

B

APPENDIX B

Stakeholder Survey Response Charts and Comments

Silver Lake - Anonymous Stakeholder Survey

Surveys Distributed: 192

Surveys Returned: 44

Response Rate: 23%

Silver Lake Property

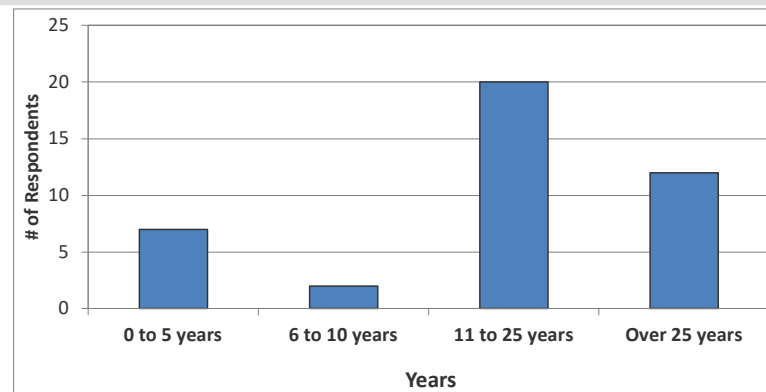
1. Is your property on the lake or off the lake?

Answer Options	Response Percent	Response Count
On the lake	11.9%	5
Off the lake	88.1%	37
answered question		42
skipped question		2

2. How many years have you owned or rented your property on or near Silver Lake?

Answer Options	Response Count
	41
answered question	41
skipped question	3

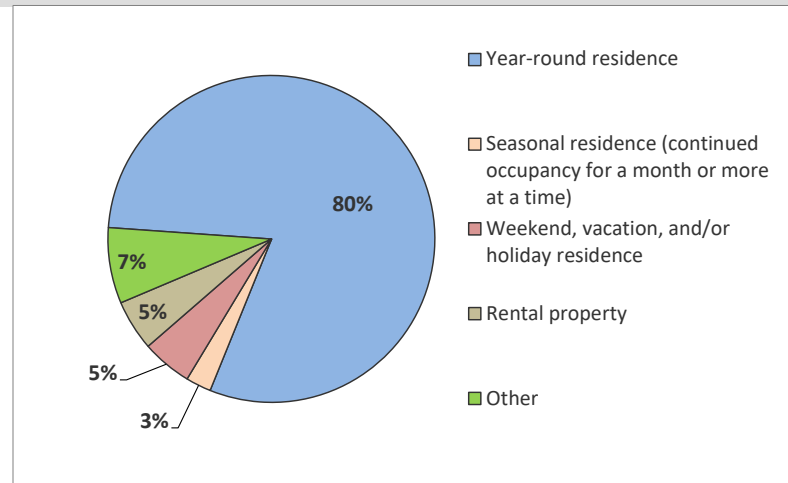
Category (# of years)	Responses	% Response
0 to 5 years	7	17%
6 to 10 years	2	5%
11 to 25 years	20	49%
Over 25 years	12	29%



3. How is your property on or near Silver Lake used?

Answer Options	Response Percent	Response Count
Year-round residence	80.0%	32
Seasonal residence (continued occupancy for a month or more at a time)	2.5%	1
Weekend, vacation, and/or holiday residence	5.0%	2
Rental property	5.0%	2
Other	7.5%	3
answered question		40
skipped question		4

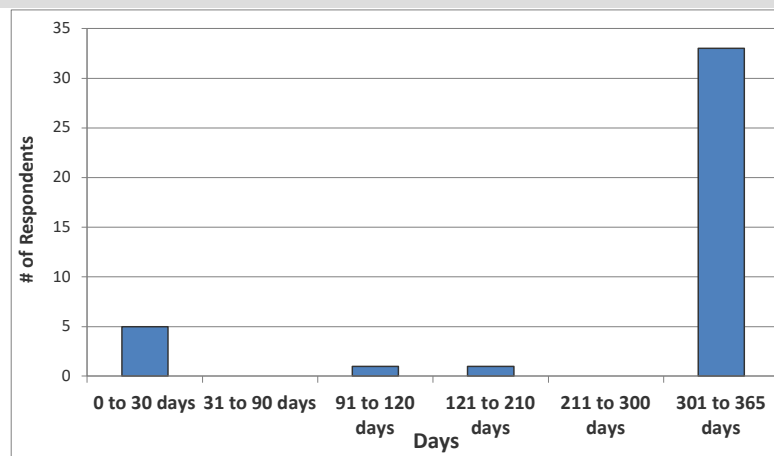
Number	"Other" Responses
1	commercial
2	Commercial rental
3	Lot



4. Considering the past three years, how many days each year is your property used by you or others?

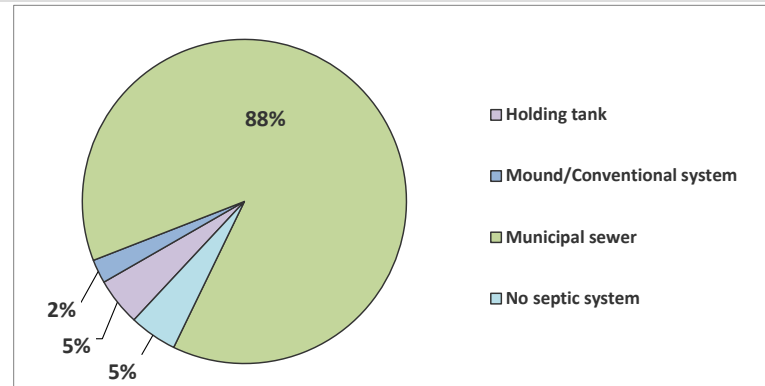
	Response Count
answered question	40
skipped question	4

Category (# of days)	Responses	% Response
0 to 30 days	5	13%
31 to 90 days	0	0%
91 to 120 days	1	3%
121 to 210 days	1	3%
211 to 300 days	0	0%
301 to 365 days	33	83%



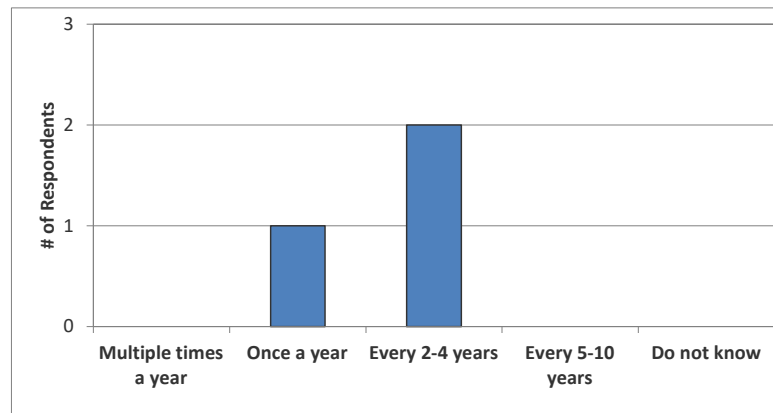
5. What type of septic system does your property utilize?

Answer Options	Response Percent	Response Count
Holding tank	4.8%	2
Mound/Conventional system	2.4%	1
Municipal sewer	88.1%	37
Advanced treatment system	0.0%	0
Do not know	0.0%	0
No septic system	4.8%	2
answered question		42
skipped question		2



6. How often is the septic system on your property pumped?

Answer Options	Response Percent	Response Count
Multiple times a year	0.0%	0
Once a year	33.3%	1
Every 2-4 years	66.7%	2
Every 5-10 years	0.0%	0
Do not know	0.0%	0
answered question		3
skipped question		41

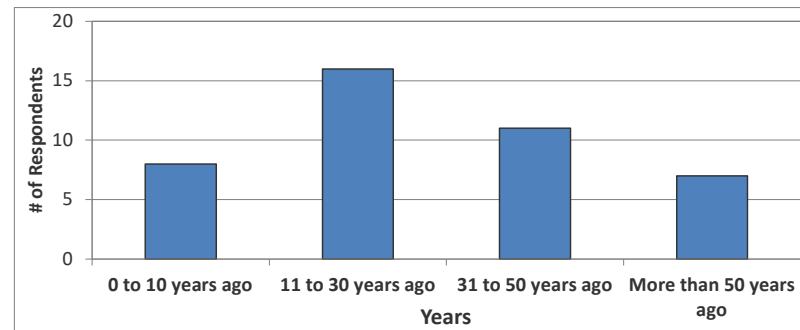


Recreational Activity on Silver Lake

7. How many years ago did you first visit Silver Lake?

Answer Options	Response Count
<i>answered question</i>	42
<i>skipped question</i>	2

Category (# of days)	Responses	% Response
0 to 10 years ago	8	19%
11 to 30 years ago	16	38%
31 to 50 years ago	11	26%
More than 50 years ago	7	17%

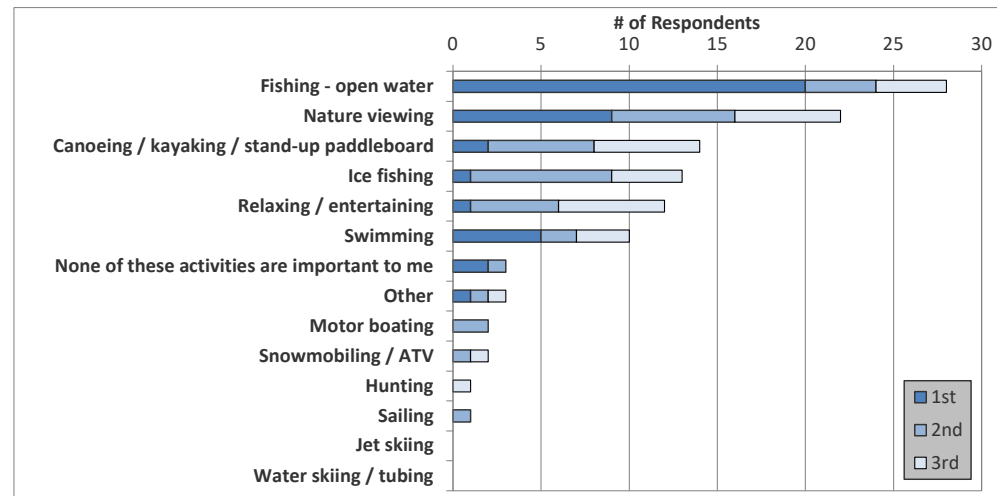


8. Please rank up to three activities that are important reasons for owning your property on or near Silver Lake or would be important to you as a future activity if lake rehabilitation efforts allow for activity. Please select the options below in order of importance with the 1st being most important.

Answer Options	1st	2nd	3rd	Response Count
Fishing - open water	20	4	4	28
Nature viewing	9	7	6	22
Canoeing / kayaking / stand-up paddleboard	2	6	6	14
Ice fishing	1	8	4	13
Relaxing / entertaining	1	5	6	12
Swimming	5	2	3	10
None of these activities are important to me	2	1	0	3
Other	1	1	1	3
Motor boating	0	2	0	2
Snowmobiling / ATV	0	1	1	2
Hunting	0	0	1	1
Sailing	0	1	0	1
Jet skiing	0	0	0	0
Water skiing / tubing	0	0	0	0
<i>answered question</i>				41
<i>skipped question</i>				3

Question continued...

Number	"Other" responses
1	Hiking
2	walking
3	Growing fruit trees/gardening.

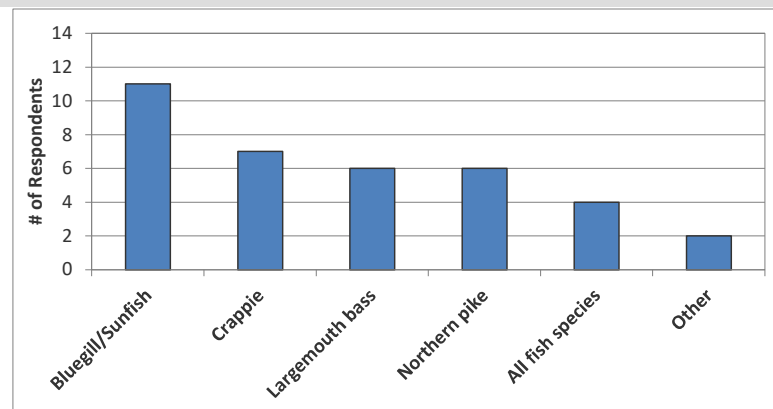


9. Have you personally fished on Silver Lake in the past three years?

Answer Options	Response Percent	Response Count
Yes	26.2%	11
No	73.8%	31
answered question		42
skipped question		2

10. What species of fish do you try to catch on Silver Lake?

Answer Options	Response Percent	Response Count
Bluegill/Sunfish	100.0%	11
Crappie	63.6%	7
Largemouth bass	54.6%	6
Northern pike	54.6%	6
All fish species	36.4%	4
Other	18.2%	2
answered question		11
skipped question		33

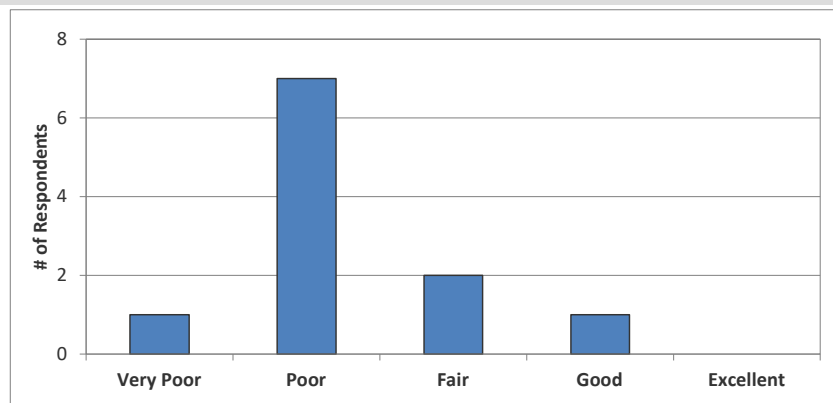


Number "Other" responses

- 1 Walleye
- 2 Perch

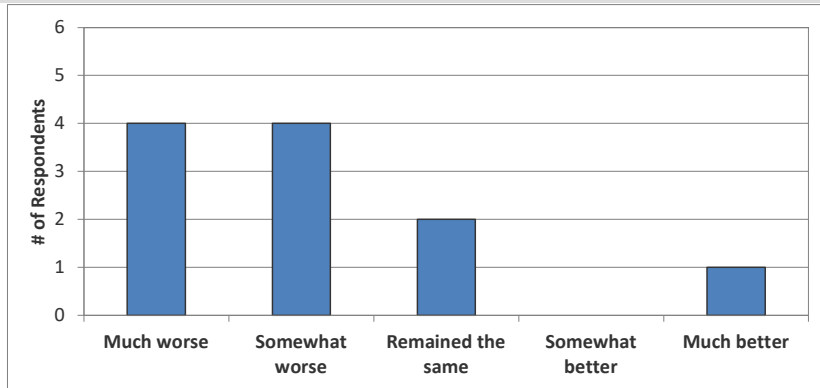
11. How would you describe the current quality of fishing on Silver Lake?

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Response Count
	1	7	2	1	0	11
answered question						11
skipped question						33



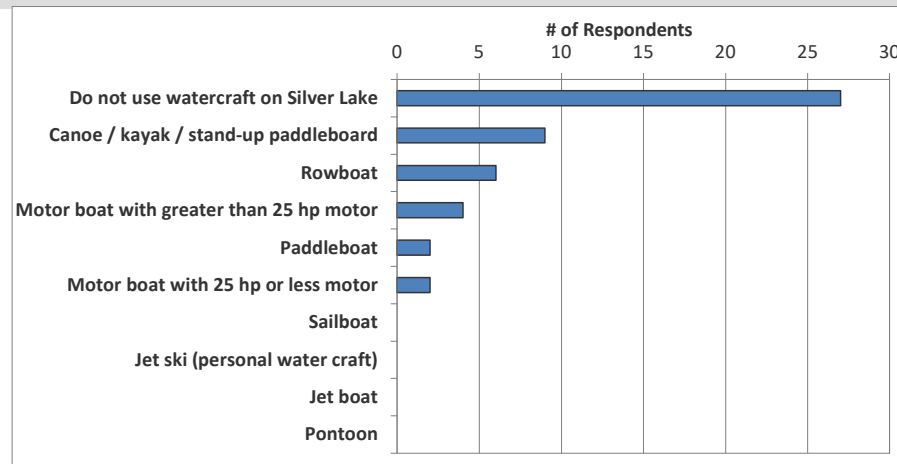
12. How has the quality of fishing changed on Silver Lake since you have started fishing the lake?

Answer Options	Much worse	Somewhat worse	Remained the same	Somewhat better	Much better	Response Count
	4	4	2	0	1	11
<i>answered question</i>						11
<i>skipped question</i>						33



13. What types of watercraft do you currently use on Silver Lake?

Answer Options	Response Percent	Response Count
Do not use watercraft on Silver Lake	64.3%	27
Canoe / kayak / stand-up paddleboard	21.4%	9
Rowboat	14.3%	6
Motor boat with greater than 25 hp motor	9.5%	4
Paddleboat	4.8%	2
Motor boat with 25 hp or less motor	4.8%	2
Sailboat	0.0%	0
Jet ski (personal water craft)	0.0%	0
Jet boat	0.0%	0
Pontoon	0.0%	0
<i>answered question</i>		42
<i>skipped question</i>		2



14. Do you use your watercraft on waters other than Silver Lake?

Answer Options	Response Percent	Response Count
Yes	43.2%	16
No	56.8%	21
answered question		37
skipped question		7

15. What is your typical cleaning routine after using your watercraft on waters other than Silver Lake?

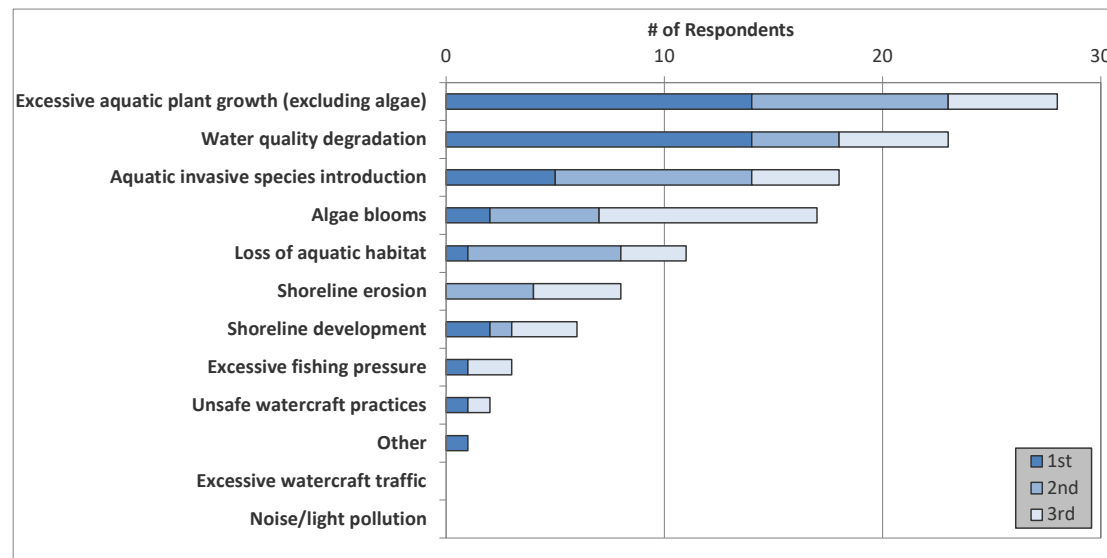
Answer Options	Response Percent	Response Count
Remove aquatic hitch-hikers (ex. - plant material, clams, mussels)	80.0%	12
Drain bilge	40.0%	6
Rinse boat	40.0%	6
Power wash boat	6.7%	1
Apply bleach	6.7%	1
Air dry boat for 5 or more days	66.7%	10
Do not clean boat	0.0%	0
Other		1
answered question		15
skipped question		29

Number	"Other" Responses
1	My craft stays on the lake year round.

16. From the list below, please rank your top three concerns regarding Silver Lake, with the 1st being your top concern.

Answer Options	1st	2nd	3rd	Response Count
Excessive aquatic plant growth (excluding algae)	14	9	5	28
Water quality degradation	14	4	5	23
Aquatic invasive species introduction	5	9	4	18
Algae blooms	2	5	10	17
Loss of aquatic habitat	1	7	3	11
Shoreline erosion	0	4	4	8
Shoreline development	2	1	3	6
Excessive fishing pressure	1	0	2	3
Unsafe watercraft practices	1	0	1	2
Other	1	0	0	1
Excessive watercraft traffic	0	0	0	0
Noise/light pollution	0	0	0	0
answered question				41
skipped question				3

Number	"Other" responses
1	fish habitat



Silver Lake Current and Historic Condition, Health and Management

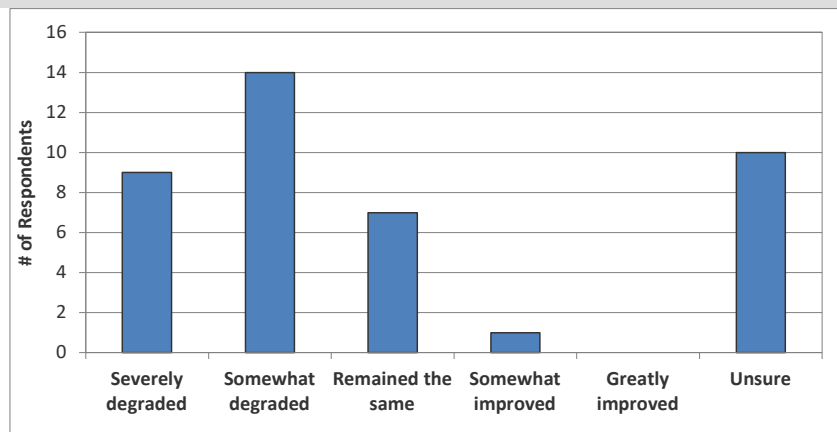
17. How would you describe the overall current water quality of Silver Lake?

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure/ Need more info	Response Count
	0	13	13	5	0	11	42
<i>answered question</i>							42
<i>skipped question</i>							2



18. How has the overall water quality changed in Silver Lake since you first visited the lake?

Answer Options	Severely degraded	Somewhat degraded	Remained the same	Somewhat improved	Greatly improved	Unsure	Response Count
	9	14	7	1	0	10	41
<i>answered question</i>							41
<i>skipped question</i>							3



19. Considering your answer(s) above, which of the following answers is the single most important aspect when considering water quality?

Answer Options	Response Percent	Response Count
Water clarity (clearness of water)	35.0%	14
Water color	0.0%	0
Aquatic plant growth (not including algae blooms)	50.0%	20
Algae blooms	2.5%	1
Smell/odors	5.0%	2
Water level	0.0%	0
Fish kills	7.5%	3
Other	0.0%	0
<i>answered question</i>		40
<i>skipped question</i>		4

20. Before reading the statement above, had you ever heard of aquatic invasive species?

Answer Options	Response Percent	Response Count
Yes	85.0%	34
No	15.0%	6
answered question		40
skipped question		4

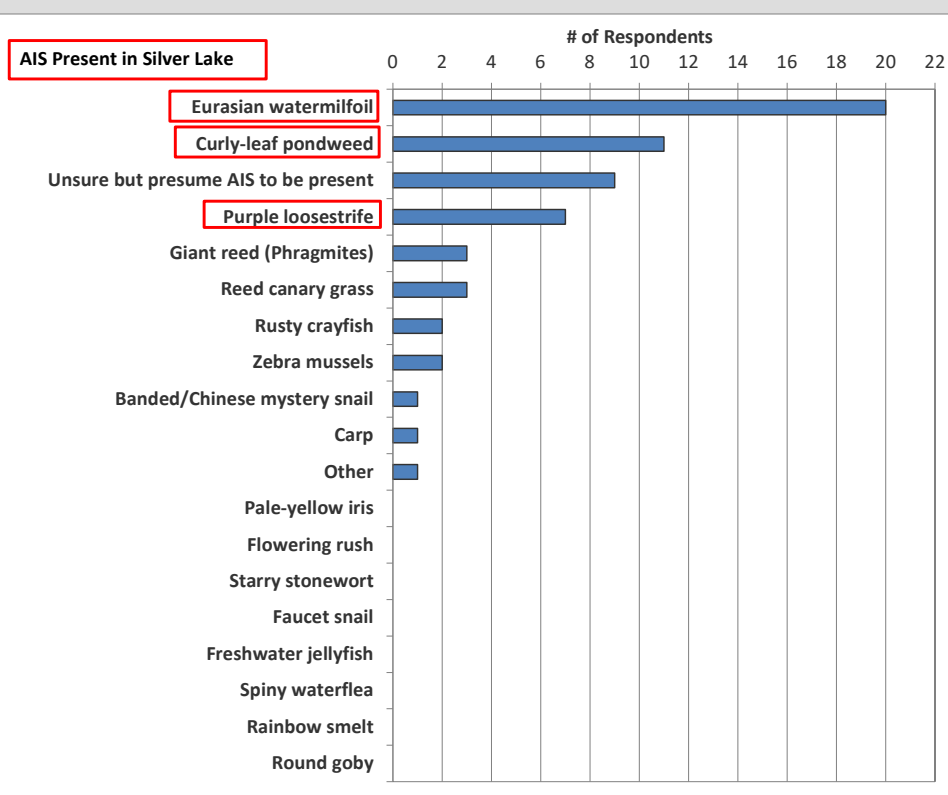
21. Do you believe aquatic invasive species are present within Silver Lake?

Answer Options	Response Percent	Response Count
Yes	86.7%	26
I think so but am not certain	0.0%	0
No	13.3%	4
answered question		30
skipped question		14

22. Which aquatic invasive species do you believe are in Silver Lake?

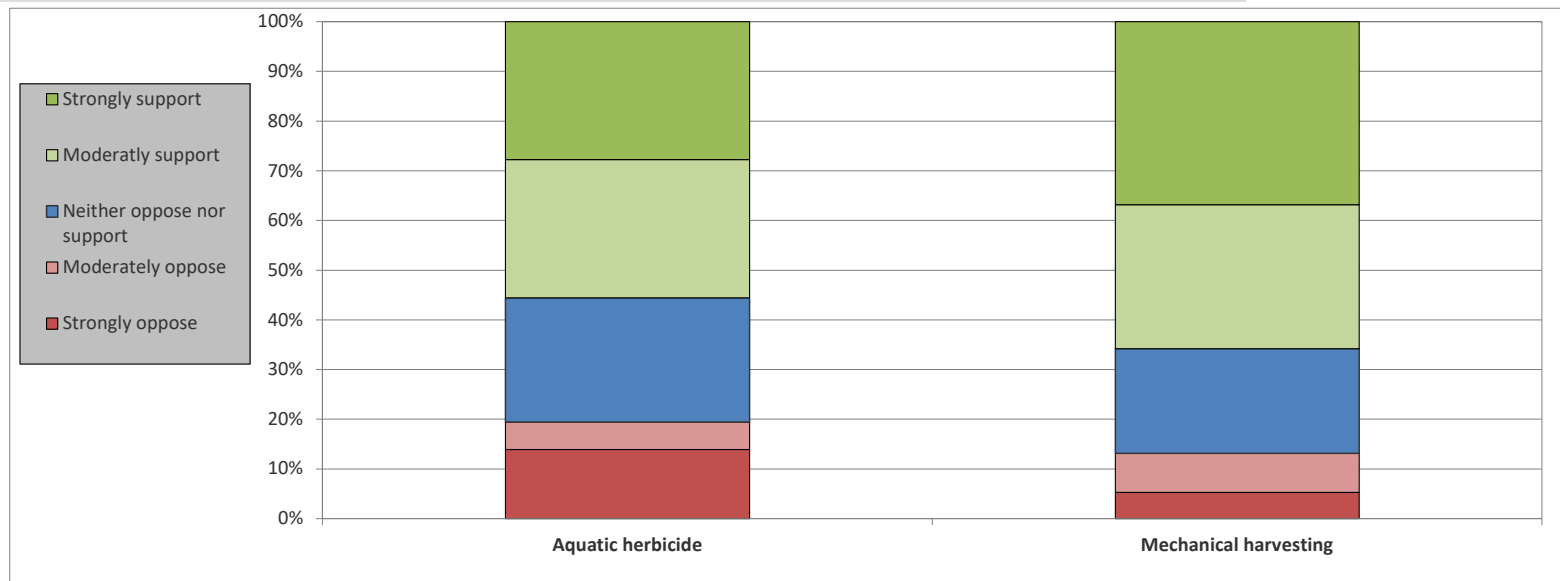
Answer Options	Response Percent	Response Count
Eurasian watermilfoil	71.4%	20
Curly-leaf pondweed	39.3%	11
Unsure but presume AIS to be present	32.1%	9
Purple loosestrife	25.0%	7
Giant reed (Phragmites)	10.7%	3
Reed canary grass	10.7%	3
Rusty crayfish	7.1%	2
Zebra mussels	7.1%	2
Banded/Chinese mystery snail	3.6%	1
Carp	3.6%	1
Other	3.6%	1
Pale-yellow iris	0.0%	0
Flowering rush	0.0%	0
Starry stonewort	0.0%	0
Faucet snail	0.0%	0
Freshwater jellyfish	0.0%	0
Spiny waterflea	0.0%	0
Rainbow smelt	0.0%	0
Round goby	0.0%	0
answered question		28
skipped question		16

Number	"Other" responses
1	Don't know don't use



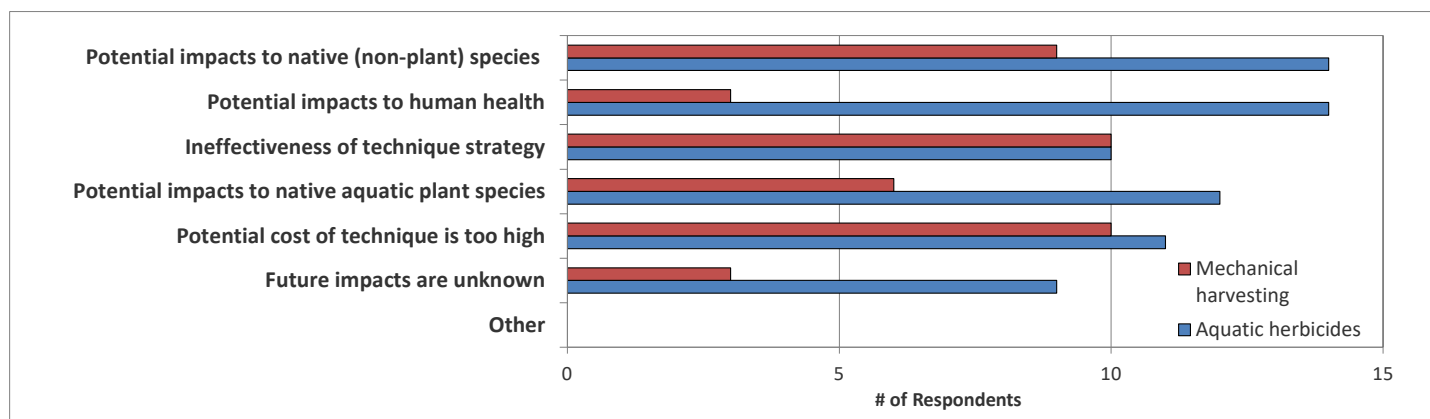
23. What is your level of support or opposition for the future use of aquatic herbicides and mechanical harvesting to manage Eurasian watermilfoil in Silver Lake?

Answer Options	Strongly oppose	Moderately oppose	Neither oppose nor support	Moderately support	Strongly support	Response Count
Aquatic herbicide	5	2	9	10	10	36
Mechanical harvesting	2	3	8	11	14	38
answered question						38
skipped question						6



24. What concerns, if any, do you have for the future use of aquatic herbicides and/or mechanical harvesting to target Eurasian watermilfoil in Silver Lake?

Answer Options	Aquatic herbicides	Mechanical harvesting	Response Count
Other	0	0	0
Future impacts are unknown	9	3	9
Potential cost of technique is too high	11	10	12
Potential impacts to native aquatic plant species	12	6	12
Ineffectiveness of technique strategy	10	10	12
Potential impacts to human health	14	3	14
Potential impacts to native (non-plant) species such as fish, insects, etc.	14	9	15
answered question			23
skipped question			21



Number "Other" responses
1 Don't know

Scandinavia Silver Lake District

25. Before reading the above, had you ever heard of the Scandinavia Silver Lake District ?

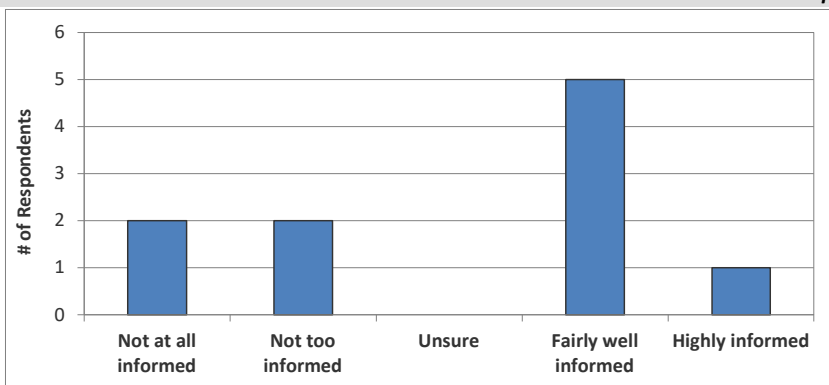
Answer Options	Response Percent	Response Count
Yes	64.3%	27
No	35.7%	15
<i>answered question</i>		42
<i>skipped question</i>		2

26. What is your membership status with the Scandinavia Silver Lake District?

Answer Options	Response Percent	Response Count
Current member	34.6%	9
Former member	3.9%	1
Never been a member	61.5%	16
<i>answered question</i>		26
<i>skipped question</i>		18

27. How informed has (or had) the Scandinavia Silver Lake District kept you regarding issues with Silver Lake and its management?

Answer Options	Not at all informed	Not too informed	Unsure	Fairly well informed	Highly informed	Response Count
	2	2	0	5	1	10
<i>answered question</i>						10
<i>skipped question</i>						34

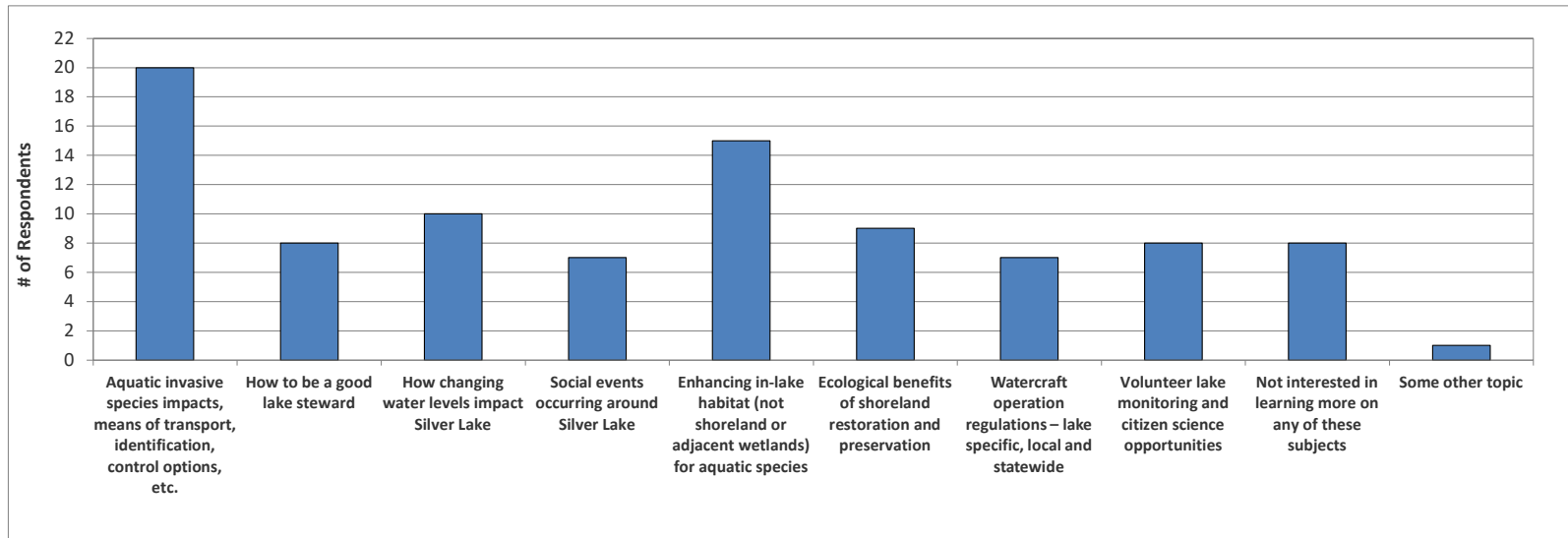


28. Stakeholder education is an important component of every lake management planning effort. Which of these subjects would you like to learn more about?

Answer Options	Response Percent	Response Count
Aquatic invasive species impacts, means of transport, identification, control options, etc.	58.8%	20
How to be a good lake steward	23.5%	8
How changing water levels impact Silver Lake	29.4%	10
Social events occurring around Silver Lake	20.6%	7
Enhancing in-lake habitat (not shoreland or adjacent wetlands) for aquatic species	44.1%	15
Ecological benefits of shoreland restoration and preservation	26.5%	9
Watercraft operation regulations – lake specific, local and statewide	20.6%	7
Volunteer lake monitoring and citizen science opportunities	23.5%	8
Not interested in learning more on any of these subjects	23.5%	8
Some other topic	2.9%	1
<i>answered question</i>		34
<i>skipped question</i>		10

Number	Other (please specify)
1	Water qualities of the Scandinavia Mill Pond

Question continued...



29. The effective management of your lake will require the cooperative efforts of numerous volunteers. Please select the activities you would be willing to participate in if the Scandinavia Silver Lake District requires additional assistance.

Answer Options	Response Percent	Response Count
Fundraising events	0.0%	0
Writing newsletter articles	6.1%	2
Managing social media account(s) and/or website	6.1%	2
Another activity	6.1%	2
Watercraft inspections at boat landings	9.1%	3
Attending Wisconsin Lakes Convention	9.1%	3
Scandinavia Silver Lake District Board	15.2%	5
Bulk mailing assembly	21.2%	7
Aquatic plant monitoring	21.2%	7
Wildlife monitoring	24.2%	8
Water quality monitoring	27.3%	9
I do not wish to volunteer	39.4%	13
answered question		33
skipped question		11



Number	"Another activity" Responses
1	Wherever needed
2	Construct informational kiosk at the boat landing.

30. Please feel free to provide written comments concerning Silver Lake, its current and/or historic condition and its management.

Answer Options	Response Count
	17
answered question	17
skipped question	27

Number	Response Text
1	I have lived here for 12 years and this is the first time I have been given ANY information for or about Silver Lake. Better communication would be a great bump in township pride. The Corn Roast has become a repetitive joke and could incorporate the lake to bring in funds and awareness of future projects for the lake and trail.
2	I'm 90 years young and have never used the lake. <i>Name removed.</i>
3	I am very glad to see so many people that are truly interested in helping and caring about what is going on and about trying to preserve and bringing back the beauty and the natural state, that Silver Lake used to be in.
4	Please make a beach.

5	Need to get rid of the crap aquatic plants.
6	The Lake District in Iola has spent hundreds of thousands of dollars on Lake Iola and the lake is worse now than in the late 70's. It is shallower than ever. The same process is happening to Silver Lake. No amount of weeding is going to stop the process of silt accumulating on the bottom and making the lake more shallow. Nature will turn Silver Lake into a marsh, which is nothing we can do to stop. Also Silver Lake is a town and village property. I do not want, nor believe the Village should be taxed on that property without town involvement. Finally, once you start this process it will not end. The cost will continually go up. In this time of increasing inflation, we should not take on added tax burdens.
7	Glad of this effort and moving forward on restoration of the lake.
8	I am 85 years old undergoing cancer treatment.
9	The on again off again management of Silver Lake has resulted in the present condition of the lake. The Silver Lake District "the Village Board" because of lack of interest is to blame for this. The ideal solution would be to separate the Village Board as the responsible party. Success is dependent on a group of individuals willing to uphold the bylaws of the district and be aware of problems and pursue management practices that will reconcile these concerns. When organized in 1977 the Village Board was the interested party and wanted a solution to Silver Lake's poor condition at the time. Their interest resulted in a favorable outcome. The purview of Silver Lake history makes it obvious that an active interest and a timely approach could have remedied the present situation at a considerable savings than what is presently anticipated.
10	I feel that other measures should be considered before pouring a lot of money into a lake that has become more of a runoff collection pond from area farm fields, state highway and personal lawns. If these areas are not addressed I feel the money, time and effort into trying to make the lake better is wasteful.
11	It would be great to have a beach area. I would also like it if the weeds were kept under control.
12	Silver Lake is an irreplaceable asset for all to enjoy and a osprey nesting site. Jorgen's Park for people of all ages with a shelter, numerous trails, dog walking accessible. A wonderful opportunity in nature to nurture mind body and soul.
13	Thank you for this opportunity.
14	I support taking steps to preserve Silver Lake. I have lived here many years, and am aware of lake quality deteriorating. How sad. I certainly don't want Silver Lake to follow in the footsteps of Gurholt Lake! You hardly know there is a lake there. God is not going to give us another lake! It is our responsibility to preserve Silver Lake.
15	While I personally have no interest in working on the lake, I do think it is important and it is reassuring to hear about this organization and the effort being put into it.
16	Dredge the lake, thin out weeds!
17	Thank you for all you do!

C

APPENDIX C

Water Quality Data

Silver Lake

Year	Secchi (feet)				Chlorophyll-a (µg/L)				Total Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1988					1	34.0	1	34.0	2	95.0	2.0	95.0
1989	3	4.3	3	4.3	3	54.3	2	66.5	4	127.8	3.0	121.7
1990	3	5.6	3	5.6	2	14.0	2	14.0	3	74.0	3.0	74.0
1991	4	10.7	3	10.5	4	6.5	3	6.0	5	65.6	4.0	71.5
1992	1	6.6	1	6.6	4	22.5	3	28.3	4	62.3	3.0	64.7
1993	3	5.3	3	5.3	3	24.4	3	24.4	3	67.3	3.0	67.3
1994	1	6.0	1	6.0	3	21.0	3	21.0	3	64.0	3.0	64.0
1995	4	5.3	3	5.4	5	46.7	4	54.1	4	58.8	3.0	61.3
1996	4	6.3	2	6.1	4	22.1	2	31.5	4	59.5	2.0	59.5
1997	1	2.0	1	2.0	4	44.5	3	56.8	4	66.5	3.0	82.0
1998	4	4.4	3	3.5	6	23.8	3	43.1	3	72.0	2.0	99.5
1999	4	3.7	3	1.4	2	41.4	1	79.5	2	56.0	1.0	88.0
2000	0		0		0		0		0		0.0	
2001	8	5.7	4	6.9	0		0		0		0.0	
2002	0		0		0		0		0		0.0	
2003	0		0		0		0		0		0.0	
2004	0		0		0		0		0		0.0	
2005	2	8.3	1	9.6	3	8.4	2	9.4	3	27.7	2.0	32.5
2006	0		0		2	3.6	1	4.3	3	41.7	2.0	29.5
2007	1	8.3	0		1	9.9	0		1	31.0	0.0	
2008	1	7.5	0		1	4.1	1	4.1	2	28.5	1.0	33.0
2009	3	5.4	2	5.2	3	9.2	2	11.5	4	37.3	2.0	39.0
2010	2	6.9	1	7.3	3	5.7	2	5.9	4	27.5	2.0	29.5
2011	4	6.1	2	5.6	3	14.0	2	16.4	4	34.3	2.0	38.5
2012	0		0		3	6.1	2	6.8	4	27.3	2.0	28.5
2013	0		0		3	18.5	2	13.9	4	39.5	2.0	40.9
2014	1	11.0	0		4	2.0	3	2.7	5	18.9	3.0	19.3
2015	2	6.5	1	6.8	3	1.9	2	2.0	4	27.2	2.0	28.1
2016	0		0		3	1.2	2	1.3	4	19.4	2.0	19.6
2017	1	5.0	1	5.0	3	6.7	2	8.8	4	26.8	2.0	33.8
2018	2	6.5	2	6.5	3	5.5	2	4.2	4	20.9	2.0	22.7
2019	6	9.0	3	8.8	3	10.1	2	13.5	4	27.1	2.0	39.4
2020	3	7.3	2	7.5	3	2.0	2	1.9	3	18.6	2.0	19.9
2021	3	7.0	1	6.0	3	3.6	2	3.9	4	19.7	2.0	20.4
All Years (Weighted)		6.0		5.6		18.5		23.1		48.3		56.3
SSL Median				8.5				4.7				18.0
NCHF Ecoregion Median				5.3				15.2				52.0

D

APPENDIX D

Point-Intercept Aquatic Macrophyte Survey Data

Silver Lake, Waupaca Cty.

	Scientific Name	Common Name	LFOO (%)				2005-2012		2012-2020	
			2005	2012	2020	Year_4	% Change	Direction	% Change	Direction
Dicots	<i>Ceratophyllum demersum</i>	Coontail	93.6	83.8	90.6	0.0	-10.4	▼	8.1	▲
	<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	42.1	61.8	54.7	0.0	46.9	▲	-11.6	▼
	<i>Myriophyllum sibiricum</i>	Northern watermilfoil	0.6	0.0	0.0	0.0	-100.0	▼	-	-
Non-dicots	<i>Elodea canadensis</i>	Common waterweed	44.4	72.3	57.1	0.0	62.6	▲	-21.0	▼
	<i>Najas flexilis</i>	Slender naiad	0.0	9.8	14.1	0.0	-	▲	43.7	▲
	<i>Potamogeton praelongus</i>	White-stem pondweed	2.3	3.5	15.3	0.0	48.3	▲	341.0	▲
	<i>Stuckenia pectinata</i>	Sago pondweed	5.8	5.2	2.9	0.0	-11.0	▼	-43.5	▼
	<i>Chara spp.</i>	Muskgrasses	0.6	1.7	2.4	0.0	196.5	▲	35.7	▲
	<i>Potamogeton crispus</i>	Curly-leaf pondweed	0.6	3.5	1.2	0.0	493.1	▲	-66.1	▼
	<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	1.2	0.6	1.8	0.0	-50.6	▼	205.3	▲
	<i>Wolffia columbiana</i>	Common watermeal	0.6	0.0	0.6	0.0	-100.0	▼	-	▲
	<i>Spirodela polyrrhiza</i>	Greater duckweed	0.0	0.6	0.6	0.0	-	▲	1.8	▲
	<i>Eleocharis acicularis</i>	Needle spikerush	1.2	0.0	0.0	0.0	-100.0	▼	-	-
	<i>Typha latifolia</i>	Broad-leaved cattail	0.6	0.0	0.0	0.0	-100.0	▼	-	-

▲ or ▼ = Change Statistically Valid (Chi-square; $\alpha = 0.05$)

▲ or ▼ = Change Not Statistically Valid (Chi-square; $\alpha = 0.05$)

E

APPENDIX E

Fisheries Reports and Data Summaries



2017 Spring Electrofishing (SEII) Summary Report

Silver Lake (WBIC 198800)

Waupaca County

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Introduction and Survey Objectives

In 2017, the Department of Natural Resources conducted a one night electrofishing survey of Silver Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey were to characterize species composition, relative abundance, and size structure. The following report is a brief summary of that survey, the general status of the fish populations and future management options for Silver Lake.

Acre: 71
Lake Type: Seepage
Regulations: Statewide Default Regulations

Shoreline Miles: 1.3
Public Access: One Public Boat Launch
Maximum Depth (feet): 17

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Survey Information

Site location	Survey Date	Water Temperature (°F)	Target Species	Total Miles Shocked	Number of Stations	Gear	Number of Netters
Silver Lake	5/23/2017	58	All	1.27	3	Boomshocker	2

Survey Method

- Silver Lake was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period was to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by-catch as part of this survey.
- The entire shoreline was sampled with a boomshocker. All fish captured were identified to species and all gamefish and panfish were measured for length. A subsample of fish were weighed and age structures collected for age and growth analysis.
- Fish metrics used to describe fish populations include proportional stock density, catch per unit effort, length frequency distribution, and mean age at length.



Fish Metric Descriptions PSD, CPUE, LFD, and Growth

Proportional Stock Density (PSD) is an index used to describe size structure of fish populations. It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.

Catch per unit effort (CPUE) is an index used to measure fish population relative abundance, which simply refers to the number of fish captured per unit of distance or time. For electrofishing surveys, we typically quantify CPUE by the number and size of fish per mile of shoreline. CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

Length frequency distribution (LFD) is a graphical representation of the number of fish captured by half inch or one inch size intervals. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Mean Age at Length is an index used to assess fish growth. Growth structures (otoliths, spines, or scales) are collected from a specified length bin of interest (e.g., 6.5 - 7.5 inches for bluegill). Mean age is compared to statewide data by percentile with growth characterized by the following benchmarks: slow (<33rd percentile); moderate (33rd to 66th percentile); and fast (>66th percentile).

Size Structure Metrics

Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock No	Quality No	PSD	Percentile Rank	Size Rating
BLUEGILL	420	4.3	2.0 - 9.0	3.0 and 6.0	307	46	15	28	Low
BLACK CRAPPIE	30	8.2	5.8 - 12.4	5.0 and 8.0	30	16	53	64	Moderate
LARGEMOUTH BASS	85	10.8	6.5 - 16.6	8.0 and 12.0	79	19	24	13	Low
PUMPKINSEED	54	5.3	2.8 - 7.5	3.0 and 6.0	50	15	30	57	Moderate

Abundance Metrics

Species	CPUE Total (number per mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE	Length Index Percentile Rank	Length Index Abundance Rating
BLUEGILL	420.0	95	High	≥ 7.0 inches	27.0	83	High
BLACK CRAPPIE	30.0	84	High	≥ 10.0 inches	2.0	80	High
LARGEMOUTH BASS	66.9	91	High	≥ 14.0 inches	9.4	85	High
PUMPKINSEED	54.0	94	High	≥ 7.0 inches	5.0	90	High



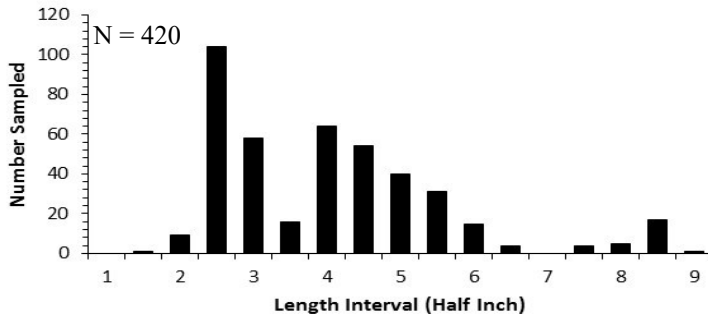
2017 Spring Electrofishing (SEII) Summary Report

Silver Lake (WBIC 198800)

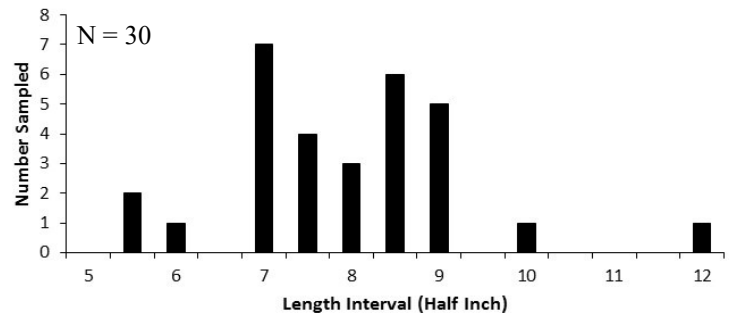
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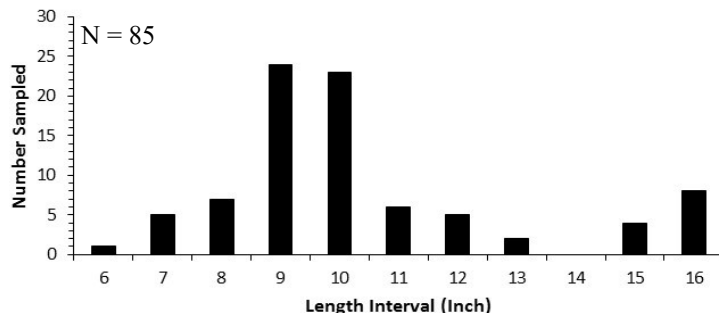
Bluegill Length Frequency



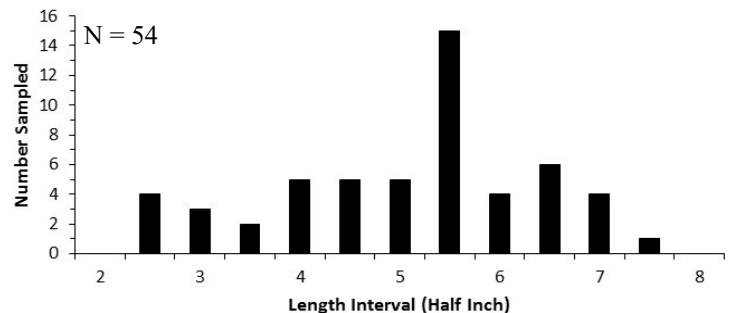
Black Crappie Length Frequency



Largemouth Bass Length Frequency



Pumpkinseed Length Frequency



Summary

- A total of 599 fish from six species were collected during our survey. The most frequently encountered and common species were bluegill (420), largemouth bass (85), and pumpkinseed (54).
- Other fish species sampled in lower abundance include black crappie (30), northern pike (9), and green sunfish (1).
- All fish species captured were native species.
- Largemouth bass were the dominant gamefish captured in our survey. Largemouth bass densities were high and the majority of the individuals captured were ≤ 12 inches. Silver Lake also provides a quality largemouth bass fishery as 9.4 largemouth bass > 14.0 inches were captured per mile of electrofishing, which ranks at the 85th percentile statewide.
- Only nine northern pike were captured. However, fyke netting would be a more appropriate sampling technique to assess the northern pike population.
- The panfish population is comprised of bluegill, black crappie, pumpkinseed, and green sunfish. Bluegill were found at high densities. The majority of the individuals were < 6 inches in length. Bluegill 5.5 – 6.5 inches long grew very quickly. Given the high density of small individuals combined with the fast growth rates, it is likely that Silver Lake went through a winterkill 4-5 years ago and the bluegill population is dominated by individuals born in the last three years. Despite a population dominated by small individuals, Silver Lake has a high density of harvestable size bluegills when compared to other lakes in WI.
- Silver Lake supports high quality black crappie and pumpkinseed populations, with high densities of harvestable sized fish.
- During the last survey in 2009, only black bullhead, bluegill, and bluntnose minnow were captured. It is likely that Silver Lake went through a significant winterkill shortly before 2009. The current fishery is a marked improvement since the last 2009 survey.

Growth Metrics

Species	Total (N)	Length Bin (inches)	Mean Age (years)	Age Range (years)	Percentile Rank	Growth Rating
BLUEGILL	9	5.5 - 6.4	3	3	100th	Fast
BLACK CRAPPIE	6	7.5 - 8.4	7.2	3 - 8	4th	Slow

Management Options

This survey was primarily intended to assess largemouth bass and panfish populations. Other species are captured but different survey techniques are typically used to better assess their population metrics. Therefore, management recommendations are focused on bass and panfish.

Largemouth Bass

- The largemouth bass population was dominated by smaller individuals. Efforts should be made to control invasive submersed aquatic vegetation. If density of plants is too high, predators can not effectively forage and their growth rates slow. If future surveys show the bass population continues to maintain high densities dominated by smaller individuals, a special regulation aimed at harvest of smaller individuals should be considered.

Panfish

- The bluegill population was dominated by smaller individuals. Efforts should be made to control dense invasive submersed aquatic vegetation. Given the high densities of bluegill observed in 2017, it is not likely that the fast panfish growth rates observed will continue into the future because of increased competition for resources. If vegetation densities are lowered, predators will be able to reduce panfish densities and there will be more resources available for each individual.

Other Management Objectives

- Work with WDNR staff and local lake management organizations to manage invasive aquatic plants as necessary. High densities of invasive plants often inhibit the ability of predators to effectively forage resulting in slow growing predator populations. Additionally prey fish (e.g., bluegill) populations can become overabundant and slow growing when predators cannot effectively forage on them.