



Black crappies were Abundant in Farquar Lake, Apple Valley, 2021

Fish Survey of Farquar Lake (ID# 19-0023), Apple Valley, Minnesota in 2021

Survey Dates: September 29 to October 1, 2021

Permit Number: 32508

Prepared for:
City of Apple Valley and
MnDNR



Prepared by:
Steve McComas
Jo Stuckert
Blue Water Science
St. Paul, MN 55116

November 2021

Fish Survey of Farquar Lake (ID# 19-0023), Apple Valley, Minnesota in 2021

Summary

Farquar Lake, a 67-acre lake, located in Apple Valley and is a shallow lake that is susceptible to winterkill. Farquar Lake has the option of using a winter aerator to reduce the potential of winterkill.

On September 29, 2021 4 standard-sized trapnets were deployed and then sampled for the next two days in Farquar Lake.

Bluegill sunfish and black crappies were the most abundant species and walleyes were present within the MnDNR typical range (Table S1).

Since the fish survey conducted in Farquar Lake in 2008, there have been several positive fish community changes in 2021. In 2008, black bullheads were well above regional ranges with few predators found in the lake. In 2021, black bullhead numbers were below the regional range and crappies, largemouth bass, and walleyes increased since 2008. In 2021, the black bullhead population was under control and the bluegill sunfish, pumpkinseed sunfish, and black crappie numbers were above MnDNR typical range.

Conclusions: It would appear that the bullhead population in Farquar is under control. As part of the fish management plan, 1,500 fingerling walleyes and 700 fingerling largemouth bass were stocked in late October 2008 and an additional 1,000 fingerling walleyes were stocked in 2016, and 500 walleye in 2020. Predation pressure from these gamefish may have kept young of the year bullheads under control. At this time, abundant gamefish combined with good-sized bluegills results in a desirable fishery condition. The fish community composition indicates it would not appear to have an adverse impact on lake water quality.

Table S1. Comparison of fish surveys for Farquar Lake from 2002 to 2021.

	Farquar Lake (fish per trapnet)							MnDNR Typical Range
	2002 (MnDNR)	2006 (BWS)	2008 (BWS)	2018 (BWS)	2019 (BWS)	2020 (BWS)	2021 (BWS)	
Black bullhead	241	602	257	0.4	18	1.4	0.1	2 - 61
Black bullhead young of year			2,569					NA
Black crappie	0.3	8.7		0.3	49	27	60	2 - 15
Black crappies young of year					0.1			NA
Bluegills		38		10	137	62	72	2 - 30
Goldfish	7		5				0.1	NA
Green sunfish	16	47	12		0.1			0.2 - 12
Hybrid sunfish				0.5	3.6	0.8	2.1	NA
Largemouth bass		3		0.1	0.7	0.3	0.1	0.5 - 1
Minnows			0.3					NA
Pumpkinseed sunfish	1.3	26		2.0	3.6	2.5	9.3	1 - 8
Walleye				0.5	3.0	1.0	1.1	0.6-2.6

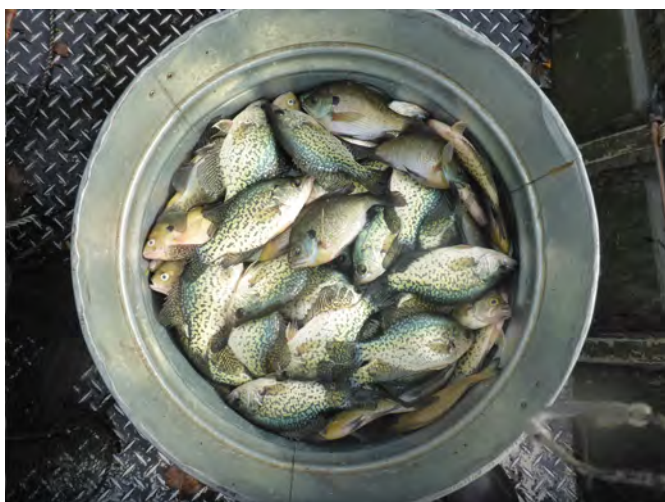
Farquar Lake Fish Survey Highlights



Walleye



Mouth width of a walleye



Crappie tub



Trapnet catch



Goldfish



Recording the catch

Fish Survey of Farquar Lake (ID# 19-0023), Apple Valley, Minnesota in 2021

Introduction

Farquar Lake (ID# 19-0023), is a shallow 67-acre lake, located in Apple Valley, Minnesota. Farquar Lake has a maximum depth of 10 feet. Farquar Lake is susceptible to winterkill conditions and uses winter aeration to reduce the potential of winterkill.

In 2021, the City of Apple Valley contracted for a fish survey (MnDNR permit number 32508). The objectives were to characterize the existing fish community, determine if fish could be contributing to poor water quality in Farquar Lake.

Methods

Trapnets were used to survey fish in Farquar Lake. Two MnDNR-style trapnets with a 3 x 5 feet square frame with five hoops, two funnel mouth openings and a 50-foot lead. Net mesh size was 3/8 inch (bar length). Also, two MnDNR-style trapnets with a 4 x 6 feet square frame with five hoops, two funnel mouth openings and a 50-foot lead. Net mesh size was 1/2 inch (bar length). In Farquar Lake, trapnets were set on Wednesday morning September 29, 2021. The 4 nets were fished for the following 2 days (September 30 and October 1). Trapnet locations are shown in Figure 1.



Figure 1. Map of trapnet sets.

Results

Trapnet Results: The number of fish for each trapnet lift over the two day survey are shown in Table 1. Bluegill sunfish were the most abundant fish followed by black crappies. Walleyes and largemouth bass were present within MnDNR typical range for a lake like Farquar Lake.

Table 1. Number of fish caught in trapnets for the fish survey conducted September 30-October 1, 2021.

	Black bullhead		Black crappie		Bluegill sunfish		Goldfish sunfish		Hybrid sunfish		Largemouth bass		Pumpkinseed sunfish		Walleye	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
1	1		117	92	160	73			4	1			3	1		
2			6	7	73	13							14	4		
3			15	3	34	10	1		1	1			9	3		
4			154	84	160	143			6	4	1		24	16	8	1
Total fish caught	1	0	292	186	427	239	1	0	11	6	1	0	50	24	8	1
Average number/lift	0.1		59.8		83.3		0.1		2.1		0.1		9.3		1.1	
MnDNR Typical Range	2 - 61		2 - 15		2 - 30		NA		NA		0.5 - 1		1 - 8		NA	



Figure 2. Tub of fish sampled in Farquar Lake in September 2020.

Length Distribution: The length distribution of fish from Farquar Lake is shown in Table 2. In Farquar Lake, bluegills were averaging over 7-inches in length (92% of the fish measured were 7-inches or larger). This is a very nice bluegill community. Crappies ranged from 3 to 10 inches, indicating the crappies are able to spawn successfully in Farquar Lake. Only one black bullhead was captured in 2021 and it measured 12 inches in length. Black crappies and bluegills may be controlling the bullhead population. Walleyes were abundant and had several of year classes represented.

Table 2. Length frequency of fish from the 2021 survey.

	Black bullhead	Black crappie	Bluegill	Goldfish	Hybrid sunfish	Largemouth bass	Pumpkinseed	Walleye
<3			8					
3		2						
3.5		1						
4		2						
4.5								
5		1						
5.5		1						
6		3	4				1	
6.5		3	12		1		3	
7		1	63		1		41	
7.5		7	131		1		21	
8		16	73		7		3	
8.5		31	4		2			
9		86			1			
9.5		40						
10		1						
10.5								
11								
11.5								1
12	1							
12.5								
13								
13.5								
14				1		1		
14.5								
15								
15.5								
16								
16.5								1
17								1
17.5								1
18								1
18.5								
19								
19.5								
20								1
20.5								
21								
21.5								
22								2
22.5								
23								1
Measured	1	195	295	1	13	1	69	9
Counted	0	283	278	0	4	0	5	0
TOTAL	1	478	573	1	17	1	74	9
fish/net (8 nets)	0.1	59.8	71.6	0.1	2.1	0.1	9.3	1.1



Figure 3. Examples of fish sampled in Farquar Lake in 2021. Bluegills (top), largemouth bass (middle) and a walleye (bottom)

Comparison of Results of Fish Surveys from 2002 Through 2021: In Farquar Lake, over the last 20 years, there have been changes in the fish community. Fluctuation in the fish species over the years is to be expected especially with the stocking of largemouth bass and walleyes. This stocking program has increased the predators in Farquar Lake. Both species were sampled in 2021 (Table 3).

From 2002 through 2008, black bullheads were above regional ranges with few predators found in the lake. In 2021, black bullhead numbers were below the MnDNR typical range and crappies, largemouth bass, and walleyes increased since 2008. Also 2021, the black bullhead population was under control and the bluegill sunfish and black crappie numbers were above MnDNR typical range.

It is possible that the Farquar fish community reflects winterkill conditions in the past. It appears there was a partial winterkill in Farquar Lake over the 2001-2002 winter as well as over the 2007-2008 winter. In 2021, the fish community is well balanced with 92% of the bluegill sunfish 7-inches and larger.

An aeration system has been installed in Farquar Lake to try to prevent winterkill situations. The system seems to be helping to keep Farquar Lake fish community stable.

Table 3. Comparison of fish surveys for Farquar Lake from 2002 to 2021.

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Conclusions and Recommendations: It would appear that the bullhead population in Farquar is under control. As part of the fish management plan, 1,500 fingerling walleyes and 700 fingerling largemouth bass were stocked in late October 2008 and an additional 1,000 fingerling walleyes were stocked in 2016 and 500 walleye in 2020. Predation pressure from these gamefish may have kept young of the year bullheads under control. At this time, abundant gamefish combined with good-sized bluegills results in a desirable fishery condition. The fish community composition indicates it would not appear to have an adverse impact on lake water quality.

Appendix: Notification of MnDNR of Fish Survey

From: Steve McComas [mailto:mccomas@pclink.com]
Sent: Monday, September 27, 2021 9:26 AM
To: DeBates, TJ (DNR); Capt. Jason Peterson
Cc: 'Samantha Berger'
Subject: Fish surveys for Cobblestone Lake and Farquar Lake, Apple Valley, Dakota County

Hello all,

Blue Water Science will be conducting a fish survey in Cobblestone Lake (MN ID 19-045600) and Farquar Lake (MN ID 19002300), Dakota County, starting on Wednesday, September 29, 2021. We will set 4 trap nets in each lake. The nets will be monitored daily and removed on Friday (October 1, 2021) and all fish will be weighed, measured, and returned to the lake. The nets will be removed from the lake on Friday, October 1, 2021. The fish survey is sponsored by the City of Apple Valley with the objectives of characterizing the existing fish community structure and assessing potential impacts of fish on water quality.

This survey is being conducted under the permit number: 32508.

Thank you,

Steve McComas

BLUE WATER SCIENCE

550 South Snelling Avenue

St. Paul, MN 55116

651 690 9602

mccomas@pclink.com