---	---
YP State Ave.	4.1"	5.0"	6.1"	6.9"	---	---	---	---	---

Largemouth Bass

Largemouth bass are the dominant predator species in Friess Lake. We caught 27 bass in fyke nets at a rate of 0.7/NN and 46 while electrofishing at a rate of 21.9/hr of effort (Table 1). Neither the fyke net or electrofishing catch rates were considered high for the species compared to other regional waters. However, a good population of largemouth bass was present in the lake. The bass provide good quality fishing opportunities and also provide a suitable level of predation on forage populations including panfish and minnows. In general, the bass population appeared to be in good balance with forage populations.

Largemouth bass ranged in size from 5.6" to 21.4" in the samples (Table 1). The electrofishing PSD was 77.5%, indicating a fairly high percentage of the fish in the population exceeding 12" long. The RSD (proportion over 15" long) was 32.5%, also a high percentage. The length frequency distribution for largemouth bass illustrated a well structure population (Figure 3). Harvest of bass over the 14" size limit was apparently limited by the practice of catch and release as a good number of fish over the size limit were observed. We often observe a sharp decline in the number of bass 14" long and longer in area lakes.

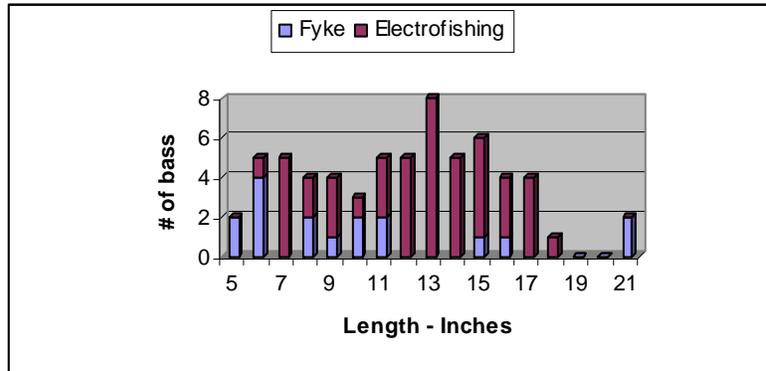


Figure 3. Length frequency distribution of largemouth bass from Friess Lake in Spring, 2007.

The growth rate of largemouth bass in Friess Lake was above the state average through age 5 and then tailed off (Table 2). Older age largemouth bass are somewhat difficult to age from scale samples so, reliability of the older age averages is in question. The faster growth at earlier ages was an indication that forage for bass is abundant.

Northern Pike

The fyke net catch of 28 northern pike (0.7/NN) was less than expected for Friess Lake (Table1). We may have missed the bulk of spawning northern pike even though nets were set the day after ice-out. Northern pike that spend most of the year in the lake are able to move upstream in the Oconomowoc River to good spawning habitat rather than having to spawn in the lake itself. The rate of 0.7/NN may not accurately reflect the true status of the population.

The size range of the northern pike from fyke net samples was unusually high for the species in the Southeast Region. Nine of the ten females caught in nets were over 26" long with the largest being a 47.0" fish. Three of the 17 males caught in nets exceeded 26" and fifteen of the seventeen fish exceeded 22" long. We rarely observe more than a few male northerns exceeding 22" long. Unfortunately, the scale samples from the northern pike were misplaced and we were unable to get age determinations for the species in Friess Lake. Friess Lake is certainly a lake where the 26" size limit is appropriate and capable of producing some true trophy size fish.

The relative absence of smaller size northern pike in the sample may indicate a problem with reproduction in the lake and watershed. One would expect to see many more two and three year old pike in the sample. A question that comes to mind is whether spawning habitat in the upper Oconomowoc River has been compromised as a result of wetland eradication or disturbance.

Walleye

We caught 34 walleye in fyke nets (0.9/NN) and 10 walleye while electrofishing (4.8/hr) during our survey of Friess Lake (Table 1). The catch rate would have been higher if we had limited the rate to only those days when we targeted walleye as the catch increased greatly during those days when walleye spawning was taking place. The relatively low catch rate indicated that the population is limited to stocked fish only with no successful natural reproduction in the system.

The size range for walleye was 17.6" – 28.5" in fyke net samples with an average of 20.6" (Table 1). The size range was 9.4" – 25.5" in electrofishing samples. The 9.4" fish was likely a two year old fish.

The growth of walleye from Friess Lake was above the statewide average at all year classes (Table 2). Faster growth of walleye in southern Wisconsin is common. Higher fertility and greater forage abundance results in the higher growth rate.

Black Crappie

While only 22 black crappie were caught in fyke nets at a rate of 0.6/NN, they were the most abundant fish caught while electrofishing with 235 caught at a rate of 111.9/hr (Table 1). Habitat in Friess Lake is obviously favorable to the species and production is apparently very high there.

The size range of crappies in nets was 3.7" to 10.7" (Table 1). The size range in electrofishing samples was similar at 3.9" to 10.0". A strong 2004 year class of crappie was evident at the 5-6" size range with another group near 9" representing the 2002 year class (Figure 4).

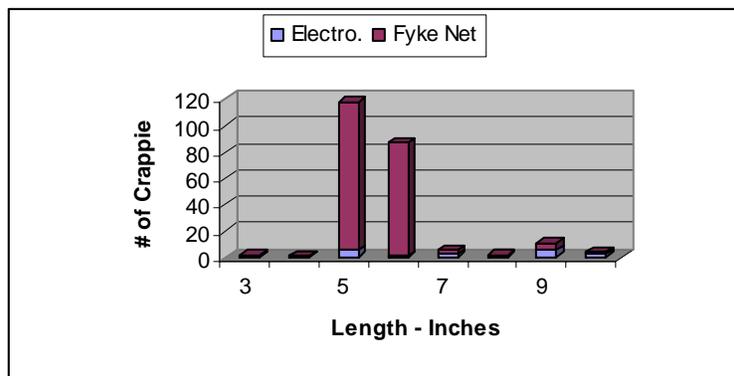


Figure 4. Length frequency distribution of black crappie from Friess Lake in Spring, 2007.

The back-calculated growth rate of crappie in the samples indicated that the crappie initially grew slow through age 3 and growth accelerated from that point on (Table 2). The food base for crappie over 6" long is apparently abundant.

Yellow Perch

We caught 17 yellow perch (0.4/NN) in fyke nets and 58 while electrofishing (27.6/hr) during the survey (Table 1). Both were relatively low catch rates. The size range for both capture methods combined was 4.5" to 8.8". The relatively small sample size may not truly reflect the abundance or size structure of the species in Friess Lake. The growth rate of perch from the samples was similar to the statewide average (Table 2).

Other Species

White sucker were relatively common in the samples with 9 caught in fyke nets and 69 caught while electrofishing (Table 1). They provide a good forage base for northern pike especially. Pumpkinseed sunfish and rock bass were caught in small numbers in fyke nets only. Yellow bullhead were the most common bullhead species caught with one black bullhead also being caught.

Carp are fairly abundant in the system which is typical of drainage lakes where carp have access to good spawning habitat. However, the carp we observed were fairly large in size, indicating that their population does not constitute a "problem" with regard to lake management. One longnose gar was also captured.

Fish Community

Overall, Friess Lake appeared to have a well balanced and healthy fish community. We did not direct sampling as small forage species (minnows). However, good growth rates of predators was an indication that forage is sufficient to produce good growth. The good balance between bluegill and predators was also an indication of a healthy fish community as bluegill growth was good at larger sizes.

MANAGEMENT RECOMMENDATIONS

Friess Lake has potential to produce good quality panfish. The bluegill and black crappie populations are likely limited from reaching their growth potential by high angler harvest as is common in the southeastern part of Wisconsin with dense human populations. A reduction in panfish bag limits may help produce more quality size panfish to anglers.

The exceptional size structure of the northern pike population was an indication that the current 26" minimum size limit is appropriate for the system. No adjustment to the pike size limit is warranted.

The number of walleye present in the lake is well below carrying capacity. Alternate year stocking of 35 small fingerling per acre is recommended. The population goal through stocking should be 2 adult walleye per acre. The size range of walleye in the samples (9.4" to 28.5") was an indication that Friess Lake has potential to produce trophy size walleye even though the forage base is limited to those fish species that generally does not produce walleye over 25" long.

NOTED AND APPROVED

Susan Beyler, Inland Fisheries Team Supervisor

Date