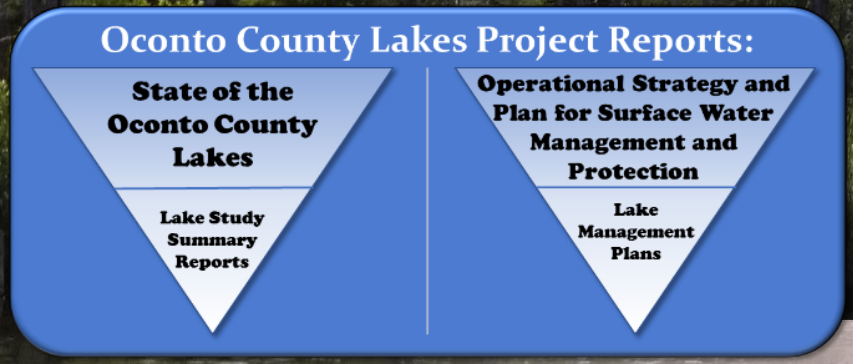
Oconto County Lakes Project

PICKEREL LAKE CHAIN MANAGEMENT PLAN

2023



VISION

The Pickerel Lake Chain will sustain its charm with bountiful fish and wildlife, great boating and quiet bays.

Pickerel Lake Chain Management Plan

The authors would like to acknowledge the commitment and enthusiasm of Oconto County Lakes & Waterways Association, Pickerel Chain Lake Association, Oconto County Land and Water Conservation Department, UW Extension – Oconto County, Wisconsin Department of Natural Resources, UW-Stevens Point Water and Environmental Analysis Laboratory, landowners in the Pickerel Lake Chain watershed, and participants in the Oconto County Lakes Project.

This plan was prepared by the Center for Watershed Science and Education at University of Wisconsin – Stevens Point.

Along with the Oconto County Lakes Project participants, the following individuals and organizations contributed to the content of this plan.

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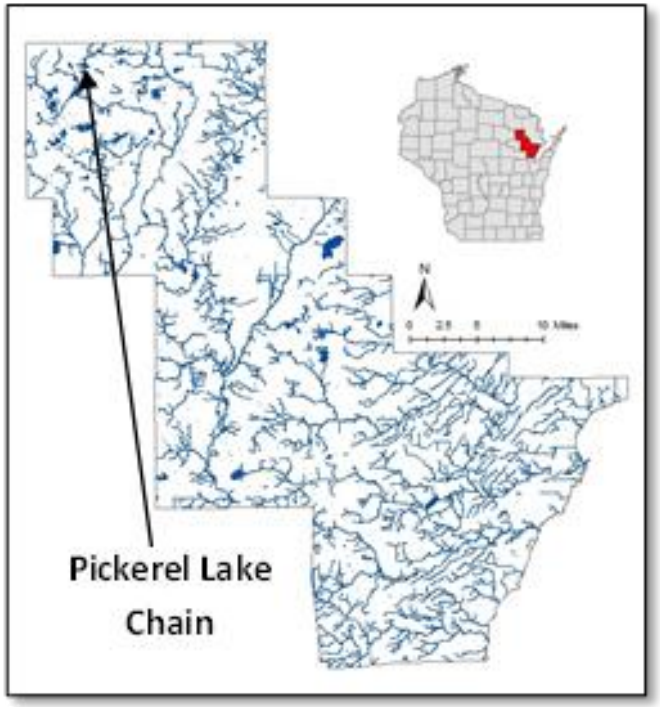
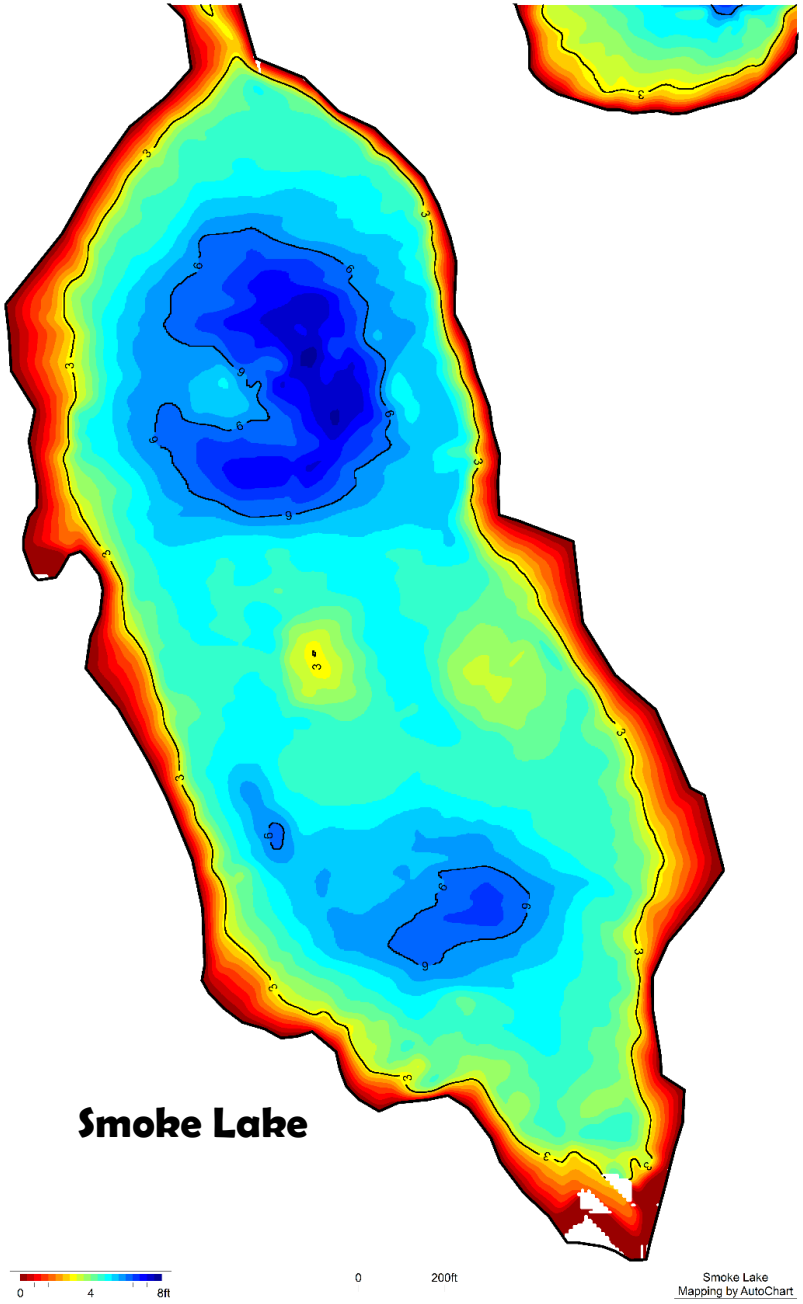
Resource	Acronym or Truncated Name
Citizen Lake Monitoring Network	CLMN
Clean Boats Clean Waters	CBCW
Lumberjack Resource Conservation & Development Council	LRCD
Oconto County Land & Water Conservation Dept.	OC LCD
Oconto County Board of Supervisors	OC Board
Oconto County Lakes and Waterways Association	OCLAWA
Pickerel Chain Lake Association	PCLA
Town of Townsend	TOT
University of Wisconsin - Extension	UWEX
UWSP Water & Environmental Analysis Laboratory	WEAL
UWSP Center for Watershed Science and Education	CWSE
USDA Natural Resources Conservation Service	NRCS
Wisconsin Department of Natural Resources	WDNR
Wisconsin Department of Transportation	WDOT

Background

ABOUT THE PICKEREL LAKE CHAIN

The Pickerel Lake Chain is located in the Town of Townsend in northeast Wisconsin. This Chain is comprised of 51-acre Smoke Lake with a maximum depth of 5 feet, 25-acre Little Pickerel Lake with a maximum depth of 20 feet and 176-acre Pickerel Lake with a maximum depth of 10 feet. Its bottom sediments are primarily muck and sand. Visitors have access to the lake from one public boat landing on the south side of Pickerel Lake, which is owned and maintained by the Town of Townsend. Water enters the Pickerel Lake Chain through groundwater and leaves primarily through Pickerel Creek, a tributary of the North Branch of the Oconto River.





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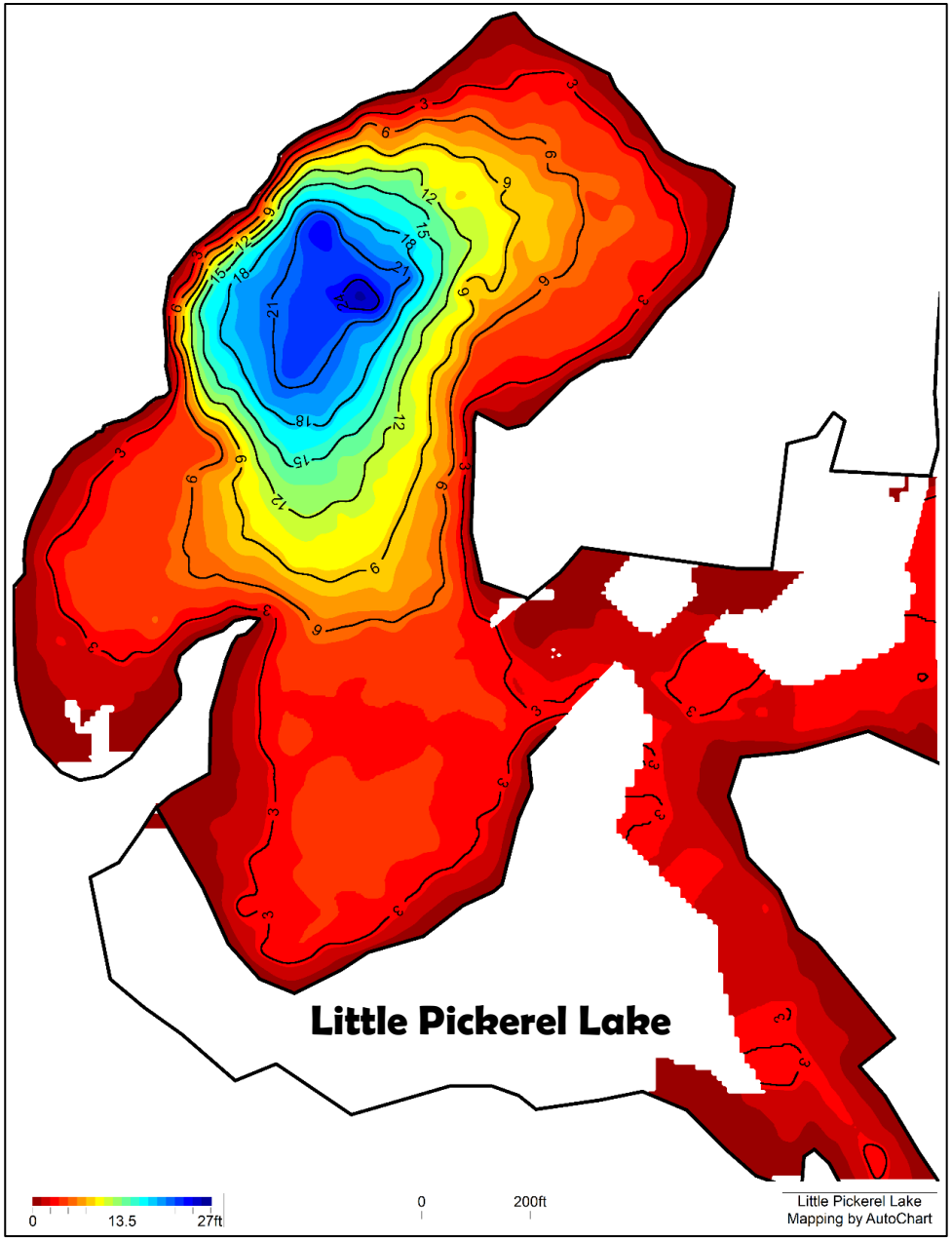
Little Pickerel Lake
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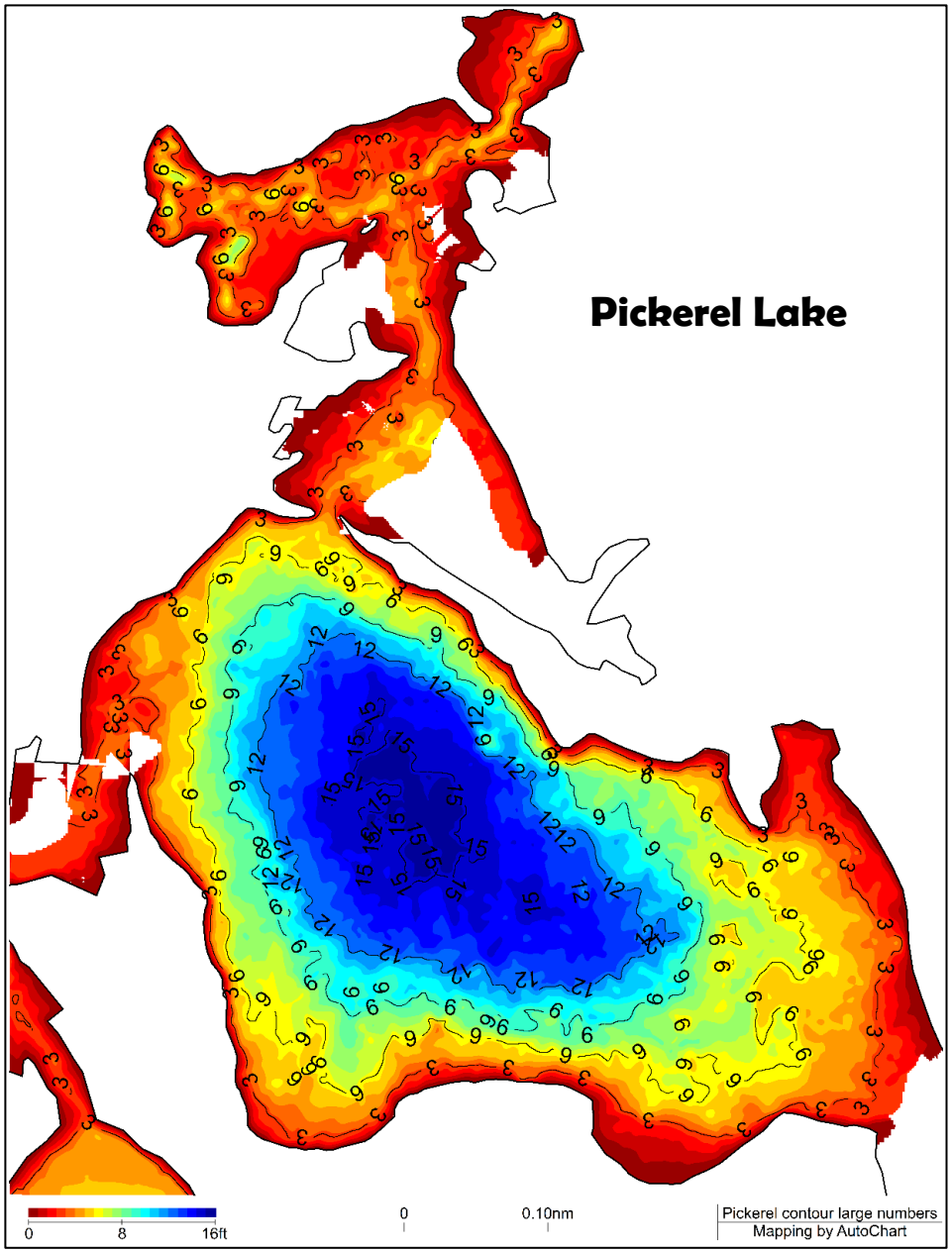
Little Pickerel Lake
Mapping by AutoChart


Pickerel Lake
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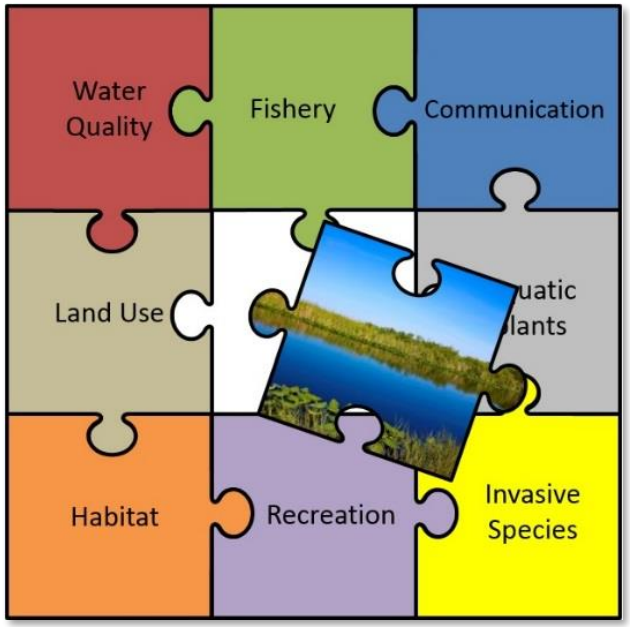
Pickerel contour large numbers
Mapping by AutoChart

What Is A Lake Management Plan?

LAKE MANAGEMENT PLANS (LMP)

What is an LMP?

A management plan is a living document that changes over time to meet the current needs, challenges and desires of the lake and its community. Although each lake is different, the WDNR requires that each comprehensive lake management plan addresses a specific list of topics affecting the character of the lake, whether each topic has been identified as a priority, or as simply something to consider. In this way, every LMP considers the many aspects associated with lakes.

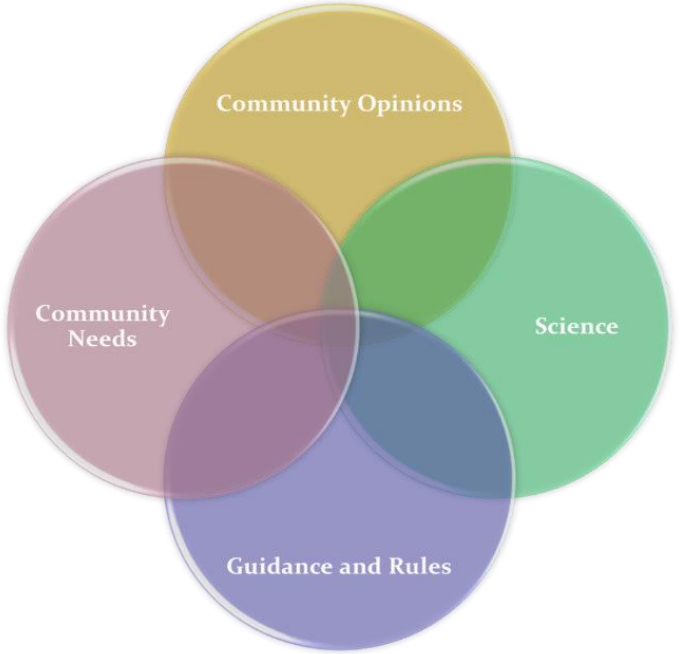


What is the purpose of this LMP?

This plan was created to ensure that the Pickerel Chain is healthy now and for future generations. It was designed to learn about the Pickerel Chain and identify features important to the Pickerel Chain community, in order to provide a framework for the protection and improvement of the lakes.

Implementing the content of this LMP will enable citizens and others to work together to achieve the vision for Pickerel Chain now and in the years to come. It is a dynamic document that identifies goals and action items for the purpose of maintaining, protecting and/or creating desired conditions in the lakes and identifies steps to correct past problems, improve on current conditions, and provide guidance for future boards, lake users, and technical experts.

Because many entities are involved in lakes and land management, it can be challenging to navigate the roles, partnerships and resources that are available. The planning process and content of this plan have been designed to identify where some key assistance exists. The actions identified in this LMP can serve as a gateway for obtaining grant funding and other resources to help implement activities outlined in the plan.



How Was This Plan Created?

ABOUT THIS PLAN

This plan was written as an update to the Pickerel Chain of Lakes Comprehensive Management Plan, November 2016 prepared by Onterra, LLC. Data about the lakes and their ecosystem was updated during 2020-2021 alongside 4 other lakes as part of the Oconto County Lakes Project. The project was initiated by citizens in the Oconto County Lakes and Waterways Association who encouraged Oconto County to prioritize lake interests. This effort led to funding from the WDNR Lake Protection Grant Program. There was insufficient data available for many of the lakes to evaluate current water quality, aquatic plant communities, invasive species, and shorelands. The data that were available had been collected at differing frequencies or periods of time, making it difficult to compare lake conditions. Professionals and students from UW-Stevens Point, Oconto County Land Conservation Department, UW Extension, Oconto County citizens and WDNR staff collected the data for use in the development of lake management plans. Sources of information used in the planning process are listed at the end of this document.

Reports from the Pickerel Chain Study and the materials associated with the planning process and reports can be found on the Oconto County website: **www.co.oconto.wi.us** and navigating to Departments>Land Conservation>County Waterways>County-wide Lake Study.

THE PLANNING PROCESS

Who created the strategic plan?

This plan is the result of a stakeholder-driven effort which involved many partners combining insight, knowledge, and expertise throughout the process. Area residents, lake users, and representatives of local municipalities gathered at public meetings held on September 23, 2020 via an online platform and on February 21, 2023 via an online platform to learn from one another and make decisions about the fishery, water quality, habitat, and land management in the Pickerel Chain watershed. Technical assistance during the planning process was provided by staff from OCLCD, UWEX, WDNR, and the CWSE.

How were various opinions incorporated?

Participation in the planning process was open to everyone and was encouraged by letters mailed to Pickerel Chain waterfront property owners and by press releases in local newspapers. In addition, those individuals and organizations who provided their information were provided with emails about upcoming meetings, which could be forwarded to additional contact lists. To involve and collect input from as many people as possible, including those who might not be able to attend the public meetings, an online survey was conducted. Property owners and interested lake users were notified about the survey and how to access it via direct mailings to waterfront property owners and associated lake organizations and press releases in local newspapers. The surveys could be filled out anonymously online, or paper copies were available upon request. Survey questions and responses were shared at the planning sessions and can be found in the Appendix.

How Is This Management Plan Used?

Who will use this plan?

- **Individuals:** Individuals can use this plan to learn about the lake they love and their connection to it. People living near the lake can have the greatest influence on the lake by understanding and choosing lake-friendly options to manage their land and the lake.
- **The Pickerel Chain Lake Association:** This plan provides an association with guidance for the whole lake and lists options that can easily be prioritized. Resources and funding opportunities for lake management activities are made more available by placement of goals into the lake management plan, and the association can identify partners to help achieve their goals for the lake.
- **Neighboring lake groups, sporting and conservation clubs:** Groups with similar goals for lake stewardship can combine their efforts and provide each other with support, improve competitiveness for funding opportunities, and make efforts more fun.
- **The Town of Townsend:** Municipalities can utilize the visions, objectives, and goals documented in this lake management plan when considering town-level planning or decisions within the watershed that may affect the lake.
- **Oconto County:** County professionals will better know how to identify needs, provide support, base decisions, and allocate resources to assist in lake-related efforts documented in this plan. This plan can also inform county board supervisors in decisions related to Oconto County lakes, streams, wetlands, and groundwater.
- **Wisconsin Department of Natural Resources (WDNR):** Professionals working with lakes in Oconto County can use this plan as guidance for management activities and decisions related to the management of the resource, including the fishery, and invasive species. LMPs help them to identify and prioritize needs, and where to apply resources. A well thought out lake management plan increases an application's competitiveness for funding from the State.

Who can help implement this plan?

Lead persons and resources are identified under each action in this plan. These individuals and organizations are able to provide information, suggestions, or services to achieve goals. The following table lists organization names and their common acronyms used in this plan. This list should not be considered all-inclusive – assistance may also be provided by other entities, consultants, and organizations.

Management Plan Structure

GOALS FOR PICKEREL CHAIN

The foundation of any effective strategic plan is clear identification of goals and the steps needed to achieve the goals. The selected goals should achieve the overall vision for the Pickerel Chain Lakes. This plan also identifies available resources within each objective.

The topics comprise the chapters in this plan and have been grouped as follows:

In-Lake Habitat and a Healthy Lake

Fish Community—fish species, abundance, size, important habitat and other needs

Aquatic Plant Community—habitat, food, health, native species, and invasive species

Critical Habitat—areas of special importance to the wildlife, fish, water quality, and aesthetics of the lake

Landscapes and the Lake

Water Quality—water chemistry, clarity, contaminants, lake levels

Shorelands—habitat, erosion, contaminant filtering, water quality, vegetation, access

Watershed—land use, management practices, conservation programs

People and the Lake

Recreation—access, sharing the lake, informing lake users, rules

Communication and Organization—maintaining connections for partnerships, implementation, community involvement

Updates & Revisions—plan for maintaining a living document

Pickerel Chain lakes Management Plan Goals

Goals for Pickerel Chain Lakes

The following goals and actions were derived from the values and concerns of citizens interested in the Pickerel Chain and members of the planning committee, as well as the known science about the Pickerel Chain lakes, their ecosystem and the landscape within its watershed. Implementing and regularly updating the goals and actions in this plan will ensure that the vision is supported and that changes are incorporated into the plan.

LIST OF GOALS

Goal 1	**Protect and enhance the fishery of the Pickerel Chain of Lakes.**
Goal 2	**Maintain a healthy and diverse aquatic plant community.**
Goal 3	**Maintain a healthy Pickerel Chain watershed.**
Goal 4	**Shorelands around the Pickerel Chain will be healthy and protective of water quality and habitat. Encourage property owners with mowed shoreline to consider areas to be restored.**
Goal 5	**Enhance the water quality of the Pickerel Chain.**
Goal 6	**Lake users will be informed about and respectful of the Pickerel Chain Lakes.**
Goal 7	**Increase participation in lake stewardship.**
Goal 8	**Review plan annually and update as needed.**

Fish Community

IN-LAKE HABITAT AND A HEALTHY LAKE

The health of one part of the lake system affects the health of the rest of the plant and animal community, the experiences of the people seeking pleasure at the lake, and the quality and quantity of water in the lake. Habitat is the structure for a healthy fishery and wildlife community. It can provide shelter for some animals and food for others. Many animals that live in and near the lake are only successful if their habitat needs are met.

What is lake-habitat?

Healthy lake-habitat in the Pickerel Chain includes native aquatic plants and shoreland vegetation, as well as tree branches/limbs above and below the water.

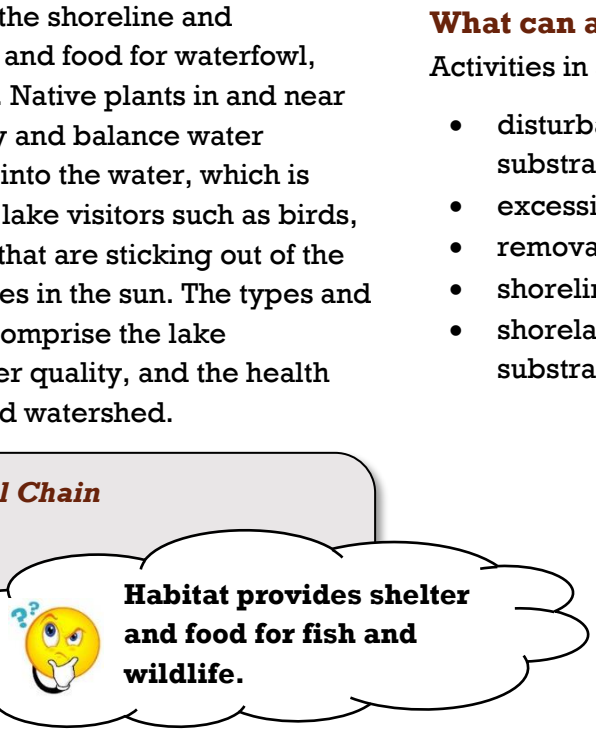
Habitat exists within the lake, along the shoreland, and even extends into its watershed for some wildlife species. Native vegetation (including wetlands) along the shoreline and connected to the lake provides shelter and food for waterfowl, small mammals, turtles, frogs, and fish. Native plants in and near the lake can also improve water quality and balance water quantity. Aquatic plants infuse oxygen into the water, which is essential for the fish community. Some lake visitors such as birds, frogs, and turtles use limbs from trees that are sticking out of the water for perches or to warm themselves in the sun. The types and abundance of plants and animals that comprise the lake community also vary based on the water quality, and the health and characteristics of the shoreland and watershed.

What People Value about the Pickerel Chain

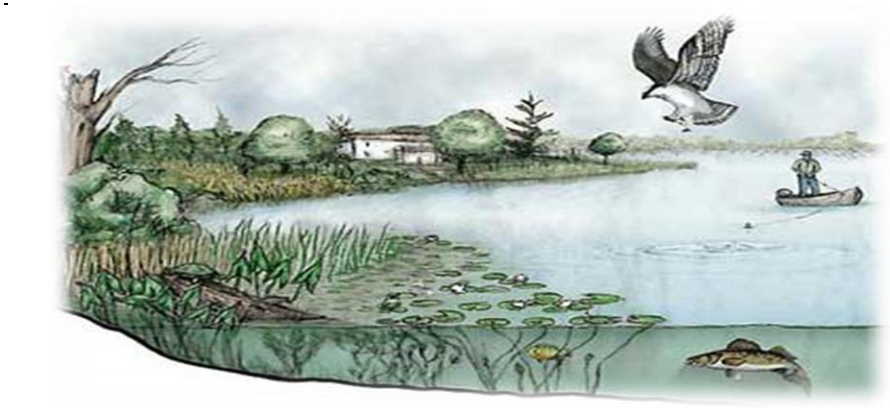
"*Gathering with family and friends.*"

"*The clear water and wildlife.*"

"*Summer days on the water.*"



Habitat provides shelter and food for fish and wildlife.



The Fish Community

A balanced fish community has a mix of predator and prey species, each with different food, habitat, nesting substrate, and water quality needs to flourish.

What can affect the fishery?

Activities in and around a lake that can affect a fishery include:

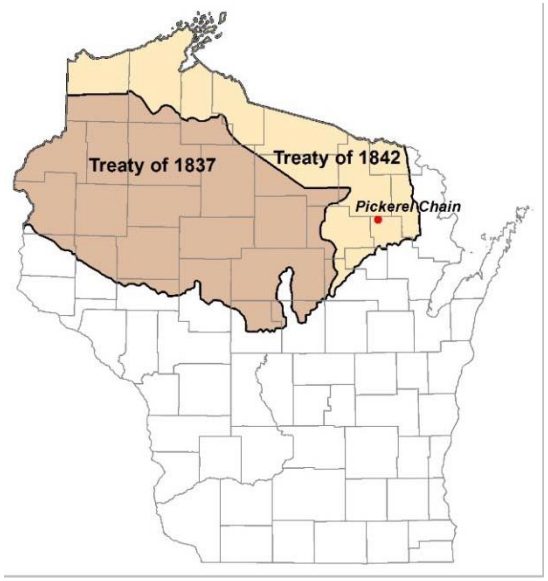
- disturbances to the native aquatic plant community or substrate,
- excessive additions of nutrients or harmful chemicals,
- removal of woody habitat,
- shoreline alterations,
- shoreland erosion can cause sediment to settle onto the substrate, causing the degradation of spawning habitat.

Fish Community

Can the fishery be improved?

Managing a lake for a balanced fishery can result in fewer expenses to lake stewards and the public. While some efforts may be required to provide a more suitable environment to meet the needs of the fish, they usually do not have to be repeated on a frequent basis. Ideally, a lake contains the habitat, water quality, and food necessary to support the fish communities present within the lake and provide fishing opportunities for people without a lot of supplemental effort and associated expenses to maintain these conditions.

- Protecting existing habitat such as emergent, aquatic, and shoreland vegetation, and allowing trees that naturally fall into the lake to remain in the lake, are free of cost.
- Restoring habitat in and around a lake can have an up-front cost, but the effects will often continue for decades.
- Costs in time, travel, and other expenses are associated with routine efforts such as fish stocking and aeration.



The Pickerel Chain lies within the 22,400 square miles of ceded territory based on the Treaty of 1842 allowing for a regulated open water spear fishery by Native Americans on specified systems. Due to the low occurrence of walleye and muskellunge, a spearfishing harvest has not occurred on the Pickerel Chain.

Earliest reported in the 1960s, winter fish kills have periodically occurred on the Pickerel Chain due to anoxic conditions, most recently during the winter of 2012-2013. Restocking of gamefish to restore the fishery has occurred annually since then.

Fish kill, Pickerel Chain, 2013. *WDNR*

Fish Community

Fish cribs are good cover for small fish, but near shore habitat is essential for reproduction of most species.

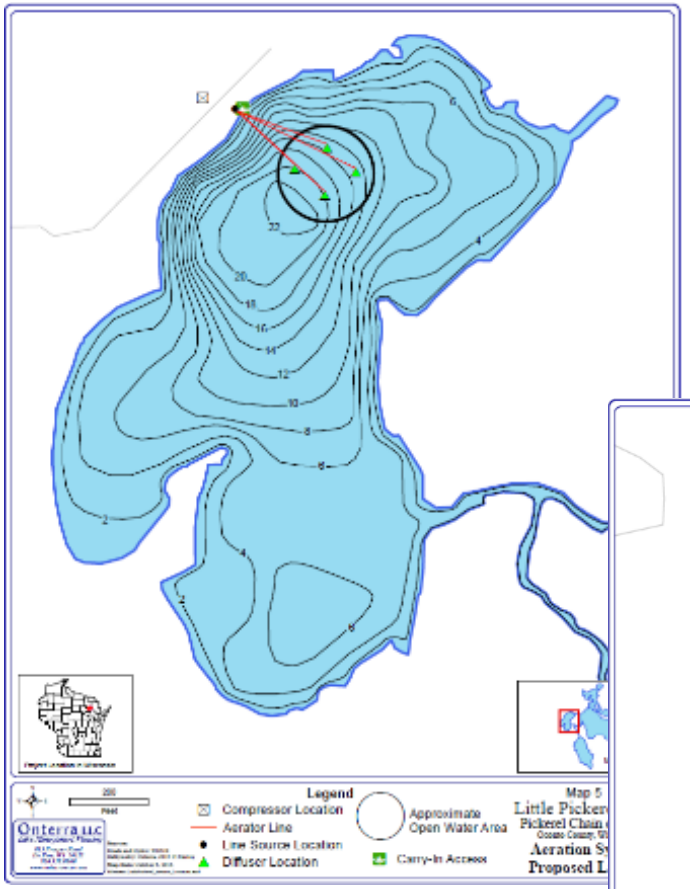
Pickerel Chain Fish Management History

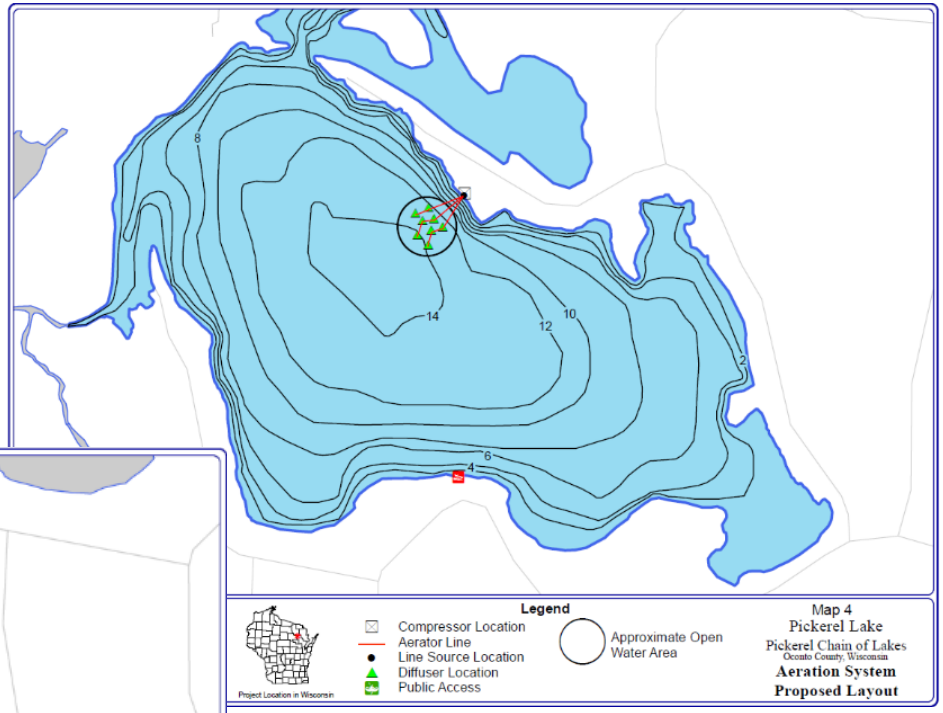
- Fishing regulations follow typical inland regulation for the northern bass, muskellunge and pike zone.
- Winter fish kills, due to lack of sufficient oxygen in the water, have periodically struck the Pickerel Chain with earliest reports from the 1960s. The most recent event was in winter 2012-2013.
- Aeration systems (diffused and aspirating) were installed on Pickerel in 2014, Little Pickerel in 2017 and Smoke in 2018.
- Stocking, primarily of panfish, started in 2013 with black crappie, bluegill, largemouth bass and northern pike to help the fishery recover from the winter kill events.
- Brown and yellow bullheads, tolerant of low oxygen conditions have surged in abundance. Manual removal with fyke nets was conducted in 2021 removing an estimated 14,548 fish (72/acre).

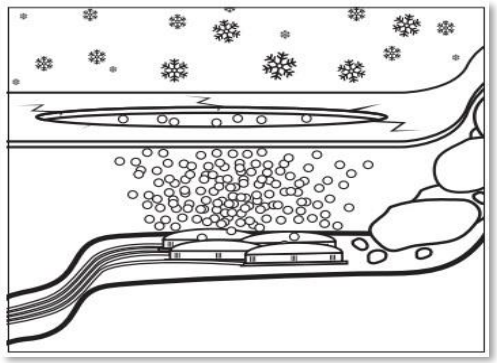
Year	Species	# stocked	Avg Length (in)
2013	Northern Pike	998	4.8
2013	Bluegill	899	3
2013	Black Crappie	900	3
2014	Largemouth Bass	4,325	3.2
2014	Northern Pike	8,740	2.52
2014	Bluegill	12,319	1
2014	Black Crappie	20,800	1.5
2015	Largemouth Bass	8,734	1.9
2015	Northern Pike	8,781	3
2016	Largemouth Bass	4,990	2.2
2016	Northern Pike	8,910	4.1
2016	Bluegill	1,000	5
2016	Black Crappie	31,871	2
2020	Largemouth Bass	5,383	2.8
2020	Largemouth Bass	500	9
2020	Yellow Perch	1,000	4
2021	Bluegill	888	5
2022	Black Crappie	600	5
2022	Bluegill	600	5
2022	Yellow Perch	720	7

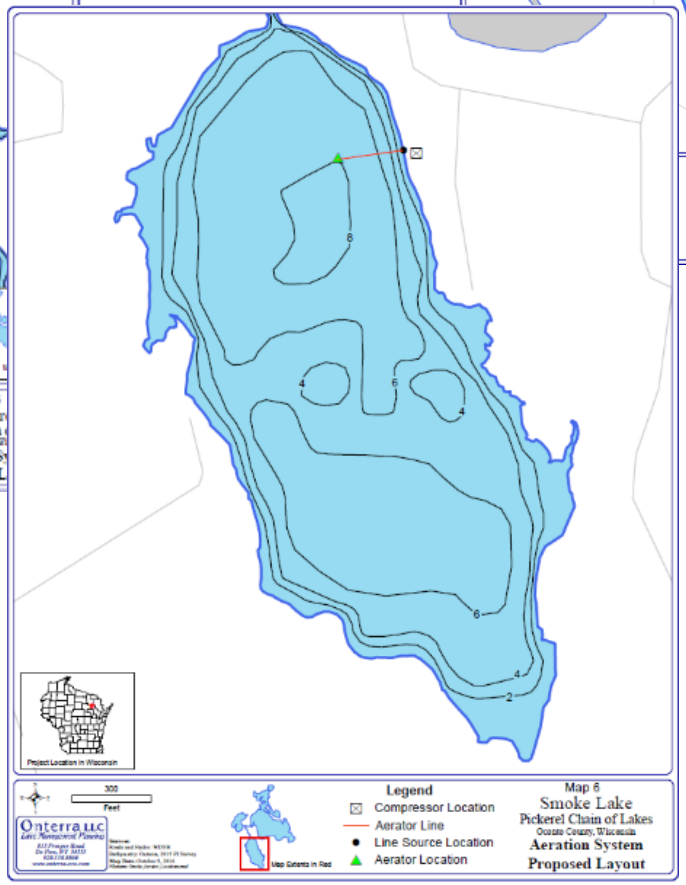
Fish Community

Aeration Systems









In 2014, the PCLA installed a diffused air aeration system on Pickerel Lake. Diffused air and aspirating systems were installed on Little Pickerel Lake in 2017 and Smoke Lake in 2018. These systems are designed to create and maintain open water during the winter to prevent fish from dying. This technology allows for atmospheric exchange of oxygen and should prevent fish kills and allow fish populations to recover.

Fish Community

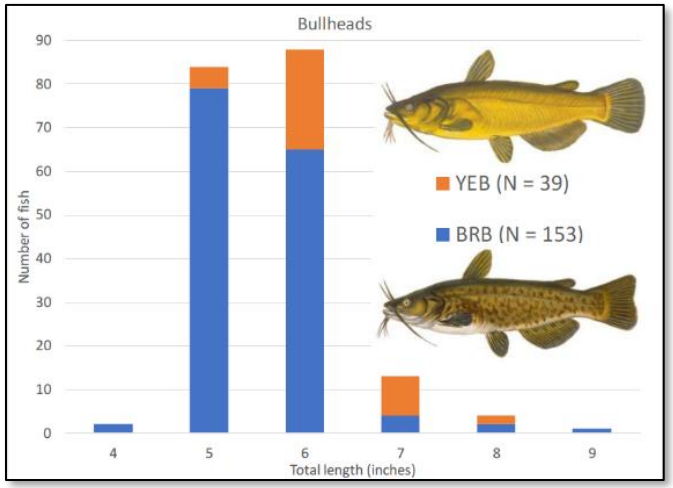
Pickerel Chain 2020 Fish Survey Results (WDNR, Chip Long)

- Most recent fish survey conducted in 2020 but was late in timing due to pandemic restrictions. The next survey is tentatively scheduled for 2025.
- 2,127 fish representing 11 species were collected. The five most abundant were brown bullhead (40%), bluegill (33%), pumpkinseed (13%), yellow bullhead (6%), and black crappie (3%).
- Brown and yellow bullheads accounted for 46% of the total catch (CPUE 35.6 and 6.3/NN, respectively). Since bullheads are tolerant of low oxygen conditions, their abundance is not surprising considering the history of winterkill.
- Bluegill were reaching preferred size (6") between 4 and 5 years old.
- Black crappie was last stocked in 2016 therefore the large age-2 and age-3 year classes are the result of natural reproduction.
- Yellow perched were aged at 2 to 4 years old.
- The oldest bass collected was 5 years old; evidence that the population is still in recovery.
- Northern pike aged from 2 to 9 years old. Pike <4 years old are result of natural reproduction.

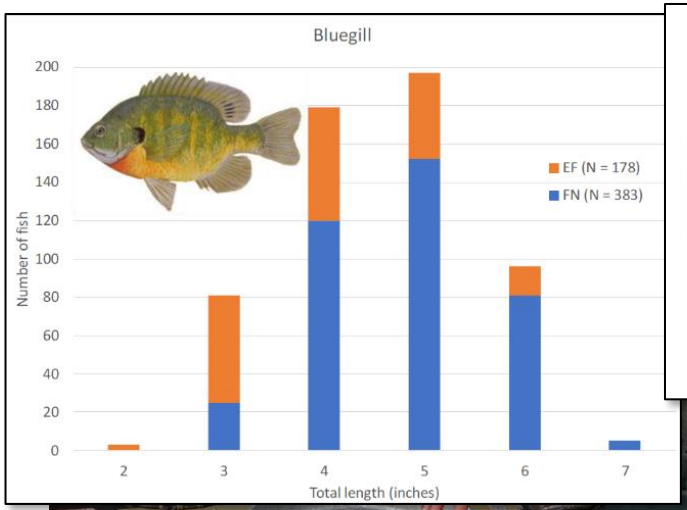
SPECIES COMPOSITION OF FISHES COLLECTED

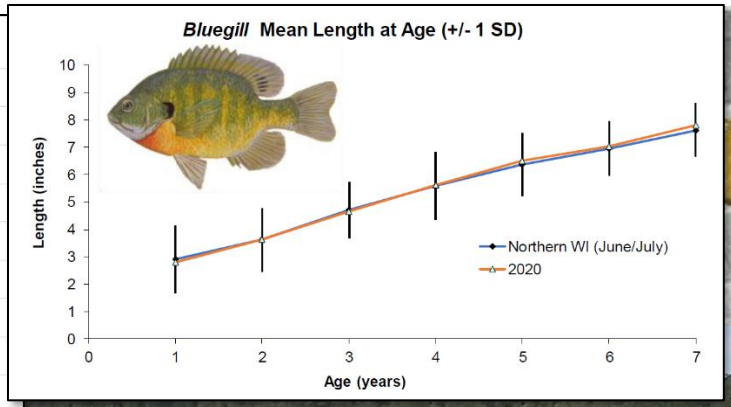
*COMMON NAME	TOTAL NUMBER COLLECTED	PERCENT (TOTAL)	NUMBER COLLECTED (FN)	PERCENT (FN)	NUMBER COLLECTED (EF)	PERCENT (EF)	AVERAGE LENGTH (inches)	LENGTH RANGE (inches)
Brown bullhead	844	40%	641	42%	203	34%	5.8	4.5-9.5
Bluegill	695	33%	517	34%	178	30%	5.0	2.5-7.9
Pumpkinseed	269	13%	187	12%	82	14%	5.0	2.5-7.8
Yellow bullhead	134	6%	113	7%	21	4%	6.6	4.0-8.9
Black crappie	65	3%	44	3%	21	4%	6.3	3.5-10.6
Largemouth bass	44	2%	8	1%	36	6%	10.8	3.0-16.9
Yellow perch	34	2%	8	1%	26	4%	4.7	3.0-7.6
Northern pike	26	1%	12	1%	14	2%	19.8	14.3-29.9
Rock bass	9	< 1%	1	0%	8	1%	6.1	4.0-9.8
Golden shiner	6	< 1%			6	1%		
White sucker	1	< 1%			1	< 1%	8.0	8.0
TOTALS	2,127		1,531		596			

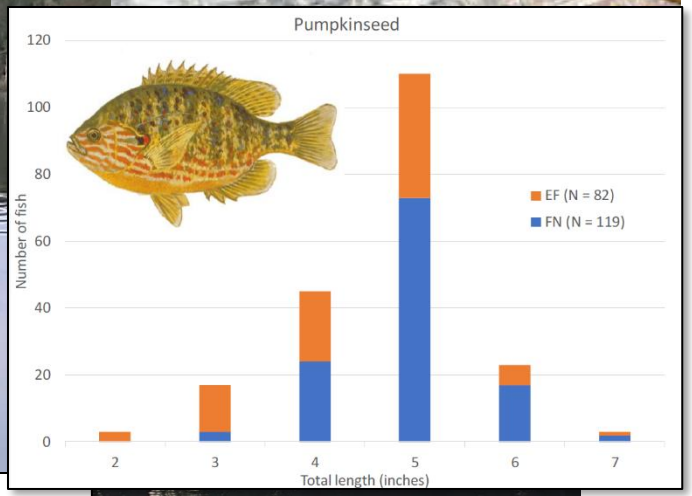
* Common names of fishes recognized by the American Fisheries Society.

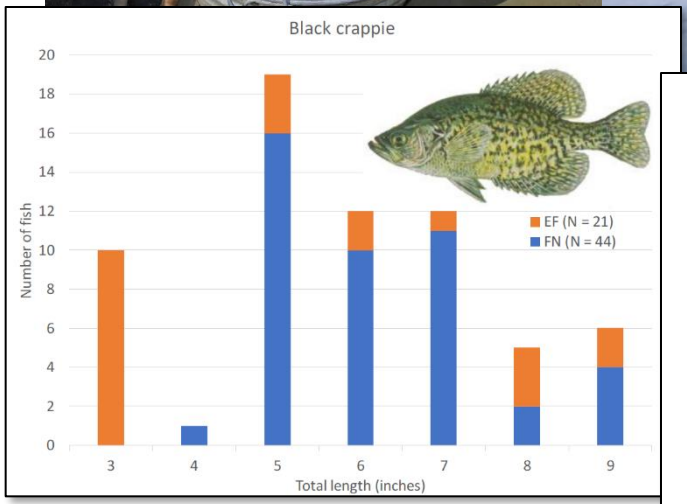


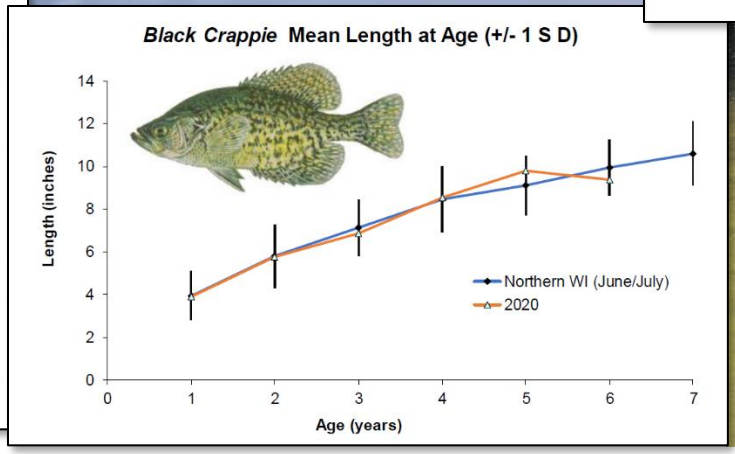
Fish Community











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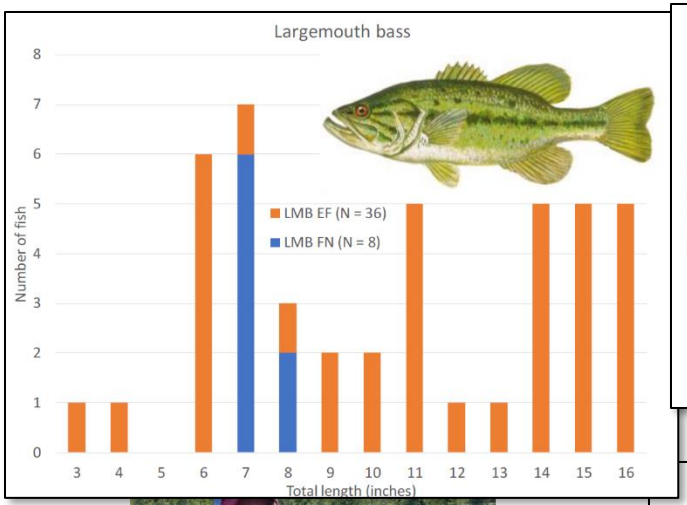
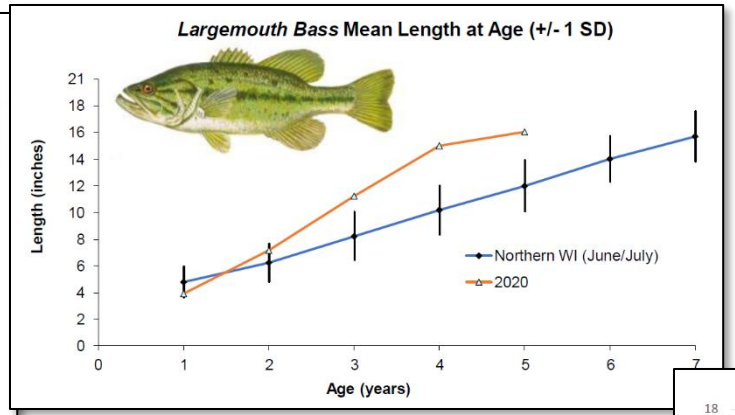
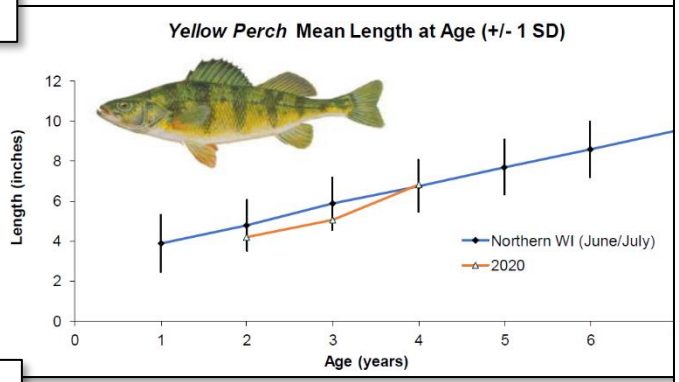
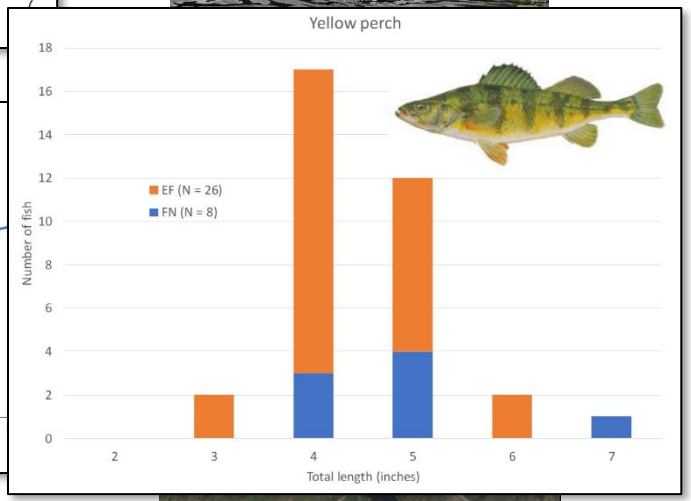
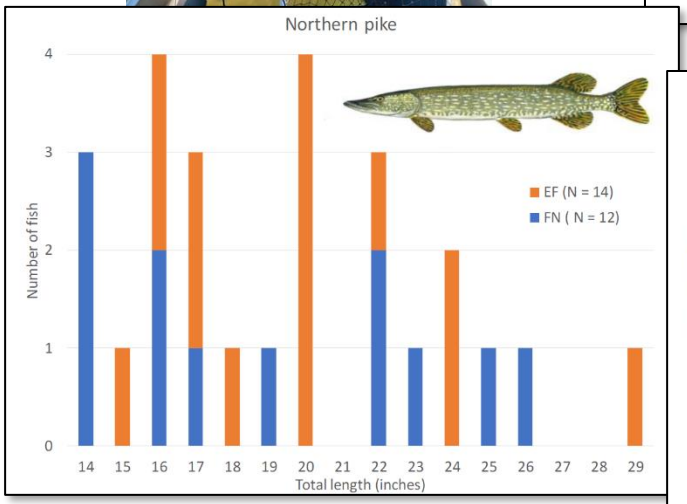
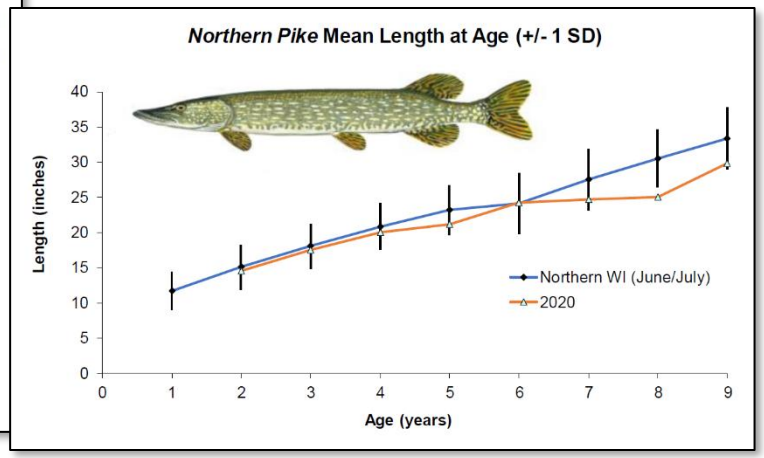












Fish Community

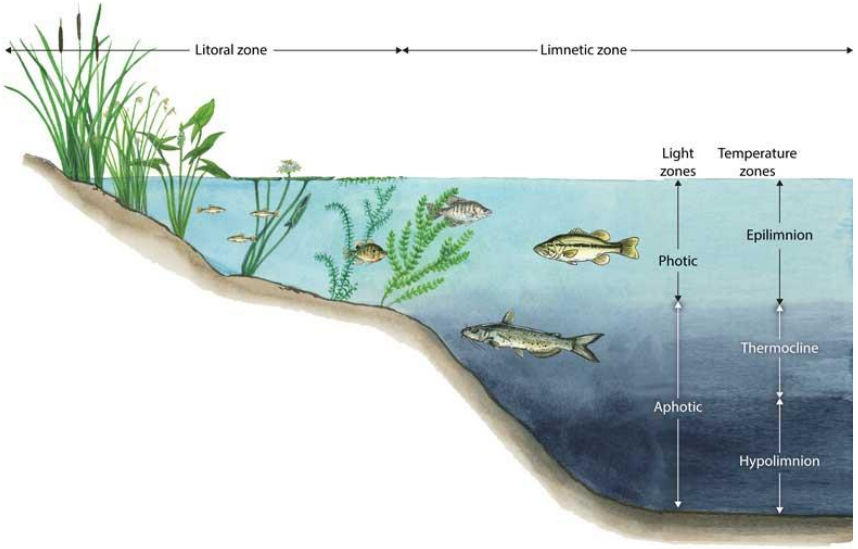
Goal 1. Protect and enhance the fishery of the Pickerel Chain of Lakes

Objective 1.1 Maintain aeration systems on Pickerel, Little Pickerel and Smoke Lakes.

Actions	Lead person/group	Resources	Timeline
Perform regular maintenance and inspection of aerator systems to ensure sufficient oxygen during ice-on periods.			
Continue monitoring winter dissolved oxygen levels in the Pickerel Chain. Submit results to state database (SWIMS).			
Erect and maintain barricades in accordance with Wis. Statute 167.26.			

Objective 1.2 Manage lakes for a healthy balance of predator and panfish populations.

Actions	Lead person/group	Resources	Timeline
Continue stocking as recommended by the DNR based on fish surveys.		WDNR-Chip Long	Annually
Educate property owners about healthy shoreland habitat and its importance to a healthy fishery. Encourage leaving logs, tree branches and limbs in place in the water whenever possible. See **Shorelands** section.		WDNR-Chip Long UWEX-Pat Goggin	
Assist or conduct bullhead removal if recommended by DNR survey.		WDNR-Chip Long	2024-2025
Evaluate the need for biomass removal to reduce anoxic conditions in winter.			



Aquatic Plant Community

Native plants provide essential food and habitat for fish and wildlife.

Aquatic Plants

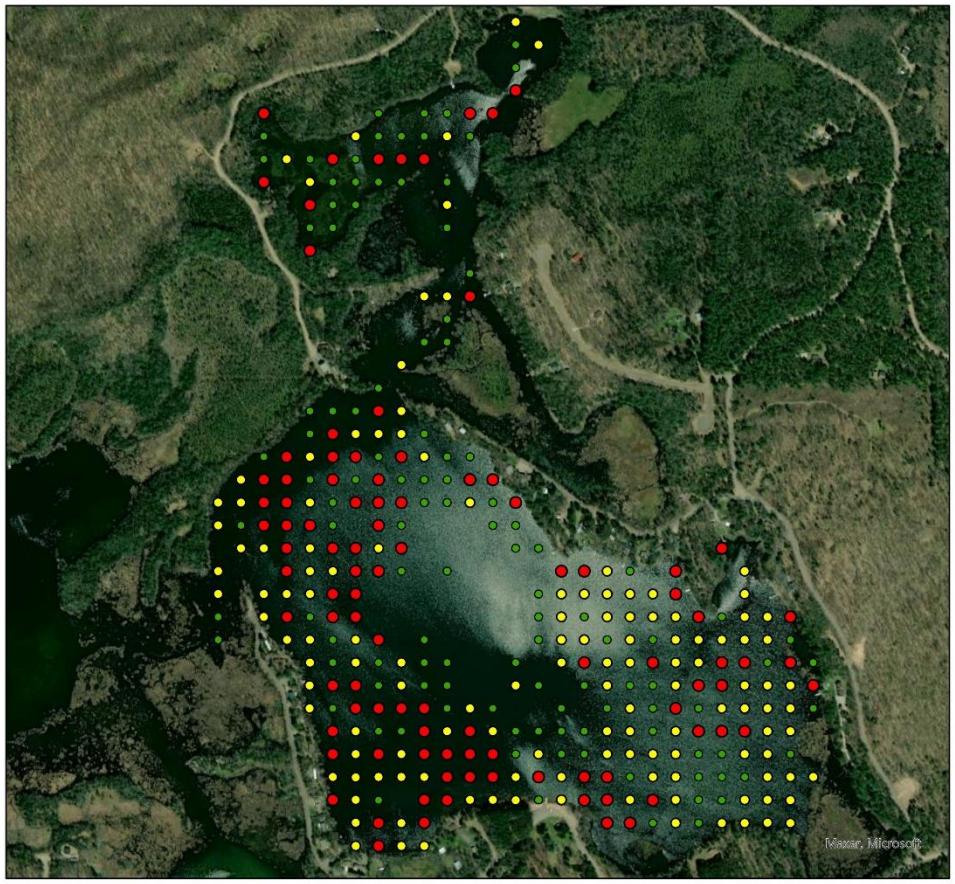
Aquatic plants provide the forested landscape within the lake. They provide food and habitat for spawning, breeding, and survival for a wide range of inhabitants and lake visitors including fish, waterfowl, turtles, amphibians, as well as invertebrates and other animals. They improve water quality by releasing oxygen into the water and utilizing nutrients that would otherwise be used by algae. A healthy lake typically has a variety of aquatic plant species, which makes the aquatic plant community more resilient and can help to prevent the establishment of non-native aquatic species. Additionally, they stabilize the bottom sediment and help filter out the suspended sediment from the water column.

Aquatic plants near shore and in shallows provide food, shelter, and nesting material for shoreland mammals, shorebirds and waterfowl. It is not unusual for otters, beavers, muskrats, weasels, and deer to be seen along a shoreline in their search for food, water or nesting material. Aquatic plants also serve as indicator species for environmental stressors that could be occurring in a lake or river, such as a runoff event.

Pickerel Chain 2020 WDNR (Brenda Nordin) Aquatic Plant Survey Highlights

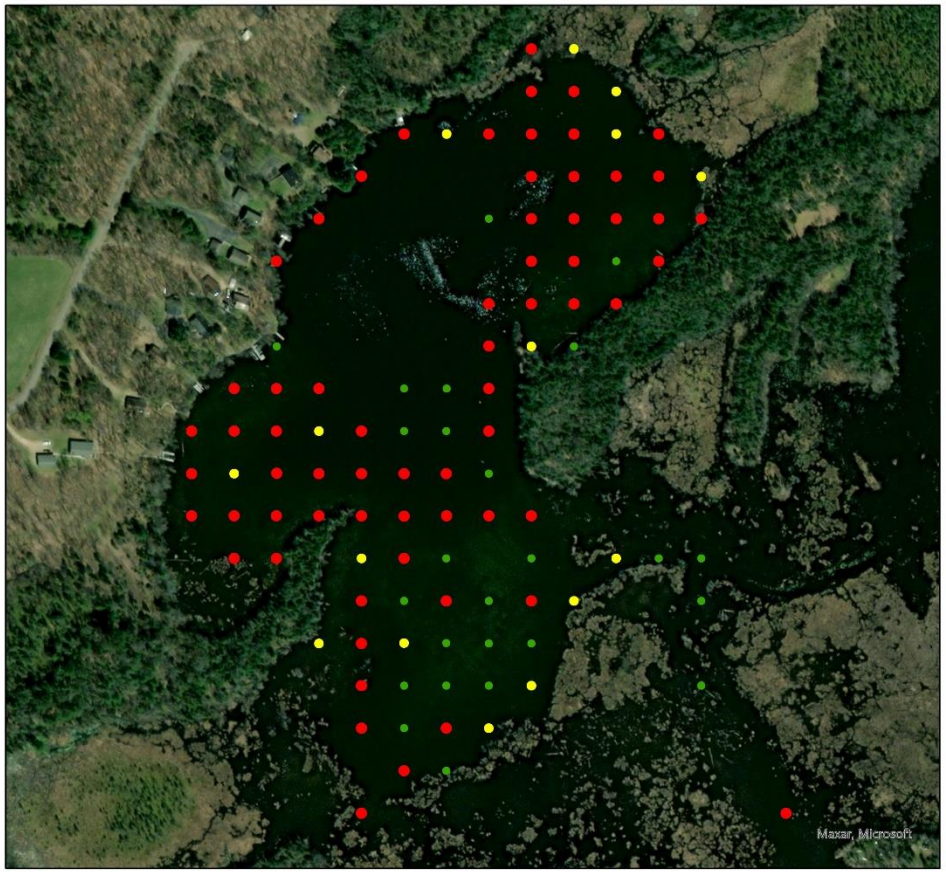
- The Pickerel Chain has an average diversity of plant species when compared to other lakes in the project, with a total of 27 species in Pickerel (FQI 33), 23 species in Little Pickerel (FQI 30), and 17 species in Smoke (FQI 26).
- 89% of sites had vegetative growth in Pickerel, 84% of sites in Little Pickerel and 70% of sites in Smoke.
- Chara, slender/southern naiad, and coontail were the three most abundant species.
- No invasive species were observed.

Pickerel Lake Aquatic Plant Survey 2020: Rake Fullness

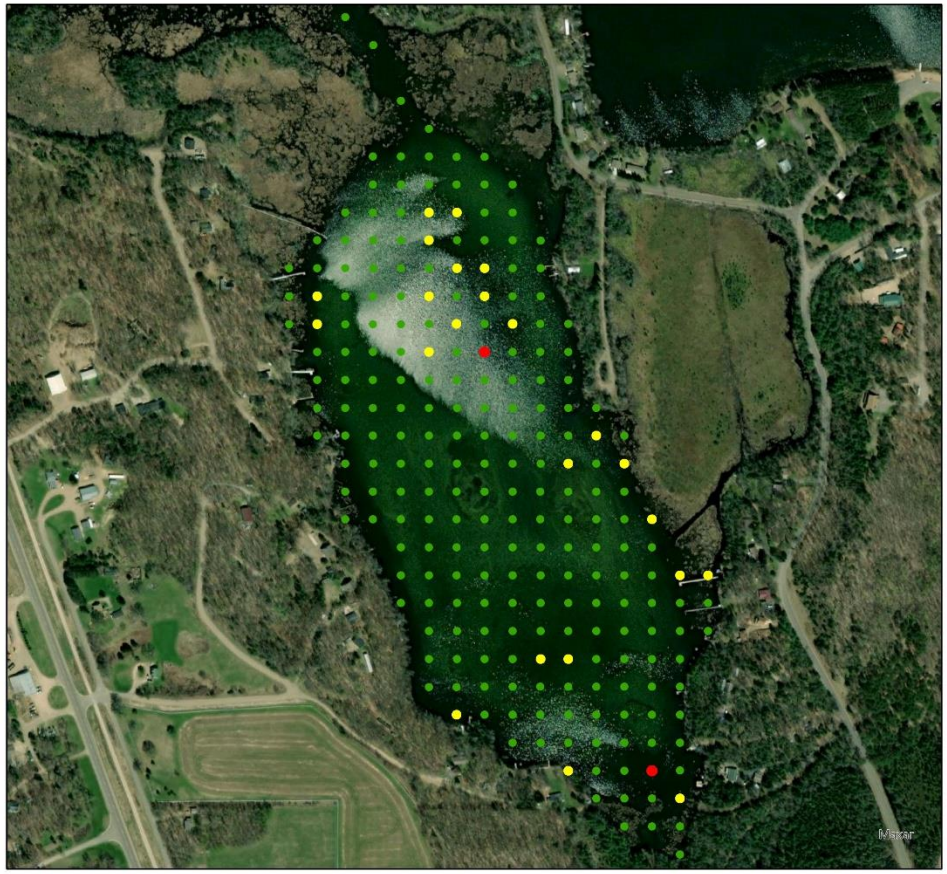


Aquatic Plant Community

Little Pickerel Lake Aquatic Plant Survey 2020: Rake Fullness



Smoke Lake Aquatic Plant Survey 2020: Rake Fullness



Aquatic Plant Community

Chara is a type of macro algae that grows attached to muddy lake bottoms and has a musky odor. Muskgrass, as it is known, filters the lake water and is helpful in preventing the establishment of invasive species.

Coontail lacks roots and can form dense mats just below the surface. It is usually in calm, nutrient-rich water and provides habitat for young fish and other aquatic animals. Waterfowl will eat the seeds and foliage.

Slender naiad, also called nodding water-nymph, and **Southern naiad**, also called bushy pondweed, are primary food sources for waterfowl and provide habitat for many invertebrates.

Aquatic Invasive Species (AIS)

Aquatic invasive species are non-native aquatic plants and animals that are most often unintentionally introduced into lakes by lake users. This commonly occurs on trailers, boats, equipment, and from the release of bait. In some lakes, aquatic invasive plant species can exist as a part of the plant community, while in other lakes populations explode, creating dense beds that can damage boat motors, make areas non-navigable, inhibit activities like swimming and fishing, and disrupt the lakes' ecosystems. DNR protocol is recommended every 5 years to detect changes in the plant community and monitor any AIS.

No invasive species were observed during the 2020 aquatic plant survey.

Rusty crayfish, which can displace native crayfish and reduce aquatic plant abundance leading to decreased water clarity, were documented in Pickerel Lake in 2018.

Banded/Chinese mystery snails can compete with native snails for food and habitat, serve as a host for parasites, and are known to invade largemouth bass nests. They were documented in Pickerel Lake in 2006.

Aquatic Plant Community

Typically planted as an ornamental where it escapes to nearby waterways, **Purple Loosestrife** prefers moist soil and shallow water where it chokes out native plants. Effective control includes certain herbicides and the Galerucella beetle.

Northcentral Hardwoods Median	
Species richness	**14**
Floristic Quality	**20.9**

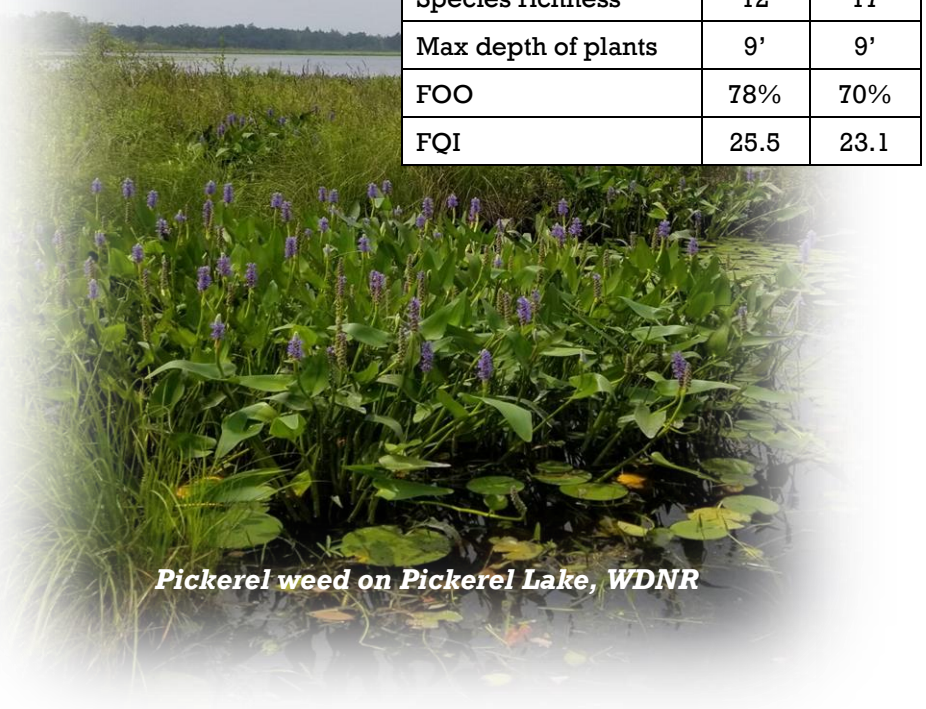
Pickerel Lake	2015	2020
Species richness	31	27
Max depth of plants	14’	15.5’
FOO	95%	89%
FQI	36.2	32.8
Little Pickerel Lake	**2015**	**2020**
Species richness	21	23
Max depth of plants	21’	16’
FOO	83%	84%
FQI	28.9	29.6
Smoke Lake	**2015**	**2020**
Species richness	12	17
Max depth of plants	9’	9’
FOO	78%	70%
FQI	25.5	23.1

Comparison to previous surveys

Changes to the aquatic plant community over time can be both natural and driven by man-made actions whether intentional or not. Previous point-intercept surveys were conducted on the Pickerel Chain of lakes in 2015 during development of the first management plan by Onterra, LLC. Since then, aerators have been installed on each lake.

Species richness is the total number of species observed. Frequency of occurrence (FOO) is what percentage of sites plants are present. Floristic Quality Index (FQI) is calculated using the number of species and the average value of conservatism for those species. A higher FQI indicates a healthier plant community, indicating better plant habitat.

The various statistics that summarize the two plant surveys on the Pickerel Chain show similar results for each lake.



Pickerel weed on Pickerel Lake, WDNR

Aquatic Plant Community

To look for and evaluate change in the lakes' aquatic plant community over the past 5 years, the frequency of occurrence of individual species was analyzed using a chi-square analysis. If the frequency change is statistically significant, the P-value derived from the chi-square will be less than 0.05. The lower the p-value, the more statistically significant the difference. Statistically significant changes are shown in the table below.

Pickerel Lake	**FOO 2015**	**FOO 2020**	**Significant change (+/-)**
Chara	43%	29%	- p=0.001
Little Pickerel Lake	**FOO 2015**	**FOO 2020**	**Significant change (+/-)**
Coontail	30%	15%	- p=0.006
Various-leaved water-milfoil	0%	11%	+ p=0.0003
Slender naiad	5%	18%	+ p=0.002
Southern naiad	0%	11%	+ p=0.0002
White water lily	21%	4%	- p=0.0008
Fries' pondweed	9%	0%	- p=0.0005
Water bulrush	6%	1%	- p=0.02
Smoke Lake	**FOO 2015**	**FOO 2020**	**Significant change (+/-)**
Coontail	16%	9%	- p=0.006
Various-leaved water-milfoil	0%	6%	+ p=0.003
Slender naiad	3%	10%	+ p=0.002
Southern naiad	0%	6%	+ p=0.0002
White water lily	11%	2%	- p=0.00005
Fries' pondweed	5%	0%	- p=0.0005
Water bulrush	3%	0.5%	- p=0.02

Comparison of the two surveys does not reveal anything too concerning. Overall, FQI went down slightly in Pickerel and Smoke Lakes, but up slightly in Little Pickerel. Future surveys may be able to establish trends, if any.

Aquatic Plant Management in the Pickerel Chain

Management strategies in the Pickerel Chain were designed to achieve a balance between healthy aquatic habitat, good water quality, and eradication of invasive species.

Management Options for Invasive Species or Nuisance Native Aquatic Plants

Management options that offer the most practical and effective approaches for managing invasive species or nuisance native plants, while minimizing impacts to the Pickerel Chain as a whole, have been identified. Depending upon conditions, the following options may be used alone or in combination with others. Manual and mechanical aquatic plant management is regulated under Chapter NR109, Wisconsin Administrative Code.

Hand-pulling. No permit required.

Hand-pulling is the preferred method for removing invasive species. Additionally, lakefront property owners are allowed to manually remove native aquatic plants from an area up to 30 feet wide without a permit for swimming and boat access (this does not include the excavation or removal of any bottom sediments). Any denuded lakebed is prime real estate for invasive species, however, and close monitoring is necessary to ensure no populations are established.

Mechanical Harvesting. Permit required.

While harvesting, operators should take care (by raising and lowering the harvesting bar) to minimize the impact on habitat and to reduce sediment disturbance. Harvesting in depths less than 3 feet should be avoided but may be done with care in

accordance with WDNR guidance, keeping in mind sediment resuspension can lead to additional plant growth and algae blooms. A second pass should be made on harvested areas to remove plant fragments and floaters.

Mechanical Harvesting Plan for Navigation: Harvesting of dense plant beds may be conducted as needed to provide navigation. Paths from piers to open water may be cut to improve navigation and the fishery. Lanes should be no wider than 15 yards. To minimize disturbances to sediment and important fish habitat, harvesting should be avoided in water depths less than 3 feet. A depth finder on the cutter end of the harvester can aid in evaluating water depths.

Skimming, target: dense floating plant material, filamentous algae. Permit required.

This mechanical removal method would be applied when targeting uprooted aquatic plants that have accumulated in parts of the lakes. Skimming of floating plant material can be conducted by mechanical or non-mechanical means in areas where sediment and emergent plants would not be disturbed by this activity. The surface of the lake is skimmed to collect plant material for removal from the lake. When skimming with a harvester, aquatic plants are not cut.

Aquatic Plant Management Plan Review

A good aquatic plant management plan strategy should reduce the amount of management activity needed as time goes on. In the Pickerel Chain, a series of successful strategies (integrated plant management) should lead to a balance between healthy aquatic habitat, water quality, and recreation with minimal annual management.

Aquatic Plant Community

Goal 2. Maintain a healthy and diverse aquatic plant community.

Objective 2.1 Prevent introduction of additional AIS and control current AIS in the Pickerel Chain.

Actions	Lead person/group	Resources	Timeline
Support the PCLA's AIS committee.			
Continue Clean Boats Clean Waters inspections at the public landing.			
Continue volunteer-based monitoring of AIS. Host trainings on identification and removal of AIS.			
Continue eradication efforts for purple loosestrife.		FLOW-AIS-Derek Thorn	
Educate lakefront property owners on importance of native plants for preventing AIS. Any cleared lakebed can be an opportunity for infestation.			

Objective 2.2 Minimize disturbance to native aquatic plants.

Actions	Lead person/group	Resources	Timeline
Educate property owners on the importance of native aquatic vegetation to impede the establishment of AIS, provide food and habitat for wildlife, and protect the shoreline.			
Encourage landowners to limit native aquatic plant removal.			
Regularly monitor the aquatic plant community to detect changes in lake conditions.			
Reduce sediment and nutrient loading to lake by improving shoreland buffers (see **Shorelands** section) and implementing BMPs in the watershed (see **Watershed** section).			
Investigate cost and logistics for biomass removal.		Consultants WDNR-Brenda Nordin	

LANDSCAPES AND THE LAKE

Pickerel Lake Watershed

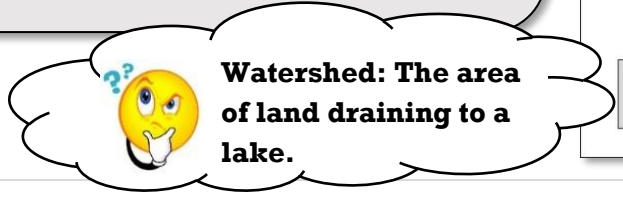
A Lake is a Reflection of its Watershed…

Understanding where the Pickerel Chain's water originates is important to understanding lake health. During snowmelt or rainstorms, water moves across the surface of the landscape (runoff) towards lower elevations such as lakes, streams, and wetlands. This area is called the watershed. Groundwater also feeds the Pickerel Chain; its land area may be slightly different than the surface watershed.

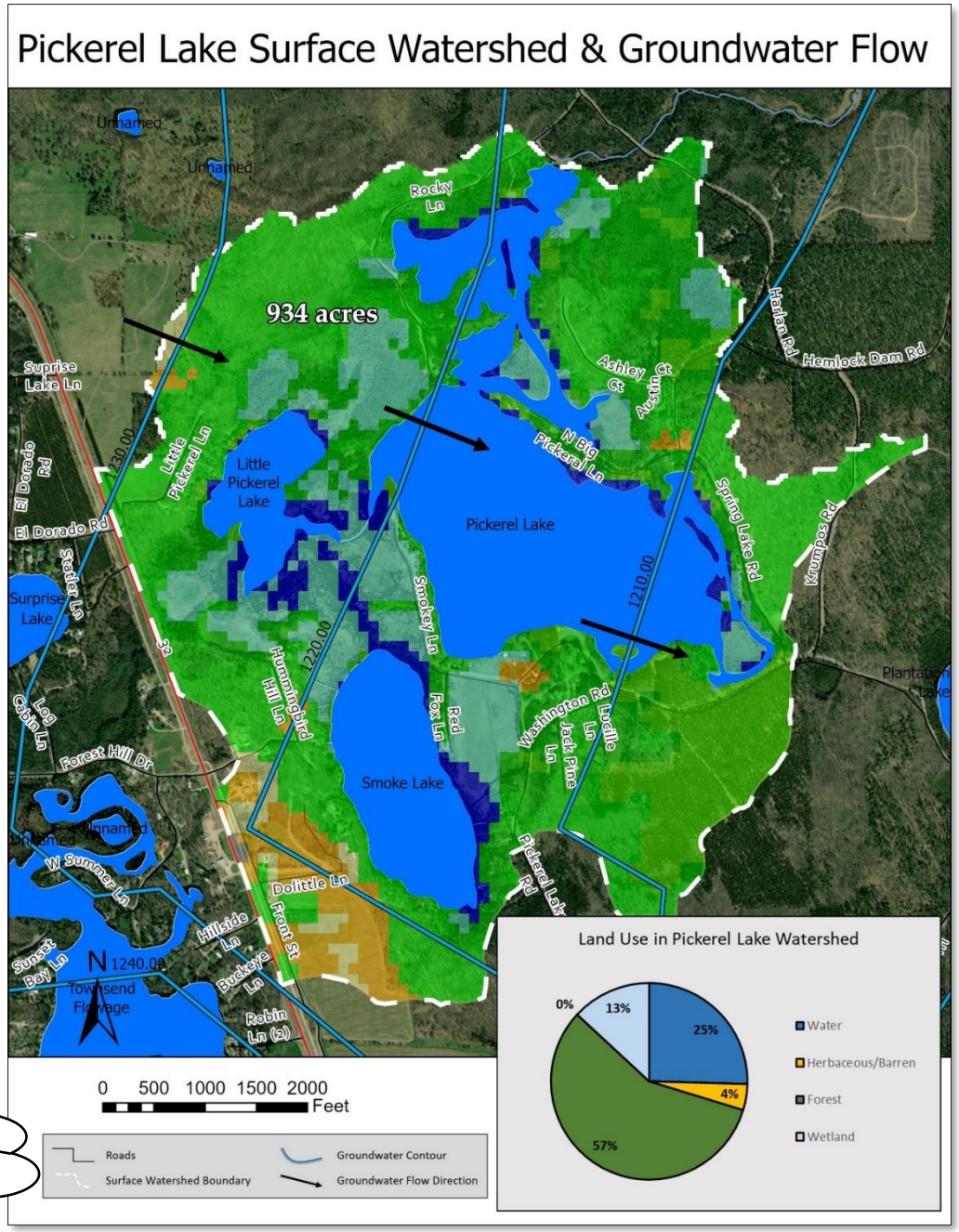
Less runoff is desirable because it allows more water to recharge the groundwater, which feeds the lake year-round - even during dry periods or when the lake is covered with ice. The capacity of the landscape to shed or hold water and contribute or filter particles determines the amount of erosion that may occur, the amount of groundwater feeding a lake, and the lake's water quality and quantity. Landscapes with greater capacities to hold water during rain events and snowmelt slow the delivery of the water to the lake.

Pickerel Lake's Watershed

The Pickerel Lake watershed, which encompasses Smoke and Little Pickerel, is 934 acres. Primary land use is forest and wetland. The lake's shoreland is also surrounded primarily by forest and residential lots. This is similar to the 2015 assessment. In general, the land closest to the lake has the greatest immediate impact on water quality.



Watershed: The area of land draining to a lake.



Watershed

Why does land matter?

Land use and land management practices within the watershed can affect both its water quantity and quality. While forests, grasslands, and wetlands allow a fair amount of precipitation to soak into the ground, resulting in more groundwater and good water quality, other types of land uses may result in increased runoff and less groundwater recharge, and may also be sources of pollutants that can impact the lake and its inhabitants.

Soil and Erosion

Areas of land with exposed soil can produce soil erosion. Soil entering the lake can make the water cloudy and cover fish spawning beds. Soil also contains nutrients that increase the growth of algae and aquatic plants.

Development

Development on the land may result in changes to natural drainage patterns, alterations to vegetation on the landscape, and may be a source of pollutants. Impervious (hard) surfaces such as roads, rooftops, and compacted soil prevent rainfall from soaking into the ground, which may result in more runoff that carries pollutants to the lake. Wastewater, animal waste, and fertilizers used on lawns, gardens and crops can contribute nutrients that enhance the growth of algae and aquatic plants in our lakes.

What can be done?

Land management practices can be put into place that mimic some of the natural processes, and reduction or elimination of nutrients added to the landscape will help prevent the nutrients from reaching the water. In general, the land nearest the lake has the greatest impact on the lake water quality and habitat and is often the easiest to manage (own property, no politics, etc.).

Be Part of the Solution!

Practices designed to reduce runoff include:

- protecting/restoring wetlands,
- installing rain gardens, swales, rain barrels, and other practices that increase infiltration
- routing drainage from pavement and roofs away from the lake
- meandering lake access paths to minimize direct flow to the lake.

Practices used to help reduce nutrients from moving across the landscape towards the lake include:

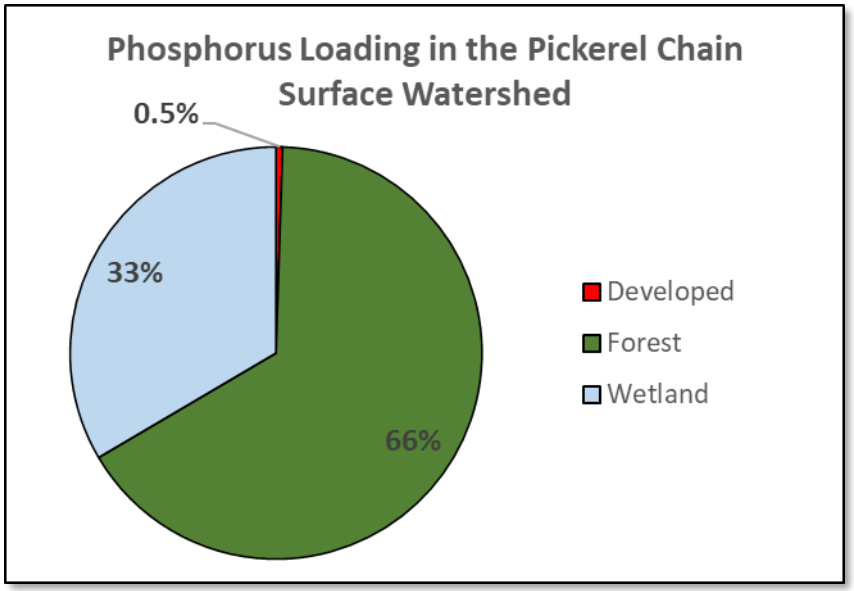
- eliminating/reducing the use of fertilizers,
- increasing the distance between the lake and a septic drainfield,
- protecting/restoring wetlands and native vegetation in the shoreland,
- controlling erosion,
- manure management and cropping practices.

Most of these activities are eligible for cost share and grant assistance!

Watershed

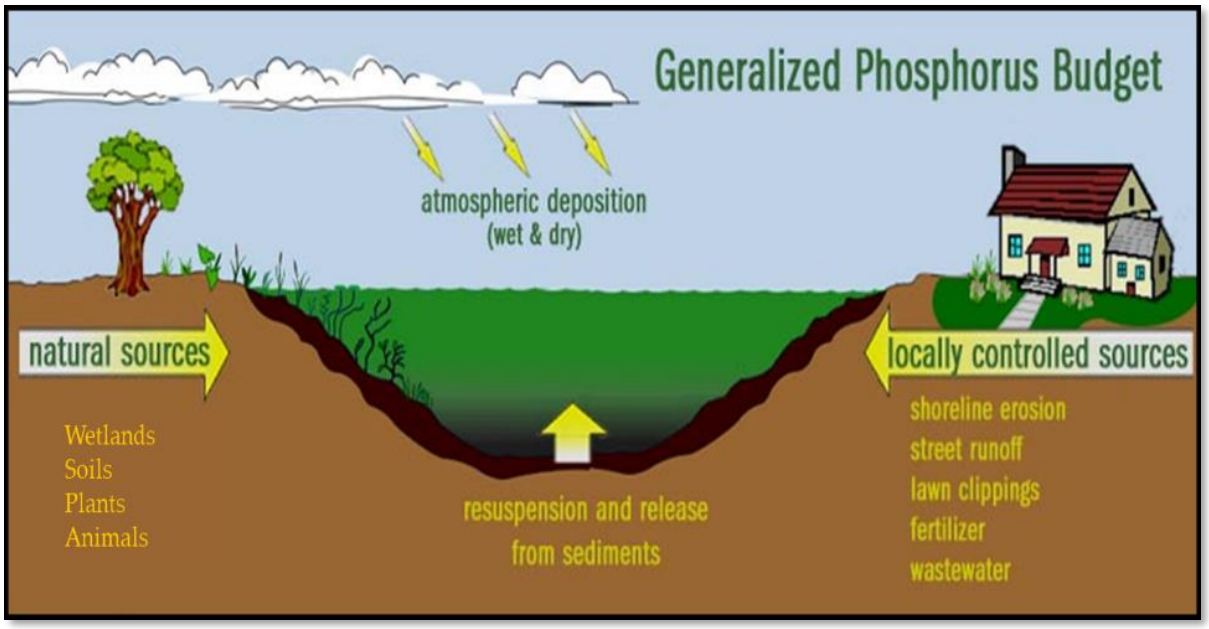
Phosphorus Modeling

Estimates of phosphorus from the landscape can help to understand the phosphorus sources to the Pickerel Chain. Land use in the surface watershed was evaluated and used to populate the Wisconsin Lakes Modeling Suite (WILMS) model. In general, each type of land use contributes different amounts of phosphorus in runoff and groundwater. The types of land management practices that are used and their distances from the lake also affect the contributions to the lake from a parcel of land. The phosphorus contributions by land use category, called phosphorus export coefficients, have been obtained from studies throughout Wisconsin (Panuska and Lillie, 1995). In the Pickerel Chain watershed, efforts should be directed at phosphorus sources that can be controlled.



Phosphorus Loading in the Pickerel Chain Watershed

Based on modeling results, forest had the greatest percentage of phosphorus contributions from the watershed. Efforts to reduce nutrient inputs to the lake must be focused on land uses that we have some control over such as production and developed areas.



Goal 4. Maintain a healthy Pickerel Chain watershed.

Objective 4.1 Property owners in the Pickerel Chain watershed will understand their connection to the lakes and will utilize resources for healthy land management.

Actions	Lead person/group	Resources	Timeline
Encourage the County to support and follow-up with water quality based best management practices (BMPs) within the lakes' watershed. Include BMPs that reduce application of excess nitrogen and pesticides that leach to groundwater.		NRCS DATCP County Board Supervisors	Ongoing
Support landowners interested in the protection of their land via a land conservation program (i.e. conservation easement, conservation reserve program, purchase of development rights, or sale of land for protection).		WDNR Lake Protection Grant Knowles-Nelson Stewardship Fund NWLT	As needed
Encourage any new developments to manage runoff on site.		Town of Townsend Developers/builders	As needed
Encourage design of road and construction projects that will minimize impact to lake.		Town of Townsend OC Highway Dept/WDOT	As needed
Protect wetlands to maintain the water budget of the Pickerel Chain. Any altered wetlands should be mitigated within the lakes' watershed.		WDNR	As needed
Work with the Town to maintain and make improvements to boat launch to reduce erosion and runoff.		Town of Townsend WDNR	As needed


Cover crops


Drainage swales

Shorelands

90% of lake life spends all or part of their life in the near shore zone.

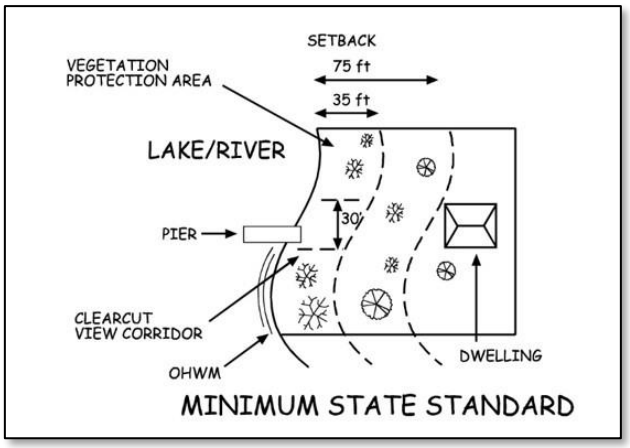
Shorelands

Shoreland vegetation is critical to a healthy lake ecosystem. It provides habitat for many aquatic and terrestrial animals including birds, frogs, turtles, and small and large mammals. It also helps to improve the quality of the runoff that is flowing across the landscape towards the lake.

Healthy shoreland vegetation includes a mix of unmowed grasses/flowers, shrubs, trees, and wetlands which extends at least 35 feet landward from the water's edge.

Shoreland ordinances have been in place since 1964 to improve water quality and habitat, and to protect our lakes. To protect our lakes, county and state (NR 115) shoreland ordinances state that vegetation should extend at least 35 feet inland from the water's edge, with the exception of an optional 30-foot wide view corridor for each shoreland lot. Although some properties were grandfathered in when the ordinance was initiated in 1966, following this guidance will benefit the health of the lake and its inhabitants.

Disturbed shoreland is measured as any shoreline without a shrub or herbaceous layer at the water's edge, regardless of buffer thickness. This may be a result of mowed lawn, artificial beach, etc.



Be Part of the Solution!

Follow Healthy Shoreland Practices

- Mow Less: The simplest, most affordable way to improve your shoreland is to reduce mowing near shore. Native vegetation will re-establish itself over time.
- Leave natural shoreland vegetation in place.
- Restore native shoreland vegetation where it is lacking.
- Plant attractive native species of grasses/flowers, shrubs and trees that will add interest and beauty to your property.
- Don't use fertilizers or herbicides, they may run into the lake. Test your soil to determine if fertilizer is warranted.
- Add or leave woody habitat near the shore. Turtles, birds, and fish love it!
- Never transplant water garden plants or aquarium plants into lakes, streams, or wetlands.
- Visit **www.healthylakeswi.com** for additional resources.

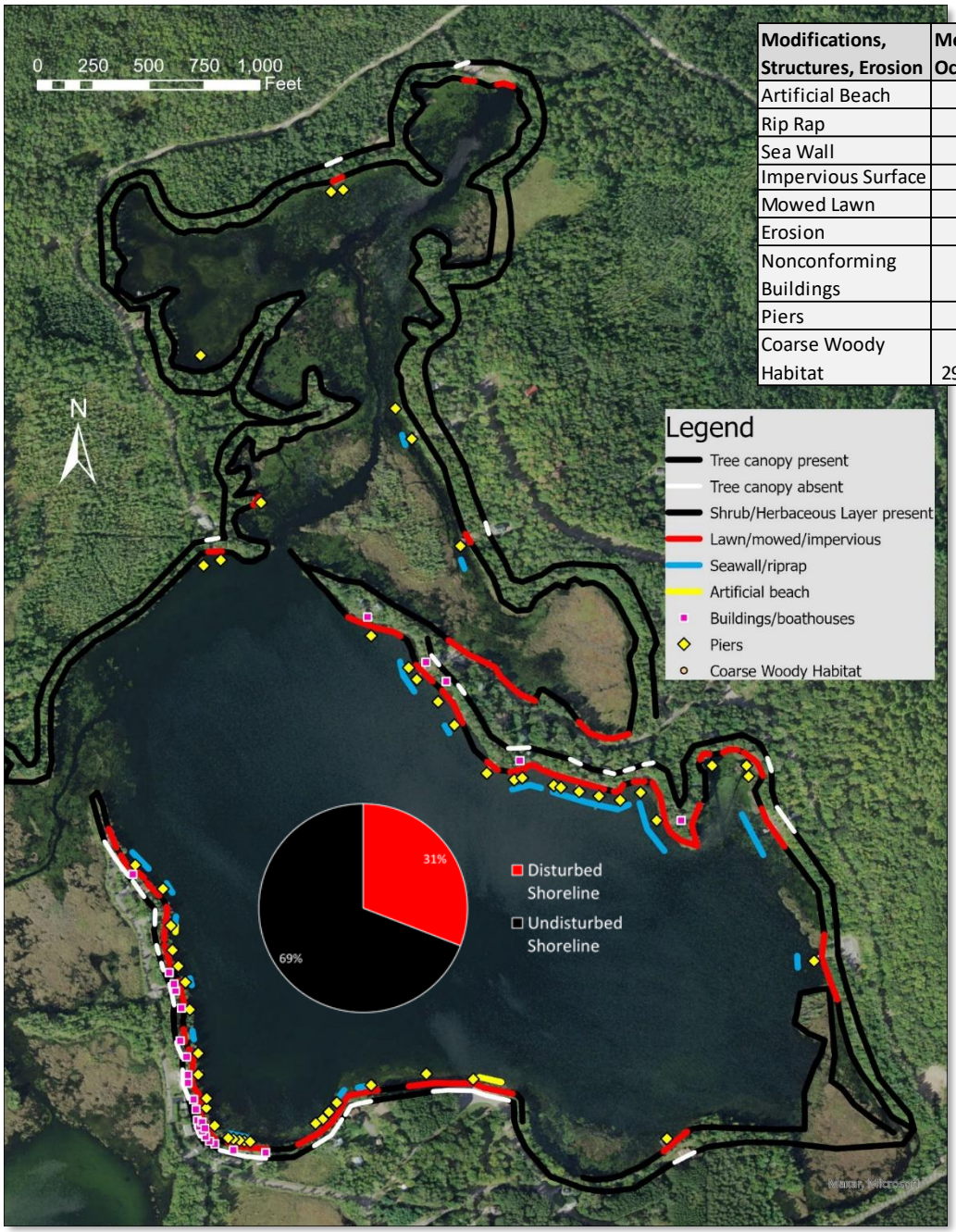
State Shoreland Zoning Ordinance

NR 115 Wisc. Adm. Code for Unincorporated Municipalities

No vegetation within 35 feet of the lake's edge shall be removed except for:

- Up to 30% of shoreline may be removed of shrubs and trees for a view corridor
- A mowed or constructed pedestrian path up to 5 feet wide to access lake

Shorelands



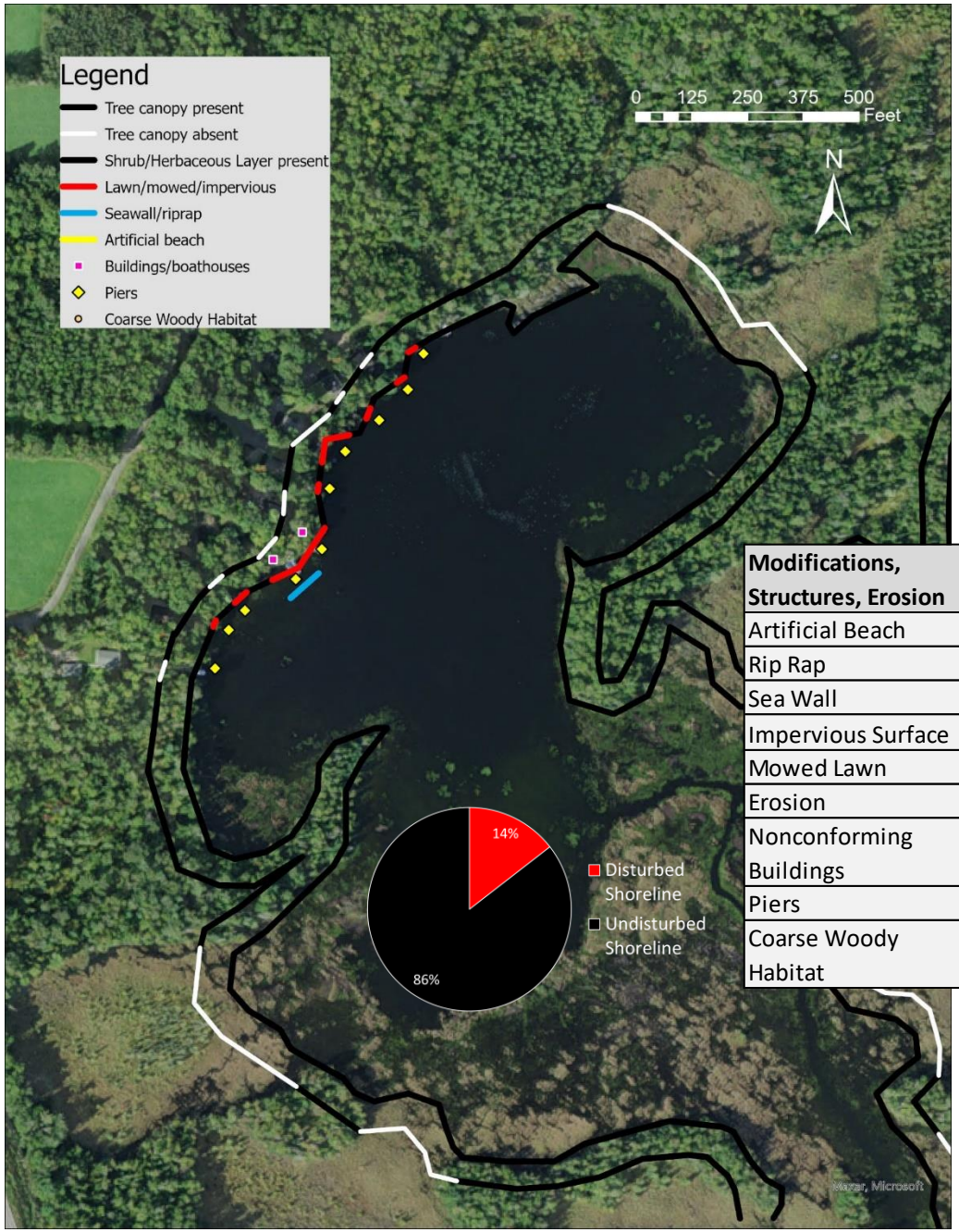
Modifications, Structures, Erosion	Measured Occurrence
Artificial Beach	115 ft
Rip Rap	1,134 ft
Sea Wall	35 ft
Impervious Surface	1,588 ft
Mowed Lawn	4,873 ft
Erosion	335 ft
Nonconforming Buildings	27
Piers	56
Coarse Woody Habitat	29 logs/mile

Pickerel Lake's Shorelands

To better understand the health of the Pickerel Lake, shorelands were evaluated by WDNR (Brenda Nordin) in 2020. The survey inventoried shoreland vegetation, erosion, riprap, barren ground, seawalls, structures, and docks. 31% of the 5.1 miles of shoreline is considered disturbed. A total of 56 piers were counted during the survey (1/480 ft).

- With 70 lakefront lots, 2,100 feet (8%) of disturbed shoreland is permitted under NR115. Based on the 2020 shoreland inventory, 31% of Pickerel Lake's shoreland was disturbed compared to 24% in 2015. Coarse woody habitat was measured at 29 logs/mile compared to 58 logs/mile in 2015 (>250 logs/mile recommended.)
- Pickerel Lake had average shoreland health compared to other lakes in the study. Many areas have been identified for restoration.

Shorelands



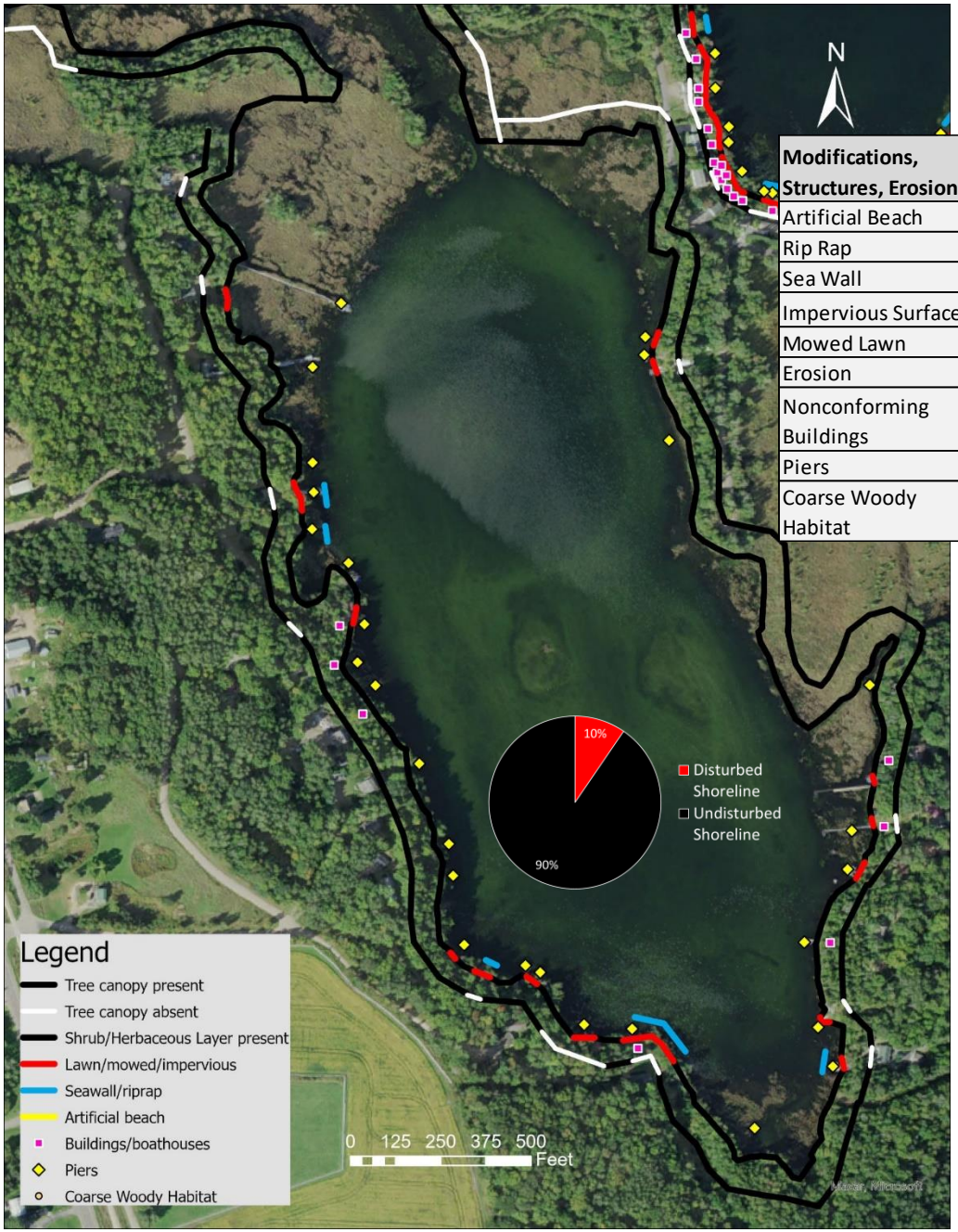
Modifications, Structures, Erosion	Measured Occurrence
Artificial Beach	0 ft
Rip Rap	100 ft
Sea Wall	0 ft
Impervious Surface	0 ft
Mowed Lawn	114 ft
Erosion	0 ft
Nonconforming Buildings	2
Piers	10
Coarse Woody Habitat	19 logs/mile

Little Pickerel Lake's Shorelands

To better understand the health of the Little Pickerel Lake, shorelands were evaluated by WDNR (Brenda Nordin) in 2020. The survey inventoried shoreland vegetation, erosion, riprap, barren ground, seawalls, structures, and docks. 14% of the 1.8 miles of shoreline is considered disturbed. A total of 10 piers were counted during the survey (1/925 ft).

- With 16 lakefront lots, 480 feet (5%) of disturbed shoreland is permitted under NR115. Based on the 2020 shoreland inventory, 14% of Little Pickerel Lake's shoreland was disturbed compared to 9% in 2015. Coarse woody habitat was measured at 14 logs/mile compared to 59 logs/mile in 2015 (>250 logs/mile recommended.)
- Little Pickerel Lake had average shoreland health compared to other lakes in the study. Many areas have been identified for restoration.

Shorelands



Modifications, Structures, Erosion	Measured Occurrence
Artificial Beach	0 ft
Rip Rap	140 ft
Sea Wall	70 ft
Impervious Surface	96 ft
Mowed Lawn	587 ft
Erosion	10 ft
Nonconforming Buildings	8
Piers	27
Coarse Woody Habitat	54 logs/mile

Smoke Lake's Shorelands

To better understand the health of the Smoke Lake, shorelands were evaluated by WDNR (Brenda Nordin) in 2020. The survey inventoried shoreland vegetation, erosion, riprap, barren ground, seawalls, structures, and docks. 10% of the 1.6 miles of shoreline is considered disturbed. A total of 27 piers were counted during the survey (1/318 ft).

- With 35 lakefront lots, 1,050 feet (12%) of disturbed shoreland is permitted under NR115. Based on the 2020 shoreland inventory, 10% of Smoke Lake's shoreland was disturbed compared to 22% in 2015. Coarse woody habitat was measured at 55 logs/mile compared to 40 log/mile in 2015 (>250 logs/mile recommended.)
- Smoke Lake had above average shoreland health compared to other lakes in the study. Some areas have been identified for restoration.

Coarse Woody Habitat (CWH)

Woody debris (i.e., branches, limbs, trees) that falls into the lake forms critical habitat for tiny aquatic organisms that feed bluegills, turtles, crayfish and other critters. Water insects such as mayflies graze on the algae that grow on decomposing wood. Dragonfly nymphs hunt for prey among the stems and branches. Largemouth and smallmouth bass often find food, shelter, or nesting habitat among these fallen trees.

Above water, a fallen tree is like a dock for wildlife. Ducks and turtles sun themselves on the trunk, muskrats use the tree as a feeding platform, predators such as mink and otter hunt for prey in the vicinity of fallen wood, and dead trees that remain along the shoreline are used as perches by belted kingfishers, ospreys and songbirds.

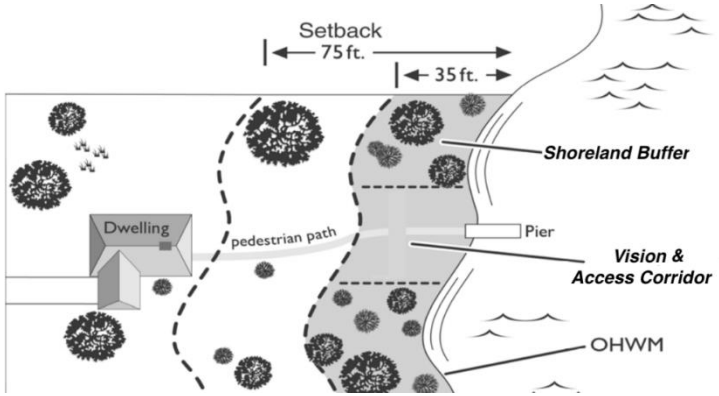
Undeveloped lakes typically contain hundreds of 'logs per mile' while they may completely disappear on developed lakes. Unless it is a hazard to navigation or swimming, consider leaving woody debris in the water.

Shorelands

Pickerel Lake 2020 Shoreland Survey Results				
Total lakefront footage	**# Riparian lots**	**Total allowable (NR115) disturbed shoreland**	**Measured disturbed shoreland**	**Coarse Woody Habitat (logs/mile)**
26,897	70	2,100 feet (8%)	8,305 feet (31%) (24% in 2015)	29 (58 in 2015)

Little Pickerel Lake 2020 Shoreland Survey Results				
Total lakefront footage	**# Riparian lots**	**Total allowable (NR115) disturbed shoreland**	**Measured disturbed shoreland**	**Coarse Woody Habitat (logs/mile)**
9,251	16	480 feet (5%)	1,341 feet (14%) (9% in 2015)	14 (59 in 2015)

Smoke Lake 2020 Shoreland Survey Results				
Total lakefront footage	**# Riparian lots**	**Total allowable (NR115) disturbed shoreland**	**Measured disturbed shoreland**	**Coarse Woody Habitat (logs/mile)**
8,606	35	1,050 feet (12%)	823 feet (10%) (22% in 2015)	55 (40 in 2015)



Shorelands

Goal 5. Shorelands around the Pickerel Chain will be healthy and protective of water quality and habitat. Encourage property owners with mowed shoreline to consider areas to be restored.

Objective 5.1 Shoreland property owners will be knowledgeable and make good decisions regarding shoreline management.

Actions	Lead person/group	Resources	Timeline
Provide informational materials to all shoreland property owners about basic lake stewardship including healthy shorelands and their composition (wildflowers, native plants, coarse woody habitat, etc.). Include information on cost share programs.		OCLWA UWEX Lakes WDNR Healthy Lakes Grants	Ongoing
Encourage and support shoreland owners interested in shoreland restoration. Include information on how and why to create health shorelands in a welcome packet to rental units and new property owners.		UWEX Lakes OCLCD WDNR Healthy Lakes Grants	Ongoing
Encourage those interested in shoreland restoration to contact OCLCD for available resources.		OCLCD WDNR Healthy Lakes Grants	Ongoing
Consider restoring and showcasing a 'demonstration site' with a sign about shoreland protection.		WDNR	2024

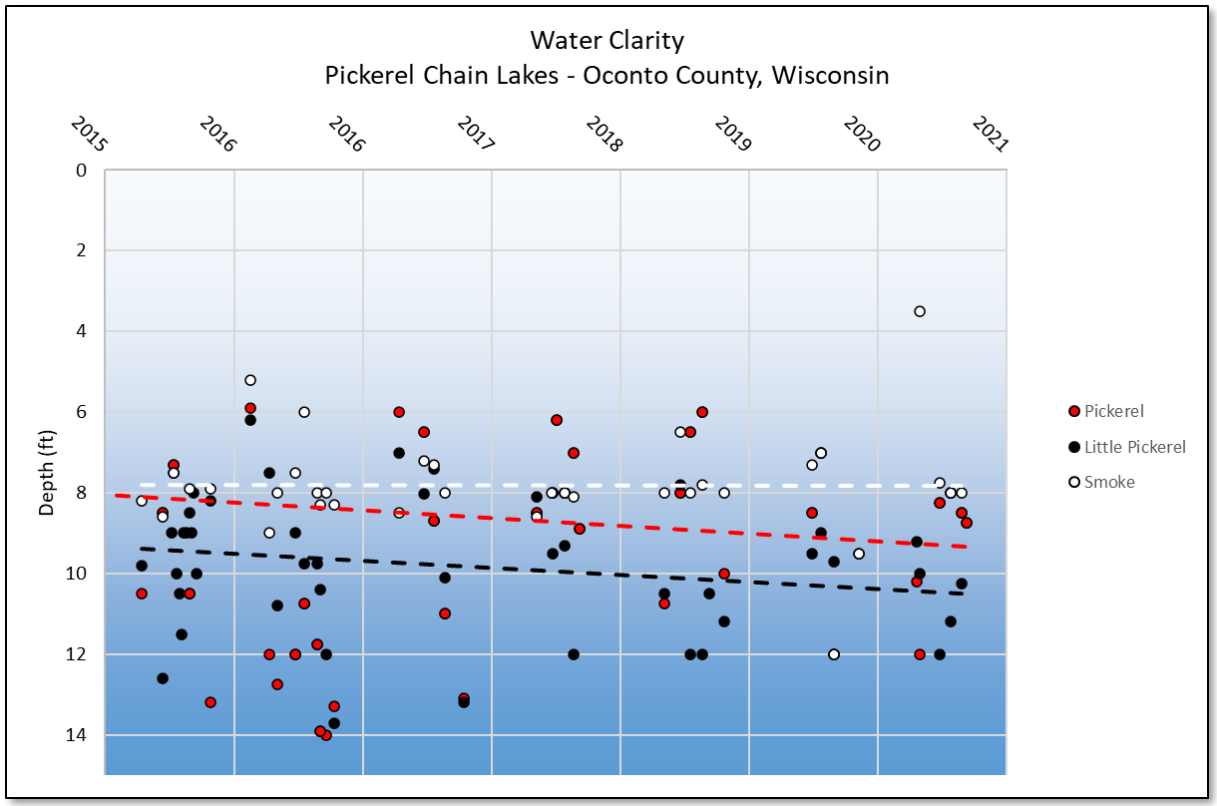
Water Quality

Water Quality

A variety of water chemistry measurements were used to characterize the water quality in the Pickerel Chain. Water quality was assessed during the 2020-2021 lake study and involved a number of measures including temperature, dissolved oxygen, water chemistry, and nutrients (phosphorus and nitrogen). Nutrients are important measures of water quality in lakes because they contribute to algae and aquatic plant growth. Each of these interrelated measures plays a part in the lake's overall water quality. In addition, water quality data collected in past years was also reviewed to determine trends in the Pickerel Chain's water quality.

Water Clarity

Water clarity is a measure of how deep light can penetrate (Secchi depth). Clarity is affected by water color, turbidity, and algae and helps determine where rooted aquatic plants grow.



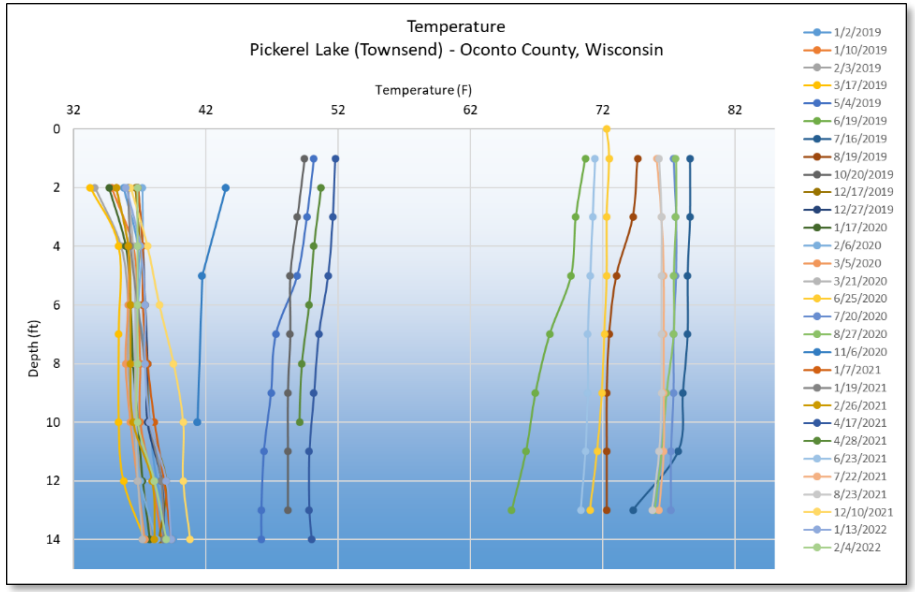
Pickerel Chain Lake's Water Quality Summary

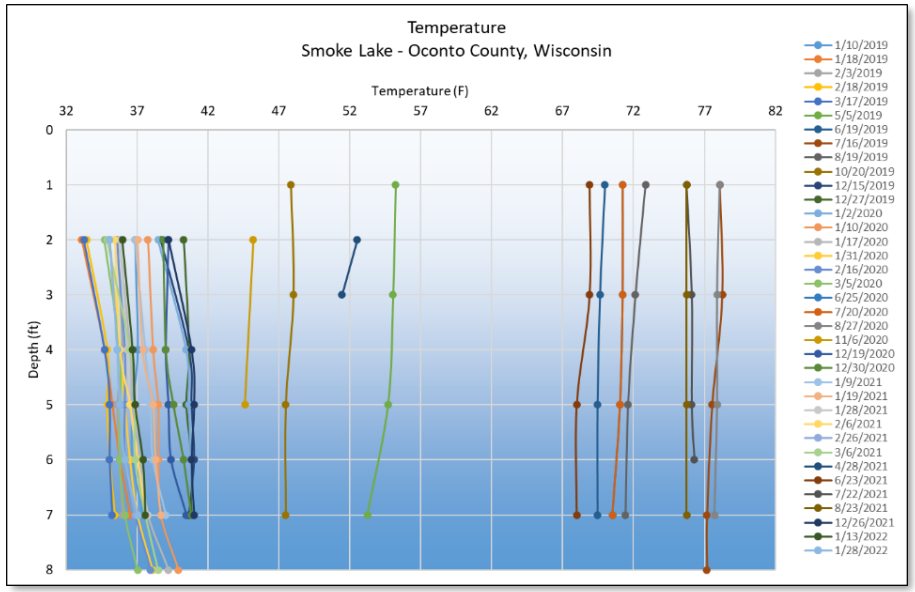
- ✓ **Water clarity** ranged from about 7-12 feet in each lake. These depths are considered 'good' and indicate a stable trend when compared to previous data.
- ✓ **Dissolved oxygen** routinely dropped below the threshold of 5ppm in all three lakes during winter.
- ✓ Concentrations of **contaminants** were elevated during the study suggesting impacts from human activities. Atrazine, a common agricultural herbicide, was not detected.
- ✓ **Phosphorus** concentrations were consistently below the standards for deep (30 mg/L) and shallow (40 mg/L) drainage lakes during the study. **Inorganic nitrogen** remained below concentrations that tend to spur algal blooms.

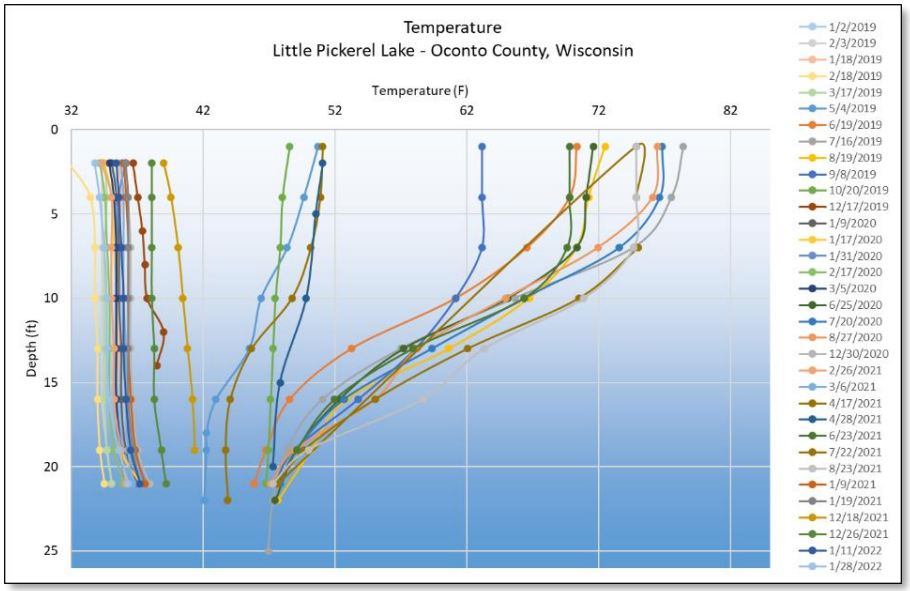
Water Quality

Temperature and Dissolved Oxygen

Temperature profiles in Pickerel and Smoke Lakes illustrate





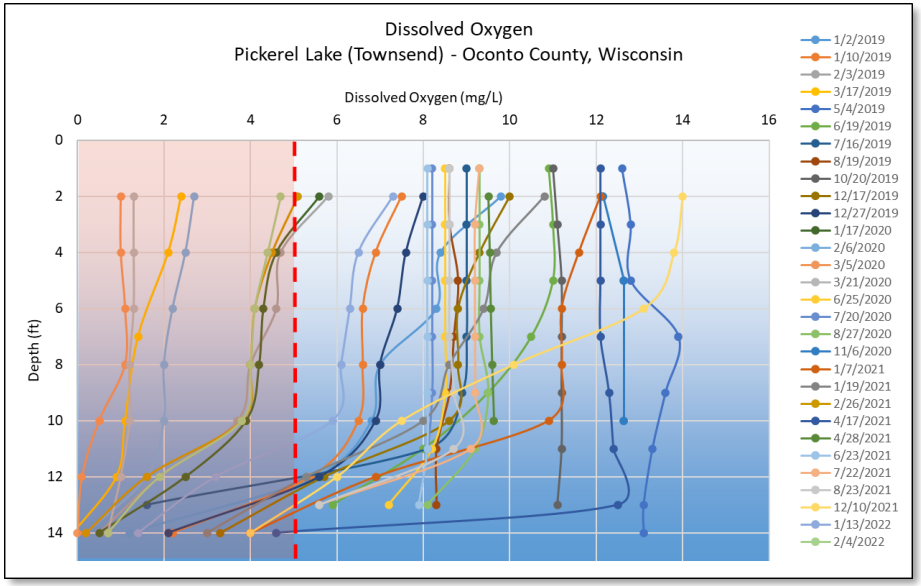


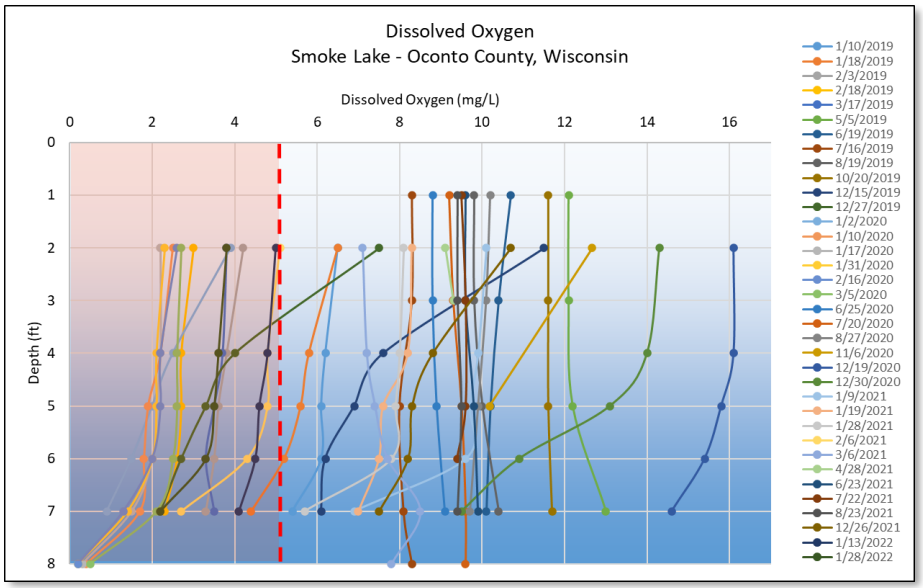
typical shallow, mixed lakes that have consistent temperatures with depth at each reading. In Little Pickerel, a clear thermocline develops between 5-15 feet during the growing season. This stratification separates warmer, more buoyant water near the surface from the heavier, colder water below and classifies this lake as a 'deep' lake.

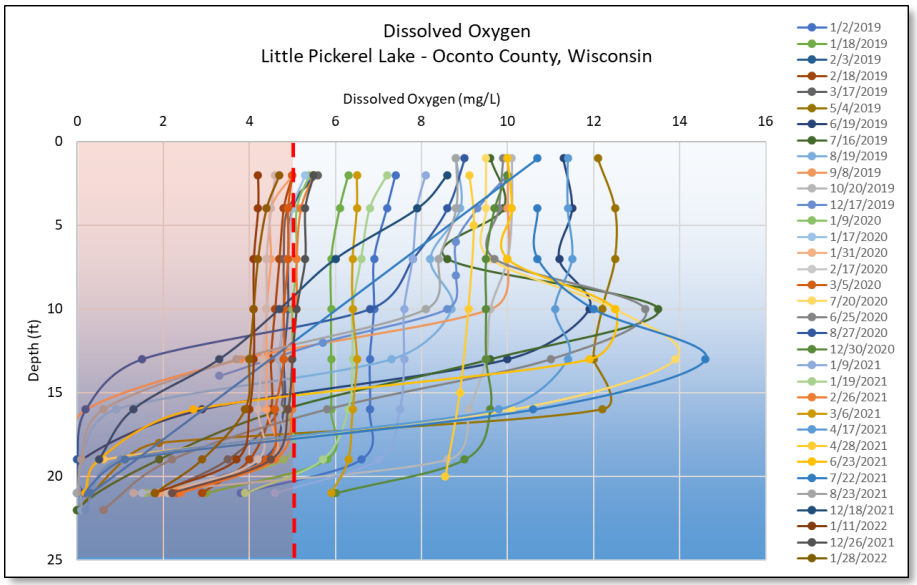
Dissolved oxygen is an important measure in the Pickerel Chain because a majority of organisms in the water depend on oxygen to survive. Oxygen is dissolved into the water from contact with air, which is increased by wind and wave action. Algae and aquatic plants also produce oxygen when sunlight enters the water, but the decomposition of dead plants and algae reduces oxygen in the lake.

Dissolved oxygen concentrations generally decline with depth as access to sources such as the atmosphere and growing plants is decreased. Because Pickerel and Smoke are shallow enough that the water remains mixed throughout the year, dissolved oxygen

concentrations mimic temperatures having a consistent concentrations with depth at each reading. Little Pickerel, however, shows evidence of the thermocline as concentrations drop sharply between 5 and 15 feet during the growing season. Increases in dissolved oxygen at depth in some of the profiles are the result of algae blooms occurring around the thermocline.







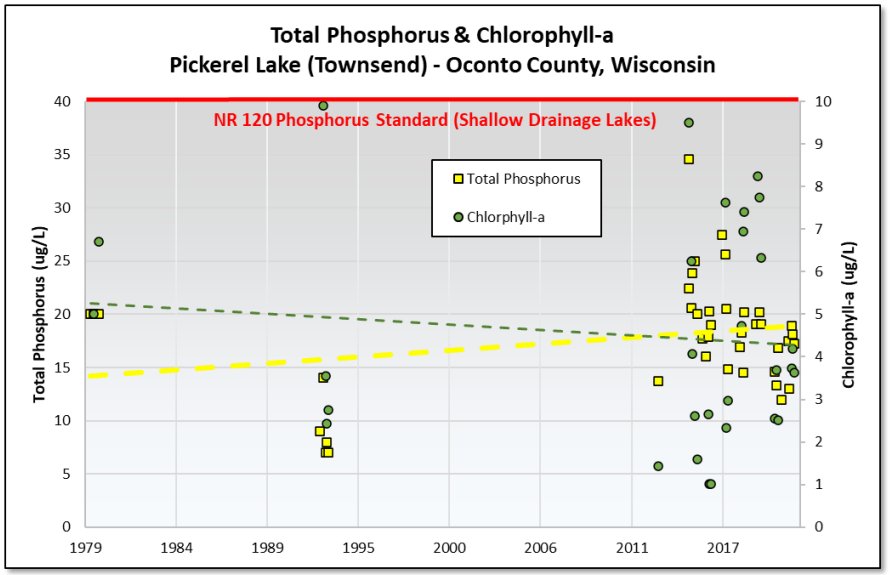
Contaminants

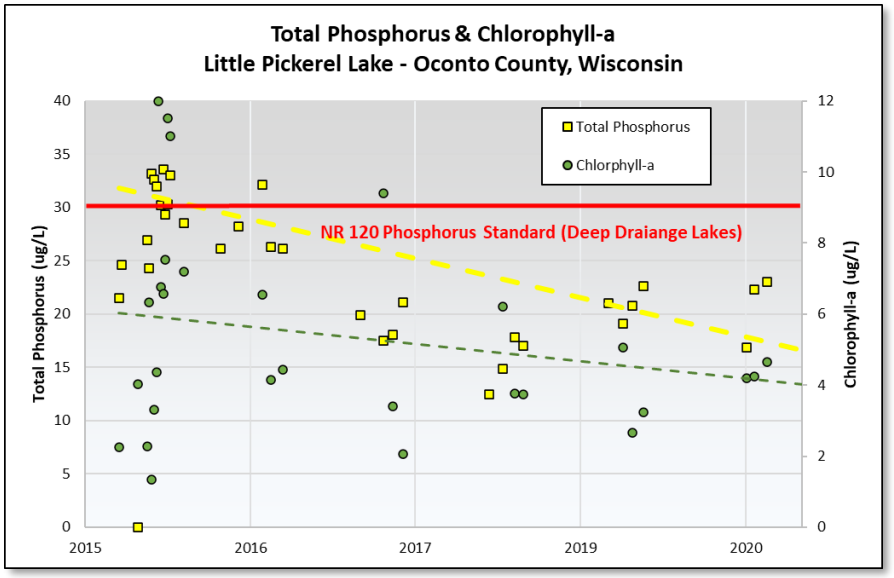
Chloride, sodium and potassium concentrations are commonly used as indicators of how a lake is being impacted by human activity. The presence of these compounds where they do not naturally occur indicates sources of water contaminants. Although these elements are not detrimental to the aquatic ecosystem, they indicate that sources of contaminants such as road salt, fertilizer, animal waste and/or septic system effluent may be entering the lake from either surface runoff or via groundwater. Measurements of these compounds were elevated in all three lakes (Little Pickerel the highest) suggesting some degree of impact from human activities.

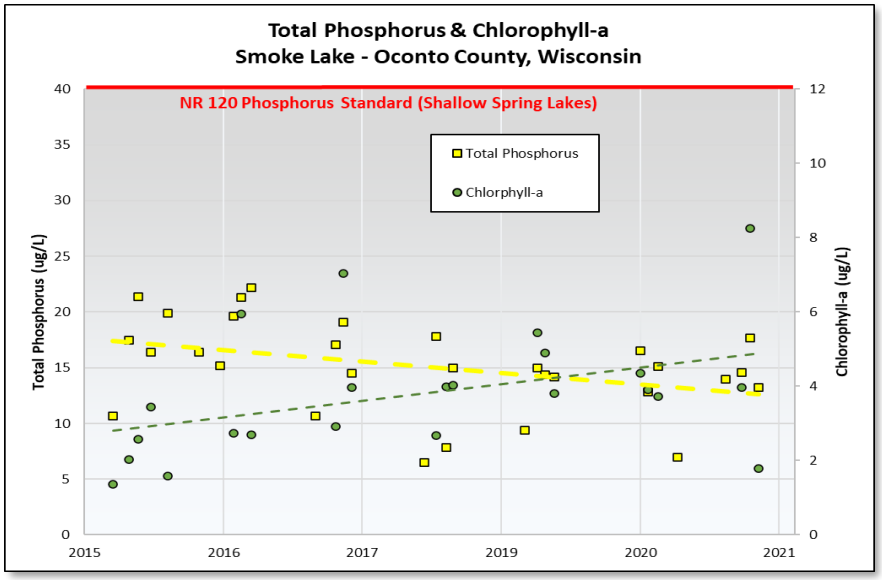
Water Quality

Nutrients

Phosphorus is an element that is essential in trace amounts to most living organisms, including aquatic plants and algae. Naturally-occurring sources of phosphorus include soils and wetlands, and groundwater. Common sources from human activities include soil erosion, animal waste, fertilizers, and septic systems. Although a variety of compounds are important to biological growth, phosphorus receives so much attention because it is commonly the "limiting nutrient" in many Wisconsin lakes. Due to its relatively short supply compared to other substances necessary for growth, relatively small increases in phosphorus result in significant increases in aquatic plants and algae. NR 120, Wisconsin Administrative Code lists phosphorus limits for different lake types. Shallow drainage lakes such as the Pickerel and Smoke have a standard of 40 ug/L they must stay below to remain healthy. Deep drainage lakes like Little Pickerel have a standard of 30 ug/L. Compared with historic data, trends in phosphorus and chlorophyll-a are relatively stable.







Water Quality

Be part of the solution!

Managing nitrogen, phosphorus and soil erosion throughout the Pickerel Chain watershed is one of the keys to protecting the lake itself. Near shore activities that may increase the input of phosphorus to the lake include applying fertilizer, removing native vegetation (trees, bushes and grasses), mowing vegetation, and increasing the amount of exposed soil. Nitrogen inputs to a lake can be controlled by using lake-friendly land management decisions, such as the restoration of shoreland vegetation, elimination/reduction of fertilizers, proper management of animal waste and septic systems, and the use of water quality-based management practices.

Goal 6. Enhance the water quality of the Pickerel Chain.

Objective 6.1 Maintain median summer total phosphorus concentrations below 40 ug/L in Pickerel and Smoke Lakes and below 30 ug/L in Little Pickerel Lake.

Actions	Lead person/group	Resources	Timeline
Inform others around the lake about the impact of nutrients and land management on water quality through the distribution of a newsletter and/or hosting a guest speaker at the annual meeting.		OCLWA WDNR UWEX Lakes	Ongoing
Refrain from the use of fertilizers.		OC UWEX	Ongoing
Encourage the restoration where there is mowed vegetation to slow and absorb runoff and pollutants (see **Shorelands** section).		UWEX Lakes	Ongoing

Objective 6.2 Continue to develop an ongoing, long-term dataset for the Pickerel Chain to monitor trends or changes over time.

Actions	Lead person/group	Resources	Timeline
Support volunteers collecting water quality data. Encourage new volunteers to work with the Citizen Lake Monitoring Network.		CLMN WDNR-Brenda Nordin	3+ times annually in summer
Submit all data to WDNR for archival and use by scientists and resource managers.		WDNR	Ongoing
Communicate water quality sampling ant testing results and trends with PCLA membership.			

Wisconsin has more than 500,000 registered boats-one for every 10 residents.

PEOPLE AND THE LAKE

The people who interact with the lake are a key component of the lake and its management. In essence a lake management plan is a venue by which people decide how they would like people to positively impact the lake. The plan summarizes the decisions of the people to take proactive steps to improve their lake and their community. Individual decisions by lake residents and visitors can have positive impacts on the lake and on those who enjoy this common resource. Collaborative efforts may have bigger positive impacts; therefore, communication and cooperation between the community and suite of lake users are essential to maximize the effects of plan implementation.

Boating hours, regulations, and fishing limits are examples of principles that are put into place to minimize conflicts between lake users and balance human activities with environmental considerations for the lake.

Recreation

According to survey responses, the lake is enjoyed for its scenery and fishing. There is one public boat launch located on the south side of Pickerel Lake which is owned and maintained by the by the Town of Townsend. No Wake between 5pm and 10am or at any time on Little Pickerel.

Dam

An earthen dam (NID Dam ID WI00712, Dam Key Seq No. 658, Field File No. 42.25) is located at the north end of Pickerel Lake at the entrance to Pickerel Creek, the lake's outflow. Originally constructed in 1960 to "*hold levels in Pickerel Lake, Little Pickerel Lake and Smoke Lake to improve navigation and conservation values*", the dam was rebuilt in 2015. According to WDNR records, the dam is owned by the Town of Townsend and has a hydraulic height of 5.3 feet and impounds approximately 1,750 acre/feet of water. Pool elevation is maintained at 1309.25 feet NAVD88 datum.

Dam maintenance is responsibility of Town.

Pickerel Lake Dam, *WDNR*

Recreation

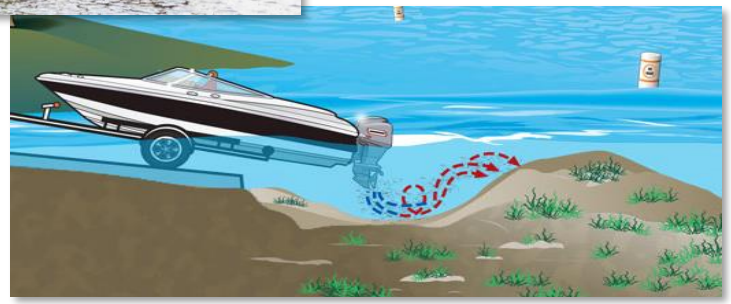
Goal 7. Lake users will be informed about and respectful of the Pickerel Chain Lakes.

Objective 7.1 Promote an atmosphere of respect amongst lake users. Encourage boater safety and investigate and educate owners on methods to reduce boating impact on the lakes.

Actions	Lead person/group	Resources	Timeline
Work with other lake groups and towns to support a recreational law enforcement officer for enforcement of boating regulations.		Town of Townsend OCLWA OC UWEX	Ongoing
Work with Town to upkeep/repair boat ramp and reduce parking lot runoff to lake. Ensure the information kiosk is informative and relevant with up-to-date signage. Clearly map slow-no-wake areas and times.		WDNR Town of Townsend OCLCD	Ongoing

Objective 7.2 Increase stakeholder understanding of dam operation and water levels.

Actions	Lead person/group	Resources	Timeline
Install and monitor a staff gauge at town-owned dam and report periodic readings to WDNR and PCLA members.		Town of Townsend OCLWA	Ongoing



LakeKit.net is a network of lake groups helping others to build and maintain websites.

Communication and Organization

Working together on common values will help to achieve the goals outlined in this plan. This will involve communication between individuals, the Town of Townsend, Oconto County, resource managers, and elected officials. In addition, staying informed about lake- and groundwater-related topics will be essential to achieving the goals laid out in this plan. See the Oconto County Lake Information Directory in the Appendices for contact information.

Many of the goals outlined in this plan focus on distributing information to lake and watershed residents and lake users in order to help them make informed decisions that will result in a healthy Pickerel Chain ecosystem that is enjoyed by many people. Working together on common values will help to achieve the goals that are outlined in this plan.

Goal 8. Increase participation in lake stewardship.

Objective 8.1 Develop opportunities and recruit participation in the management of the Pickerel Chain Lakes.

Actions	Lead person/group	Resources	Timeline
Maintain and update website (or Facebook page) to provide a common source of information.			Ongoing
Distribute a welcome packet to all new shoreland property owners with basic lake stewardship information. WDNR small-scale planning grants can help pay for this.		OC UWEX OC Zoning Dept. OCLCD	Ongoing
Communicate updates to lake management plan and management activities to residents and lake users (and WDNR).			Ongoing
Discuss lake management and opportunities for participation at the annual meeting. Invite speakers or conduct demonstrations as appropriate.		UWEX	Annually

Objective 8.2 Maintain good, clear communication between PCLA, residents, municipalities, County and State. Facilitate partnerships with other management entities and stakeholders.

Actions	Lead person/group	Resources	Timeline
Network with other lake groups by having the Pickerel Chain represented at OCLWA.		OC UWEX OCLWA	Quarterly
Consider having PCLA representative attend the Wisconsin Lakes Convention and/or Lake Leaders Institute and Network with other lakes in the state to learn lake management strategies, etc. .		UWEX Lakes	Annually

Updates and Revisions

Updates and Revisions

A management plan is a living document that changes over time to meet the current needs, challenges and desires of the lake and its community. The goals, objectives and actions listed in this plan should be reviewed annually and updated with any necessary changes. Partners listed in the plan should be contacted annually, and updated information compiled. A list of changes/updates to the plan should be documented. To ensure that everyone is informed about changes, appropriate approval for changes should be acquired by all partners signing on to this plan.

Goal 9. Review plan annually and update as needed.

Objective 9.1 Communicate updates with lake community, Oconto County and WDNR.

Actions	Lead person/group	Resources	Timeline
Review plan annually and discuss accomplishments and identification of goals/objectives for coming year.			Annually
Formally update this plan every 5 years.		OC UWEX WDNR	2028

REFERENCES

Boat Ed, 2013. The Handbook of Wisconsin Boating Laws and Responsibilities. Approved by Wisconsin Department of Natural Resources. www.boat-ed.com

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Long, Christopher, 2023. Pickerel Chain Fishery, Oconto County, Presentation to Cooley Lake Planning Meeting, March 1, 2022. Wisconsin Department of Natural Resources.

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Public Service Commission of Wisconsin, 1948. Opinions and Decisions of the Public Service Commission of Wisconsin, Volume XXXII. 410 pp.

Shaw, B., C. Mechenich, and L. Klessig, 2000. Understanding Lake Data. University of Wisconsin-Extension, Stevens Point. 20 pp.

APPENDICES

Appendix A

Appendix A. Oconto County Lake Information Directory

Algae - Blue-Green

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/lakes/bluegreenalgae

Contact: Wisconsin Department of Health Services
1 West Wilson Street, Madison, WI 53703
Phone: 608-267-3242
Website:
www.dhs.wisconsin.gov/eh/bluegreenalgae/contactus.htm

Aquatic Invasive Species/Clean Boats Clean Water

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/topic/Invasives/

Aquatic Plant Management

(Native and Invasive)

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/lakes/plants/

Aquatic Plant Identification

Contact: Dr. Emmet Judziewicz
UWSP Freckmann Herbarium
TNR 301, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-4248
E-mail: ejudziew@uwsp.edu

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov

Aquatic Plant Surveys/Management

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/lakes/plants/

Best Management Practices (rain gardens, shoreland buffers, agricultural practices, runoff controls)

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Boat Landings, Signage, Permissions (County)

Contact: Monty Brink
Oconto County Forestry/Park/Recreation
301 Washington Street, Oconto, WI 54153
Phone: 920-834-6995
E-mail: monty.brink@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Boat Landings (State)

Contact: Christopher Long
Wisconsin Department of Natural Resources
101 N. Ogden Road, Peshtigo, WI 54157
Phone: 715-582-5052
E-mail: Christopher.Long@wisconsin.gov
Website: http://dnr.wi.gov/org/land/facilities/boataccess/

Appendix A

Boat Landings (Town)

Contact the clerk for the specific town/village in which the boat landing is located.

Conservation Easements

Contact: Gathering Waters Conservancy
211 S. Paterson St., Suite 270, Madison, WI 53703
Phone: 608-251-9131
E-mail: info@gatheringwaters.org
Website: http://gatheringwaters.org/

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov

Contact: Northeast Wisconsin Land Trust
14 Tri-Park Way, Suite 1, Appleton, WI 54914
Phone: 920-738-7265
E-mail: newlt@newlt.org
Website: www.newlt.org

Contact: NRCS Lena Service Center
410 ½ East Main Street, Lena, WI 54139
Phone: 920-829-5406

Critical Habitat and Sensitive Areas

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/lakes/criticalhabitat/

Dams

Contact: Meg Galloway
Wisconsin Department of Natural Resources
PO Box 7921, Madison, WI 53707
Phone: 608-266-7014
E-mail: meg.galloway@wisconsin.gov
Website: http://dnr.wi.gov/org/water/wm/dsfm/dams/

Fertilizers/Soil Testing

Contact: Dale Mohr
Oconto County UW- Extension
301 Washington Street, Oconto, WI 54153
Phone: 920-835-6845
E-mail: dale.mohr@wisc.edu
Website: http://oconto.uwex.edu

Fisheries Biologist (management, habitat)

Contact: Tammie Paoli
Wisconsin Department of Natural Resources
101 N. Ogden Road, Peshtigo, WI 54157
Phone: 715-582-5052
E-mail: Tammie.Paoli@wisconsin.gov
Website: http://dnr.wi.gov/fish/

Frog Monitoring—Citizen Based

Contact: Andrew Badje
Wisconsin Department of Natural Resources
Phone: 608-785-9472
E-mail: Andrew.badje@wisconsin.gov
Website: WFTS@wisconsin.gov

Grants

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/Aid/Grants.html

Appendix A

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Groundwater Quality

Contact: Kevin Masarik
UWSP Center for Watershed Science & Education
TNR 224, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-4276
E-mail: kmasarik@uwsp.edu
Website: http://www.uwsp.edu/cnr/watersheds/

Groundwater Levels/Quantity

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Contact: George Kraft
UWSP Center for Watershed Science & Education
TNR 224, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-2984
E-mail: george.kraft@uwsp.edu

Informational Packets

Contact: UW Extension - Lakes
TNR 224, 800 Reserve St. Stevens Point, WI 54481
Phone: 715-346-2116
E-mail: uwexlakes@uwsp.edu

Lake Groups – Friends, Associations, Districts

Contact: Dale Mohr
Oconto County UW- Extension
301 Washington Street, Oconto, WI 54153
Phone: 920-835-6845
E-mail: dale.mohr@wisc.edu
Website: http://oconto.uwex.edu

Contact: Patrick Goggin
UWEX Lakes
TNR 203, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-365-8943
E-mail: pgoggin@uwsp.edu
Website: http://www.uwsp.edu/cnr/uwexlakes/organizations/

Contact: Eric Olson
UWEX Lakes
TNR 206, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-2192
E-mail: eolson@uwsp.edu
Website: http://www.uwsp.edu/cnr/uwexlakes/organizations/

Contact: Susan Tesarik
Wisconsin Lakes
4513 Vernon Blvd., Suite 101, Madison, WI 53705
Phone: 1-800-542-5253
E-mail: lakeinfo@wisconsinlakes.org
Website: http://wisconsinlakes.org/

Lake Levels

See: Groundwater

Lake-Related Law Enforcement (no-wake, transporting invasives, etc.)

Contact: Ben Mott
State Conservation Warden
Wisconsin Department of Natural Resources
427 E. Tower Drive, Suite 100, Wautoma, WI 54982
Phone: 920-896-3383
Website: http://www.wigamewarden.com/

Appendix A

Land Use Plans and Zoning Ordinances

Contact: Patrick Virtues
Oconto County Planning/Zoning/Solid Waste
301 Washington Street, Oconto, WI 54153
Phone: 920-834-6827
E-mail: Patrick.virtues@co.oconto.wi.us
Website: http://www.co.waushara.wi.us/zoning.htm

Contact: UWSP Center for Land Use Education
TNR 208, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-3783
E-mail: Center.for.Land.Use.Education@uwsp.edu
Website: http://www.uwsp.edu/cnr/landcenter/

Nutrient Management Plans

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Contact: NRCS Lena Service Center
410 ½ East Main Street, Lena, WI 54139
Phone: 920-829-5406

Parks (County)

Contact: Monty Brink
Oconto County Forestry/Park/Recreation
301 Washington Street, Oconto, WI 54153
Phone: 920-834-6995
E-mail: monty.brink@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Purchase of Development Rights

Contact: Northeast Wisconsin Land Trust
14 Tri-Park Way, Suite 1, Appleton, WI 54914
Phone: 920-738-7265
E-mail: newlt@newlt.org
Website: www.newlt.org

Purchase of Land

Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov
Website: http://dnr.wi.gov/topic/stewardship/

Rain Gardens and Stormwater Runoff

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Septic Systems/Onsite Waste

Contact: Patrick Virtues
Oconto County Planning/Zoning/Solid Waste
301 Washington Street, Oconto, WI 54153
Phone: 920-834-6827
E-mail: Patrick.virtues@co.oconto.wi.us
Website: http://www.co.waushara.wi.us/zoning.htm

Shoreland Management

Contact: Ken Dolata
Oconto County Land & Water Conservation Department
410 ½ East Main Street, Lena, WI 54139
Phone: 920-834-7152
E-mail: ken.dolata@co.oconto.wi.us
Website: http://www.co.oconto.wi.us/departments/

Shoreland Vegetation

http://dnr.wi.gov/topic/ShorelandZoning/

Shoreland Zoning Ordinances

See: Land Use Plans and Zoning Ordinances

Appendix A

Soil Fertility Testing
Contact: Dale Mohr
Oconto County UW- Extension
301 Washington Street, Oconto, WI 54153
Phone: 920-835-6845
E-mail: dale.mohr@wisc.edu
Website: http://oconto.uwex.edu

Water Quality Monitoring
Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov

Water Quality Problems
Contact: Brenda Nordin
Wisconsin Department of Natural Resources
Phone: 920-360-3167
E-mail: brenda.nordin@wisconsin.gov

Wetlands
Contact: Jason Fleener
Wisconsin Department of Natural Resources
GEF2 DNR Central Office, Madison, WI 53707
Phone: 608-266-7408
E-mail: Jason.fleener@wisconsin.gov
Website: http://dnr.wi.gov/wetlands/

Contact: Wisconsin Wetlands Association
214 N. Hamilton Street, #201, Madison, WI 53703
Phone: 608-250-9971
Email: info@wisconsinwetlands.org

Wetland Inventory
Contact: Dr. Emmet Judziewicz
UWSP Freckmann Herbarium
TNR 301, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-4248
E-mail: ejudziew@uwsp.edu

Woody Habitat
Contact: Tammie Paoli
Wisconsin Department of Natural Resources
101 N. Ogden Road, Peshtigo, WI 54157
Phone: 715-582-5052
E-mail: Tammie.Paoli@wisconsin.gov
Website: http://dnr.wi.gov/fish/

Appendix B. Rapid Response Plan

REPORTING A SUSPECTED INVASIVE SPECIES

1. Collect specimens or take photos.

Regardless of the method used, provide as much information as possible. Try to include flowers, seeds or fruit, buds, full leaves, stems, roots and other distinctive features. In photos, place a coin, pencil or ruler for scale. Deliver or send specimen ASAP.

Collect, press and dry a complete sample. This method is best because a plant expert can then examine the specimen.

-OR-

Collect a fresh sample. Enclose in a plastic bag with a moist paper towel and refrigerate.

-OR-

Take detailed photos (digital or film).

2. Note the location where the specimen was found.

If possible, give the exact geographic location using a GPS (global positioning system) unit, topographic map, or the Wisconsin Gazetteer map book. If using a map, include a photocopy with a dot showing the plant's location.

Provide one or more of the following:

- Latitude & Longitude
- UTM (Universal Transverse Mercator) coordinates
- County, Township, Range, Section, Part-section
- Precise written site description, noting nearest city & road names, landmarks, local topography

3. Gather information to aid in positive species identification.

- Collection date and county
- Your name, address, phone, email
- Exact location (lat/long or UTM, Township/Range)
- Plant name
- Land ownership (if known/applicable)
- Population description (estimated # plants, area covered)
- Habitat type where found (forest, field, prairie, wetland, open water)

4. **Mail or bring specimens and information to any of the following locations (digital photos may be emailed):**

Wisconsin Dept. Natural Resources
2984 Shawano Avenue,
Green Bay, WI 54313
Phone: (920) 662-5100

UW-Stevens Point Herbarium
301 Trainer Natural Resources Building
800 Reserve Street
Stevens Point, WI 54481
Phone: 715-346-4248
E-Mail: ejudziew@uwsp.edu

Wisconsin Invasive Plants Reporting & Prevention Project
Herbarium-UW-Madison
430 Lincoln Drive
Madison, WI 53706
Phone: (608) 267-7612
E-Mail: invasiveplants@mailplus.wisc.edu

Appendix C

Appendix C. Lake User Survey Results

Default Report

Little Pickerel Lake Survey - Oconto County Lakes Project

June 20, 2023 8:33 AM MDT

Q2 - How did you hear about this survey?

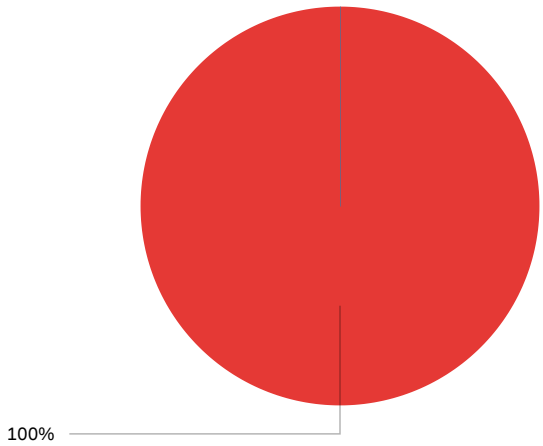
Showing sample data...

#	Field	Choice Count
1	E-mail	0% 0
2	Newspaper	0% 0
3	Postcard/letter	0% 0
4	Other	0% 0
		0

Showing rows 1 - 5 of 5

Showing sample data...

Q3 - Do you own or rent property...

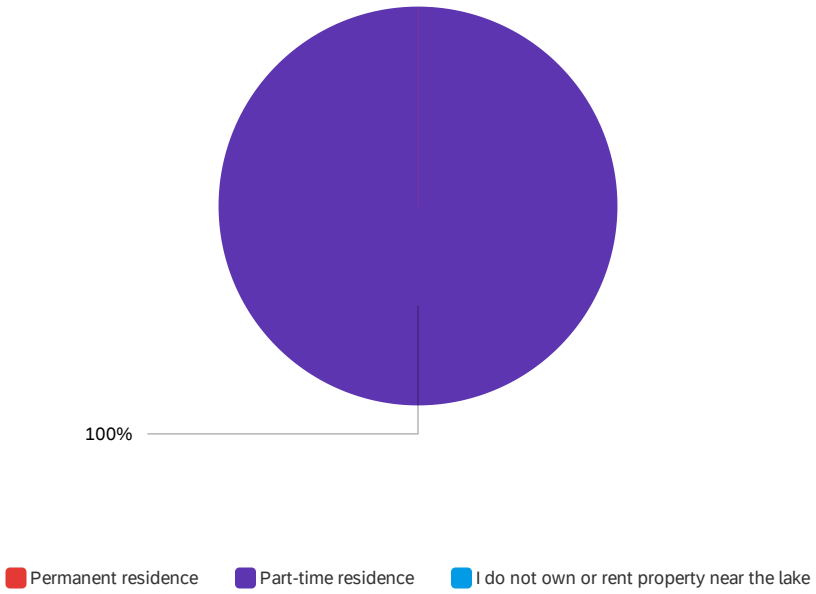


Around the lake | Less than 1/2 mile from the lake | Near the lake, but more than 1/2 mile away | I do not own or rent property near the lake

#	Field		Choice Count
1	Around the lake	100%	2
2	Less than 1/2 mile from the lake	0%	0
3	Near the lake, but more than 1/2 mile away	0%	0
4	I do not own or rent property near the lake	0%	0
			2

Showing rows 1 - 5 of 5

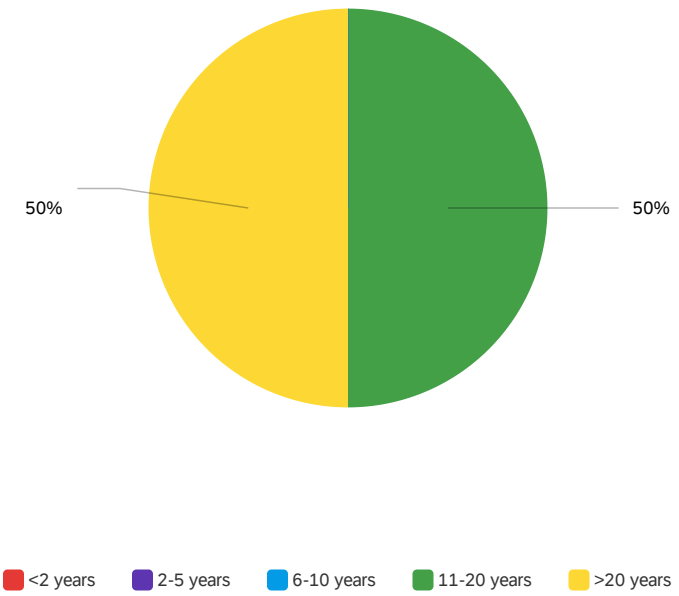
Q4 - If you own or rent property near the lake, is this property your...



#	Field	Choice Count
1	Permanent residence	0% 0
2	Part-time residence	100% 2
3	I do not own or rent property near the lake	0% 0
		2

Showing rows 1 - 4 of 4

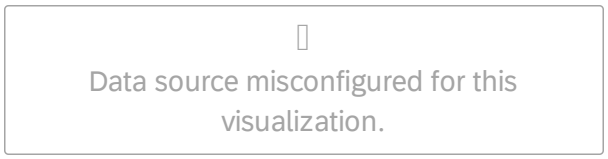
Q5 - How long have you lived on, visited or recreated on the lake?



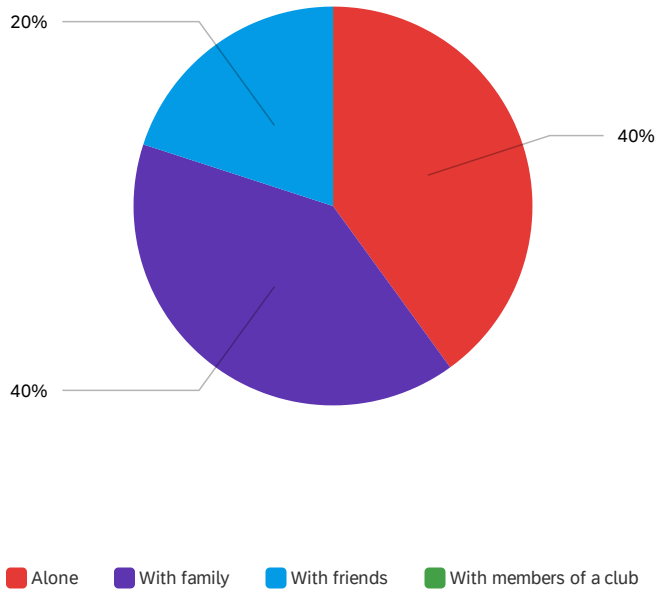
#	Field	Choice Count
1	<2 years	0% 0
2	2-5 years	0% 0
3	6-10 years	0% 0
4	11-20 years	50% 1
5	>20 years	50% 1
		2

Showing rows 1 - 6 of 6

Q8 - Which category below includes your age?



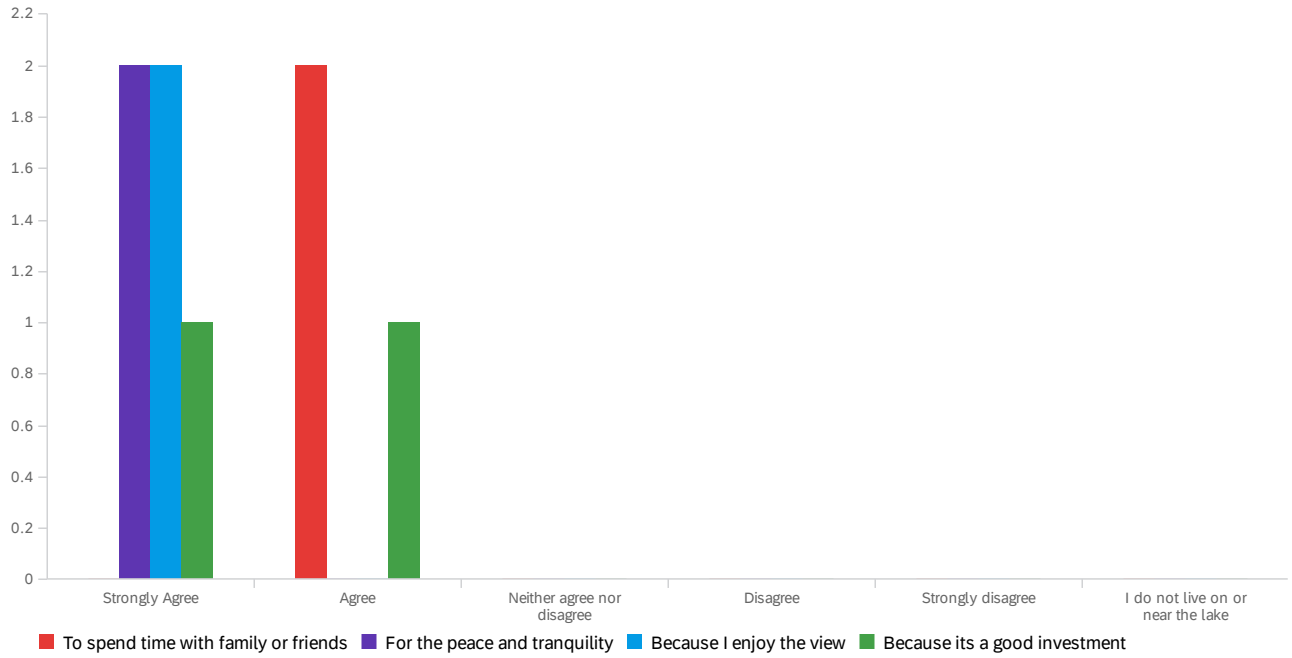
Q9 - When you visit Little Pickerel Lake, are you typically ...(check all that apply)



#	Field		Choice Count
1	Alone	40%	2
2	With family	40%	2
3	With friends	20%	1
4	With members of a club	0%	0
			5

Showing rows 1 - 5 of 5

Q10 - I live on or near the lake...



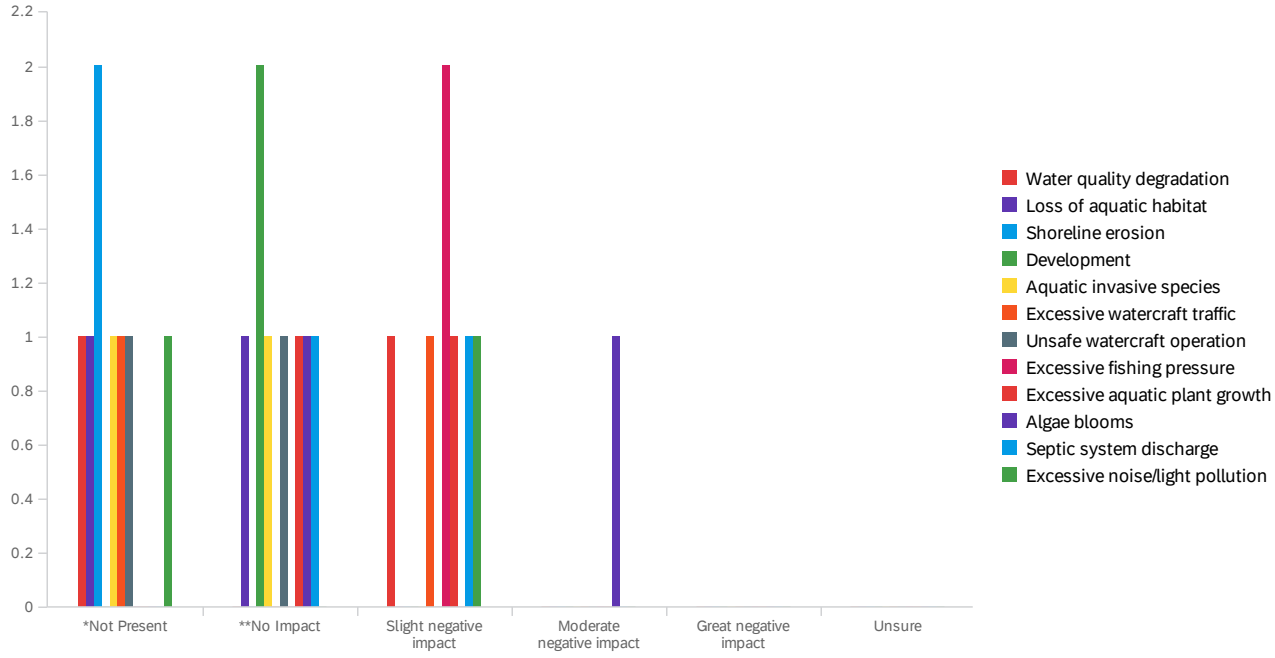
#	Field	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	I do not live on or near the lake	Total
1	To spend time with family or friends	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2
2	For the peace and tranquility	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
3	Because I enjoy the view	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
4	Because its a good investment	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2

Showing rows 1 - 4 of 4

Q11 - What do you value most about Little Pickerel Lake?

What do you value most about Little Pickerel Lake?
quiet, no-wake, fishing quality
Beauty of the natural resource

Q42 - Below is a list of negative impacts commonly found in Wisconsin lakes. To what level do you believe each of the following factors may be impacting Little Pickerel Lake? *Not Present means that you believe the issue does not exist on Little Pickerel Lake**No Impact means that the issue may exist, but is not negatively impacting Little Pickerel Lake

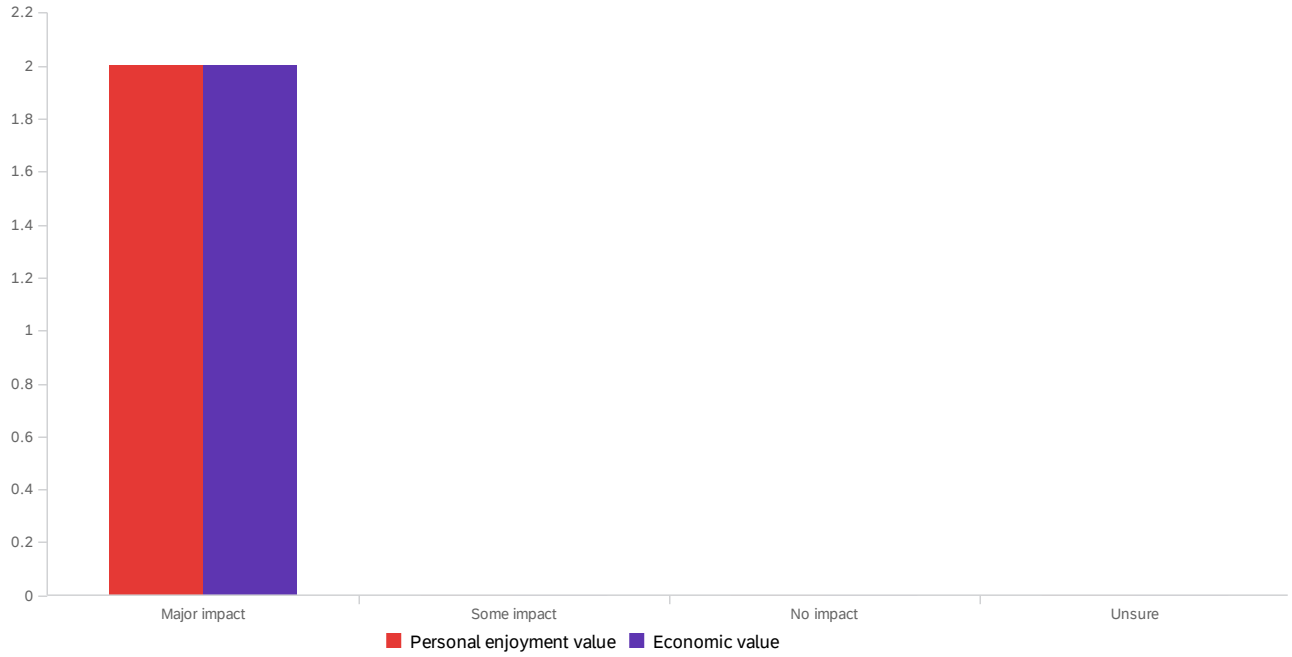


#	Field	*Not Present	**No Impact	Slight negative impact	Moderate negative impact	Great negative impact	Unsure	Total
1	Water quality degradation	50% 1	0% 0	50% 1	0% 0	0% 0	0% 0	2
2	Loss of aquatic habitat	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2
3	Shoreline erosion	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
4	Development	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2
5	Aquatic invasive species	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2
6	Excessive watercraft traffic	50% 1	0% 0	50% 1	0% 0	0% 0	0% 0	2
7	Unsafe watercraft operation	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2
8	Excessive fishing pressure	0% 0	0% 0	100% 2	0% 0	0% 0	0% 0	2

#	Field	*Not Present	**No Impact	Slight negative impact	Moderate negative impact	Great negative impact	Unsure	Total
9	Excessive aquatic plant growth	0% 0	50% 1	50% 1	0% 0	0% 0	0% 0	2
10	Algae blooms	0% 0	50% 1	0% 0	50% 1	0% 0	0% 0	2
11	Septic system discharge	0% 0	50% 1	50% 1	0% 0	0% 0	0% 0	2
12	Excessive noise/light pollution	50% 1	0% 0	50% 1	0% 0	0% 0	0% 0	2

Showing rows 1 - 12 of 12

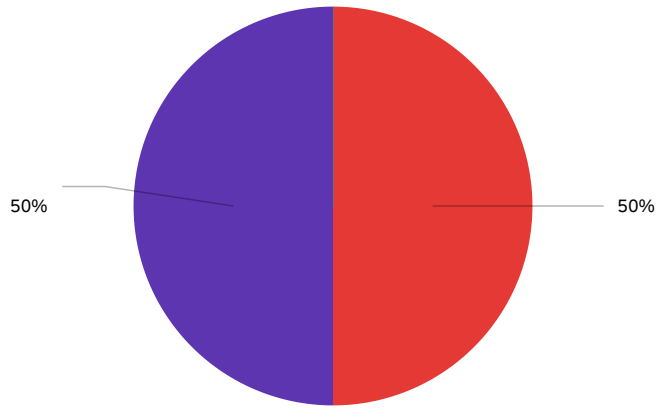
Q16 - How much impact does the water quality of Little Pickerel Lake have on the following?



#	Field	Major impact	Some impact	No impact	Unsure	Total
1	Personal enjoyment value	100% 2	0% 0	0% 0	0% 0	2
2	Economic value	100% 2	0% 0	0% 0	0% 0	2

Showing rows 1 - 2 of 2

Q17 - Which statement best describes water clarity during the times you spend most on the lake?

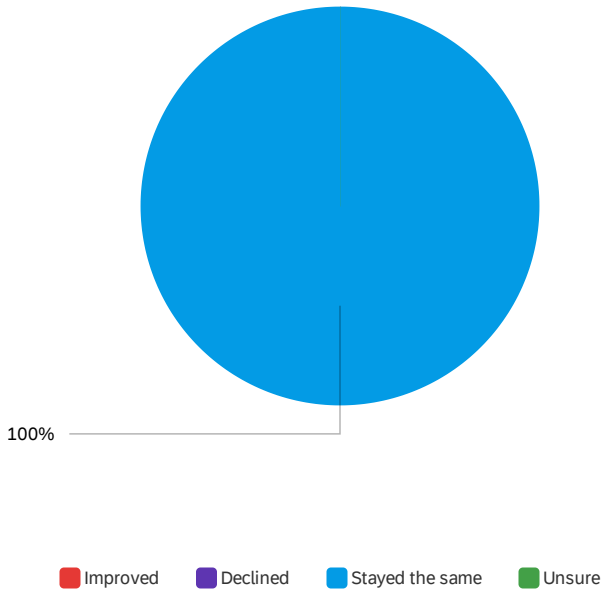


Beautiful, could not be any nicer
Very minor aesthetic problems; excellent for swimming and boating enjoyment
Enjoyment of the lake is moderately impaired because of algae or other water quality problems
Enjoyment of the lake is substantially impaired because of algae or other water quality problems

#	Field	Choice Count	
1	Beautiful, could not be any nicer	50%	1
2	Very minor aesthetic problems; excellent for swimming and boating enjoyment	50%	1
3	Enjoyment of the lake is moderately impaired because of algae or other water quality problems	0%	0
4	Enjoyment of the lake is substantially impaired because of algae or other water quality problems	0%	0
			2

Showing rows 1 - 5 of 5

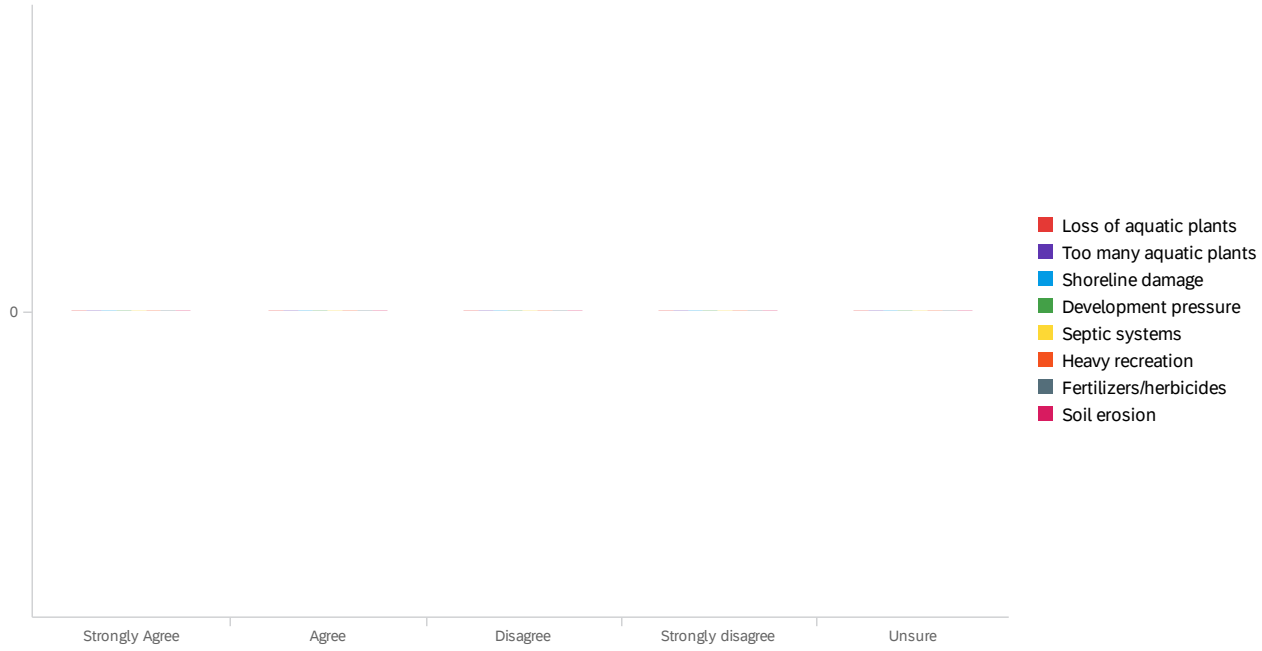
Q18 - During the time that you have lived on, visited or recreated on the lake, how would you say the water quality has changed?



#	Field	Choice Count
1	Improved	0% 0
2	Declined	0% 0
3	Stayed the same	100% 2
4	Unsure	0% 0
		2

Showing rows 1 - 5 of 5

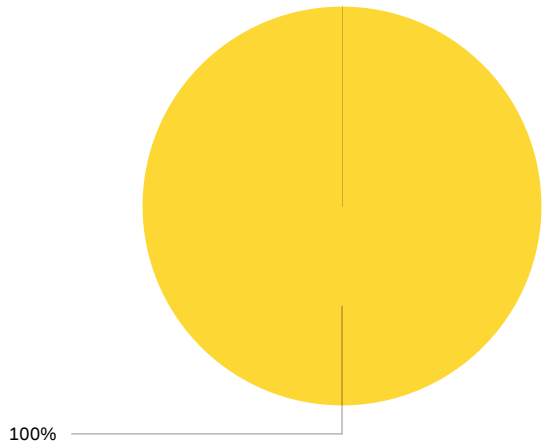
Q19 - If you think it has declined, what, in your opinion, are the primary causes?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Loss of aquatic plants	0% 0	0% 0	0% 0	0% 0	0% 0	0
2	Too many aquatic plants	0% 0	0% 0	0% 0	0% 0	0% 0	0
3	Shoreline damage	0% 0	0% 0	0% 0	0% 0	0% 0	0
4	Development pressure	0% 0	0% 0	0% 0	0% 0	0% 0	0
5	Septic systems	0% 0	0% 0	0% 0	0% 0	0% 0	0
6	Heavy recreation	0% 0	0% 0	0% 0	0% 0	0% 0	0
7	Fertilizers/herbicides	0% 0	0% 0	0% 0	0% 0	0% 0	0
8	Soil erosion	0% 0	0% 0	0% 0	0% 0	0% 0	0

Showing rows 1 - 8 of 8

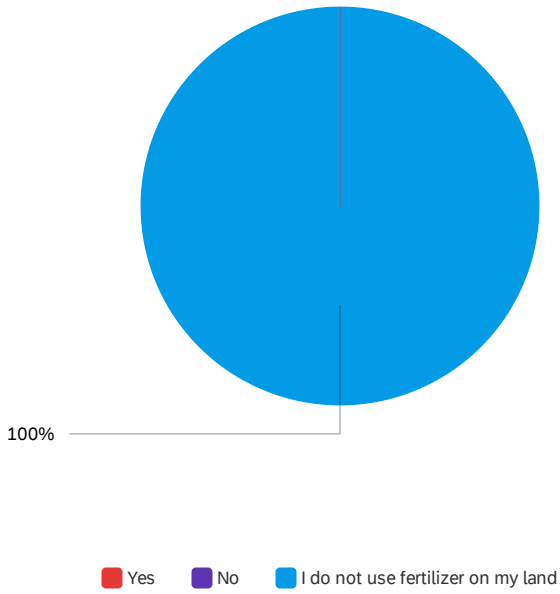
Q20 - If you use fertilizers or herbicides on your land, where are they applied?



#	Field	Choice Count
1	Lawn	0% 0
2	Garden	0% 0
3	Agricultural fields	0% 0
4	Other	0% 0
5	I do not use fertilizers or herbicides on my land	100% 2
		2

Showing rows 1 - 6 of 6

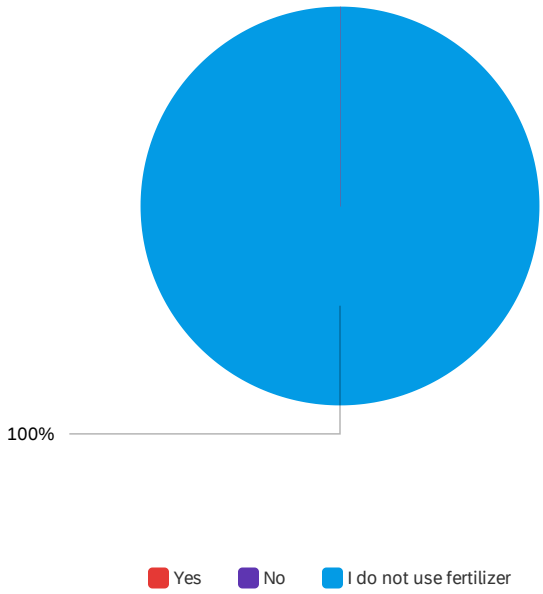
Q21 - Do you use fertilizer that contains phosphorus?



#	Field	Choice Count
1	Yes	0% 0
2	No	0% 0
4	I do not use fertilizer on my land	100% 2
		2

Showing rows 1 - 4 of 4

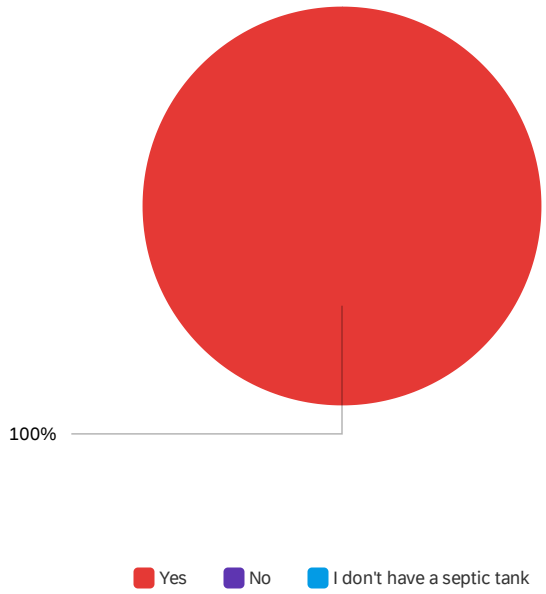
Q23 - Have you had your soil tested before using fertilizer?



#	Field	Choice Count
1	Yes	0% 0
2	No	0% 0
3	I do not use fertilizer	100% 2
		2

Showing rows 1 - 4 of 4

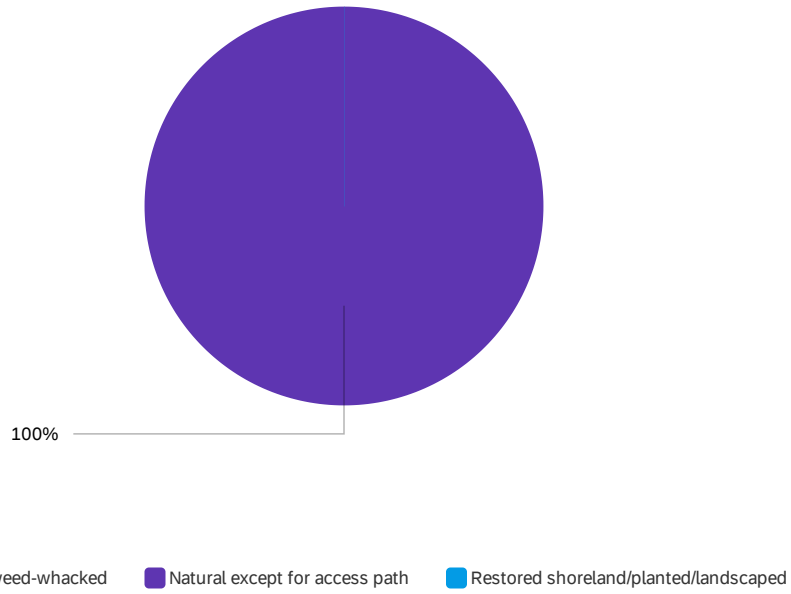
Q22 - Do you have your septic tank pumped regularly (at least every 3 years)?



#	Field	Choice Count
1	Yes	100% 2
2	No	0% 0
3	I don't have a septic tank	0% 0
		2

Showing rows 1 - 4 of 4

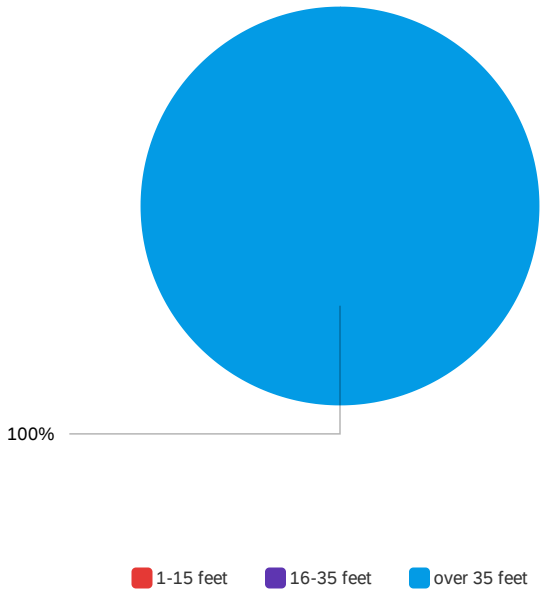
Q25 - How do you currently manage the majority of your property within 35 feet of the lake?



#	Field	Choice Count
1	Mowed or weed-whacked	0% 0
2	Natural except for access path	100% 2
3	Restored shoreland/planted/landscaped	0% 0
		2

Showing rows 1 - 4 of 4

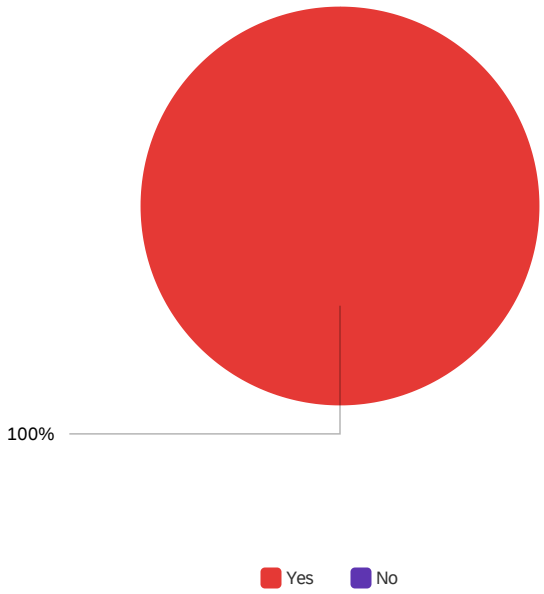
Q26 - If you have unmowed shoreland vegetation, how far inland from the water's edge does it extend?



#	Field	Choice Count
1	1-15 feet	0% 0
2	16-35 feet	0% 0
3	over 35 feet	100% 2
		2

Showing rows 1 - 4 of 4

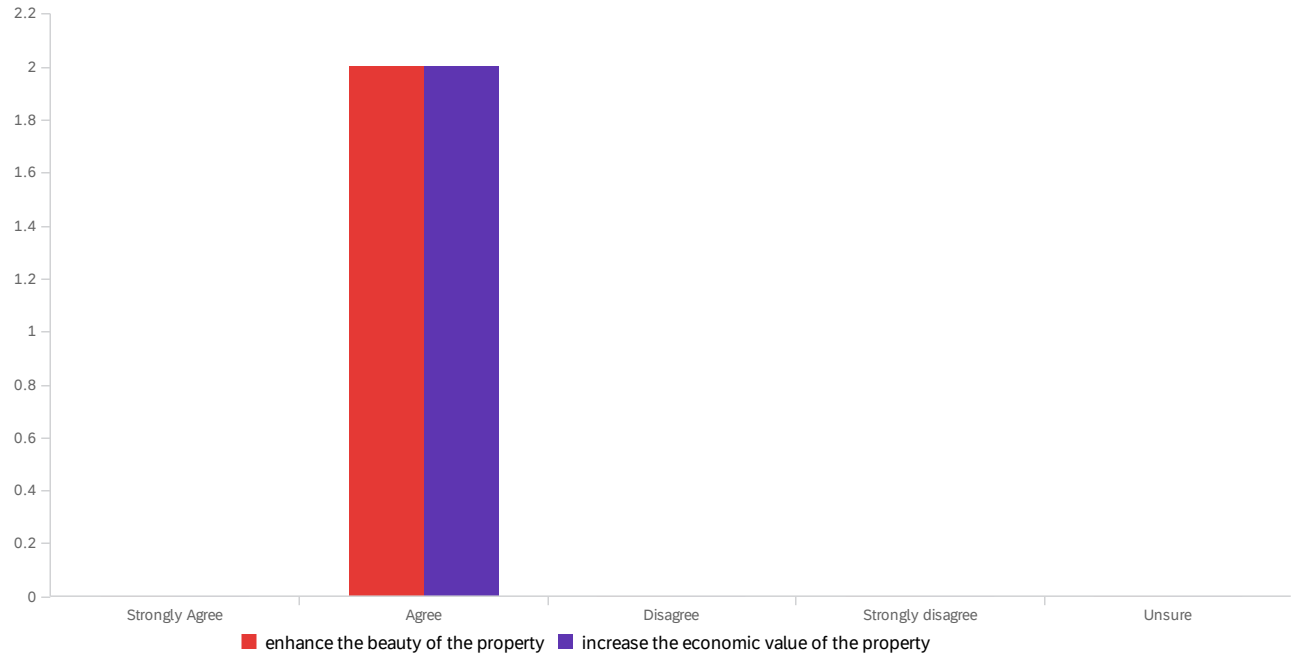
Q31 - Do you have woody structure such as fallen trees or large branches in the shallow water along your property?



#	Field	Choice Count
1	Yes	100% 2
2	No	0% 0
		2

Showing rows 1 - 3 of 3

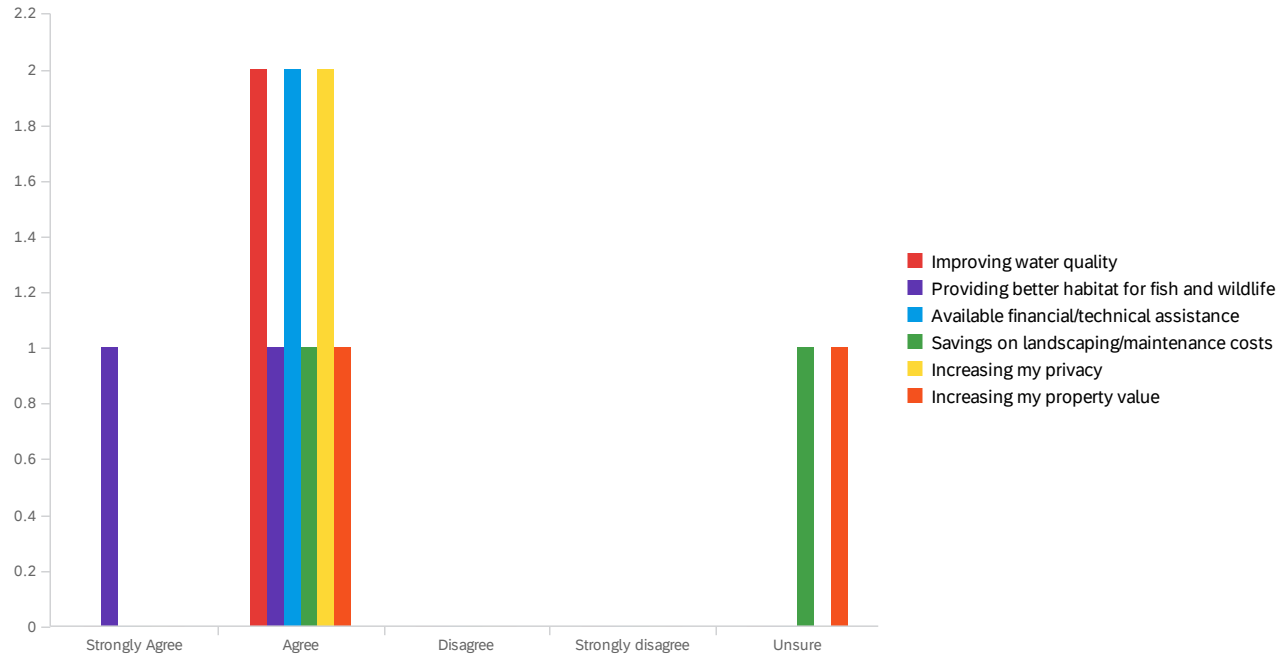
Q27 - In your opinion, does shoreland vegetation...



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	enhance the beauty of the property	0% 0	100% 2	0% 0	0% 0	0% 0	2
2	increase the economic value of the property	0% 0	100% 2	0% 0	0% 0	0% 0	2

Showing rows 1 - 2 of 2

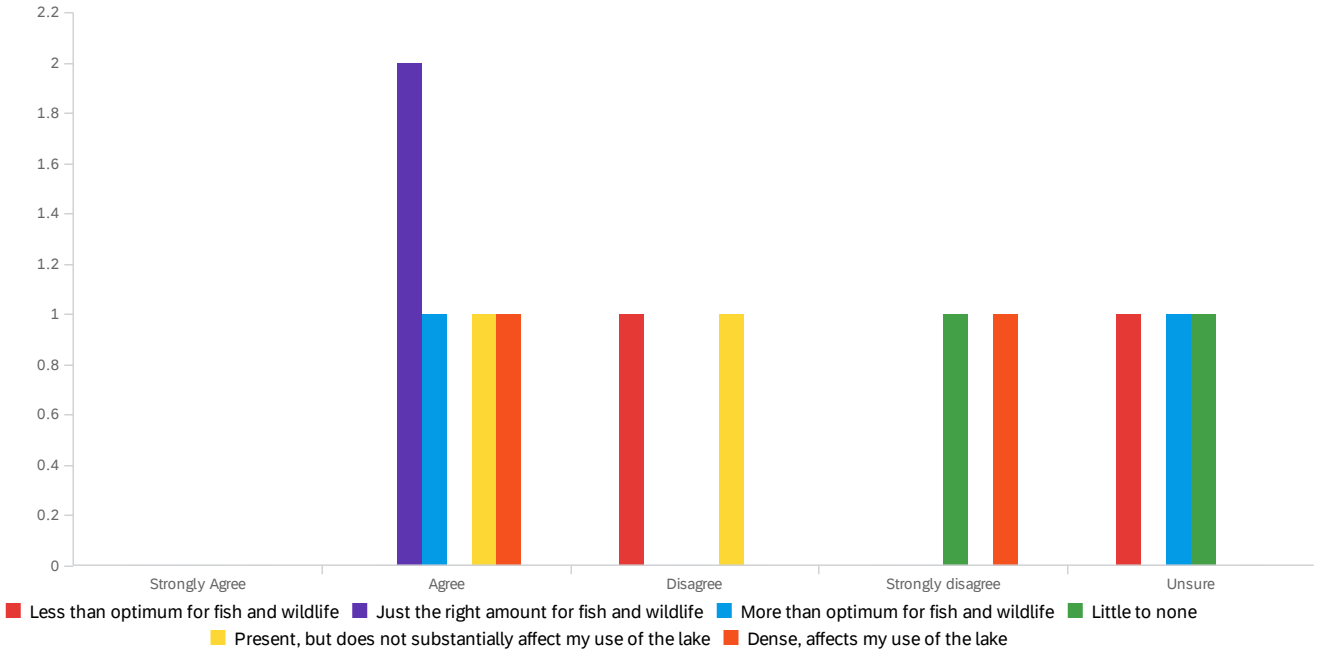
Q28 - What might motivate you to change how you manage your shoreland?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Improving water quality	0% 0	100% 2	0% 0	0% 0	0% 0	2
2	Providing better habitat for fish and wildlife	50% 1	50% 1	0% 0	0% 0	0% 0	2
3	Available financial/technical assistance	0% 0	100% 2	0% 0	0% 0	0% 0	2
4	Savings on landscaping/maintenance costs	0% 0	50% 1	0% 0	0% 0	50% 1	2
5	Increasing my privacy	0% 0	100% 2	0% 0	0% 0	0% 0	2
6	Increasing my property value	0% 0	50% 1	0% 0	0% 0	50% 1	2

Showing rows 1 - 6 of 6

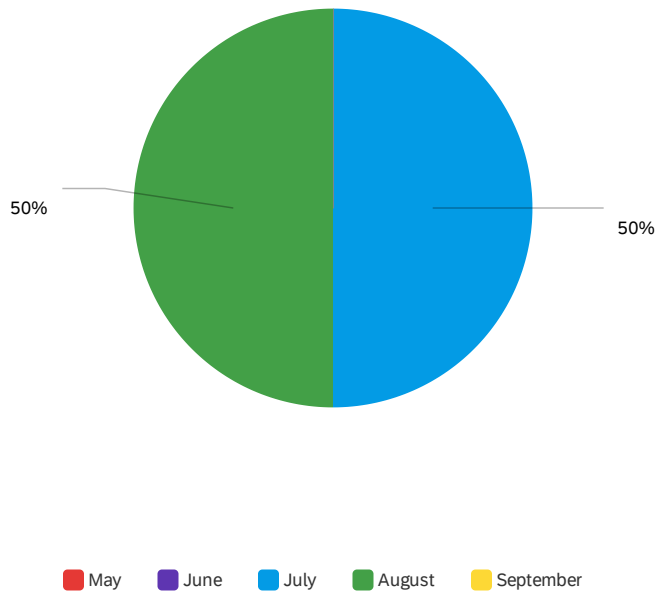
Q32 - In your opinion, which statement best describes the amount of aquatic plant growth in Little Pickerel Lake?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Less than optimum for fish and wildlife	0% 0	0% 0	50% 1	0% 0	50% 1	2
2	Just the right amount for fish and wildlife	0% 0	100% 2	0% 0	0% 0	0% 0	2
3	More than optimum for fish and wildlife	0% 0	50% 1	0% 0	0% 0	50% 1	2
4	Little to none	0% 0	0% 0	0% 0	50% 1	50% 1	2
5	Present, but does not substantially affect my use of the lake	0% 0	50% 1	50% 1	0% 0	0% 0	2
6	Dense, affects my use of the lake	0% 0	50% 1	0% 0	50% 1	0% 0	2

Showing rows 1 - 6 of 6

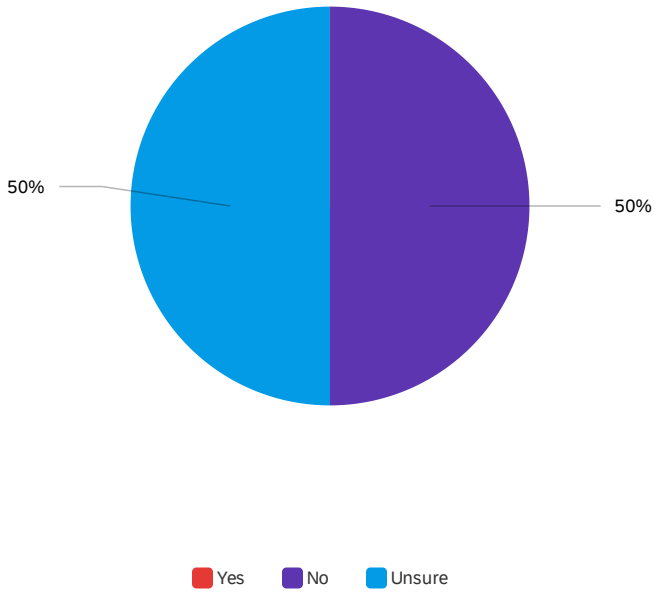
Q33 - If you think the plant growth in Little Pickerel Lake is dense, what month(s) do the problems occur? Check all that apply.



#	Field	Choice Count
1	May	0% 0
2	June	0% 0
3	July	50% 1
4	August	50% 1
5	September	0% 0
		2

Showing rows 1 - 6 of 6

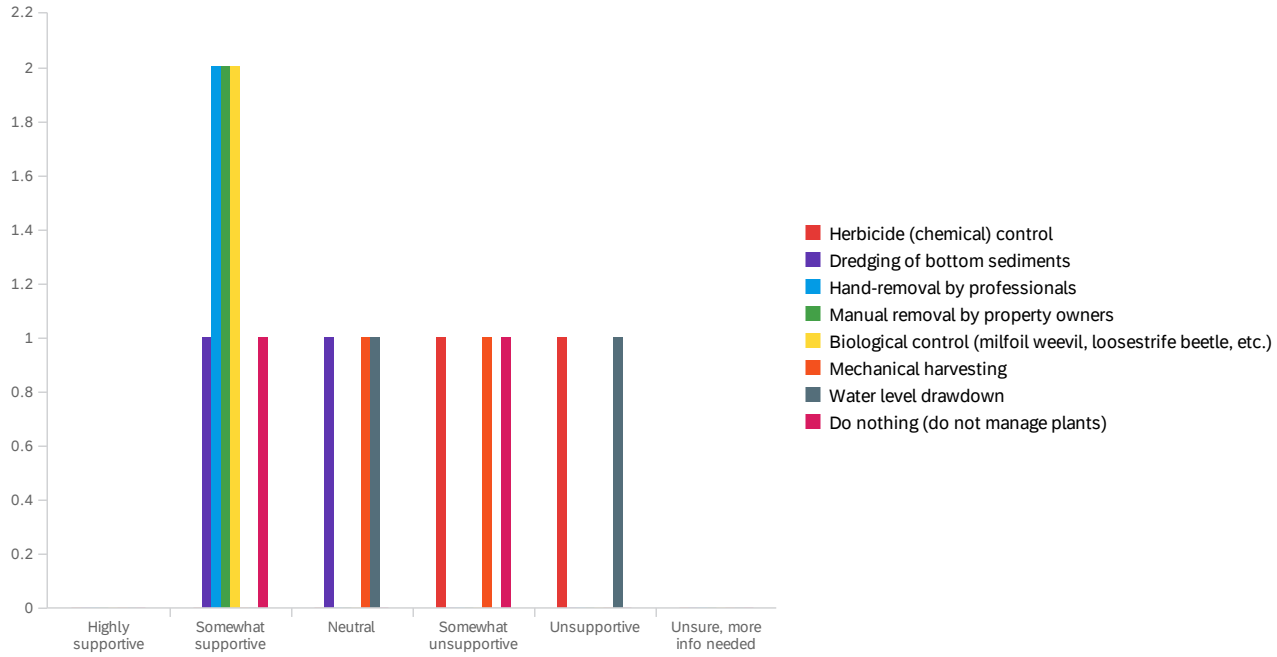
Q34 - Do you believe aquatic plant control is needed on Little Pickerel Lake?



#	Field	Choice Count
1	Yes	0% 0
2	No	50% 1
3	Unsure	50% 1
		2

Showing rows 1 - 4 of 4

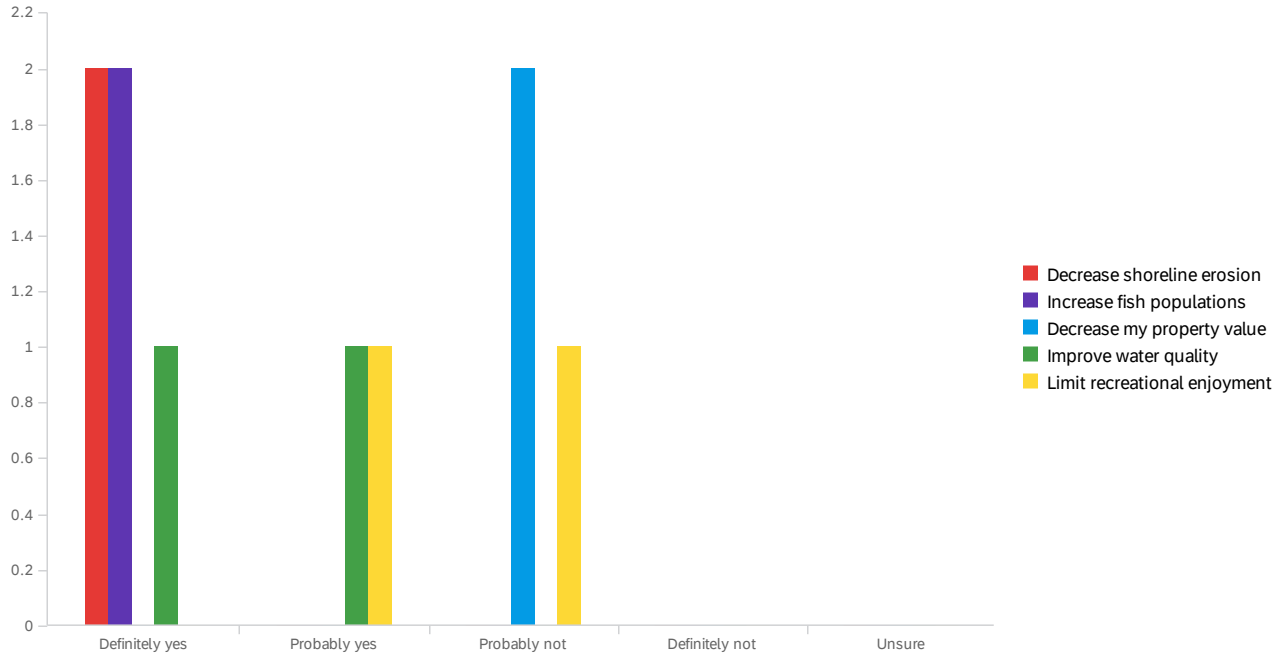
Q35 - What is your level of support for the responsible use of the following techniques to manage aquatic plants on Little Pickerel Lake?



#	Field	Highly supportive	Somewhat supportive	Neutral	Somewhat unsupportive	Unsupportive	Unsure, more info needed	Total
1	Herbicide (chemical) control	0% 0	0% 0	0% 0	50% 1	50% 1	0% 0	2
2	Dredging of bottom sediments	0% 0	50% 1	50% 1	0% 0	0% 0	0% 0	2
3	Hand-removal by professionals	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2
4	Manual removal by property owners	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2
5	Biological control (milfoil weevil, loosestrife beetle, etc.)	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2
6	Mechanical harvesting	0% 0	0% 0	50% 1	50% 1	0% 0	0% 0	2
7	Water level drawdown	0% 0	0% 0	50% 1	0% 0	50% 1	0% 0	2
8	Do nothing (do not manage plants)	0% 0	50% 1	0% 0	50% 1	0% 0	0% 0	2

Showing rows 1 - 8 of 8

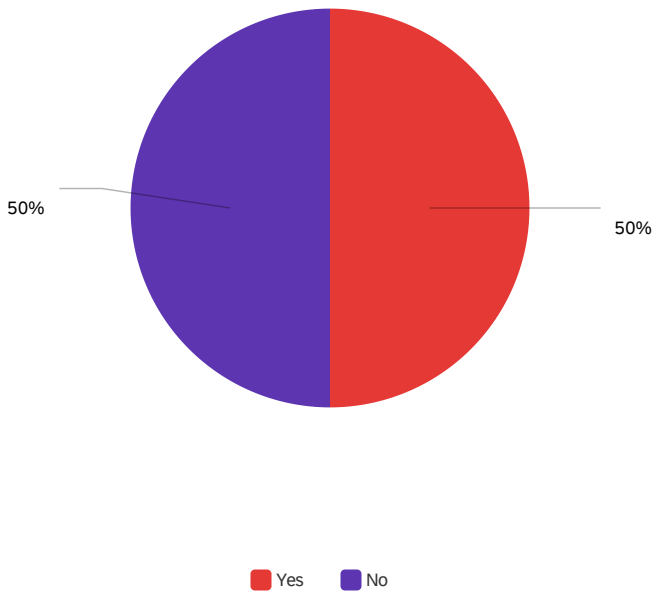
Q36 - In your opinion, does establishing or maintaining native vegetation in the water in the near-shore area...



#	Field	Definitely yes	Probably yes	Probably not	Definitely not	Unsure	Total
1	Decrease shoreline erosion	100% 2	0% 0	0% 0	0% 0	0% 0	2
2	Increase fish populations	100% 2	0% 0	0% 0	0% 0	0% 0	2
3	Decrease my property value	0% 0	0% 0	100% 2	0% 0	0% 0	2
4	Improve water quality	50% 1	50% 1	0% 0	0% 0	0% 0	2
5	Limit recreational enjoyment	0% 0	50% 1	50% 1	0% 0	0% 0	2

Showing rows 1 - 5 of 5

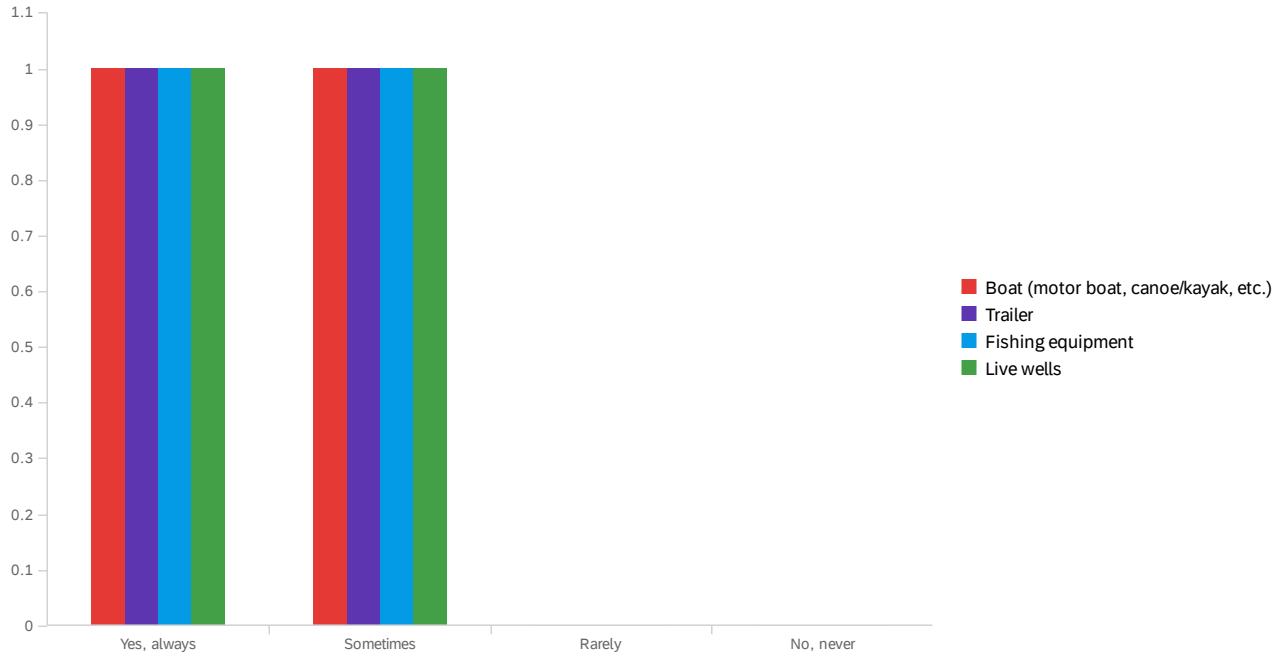
Q37 - Are you aware of invasive species (in general)?



#	Field	Choice Count
1	Yes	50% 1
2	No	50% 1
		2

Showing rows 1 - 3 of 3

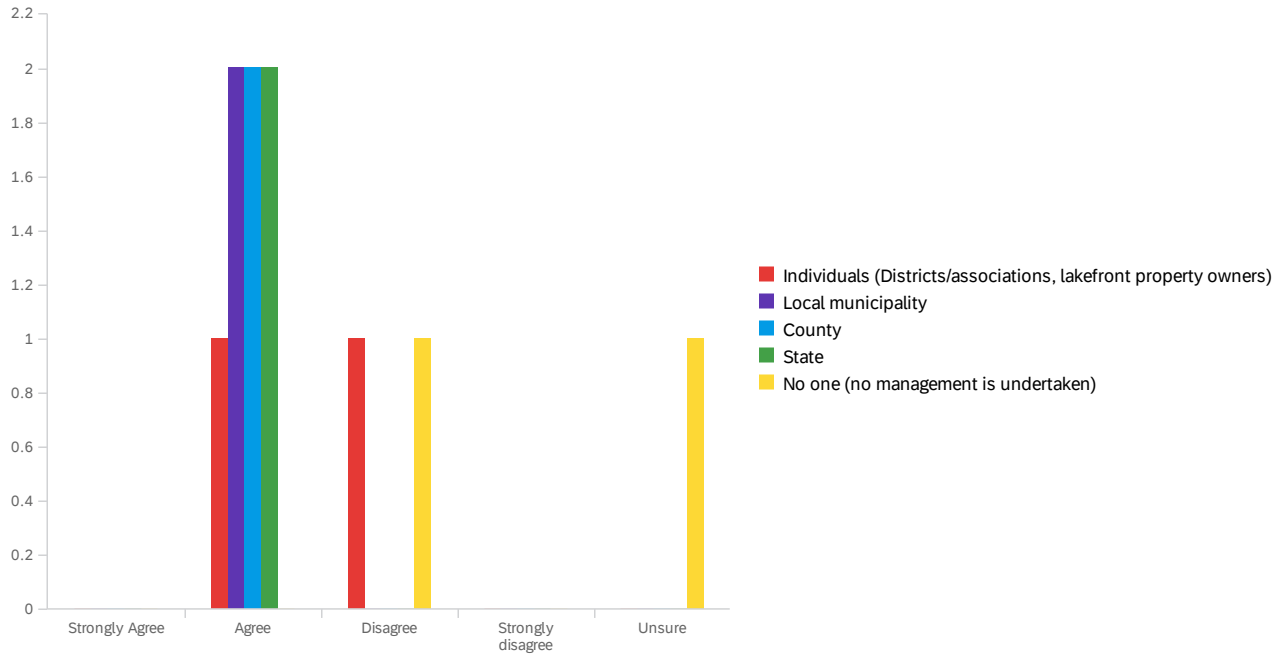
Q39 - After you have been to another lake, do you clean your.... before bringing it back to Little Pickerel Lake?



#	Field	Yes, always	Sometimes	Rarely	No, never	Total
1	Boat (motor boat, canoe/kayak, etc.)	50% 1	50% 1	0% 0	0% 0	2
2	Trailer	50% 1	50% 1	0% 0	0% 0	2
3	Fishing equipment	50% 1	50% 1	0% 0	0% 0	2
4	Live wells	50% 1	50% 1	0% 0	0% 0	2

Showing rows 1 - 4 of 4

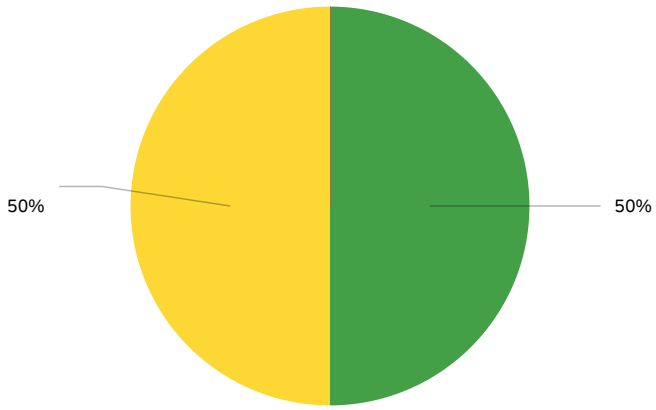
Q40 - Who should pay the cost of managing invasive aquatic plants?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Individuals (Districts/associations, lakefront property owners)	0% 0	50% 1	50% 1	0% 0	0% 0	2
2	Local municipality	0% 0	100% 2	0% 0	0% 0	0% 0	2
3	County	0% 0	100% 2	0% 0	0% 0	0% 0	2
4	State	0% 0	100% 2	0% 0	0% 0	0% 0	2
5	No one (no management is undertaken)	0% 0	0% 0	50% 1	0% 0	50% 1	2

Showing rows 1 - 5 of 5

Q41 - What is the most effective way to inform others about aquatic invasive species?



Newspaper Billboard Info pamphlets Lakeside signs/kiosks Volunteer staff at boat launch Other

#	Field	Choice Count
1	Newspaper	0% 0
2	Billboard	0% 0
3	Info pamphlets	0% 0
4	Lakeside signs/kiosks	50% 2
5	Volunteer staff at boat launch	50% 2
6	Other	0% 0
		4

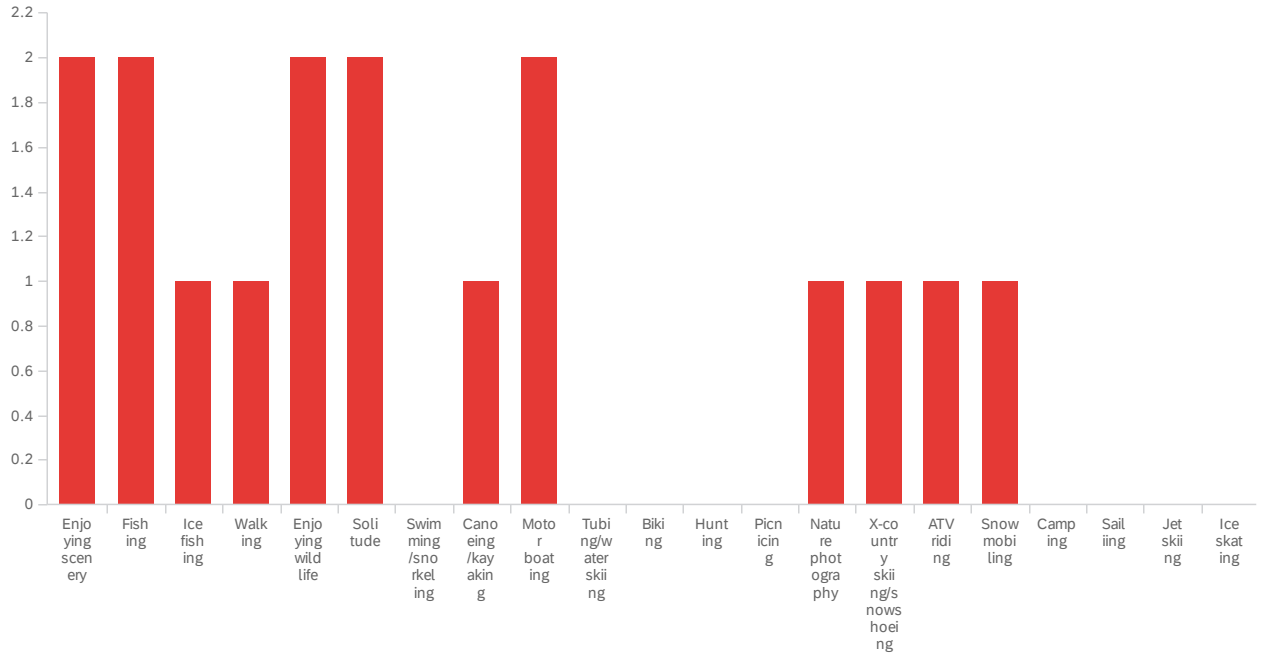
Showing rows 1 - 7 of 7

Q12 - In your opinion, what should be done to restore, maintain or improve Little Pickerel Lake?

In your opinion, what should be done to restore, maintain or improve Little...

Public awareness efforts

Q45 - What recreational activities do you partake in on Little Pickerel Lake (check all that apply)?



#	Field	Choice Count
1	Enjoying scenery	12% 2
2	Fishing	12% 2
3	Ice fishing	6% 1
4	Walking	6% 1
5	Enjoying wildlife	12% 2
6	Solitude	12% 2
7	Swimming/snorkeling	0% 0
8	Canoeing/kayaking	6% 1
9	Motor boating	12% 2
10	Tubing/water skiing	0% 0
11	Biking	0% 0
12	Hunting	0% 0
13	Picnicing	0% 0

#	Field		Choice Count
14	Nature photography	6%	1
15	X-country skiing/snowshoeing	6%	1
16	ATV riding	6%	1
17	Snowmobiling	6%	1
18	Camping	0%	0
19	Sailiing	0%	0
20	Jet skiing	0%	0
21	Ice skating	0%	0
			17

Showing rows 1 - 22 of 22

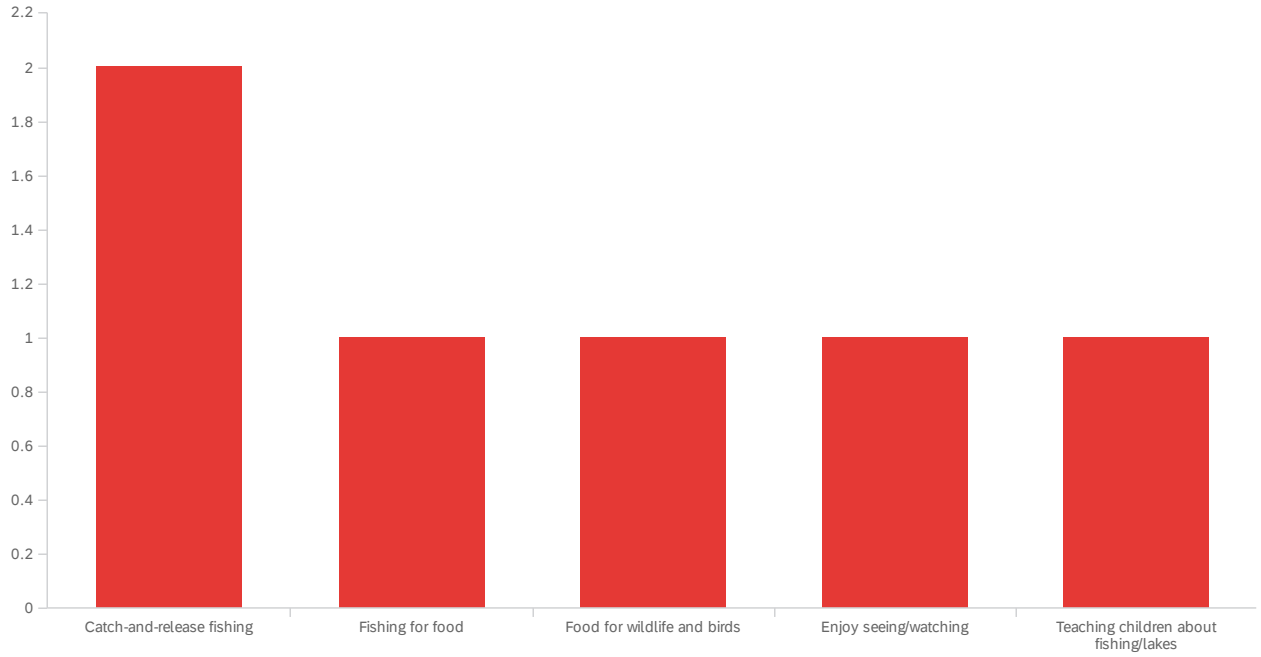
Q46 - Other recreational activities not included above:

Other recreational activities not included above:

Q49 - What could be done to improve your recreation experience on Little Pickerel Lake?

What could be done to improve your recreation experience on Little Pickerel...

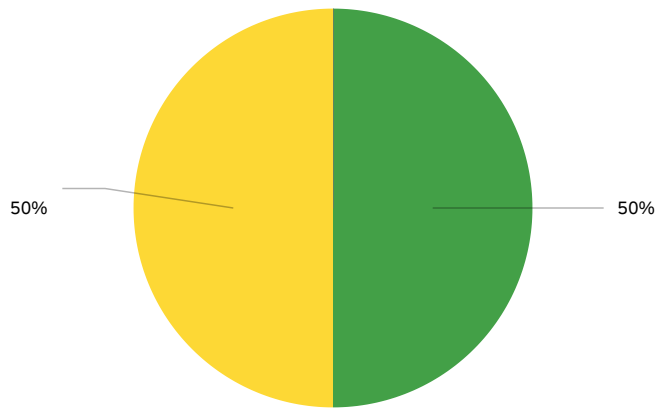
Q51 - For what purposes do you value the fishery in Little Pickerel Lake? (Check all that apply)



#	Field	Choice Count
1	Catch-and-release fishing	33% 2
2	Fishing for food	17% 1
3	Food for wildlife and birds	17% 1
4	Enjoy seeing/watching	17% 1
5	Teaching children about fishing/lakes	17% 1
		6

Showing rows 1 - 6 of 6

Q52 - How many years experience do you have fishing Little Pickerel Lake?

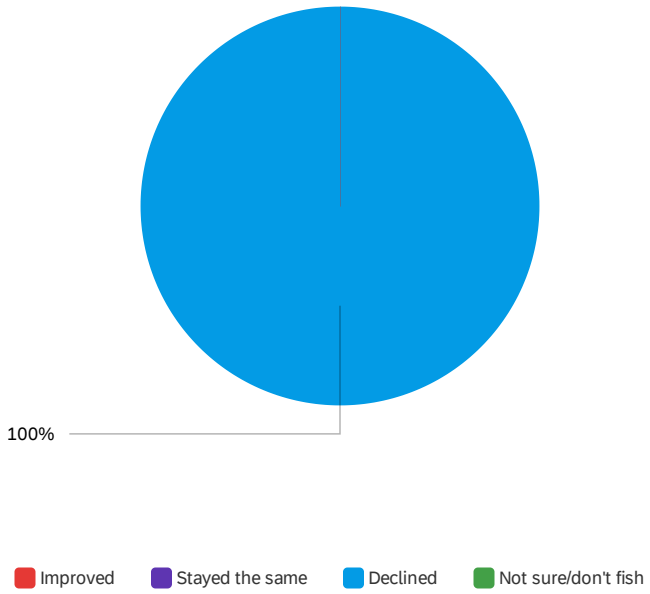


I don't fish Little Pickerel Lake 1-5 years 6-10 years 11-20 years More than 20 years

#	Field	Choice Count
1	I don't fish Little Pickerel Lake	0% 0
2	1-5 years	0% 0
3	6-10 years	0% 0
4	11-20 years	50% 1
5	More than 20 years	50% 1
		2

Showing rows 1 - 6 of 6

Q53 - In the time you have been fishing Little Pickerel Lake, would you say the quality of fishing has...



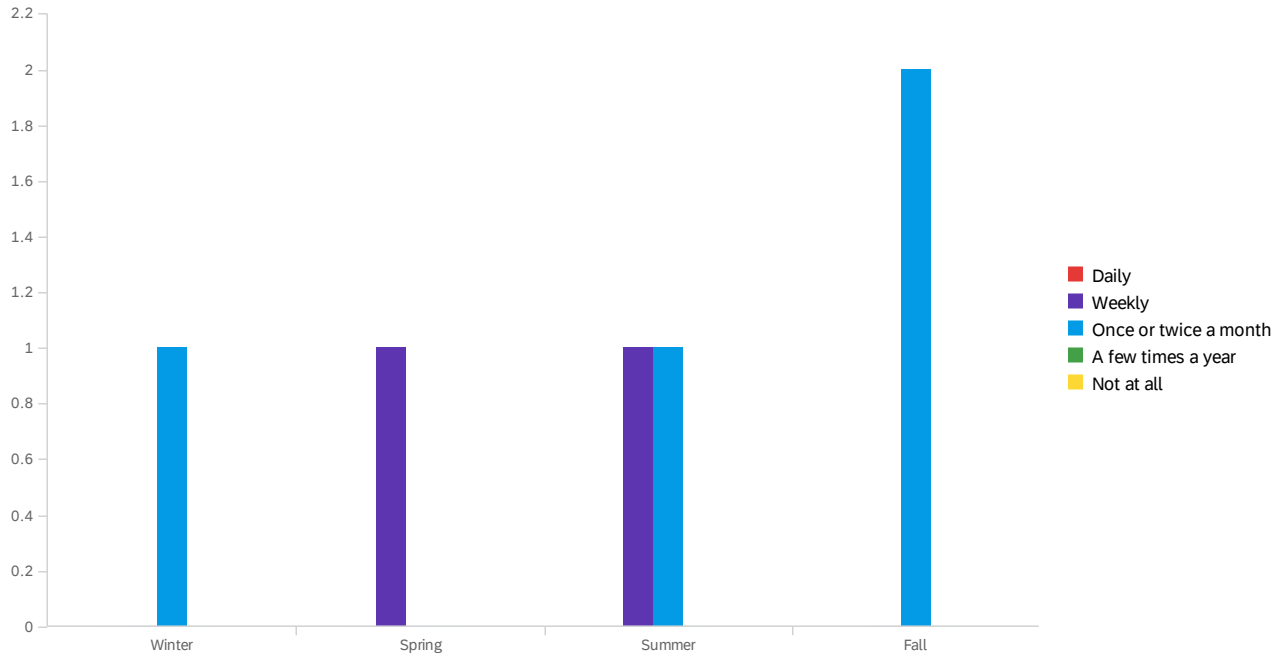
#	Field	Choice Count
1	Improved	0% 0
2	Stayed the same	0% 0
3	Declined	100% 2
4	Not sure/don't fish	0% 0
		2

Showing rows 1 - 5 of 5

Q54 - What do you think has contributed to the change in fishing?

What do you think has contributed to the change in fishing?
winterkills
Winter kill

Q55 - When and how often do you fish Little Pickerel Lake?

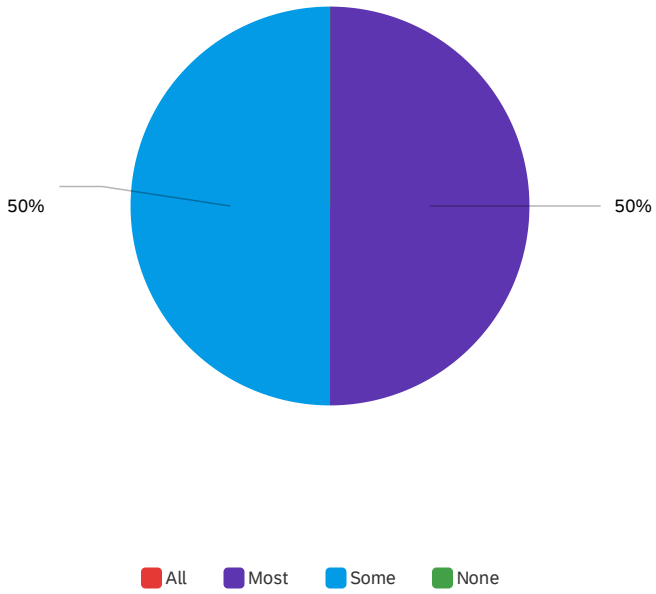


Error loading data

Q56 - What type of fish do you catch on Little Pickerel Lake?

What type of fish do you catch on Little Pickerel Lake?
panfish
Panfish, bass & northern pike

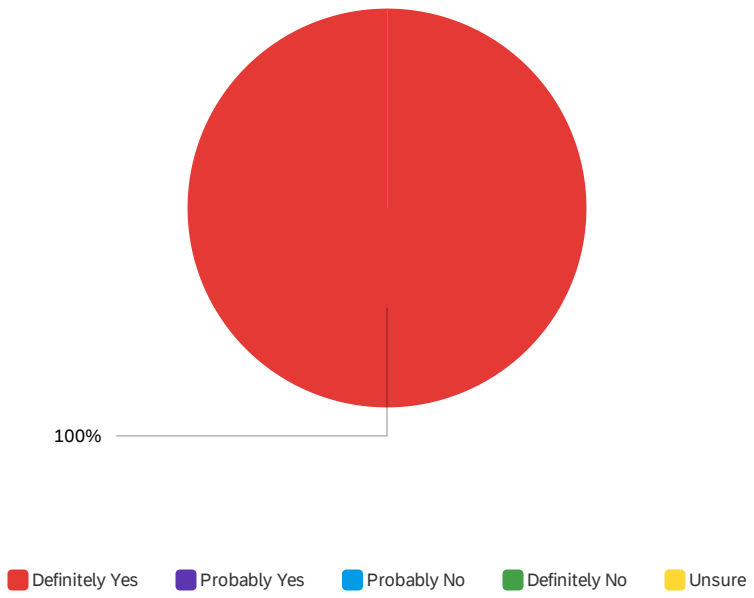
Q57 - In general, how many of the fish you catch are big enough to keep?



#	Field	Choice Count
1	All	0% 0
2	Most	50% 1
3	Some	50% 1
4	None	0% 0
		2

Showing rows 1 - 5 of 5

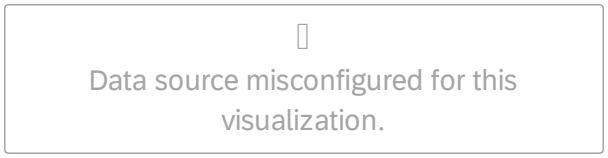
Q58 - Do you believe fish from Little Pickerel Lake are safe to eat?



#	Field	Choice Count
1	Definitely Yes	100% 2
2	Probably Yes	0% 0
3	Probably No	0% 0
4	Definitely No	0% 0
5	Unsure	0% 0
		2

Showing rows 1 - 6 of 6

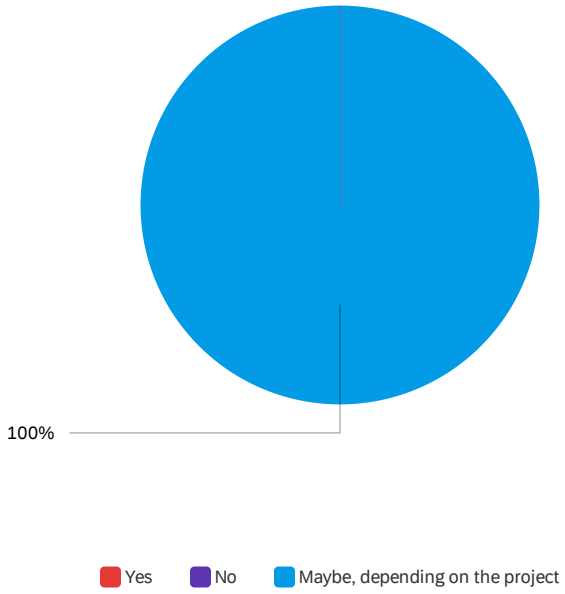
Q59 - What do you think is the greatest threat to the fishery in Little Pickerel Lake in the next 10 years?



Q61 - Do you have any additional comments regarding Little Pickerel Lake?

Do you have any additional comments regarding Little Pickerel Lake?
No

Q63 - Would you be interested in volunteering on a project on your lake (such as shoreland restoration planting, invasive species monitoring/removal, water quality monitoring, highway cleanup, etc.)?



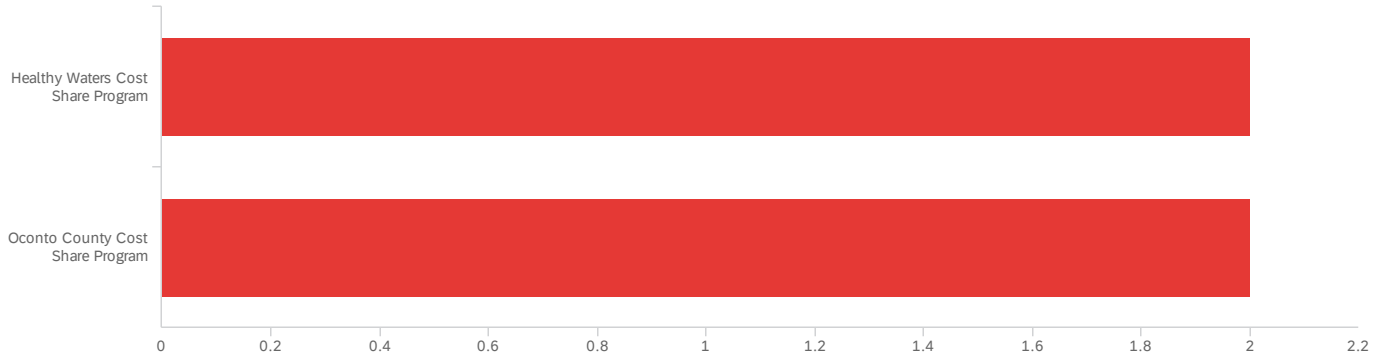
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you be interested in volunteering on a project on your lake (such as shoreland restoration planting, invasive species monitoring/removal, water quality monitoring, highway cleanup, etc.)?	3	3	3	0	0	2

#	Field		Choice Count
1	Yes	0%	0
2	No	0%	0
3	Maybe, depending on the project	100%	2
			2

Showing rows 1 - 4 of 4

Q64 - Are you aware of the following programs available to you from Oconto County?

(Check all that apply)



#	Field		Choice Count
1	Healthy Waters Cost Share Program	50%	2
2	Oconto County Cost Share Program	50%	2
			4

Showing rows 1 - 3 of 3

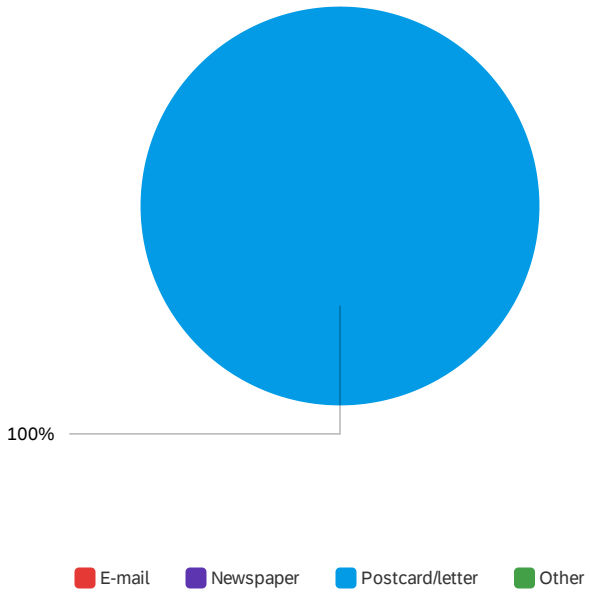
End of Report

Default Report

Pickerel Lake Survey - Oconto County Lakes Project

June 20, 2023 8:55 AM MDT

Q2 - How did you hear about this survey?



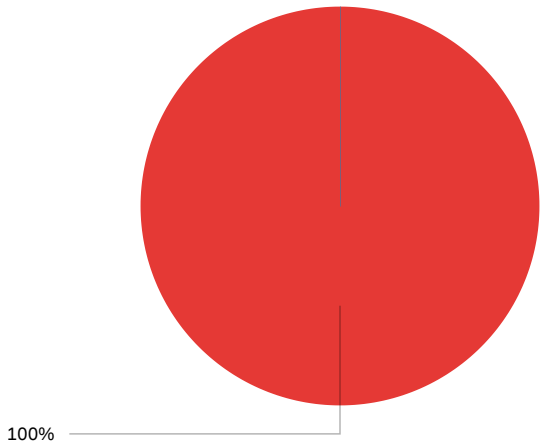
Showing sample data...

#	Field	Choice Count
1	E-mail	0% 0
2	Newspaper	0% 0
3	Postcard/letter	100% 2
4	Other	0% 0
		2

Showing rows 1 - 5 of 5

Showing sample data...

Q3 - Do you own or rent property...

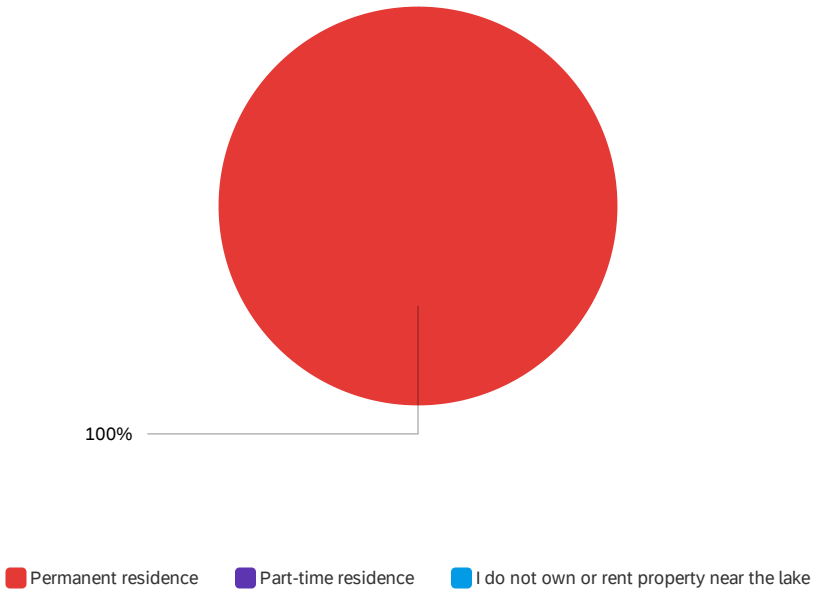


Around the lake | Less than 1/2 mile from the lake | Near the lake, but more than 1/2 mile away | I do not own or rent property near the lake

#	Field		Choice Count
1	Around the lake	100%	2
2	Less than 1/2 mile from the lake	0%	0
3	Near the lake, but more than 1/2 mile away	0%	0
4	I do not own or rent property near the lake	0%	0
			2

Showing rows 1 - 5 of 5

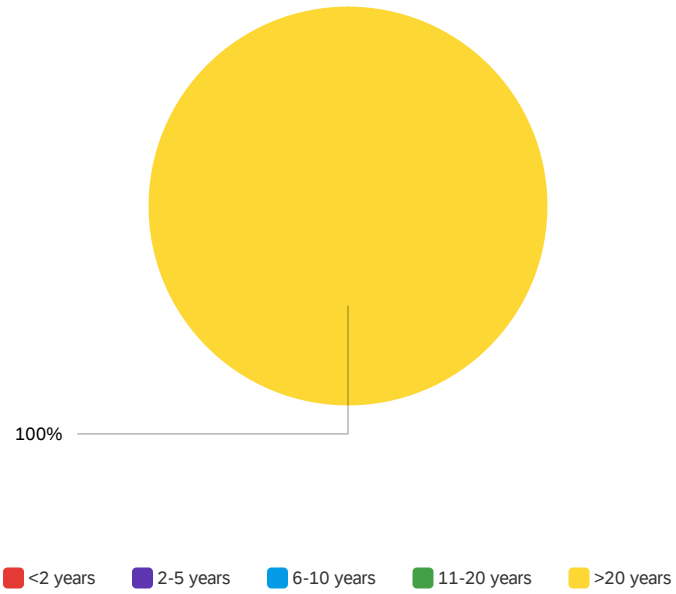
Q4 - If you own or rent property near the lake, is this property your...



#	Field	Choice Count
1	Permanent residence	100% 2
2	Part-time residence	0% 0
3	I do not own or rent property near the lake	0% 0
		2

Showing rows 1 - 4 of 4

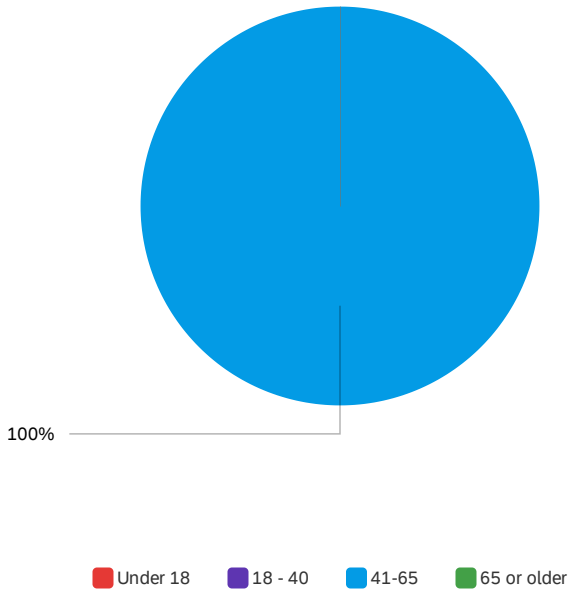
Q5 - How long have you lived on, visited or recreated on the lake?



#	Field	Choice Count
1	<2 years	0% 0
2	2-5 years	0% 0
3	6-10 years	0% 0
4	11-20 years	0% 0
5	>20 years	100% 2
		2

Showing rows 1 - 6 of 6

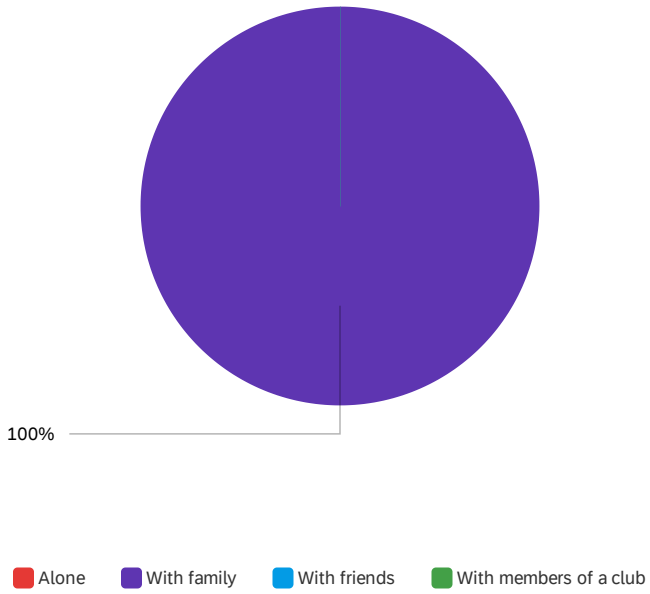
Q8 - Which category below includes your age?



#	Field	Choice Count
1	Under 18	0% 0
2	18 - 40	0% 0
3	41-65	100% 2
4	65 or older	0% 0
		2

Showing rows 1 - 5 of 5

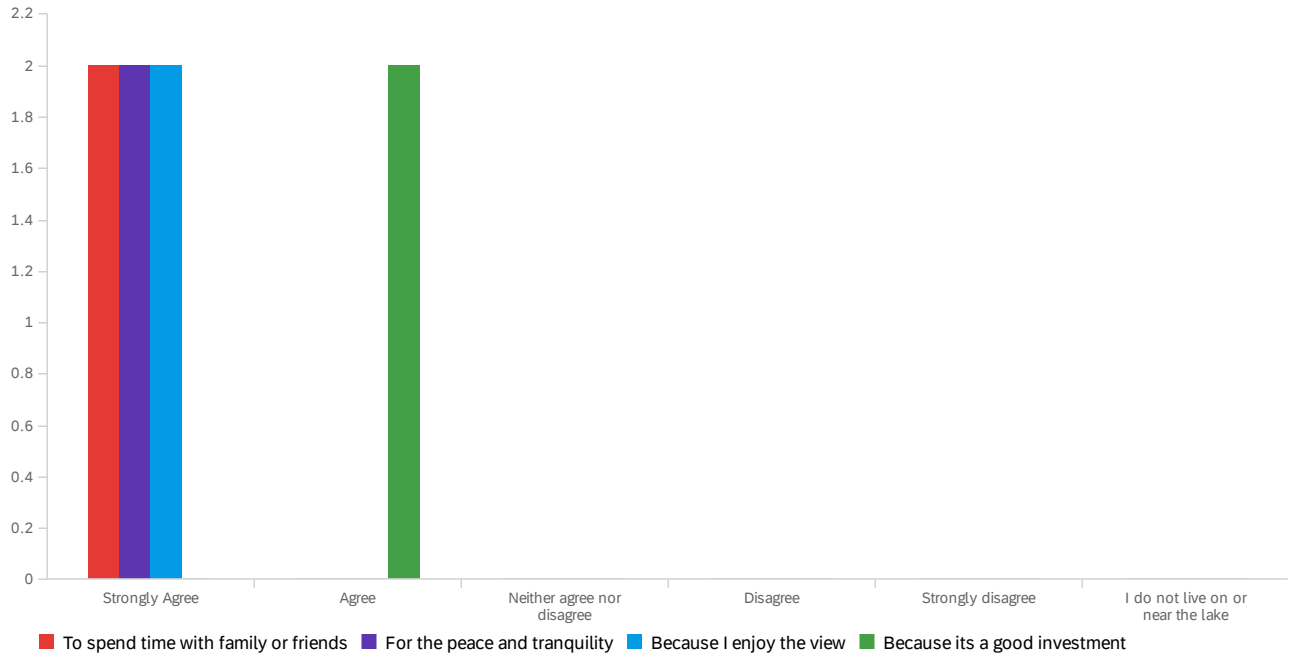
Q9 - When you visit Pickerel Lake, are you typically ...(check all that apply)



#	Field	Choice Count
1	Alone	0% 0
2	With family	100% 2
3	With friends	0% 0
4	With members of a club	0% 0
		2

Showing rows 1 - 5 of 5

Q10 - I live on or near the lake...



#	Field	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	I do not live on or near the lake	Total
1	To spend time with family or friends	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
2	For the peace and tranquility	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
3	Because I enjoy the view	100% 2	0% 0	0% 0	0% 0	0% 0	0% 0	2
4	Because its a good investment	0% 0	100% 2	0% 0	0% 0	0% 0	0% 0	2

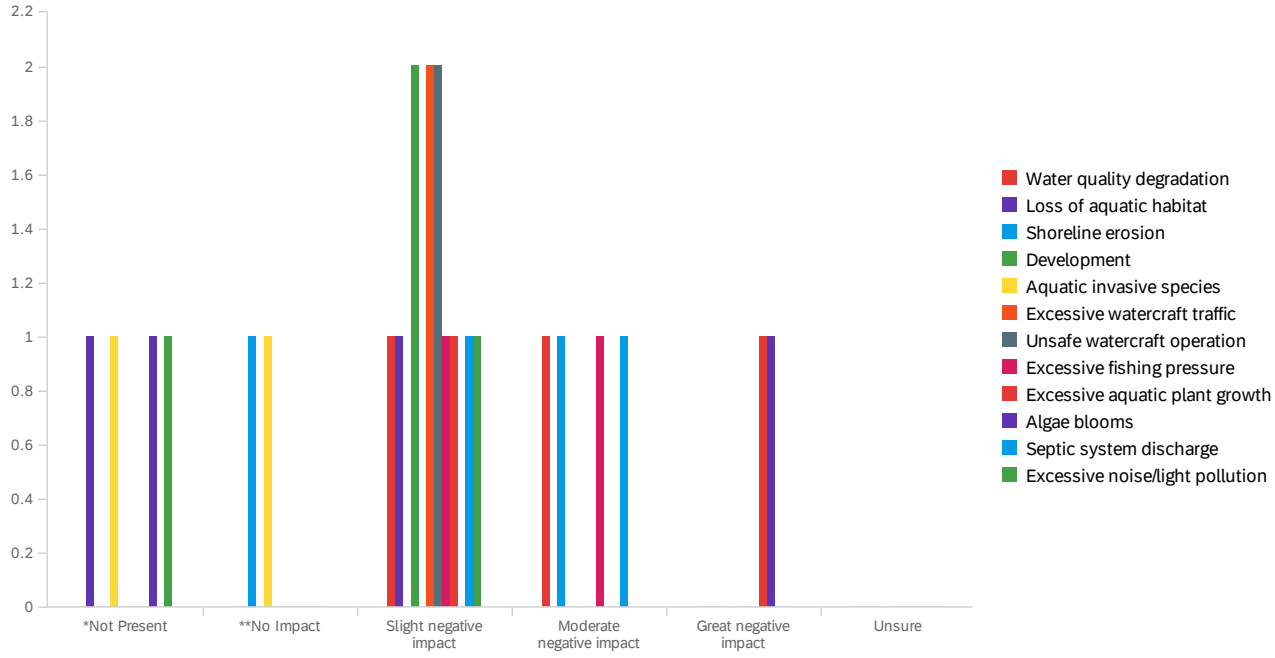
Showing rows 1 - 4 of 4

Q11 - What do you value most about Pickerel Lake?

What do you value most about Pickerel Lake?

The clear water and wildlife!!!

Q42 - Below is a list of negative impacts commonly found in Wisconsin lakes. To what level do you believe each of the following factors may be impacting Pickerel Lake? *Not Present means that you believe the issue does not exist on Pickerel Lake**No Impact means that the issue may exist, but is not negatively impacting Pickerel Lake

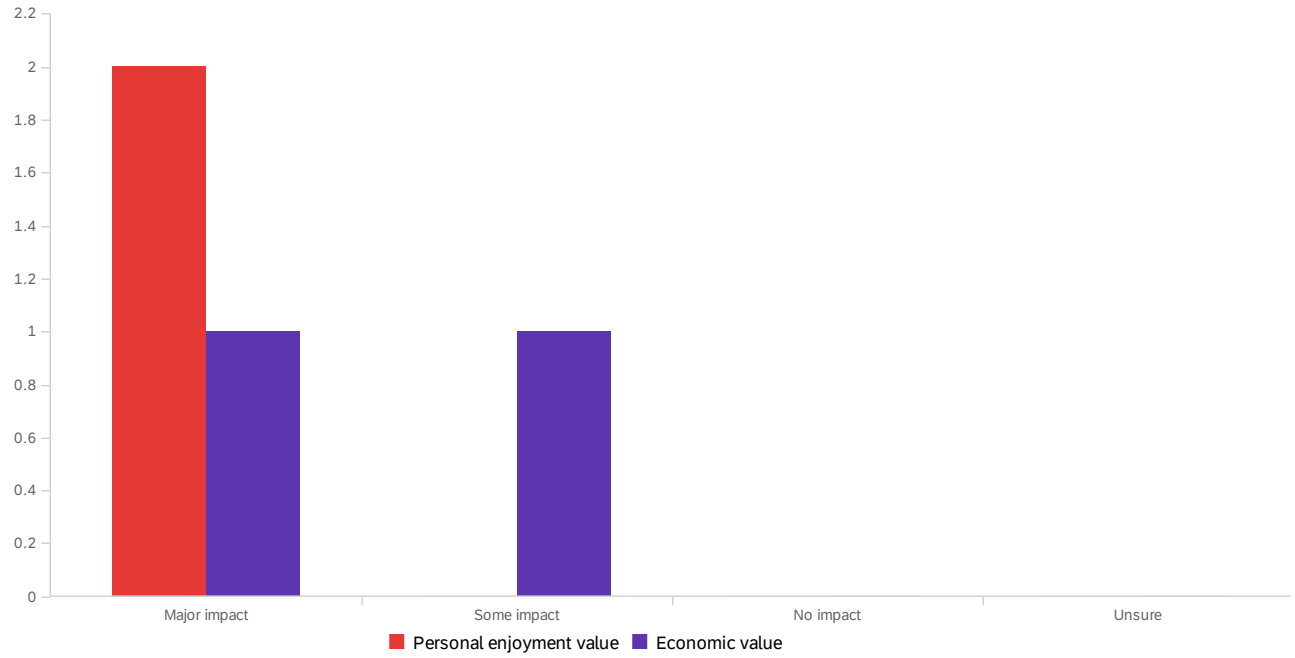


#	Field	*Not Present	**No Impact	Slight negative impact	Moderate negative impact	Great negative impact	Unsure	Total
1	Water quality degradation	0% 0	0% 0	50% 1	50% 1	0% 0	0% 0	2
2	Loss of aquatic habitat	50% 1	0% 0	50% 1	0% 0	0% 0	0% 0	2
3	Shoreline erosion	0% 0	50% 1	0% 0	50% 1	0% 0	0% 0	2
4	Development	0% 0	0% 0	100% 2	0% 0	0% 0	0% 0	2
5	Aquatic invasive species	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2
6	Excessive watercraft traffic	0% 0	0% 0	100% 2	0% 0	0% 0	0% 0	2
7	Unsafe watercraft operation	0% 0	0% 0	100% 2	0% 0	0% 0	0% 0	2
8	Excessive fishing pressure	0% 0	0% 0	50% 1	50% 1	0% 0	0% 0	2

#	Field	*Not Present	**No Impact	Slight negative impact	Moderate negative impact	Great negative impact	Unsure	Total
9	Excessive aquatic plant growth	0% 0	0% 0	50% 1	0% 0	50% 1	0% 0	2
10	Algae blooms	50% 1	0% 0	0% 0	0% 0	50% 1	0% 0	2
11	Septic system discharge	0% 0	0% 0	50% 1	50% 1	0% 0	0% 0	2
12	Excessive noise/light pollution	50% 1	0% 0	50% 1	0% 0	0% 0	0% 0	2

Showing rows 1 - 12 of 12

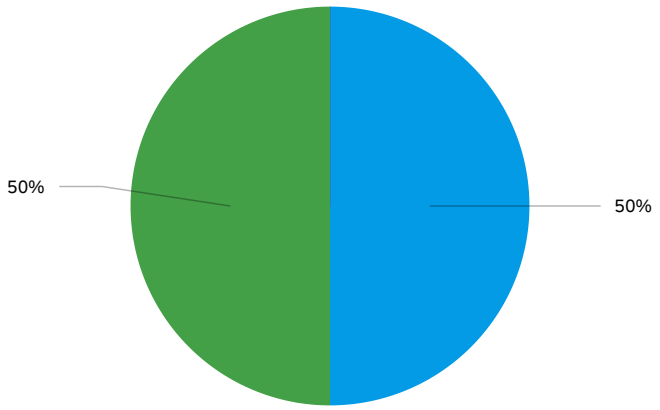
Q16 - How much impact does the water quality of Pickerel Lake have on the following?



#	Field	Major impact	Some impact	No impact	Unsure	Total
1	Personal enjoyment value	100% 2	0% 0	0% 0	0% 0	2
2	Economic value	50% 1	50% 1	0% 0	0% 0	2

Showing rows 1 - 2 of 2

Q17 - Which statement best describes water clarity during the times you spend most on the lake?

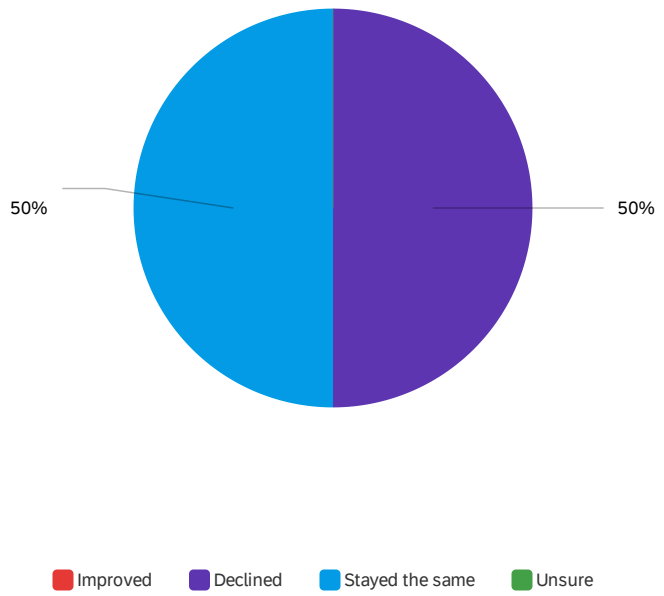


Beautiful, could not be any nicer
Very minor aesthetic problems; excellent for swimming and boating enjoyment
Enjoyment of the lake is moderately impaired because of algae or other water quality problems
Enjoyment of the lake is substantially impaired because of algae or other water quality problems

#	Field	Choice Count
1	Beautiful, could not be any nicer	0% 0
2	Very minor aesthetic problems; excellent for swimming and boating enjoyment	0% 0
3	Enjoyment of the lake is moderately impaired because of algae or other water quality problems	50% 1
4	Enjoyment of the lake is substantially impaired because of algae or other water quality problems	50% 1
		2

Showing rows 1 - 5 of 5

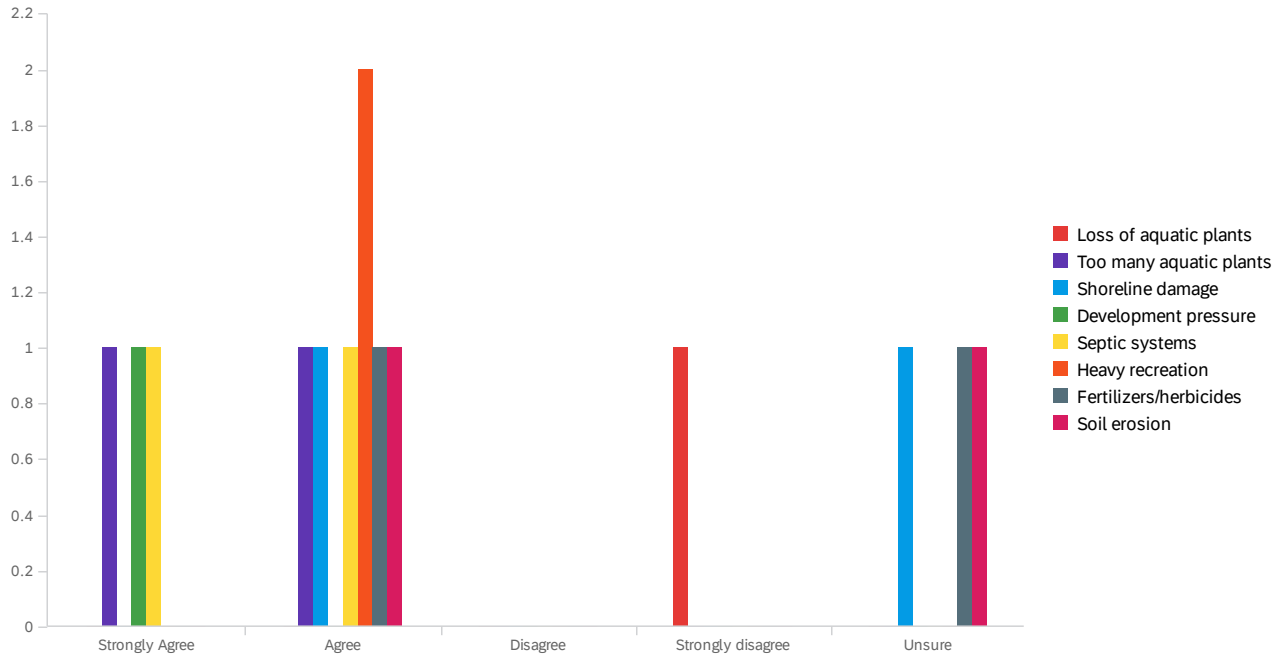
Q18 - During the time that you have lived on, visited or recreated on the lake, how would you say the water quality has changed?



#	Field	Choice Count
1	Improved	0% 0
2	Declined	50% 1
3	Stayed the same	50% 1
4	Unsure	0% 0
		2

Showing rows 1 - 5 of 5

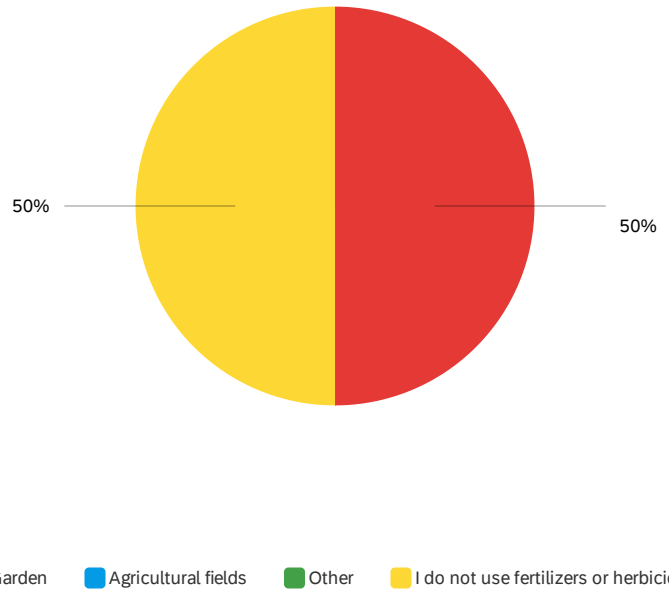
Q19 - If you think it has declined, what, in your opinion, are the primary causes?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Loss of aquatic plants	0% 0	0% 0	0% 0	100% 1	0% 0	1
2	Too many aquatic plants	50% 1	50% 1	0% 0	0% 0	0% 0	2
3	Shoreline damage	0% 0	50% 1	0% 0	0% 0	50% 1	2
4	Development pressure	100% 1	0% 0	0% 0	0% 0	0% 0	1
5	Septic systems	50% 1	50% 1	0% 0	0% 0	0% 0	2
6	Heavy recreation	0% 0	100% 2	0% 0	0% 0	0% 0	2
7	Fertilizers/herbicides	0% 0	50% 1	0% 0	0% 0	50% 1	2
8	Soil erosion	0% 0	50% 1	0% 0	0% 0	50% 1	2

Showing rows 1 - 8 of 8

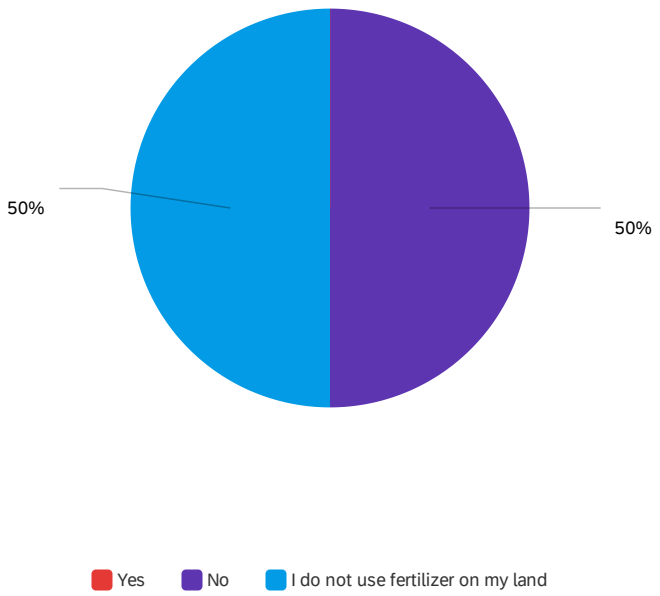
Q20 - If you use fertilizers or herbicides on your land, where are they applied?



#	Field	Choice Count
1	Lawn	50% 1
2	Garden	0% 0
3	Agricultural fields	0% 0
4	Other	0% 0
5	I do not use fertilizers or herbicides on my land	50% 1
		2

Showing rows 1 - 6 of 6

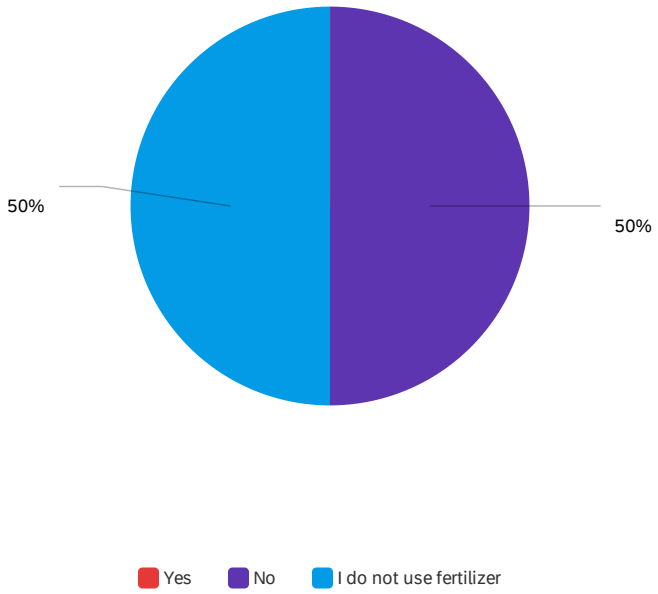
Q21 - Do you use fertilizer that contains phosphorus?



#	Field	Choice Count
1	Yes	0% 0
2	No	50% 1
4	I do not use fertilizer on my land	50% 1
		2

Showing rows 1 - 4 of 4

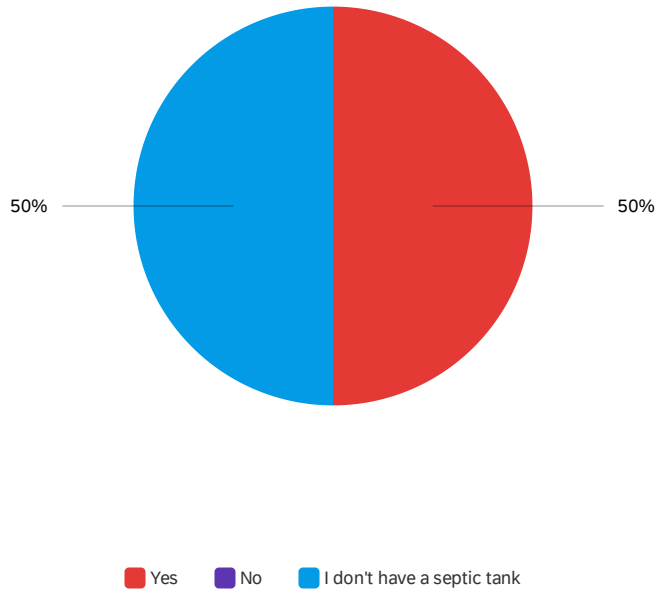
Q23 - Have you had your soil tested before using fertilizer?



#	Field	Choice Count
1	Yes	0% 0
2	No	50% 1
3	I do not use fertilizer	50% 1
		2

Showing rows 1 - 4 of 4

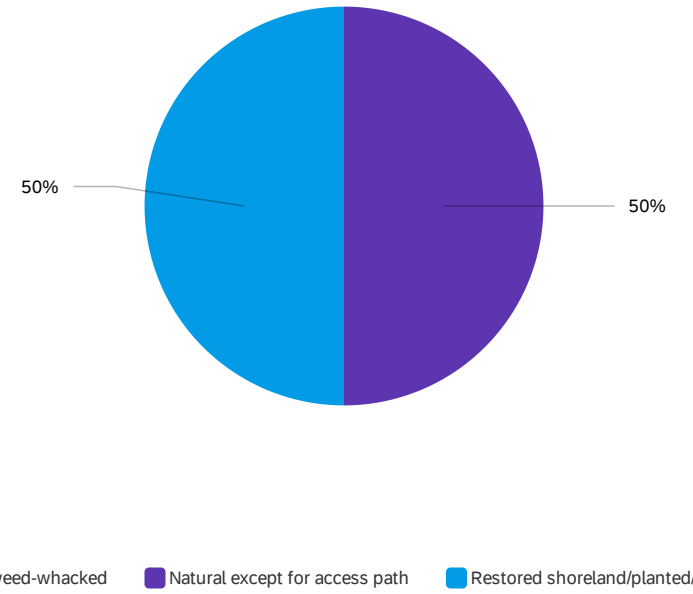
Q22 - Do you have your septic tank pumped regularly (at least every 3 years)?



#	Field	Choice Count
1	Yes	50% 1
2	No	0% 0
3	I don't have a septic tank	50% 1
		2

Showing rows 1 - 4 of 4

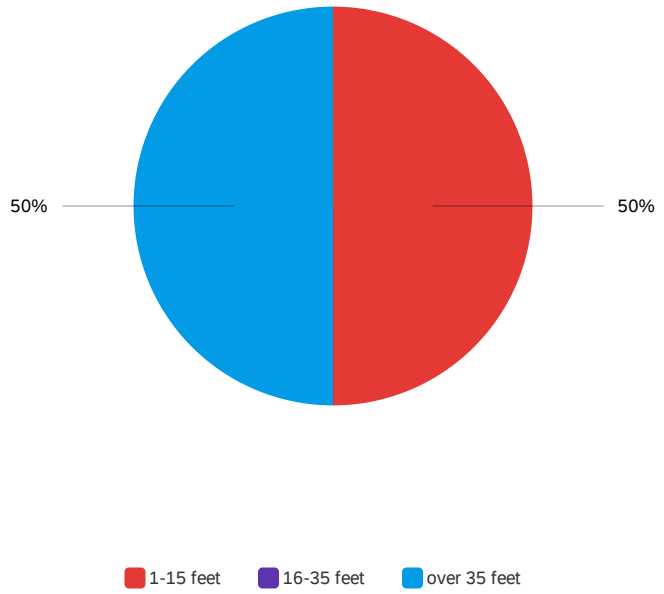
Q25 - How do you currently manage the majority of your property within 35 feet of the lake?



#	Field	Choice Count
1	Mowed or weed-whacked	0% 0
2	Natural except for access path	50% 1
3	Restored shoreland/planted/landscaped	50% 1
		2

Showing rows 1 - 4 of 4

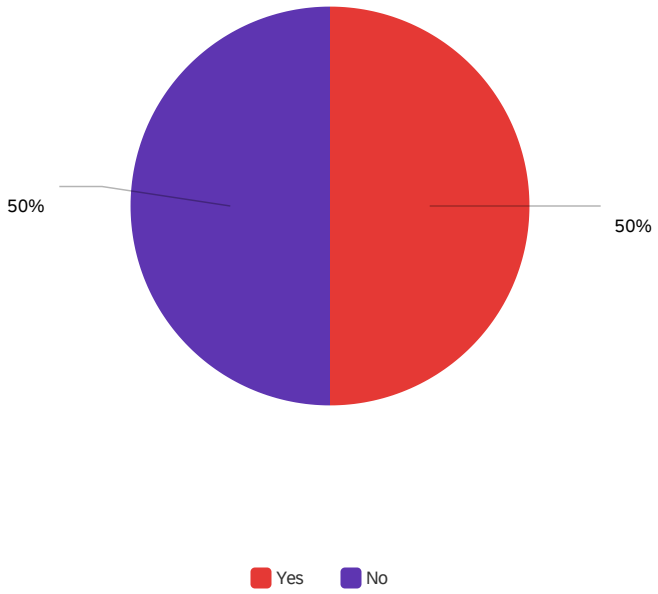
Q26 - If you have unmowed shoreland vegetation, how far inland from the water's edge does it extend?



#	Field	Choice Count
1	1-15 feet	50% 1
2	16-35 feet	0% 0
3	over 35 feet	50% 1
		2

Showing rows 1 - 4 of 4

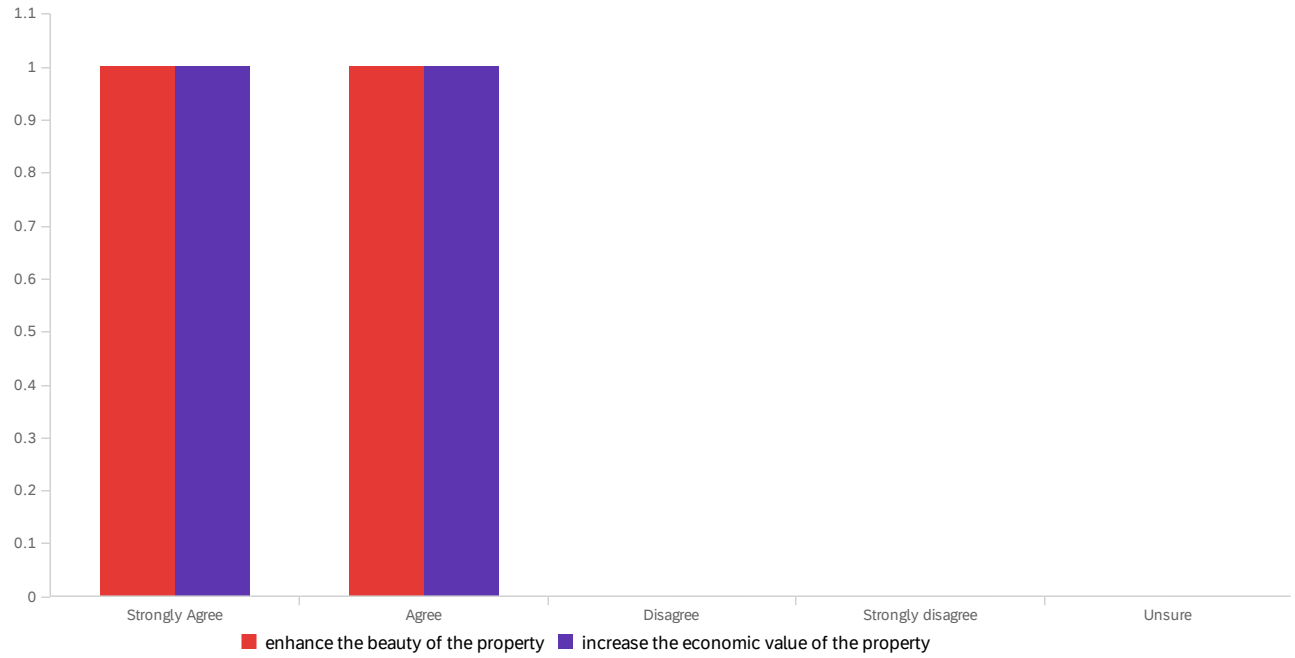
Q31 - Do you have woody structure such as fallen trees or large branches in the shallow water along your property?



#	Field	Choice Count
1	Yes	50% 1
2	No	50% 1
		2

Showing rows 1 - 3 of 3

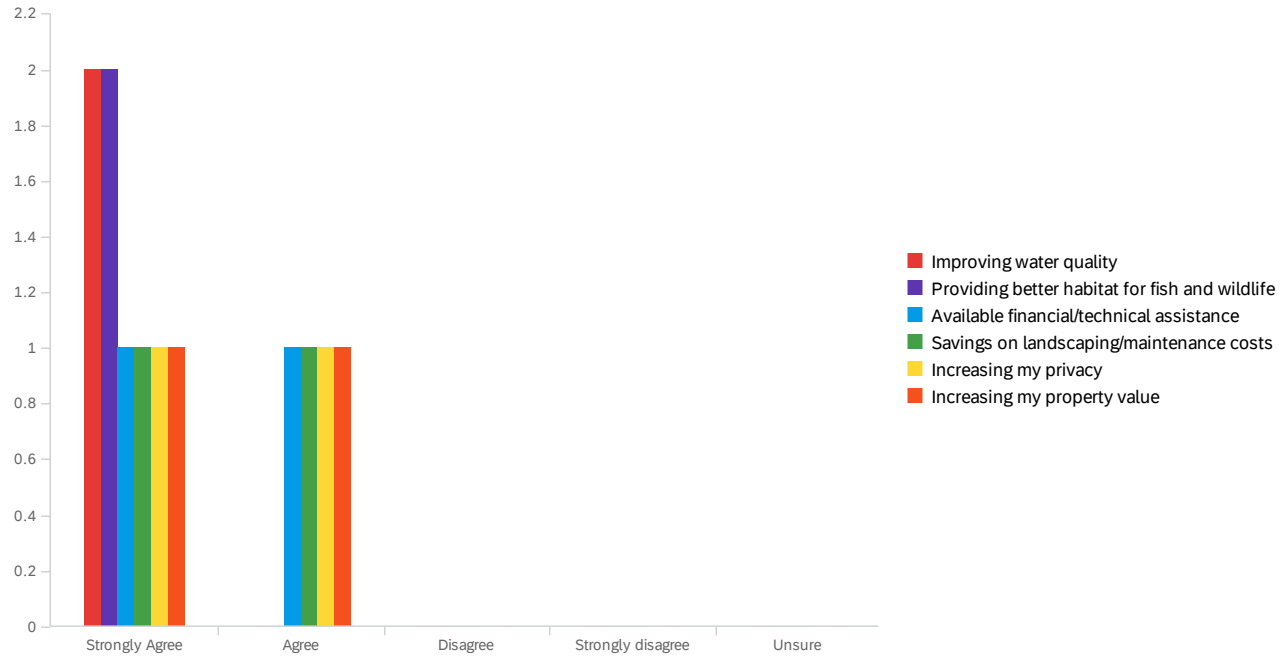
Q27 - In your opinion, does shoreland vegetation...



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	enhance the beauty of the property	50% 1	50% 1	0% 0	0% 0	0% 0	2
2	increase the economic value of the property	50% 1	50% 1	0% 0	0% 0	0% 0	2

Showing rows 1 - 2 of 2

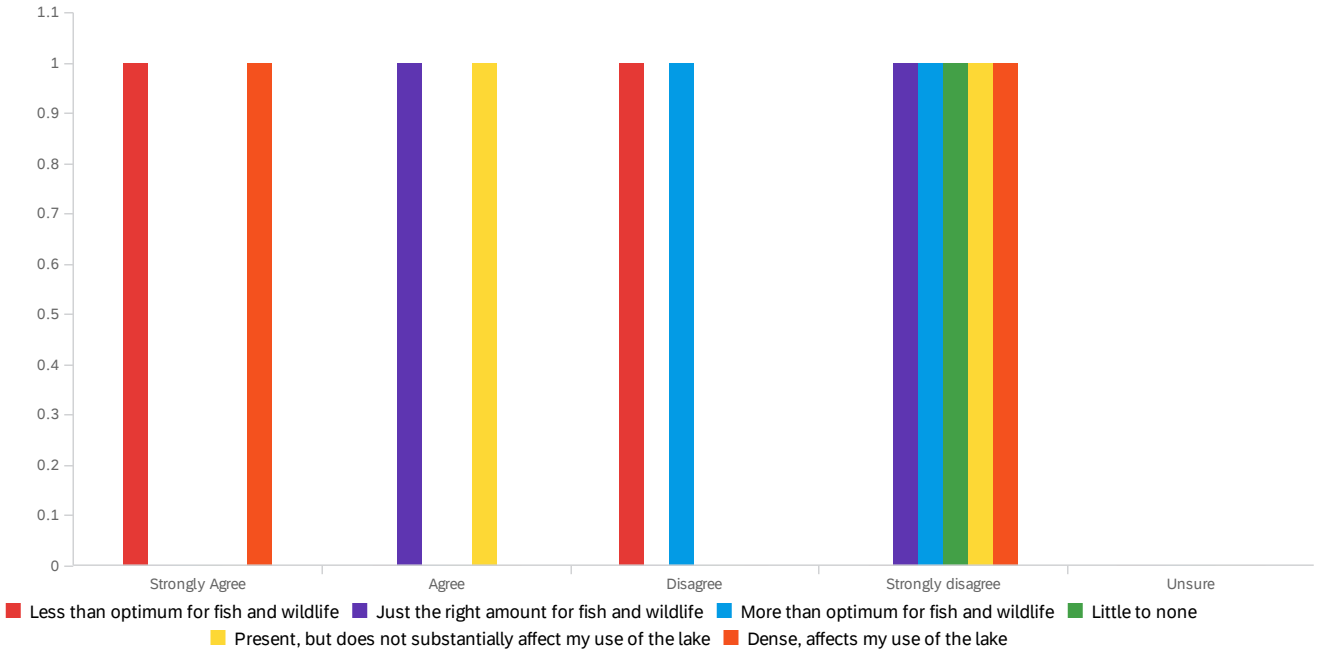
Q28 - What might motivate you to change how you manage your shoreland?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Improving water quality	100% 2	0% 0	0% 0	0% 0	0% 0	2
2	Providing better habitat for fish and wildlife	100% 2	0% 0	0% 0	0% 0	0% 0	2
3	Available financial/technical assistance	50% 1	50% 1	0% 0	0% 0	0% 0	2
4	Savings on landscaping/maintenance costs	50% 1	50% 1	0% 0	0% 0	0% 0	2
5	Increasing my privacy	50% 1	50% 1	0% 0	0% 0	0% 0	2
6	Increasing my property value	50% 1	50% 1	0% 0	0% 0	0% 0	2

Showing rows 1 - 6 of 6

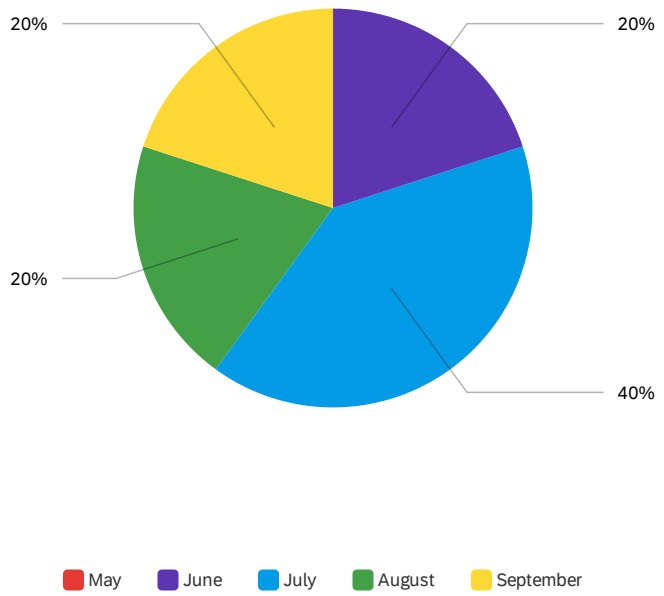
Q32 - In your opinion, which statement best describes the amount of aquatic plant growth in Pickerel Lake?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Less than optimum for fish and wildlife	50% 1	0% 0	50% 1	0% 0	0% 0	2
2	Just the right amount for fish and wildlife	0% 0	50% 1	0% 0	50% 1	0% 0	2
3	More than optimum for fish and wildlife	0% 0	0% 0	50% 1	50% 1	0% 0	2
4	Little to none	0% 0	0% 0	0% 0	100% 1	0% 0	1
5	Present, but does not substantially affect my use of the lake	0% 0	50% 1	0% 0	50% 1	0% 0	2
6	Dense, affects my use of the lake	50% 1	0% 0	0% 0	50% 1	0% 0	2

Showing rows 1 - 6 of 6

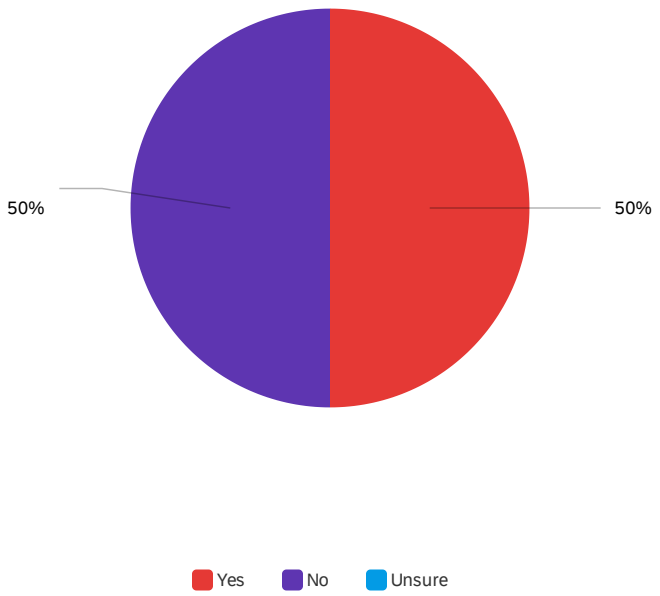
Q33 - If you think the plant growth in Pickerel Lake is dense, what month(s) do the problems occur? Check all that apply.



#	Field	Choice Count
1	May	0% 0
2	June	20% 1
3	July	40% 2
4	August	20% 1
5	September	20% 1
		5

Showing rows 1 - 6 of 6

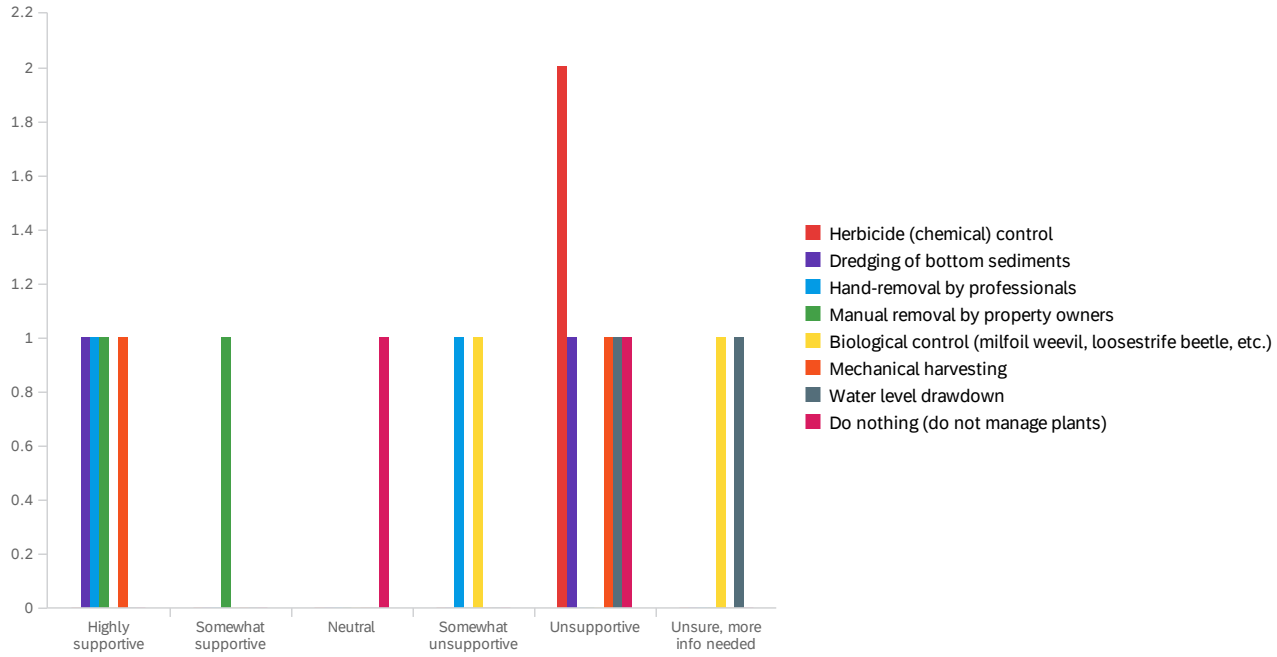
Q34 - Do you believe aquatic plant control is needed on Pickerel Lake?



#	Field	Choice Count
1	Yes	50% 1
2	No	50% 1
3	Unsure	0% 0
		2

Showing rows 1 - 4 of 4

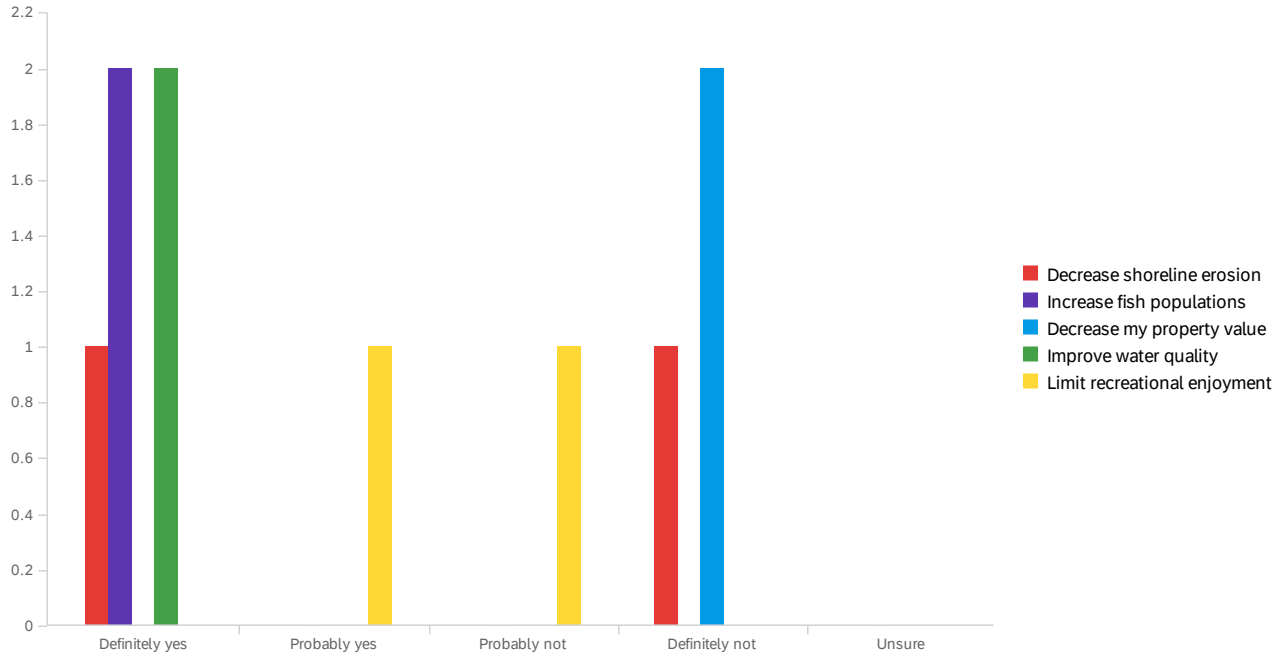
Q35 - What is your level of support for the responsible use of the following techniques to manage aquatic plants on Pickerel Lake?



#	Field	Highly supportive	Somewhat supportive	Neutral	Somewhat unsupportive	Unsupportive	Unsure, more info needed	Total
1	Herbicide (chemical) control	0% 0	0% 0	0% 0	0% 0	100% 2	0% 0	2
2	Dredging of bottom sediments	50% 1	0% 0	0% 0	0% 0	50% 1	0% 0	2
3	Hand-removal by professionals	50% 1	0% 0	0% 0	50% 1	0% 0	0% 0	2
4	Manual removal by property owners	50% 1	50% 1	0% 0	0% 0	0% 0	0% 0	2
5	Biological control (milfoil weevil, loosestrife beetle, etc.)	0% 0	0% 0	0% 0	50% 1	0% 0	50% 1	2
6	Mechanical harvesting	50% 1	0% 0	0% 0	0% 0	50% 1	0% 0	2
7	Water level drawdown	0% 0	0% 0	0% 0	0% 0	50% 1	50% 1	2
8	Do nothing (do not manage plants)	0% 0	0% 0	50% 1	0% 0	50% 1	0% 0	2

Showing rows 1 - 8 of 8

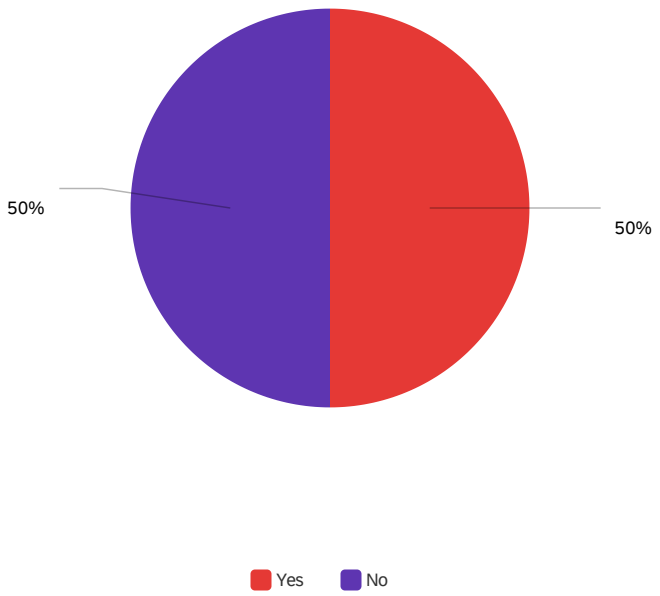
Q36 - In your opinion, does establishing or maintaining native vegetation in the water in the near-shore area...



#	Field	Definitely yes	Probably yes	Probably not	Definitely not	Unsure	Total
1	Decrease shoreline erosion	50% 1	0% 0	0% 0	50% 1	0% 0	2
2	Increase fish populations	100% 2	0% 0	0% 0	0% 0	0% 0	2
3	Decrease my property value	0% 0	0% 0	0% 0	100% 2	0% 0	2
4	Improve water quality	100% 2	0% 0	0% 0	0% 0	0% 0	2
5	Limit recreational enjoyment	0% 0	50% 1	50% 1	0% 0	0% 0	2

Showing rows 1 - 5 of 5

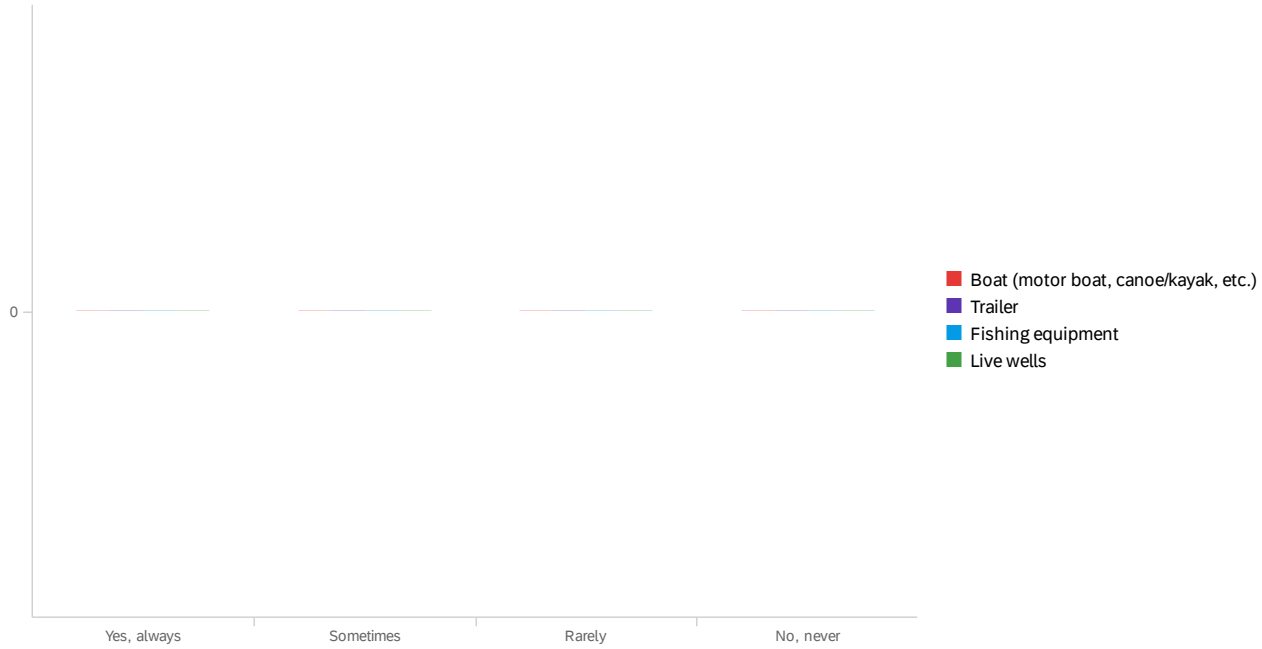
Q37 - Are you aware of invasive species (in general)?



#	Field	Choice Count
1	Yes	50% 1
2	No	50% 1
		2

Showing rows 1 - 3 of 3

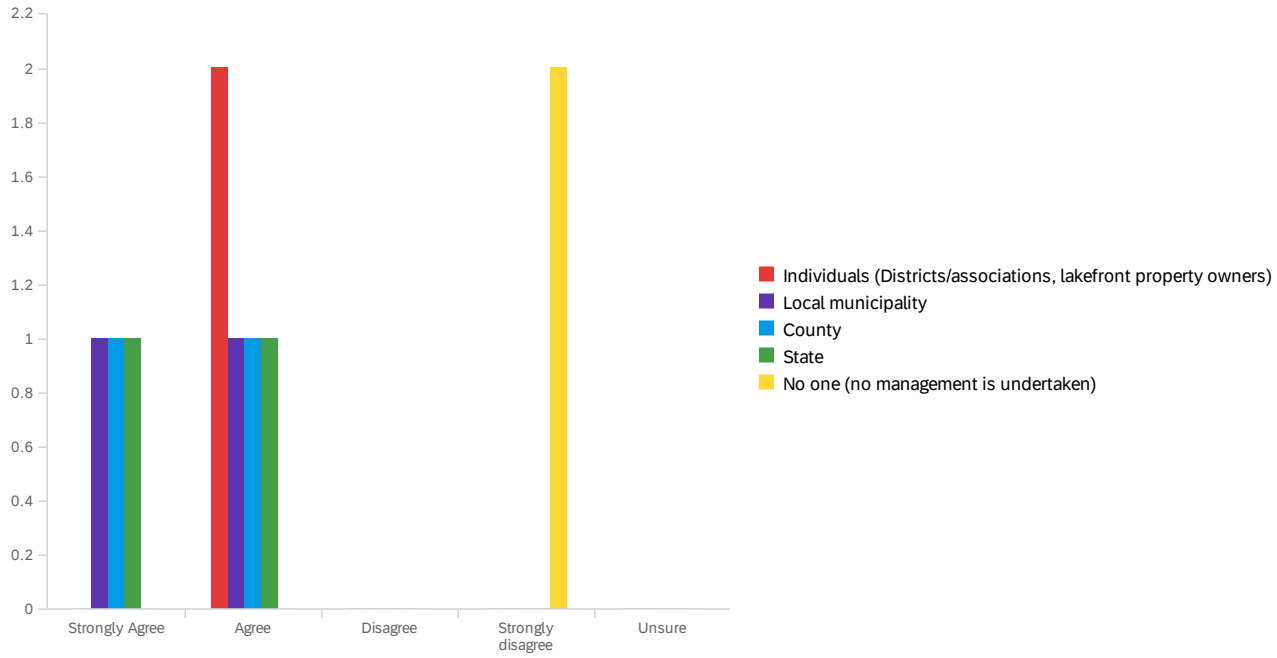
Q39 - After you have been to another lake, do you clean your.... before bringing it back to Pickerel Lake?



#	Field	Yes, always	Sometimes	Rarely	No, never	Total
1	Boat (motor boat, canoe/kayak, etc.)	0% 0	0% 0	0% 0	0% 0	0
2	Trailer	0% 0	0% 0	0% 0	0% 0	0
3	Fishing equipment	0% 0	0% 0	0% 0	0% 0	0
4	Live wells	0% 0	0% 0	0% 0	0% 0	0

Showing rows 1 - 4 of 4

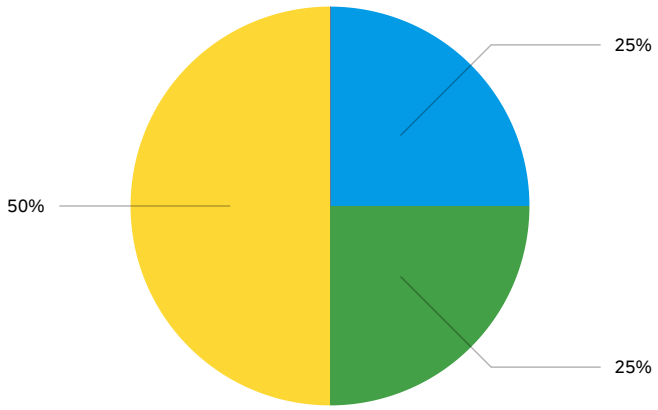
Q40 - Who should pay the cost of managing invasive aquatic plants?



#	Field	Strongly Agree	Agree	Disagree	Strongly disagree	Unsure	Total
1	Individuals (Districts/associations, lakefront property owners)	0% 0	100% 2	0% 0	0% 0	0% 0	2
2	Local municipality	50% 1	50% 1	0% 0	0% 0	0% 0	2
3	County	50% 1	50% 1	0% 0	0% 0	0% 0	2
4	State	50% 1	50% 1	0% 0	0% 0	0% 0	2
5	No one (no management is undertaken)	0% 0	0% 0	0% 0	100% 2	0% 0	2

Showing rows 1 - 5 of 5

Q41 - What is the most effective way to inform others about aquatic invasive species?



Newspaper Billboard Info pamphlets Lakeside signs/kiosks Volunteer staff at boat launch Other

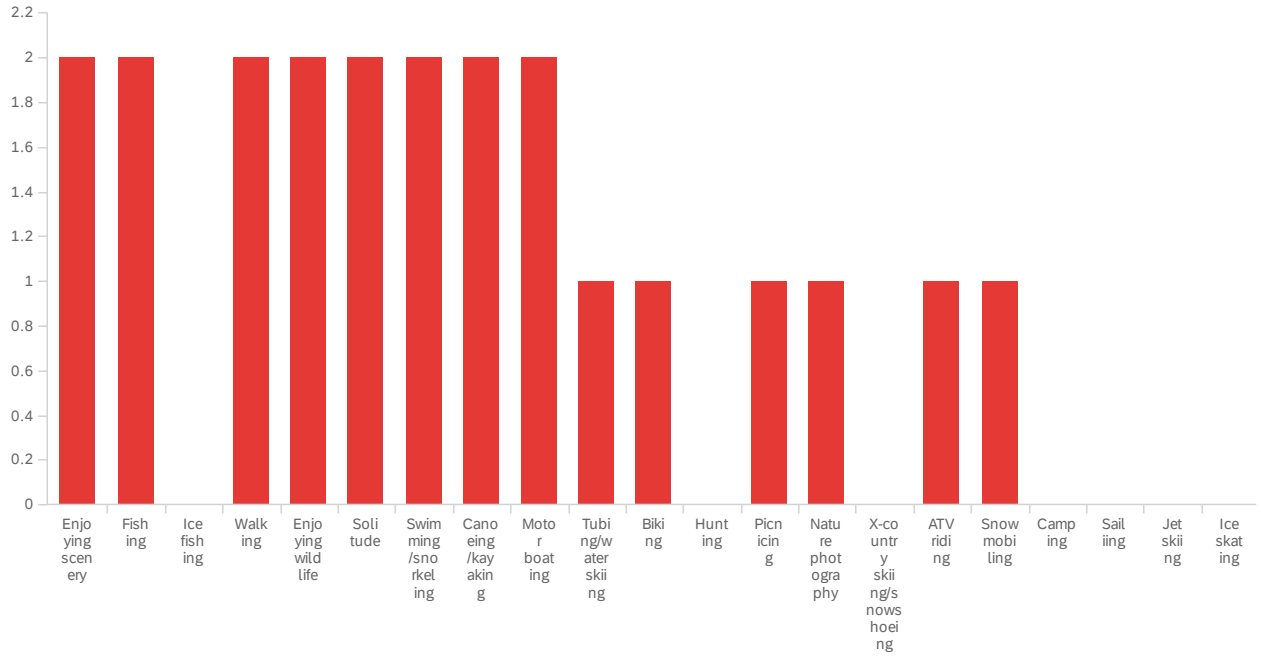
#	Field	Choice Count
1	Newspaper	0% 0
2	Billboard	0% 0
3	Info pamphlets	25% 1
4	Lakeside signs/kiosks	25% 1
5	Volunteer staff at boat launch	50% 2
6	Other	0% 0
		4

Showing rows 1 - 7 of 7

Q12 - In your opinion, what should be done to restore, maintain or improve Pickerel Lake?

In your opinion, what should be done to restore, maintain or improve Picker...
more lakeshore plant management, lake aeration during winter, better understanding of optimal water level, water quality testing and communication about results
Weed harvesting, dredging shallow areas and channels

Q45 - What recreational activities do you partake in on Pickerel Lake (check all that apply)?



#	Field	Choice Count
1	Enjoying scenery	9% 2
2	Fishing	9% 2
3	Ice fishing	0% 0
4	Walking	9% 2
5	Enjoying wildlife	9% 2
6	Solitude	9% 2
7	Swimming/snorkeling	9% 2
8	Canoeing/kayaking	9% 2
9	Motor boating	9% 2
10	Tubing/water skiing	5% 1
11	Biking	5% 1
12	Hunting	0% 0
13	Picnicing	5% 1

#	Field		Choice Count
14	Nature photography	5%	1
15	X-country skiing/snowshoeing	0%	0
16	ATV riding	5%	1
17	Snowmobiling	5%	1
18	Camping	0%	0
19	Sailiing	0%	0
20	Jet skiing	0%	0
21	Ice skating	0%	0
			22

Showing rows 1 - 22 of 22

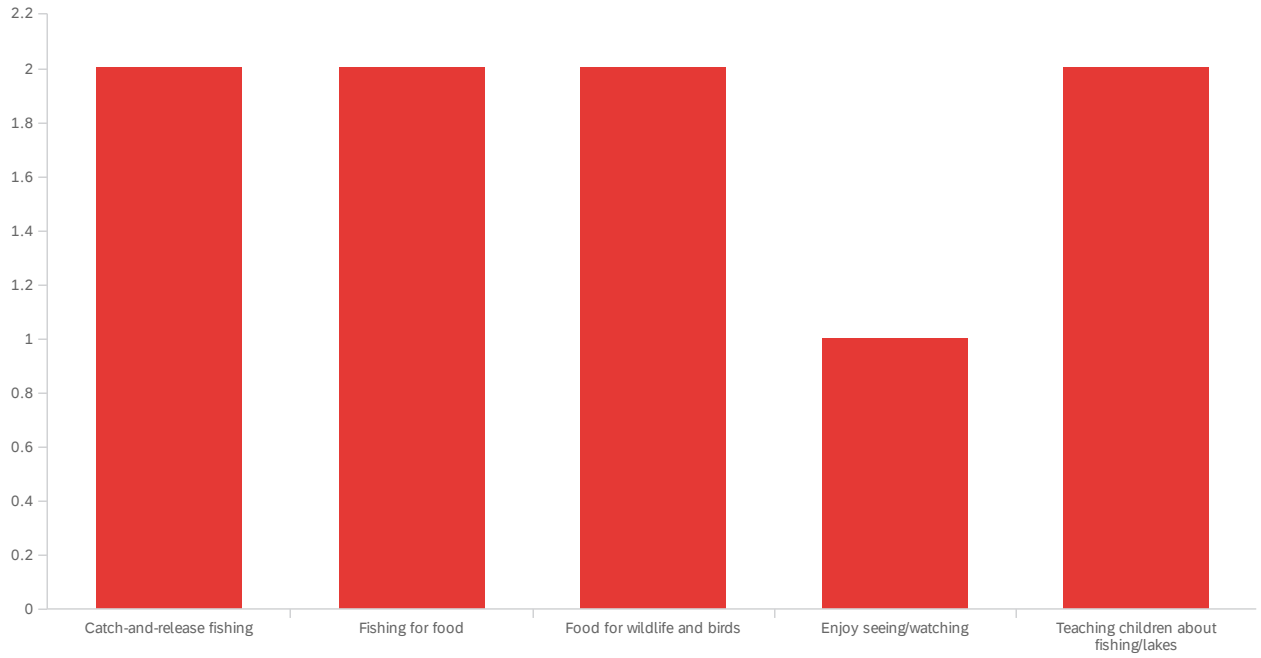
Q46 - Other recreational activities not included above:

Other recreational activities not included above:

Q49 - What could be done to improve your recreation experience on Pickerel Lake?

What could be done to improve your recreation experience on Pickerel Lake?
Better water quality for swimming. I get skin rash if I swim more than about 30 min.
Widen and deepen the channels, dredge shallow areas to make deeper holes and accessibility in the backwaters of Big Pickerel, weed harvest, remove muck

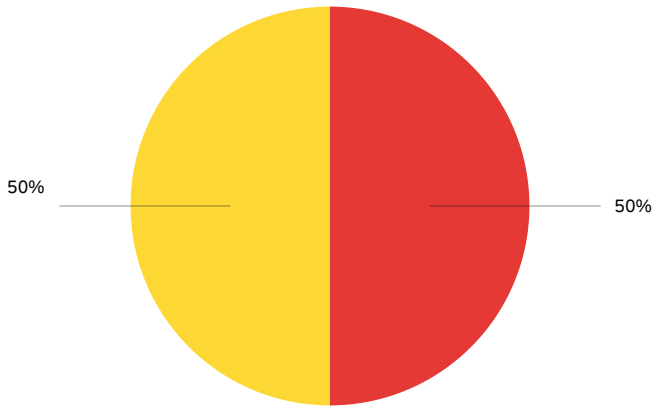
Q51 - For what purposes do you value the fishery in Pickerel Lake? (Check all that apply)

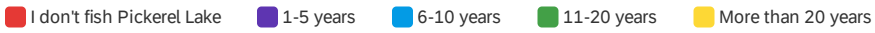


#	Field	Choice Count	
1	Catch-and-release fishing	22%	2
2	Fishing for food	22%	2
3	Food for wildlife and birds	22%	2
4	Enjoy seeing/watching	11%	1
5	Teaching children about fishing/lakes	22%	2
			9

Showing rows 1 - 6 of 6

Q52 - How many years experience do you have fishing Pickerel Lake?

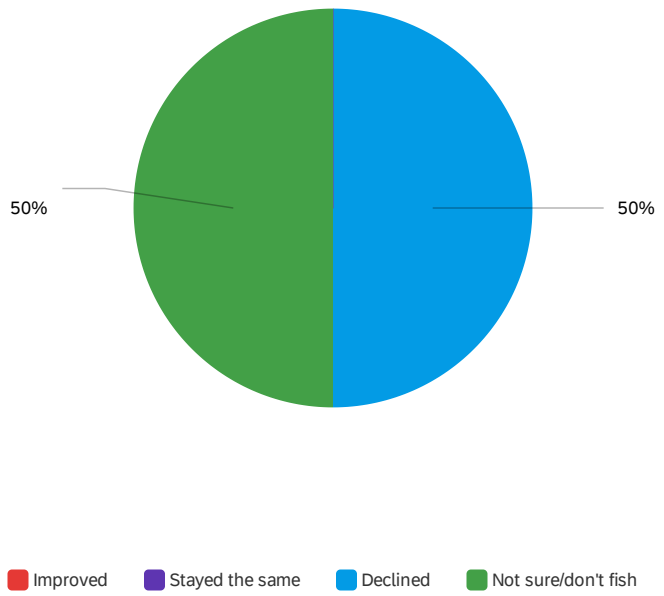




#	Field	Choice Count
1	I don't fish Pickerel Lake	50% 1
2	1-5 years	0% 0
3	6-10 years	0% 0
4	11-20 years	0% 0
5	More than 20 years	50% 1
		2

Showing rows 1 - 6 of 6

Q53 - In the time you have been fishing Pickerel Lake, would you say the quality of fishing has...



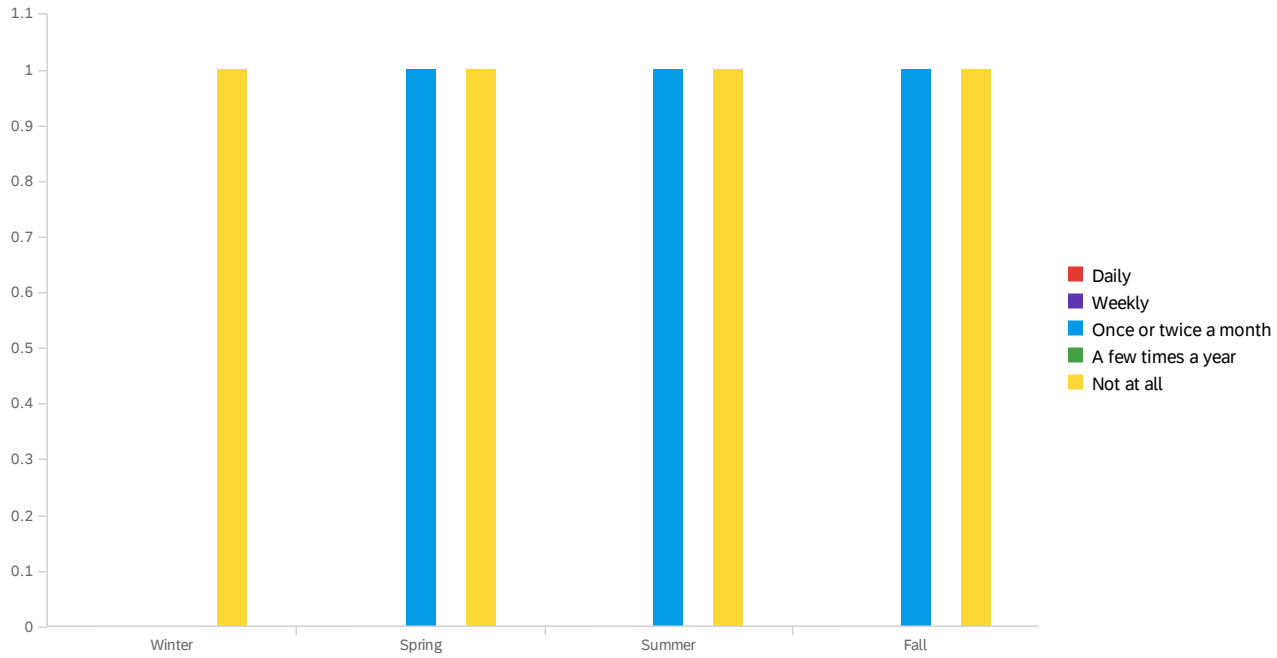
#	Field	Choice Count
1	Improved	0% 0
2	Stayed the same	0% 0
3	Declined	50% 1
4	Not sure/don't fish	50% 1
		2

Showing rows 1 - 5 of 5

Q54 - What do you think has contributed to the change in fishing?

What do you think has contributed to the change in fishing?
I don't fish but my family does. There seem to be fewer pan fish in the lake.
Increased pressure, low oxygen levels, backwaters getting more shallow due to weeds and natural muck filling in from decaying plants

Q55 - When and how often do you fish Pickerel Lake?



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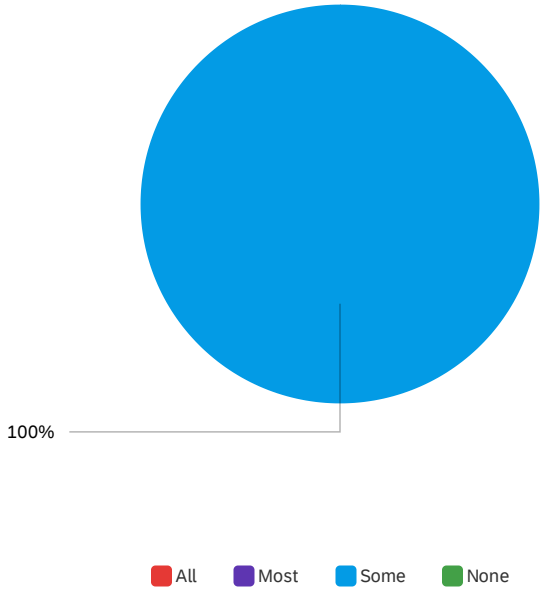
Q56 - What type of fish do you catch on Pickerel Lake?

What type of fish do you catch on Pickerel Lake?
My family has caught primarily bass and pike.
Pike, bass, panfish

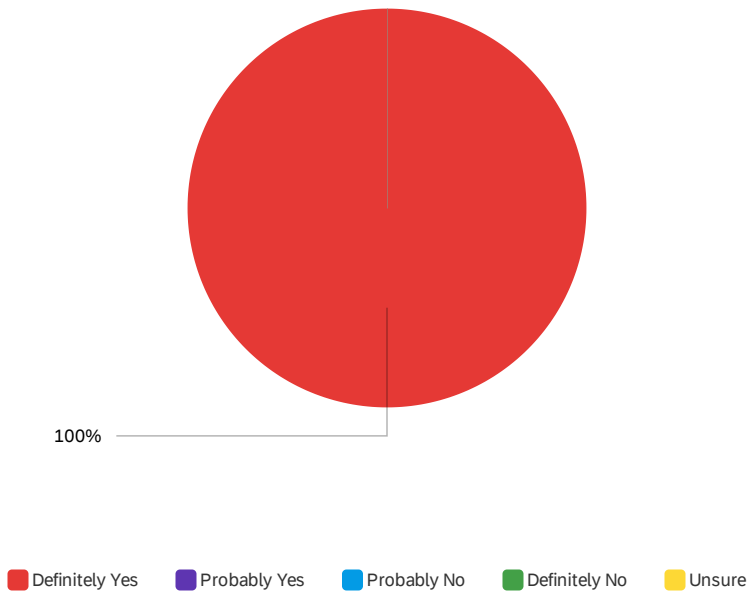
Q57 - In general, how many of the fish you catch are big enough to keep?



#	Field	Choice Count
1	All	0% 0
2	Most	0% 0
3	Some	100% 2
4	None	0% 0
		2

Showing rows 1 - 5 of 5

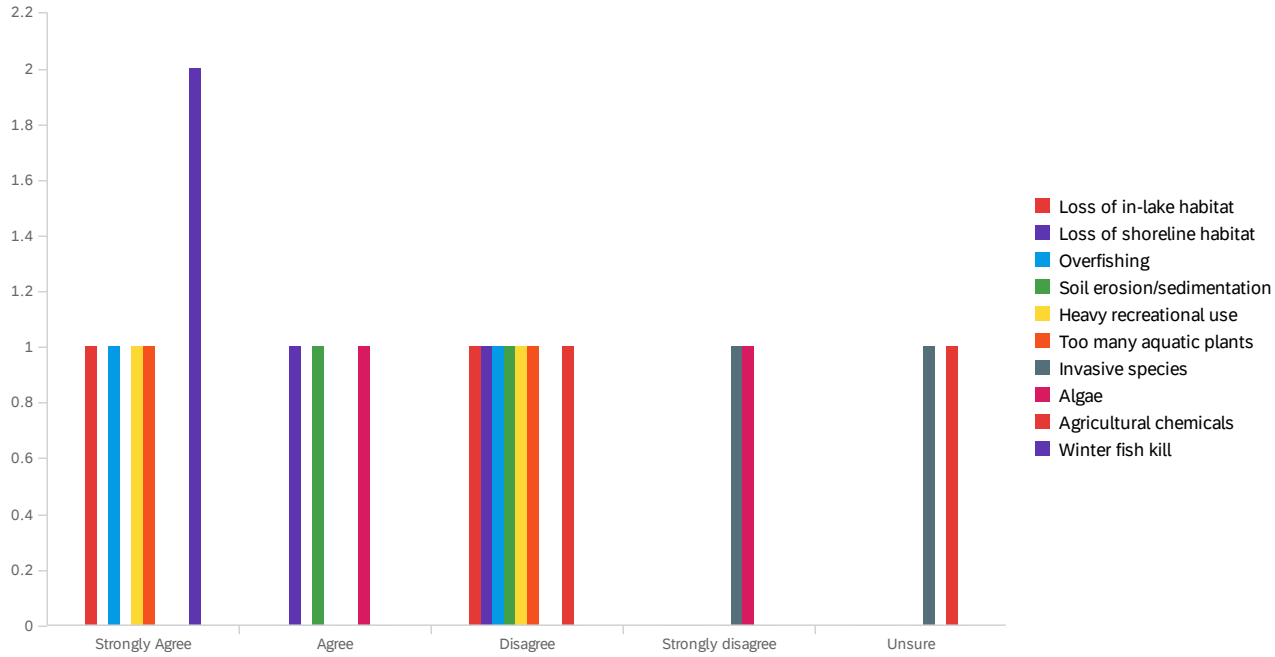
Q58 - Do you believe fish from Pickerel Lake are safe to eat?



#	Field	Choice Count
1	Definitely Yes	100% 2
2	Probably Yes	0% 0
3	Probably No	0% 0
4	Definitely No	0% 0
5	Unsure	0% 0
		2

Showing rows 1 - 6 of 6

Q59 - What do you think is the greatest threat to the fishery in Pickerel Lake in the next 10 years?



#	Field	Strongly Agree		Agree		Disagree		Strongly disagree		Unsure		Total
1	Loss of in-lake habitat	50%	1	0%	0	50%	1	0%	0	0%	0	2
2	Loss of shoreline habitat	0%	0	50%	1	50%	1	0%	0	0%	0	2
3	Overfishing	50%	1	0%	0	50%	1	0%	0	0%	0	2
4	Soil erosion/sedimentation	0%	0	50%	1	50%	1	0%	0	0%	0	2
5	Heavy recreational use	50%	1	0%	0	50%	1	0%	0	0%	0	2
6	Too many aquatic plants	50%	1	0%	0	50%	1	0%	0	0%	0	2
7	Invasive species	0%	0	0%	0	0%	0	50%	1	50%	1	2
8	Algae	0%	0	50%	1	0%	0	50%	1	0%	0	2
9	Agricultural chemicals	0%	0	0%	0	50%	1	0%	0	50%	1	2
10	Winter fish kill	100%	2	0%	0	0%	0	0%	0	0%	0	2

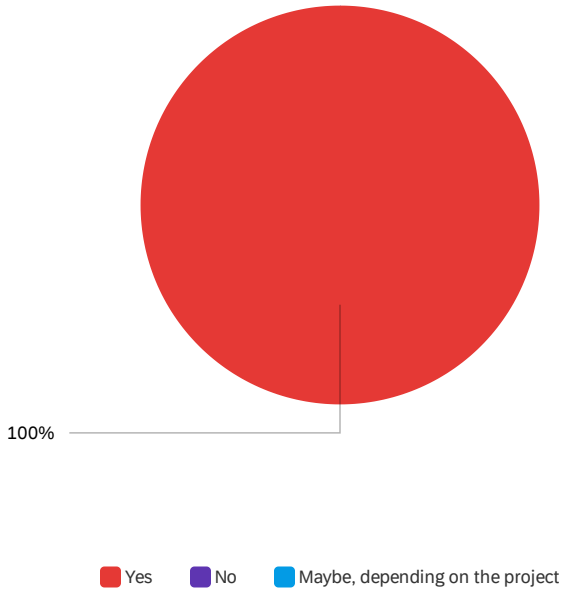
Showing rows 1 - 10 of 10

Q61 - Do you have any additional comments regarding Pickerel Lake?

Do you have any additional comments regarding Pickerel Lake?

I love living here and particularly the wildlife - eagles, loons, herons, cranes, bears, muskrats... I want to make sure the lake management plan includes these species as well as the fish.

Q63 - Would you be interested in volunteering on a project on your lake (such as shoreland restoration planting, invasive species monitoring/removal, water quality monitoring, highway cleanup, etc.)?



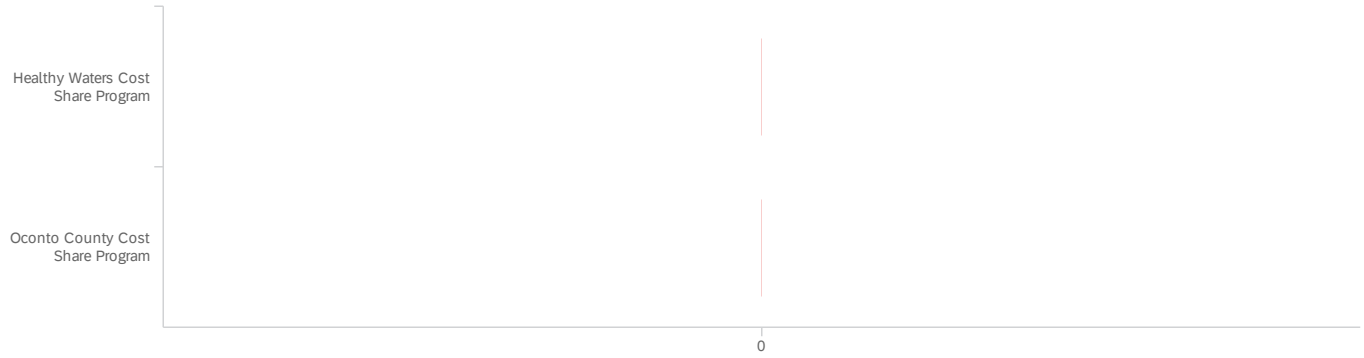
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you be interested in volunteering on a project on your lake (such as shoreland restoration planting, invasive species monitoring/removal, water quality monitoring, highway cleanup, etc.)?	1	1	1	0	0	2

#	Field		Choice Count
1	Yes	100%	2
2	No	0%	0
3	Maybe, depending on the project	0%	0
			2

Showing rows 1 - 4 of 4

Q64 - Are you aware of the following programs available to you from Oconto County?

(Check all that apply)



#	Field		Choice Count
1	Healthy Waters Cost Share Program	0%	0
2	Oconto County Cost Share Program	0%	0
			0

Showing rows 1 - 3 of 3

Q65 - "No Wake" is allowed on Pickerel Lake between 5pm and 10am. Do you like the current "No Wake" rules as they are?

Q66 - If you think the "No Wake" rules should be adjusted...in what way?

If you think the "No Wake" rules should be adjusted...in what way?

Rules are fine. Would like to better figure out how to communicate them to visitors AND also have more harmony with fishers

End of Report