

# 2016

## Lower White River Flowage, Waushara County, Wisconsin Lake Management Plan



Prepared by staff from the Center for Watershed Science and Education  
University of Wisconsin-Stevens Point



Center for Watershed Science and Education  
College of Natural Resources  
**University of Wisconsin-Stevens Point**



## Lake Management Plan for Lower White River Flowage, Waushara County, Wisconsin

The Lower White River Flowage Lake Management Plan was developed with input from residents and lake users at a series of four public planning sessions held at the Waushara County Courthouse in Wautoma, Wisconsin from December 2015 to March 2016. The inclusive community sessions were designed to learn about and identify key community opportunities, assets, concerns, and priorities. Representatives of state and local agencies, as well as nonprofit organizations, also attended the planning sessions to offer their assistance to the group in developing a strategic lake management plan (LMP).

The plan was adopted by the White River Flowage Lake Management District on: May 11, 2016.

The plan was approved by the Wisconsin Department of Natural Resources on: August 22, 2016.

The plan was accepted by the Town of Dakota on: \_\_\_\_\_.

The plan was accepted by Waushara County on: June 1, 2016.

***A special thanks to all who helped to create the Lower White River Flowage Management Plan and provided guidance during the plan's development.***

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**We are grateful to many for providing funding, support and insight to this planning process:**

Waushara County Watershed Lakes Council

Waushara County Staff and Citizens

Wisconsin Department of Natural Resources Lake Manager, Ted Johnson

Wisconsin Department of Natural Resources Lake Protection Grant Program

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## Overarching Vision for Lower White River Flowage

*The White River Flowage will remain a peaceful setting, abundant in healthy fish and wildlife, where lake users can enjoy a variety of activities with family and friends. The surrounding community will value the lake and practices that promote its wellbeing.*

## Introduction

The Lower White River Flowage is located in the Town of Dakota, south of the City of Wautoma. This 133-acre impoundment on the White River has a maximum depth of 20 feet. Its bottom sediments are mostly sand, especially in the southern half, with a small amount of muck in the lake's northern half. Land in the towns of Deerfield, Wautoma, Mount Morris, Marion, and Dakota, and the City of Wautoma are located in the White River Flowage watershed. In 2015, community members around the White River Flowage came together in partnership with Waushara County and technical professionals to develop this lake management plan (LMP).

The purpose of this plan is to learn about Lower White River Flowage and identify features important to the Lower White River Flowage community in order to provide a framework for the protection and improvement of the lake. Implementing the content of this LMP will enable citizens and other supporters to achieve the vision for Lower White River Flowage 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 lake 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 lake 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.

*Implementing the content within this lake management plan will enable citizens and other supporters to achieve the vision for Lower White River Flowage now and in the years to come.*

Who can use the Lower White River Flowage Management Plan, and how can it be used?

- **Individuals:** Individuals can use this plan to learn about the lake they love and their connection to it. People living near Lower White River Flowage can have the greatest influence on the lake by understanding and choosing lake-friendly options to manage their land and the lake.

- **White River Flowage Lake Management District:** This plan provides the District with a well thought out plan for the whole lake and lists options that can easily be prioritized. Annual review of the plan will also help the District to realize its accomplishments. Resources and funding opportunities for lake management activities are made more available by placement of goals into the lake management plan, and the District can identify partners to help achieve their goals for White River Flowage.
- **Neighboring lake groups, sporting and conservation clubs:** Neighboring 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 Towns of Marion, Deerfield, Wautoma, Mount Morris, and Dakota and the City of Wautoma:** The municipalities can utilize the visions, wishes, and goals documented in this lake management plan when considering town-level management planning or decisions within the watershed that may affect the lake.
- **Waushara 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 Waushara County lakes, streams, wetlands, and groundwater.
- **Wisconsin Department of Natural Resources (WDNR):** Professionals working with lakes in Waushara 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. Lake management plans help the Wisconsin Department of Natural Resources to identify and prioritize needs within Wisconsin's lake community, and decide where to apply resources and funding. A well thought out lake management plan increases an application's competitiveness for funding from the State – if multiple Waushara County lakes have similar goals in their lake management plans, they can join together when seeking grant support to increase competitiveness for statewide resources.

## Background

One of the first steps in creating this plan was to gather and compile data about the flowage and its ecosystem to understand past and current conditions. This was done alongside 32 other lakes as part of the Waushara County Lakes Project. The Waushara County Lakes Project was initiated by citizens in the Waushara County Watershed Lakes Council who encouraged Waushara County to work in partnership with personnel from UW-Stevens Point to assess 33 lakes in the county. This effort received 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 and the Waushara County Land Conservation Department conducted the Waushara County Lakes Study and interpreted data for use in the





development of lake management plans. Data collected by citizens, consultants, and professionals at the WDNR were also incorporated into the planning process to provide a robust set of information from which informed decisions could be made. Sources of information used in the planning process are listed at the end of this document.

Several reports from the White River Flowage Study and the materials associated with the planning process and reports can be found on the Waushara County website: <http://www.co.waushara.wi.us/> (select “Departments”, “Zoning and Land Conservation”, “Land Conservation”, and “Lake Management Planning”). Unless otherwise noted, the data used in the development of this plan were detailed in the 2014 report *Waushara County Lakes Study – Lower White River Flowage*, University of Wisconsin-Stevens Point.

## The Planning Process

The planning process included a series of four public planning sessions which were held at the Waushara County Courthouse to assist area residents, members of the White River Flowage Lake Management District, lake users, and representatives of local municipalities with the development of the lake management plan. These meetings took place between December 2015 and March 2016. The Lower White River Flowage Planning Committee consisted of property owners. Technical assistance during the planning process was provided by the Waushara County Conservationist, the Waushara County Community, Natural Resources and Economic Development Extension Agent, and professionals from the Wisconsin Department of Natural Resources (WDNR), University of Wisconsin-Extension (UWEX), and the University of Wisconsin-Stevens Point Center for Watershed Science and Education (CWSE).

Participation in the planning process was open to everyone and was encouraged by letters mailed to White River Flowage waterfront property owners and by press releases in local newspapers. In addition, members of the planning committee were provided with emails about upcoming meetings, which could be forwarded to others. To involve and collect input from as many people as possible, a topic-specific survey related to the subject of each upcoming planning session was made available prior to each planning session. Property owners and interested lake users were notified about the surveys and how to access them (via postcards mailed to waterfront property owners 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 Appendix F. Lake User Survey Results.

Guest experts and professionals attended the planning sessions. They presented information and participated in discussions with participants to provide context, insight and recommendations for the lake management plan, including environmental and regulatory considerations. This information was organized with the survey results into discussion topics, which included: the fishery and recreation; the aquatic plant community; water quality and land use; shoreland health; and communication. After learning about the current conditions of each topic, planning committee members identified goals, objectives, and actions for the lake management plan that were recorded by professionals from UW-Stevens Point. Planning session notes and presentations are available on the Waushara County website.

## Goals, Objectives and Actions

The following goals, objectives, and associated actions were derived from the values and concerns of citizens interested in the Lower White River Flowage and members of the Lower White River Flowage Management Planning Committee, as well as the known science about Lower White River Flowage, its ecosystem and the landscape within its watershed. Implementing and regularly updating the goals and actions in the Lower White River Flowage Management Plan will ensure that the vision is supported and that changes or new challenges are incorporated into the plan. 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.**

Although each lake is different, the Wisconsin Department of Natural Resources requires that each comprehensive lake management plan address a specific list of topics affecting the character of a lake, whether each topic has been identified as a priority or as simply something to preserve. In this way, every lake management plan considers the many aspects associated with lakes. These topics comprise the chapters in this plan. For the purposes of this plan, the chapters 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 and Quantity—water chemistry, clarity, contaminants, lake levels*

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

*Watershed Land Use—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 and Revisions—continuing the process*

*Governance—protection of the lake, constitution, state, county, local municipalities, White River Flowage Lake Management District*

## List of Goals

Goal 1. Retain and/or improve the healthy fishery in the Lower White River Flowage.

Goal 2. New AIS will not become established in the Lower White River Flowage. The existing AIS; EWM, CLP, and flowering rush will be controlled or, if possible, eliminated.

Goal 3. Manage native aquatic plants to provide navigation without harming the integrity of the aquatic plant community and their habitat benefits to fish and others in the Lower White River Flowage.

Goal 4. Protect unique areas that are valuable to the water quality and habitat of Lower White River Flowage.

Goal 5. Minimize nutrient and sediment loading to the lake by improving land management practices near the flowage and in the watershed.

Goal 6. Continue long term water quality data collection on Lower White River Flowage to monitor trends over time.

Goal 7. Shorelands around Lower White River Flowage will be healthy.

Goal 8. Utilize resources for maintenance of healthy water quality.

Goal 9. Provide access to the flowage and adjacent public lands for enjoyment and management.

Goal 10. Encourage Lower White River Flowage stewardship through communication.

Goal 11. Review plan annually and update as needed.

### The following goals were identified as priorities by the planning committee:

**Goal 2. New AIS will not become established in the Lower White River Flowage. The existing AIS – EWM, CLP, and flowering rush – will be controlled or, if possible, eliminated.**

Continue to provide Clean Boats Clean Waters surveillance, especially during peak boating times on the flowage, i.e. holiday weekends.

Continue to control the spread of invasive species through chemical treatment, machine cutting and hand pulling, as appropriate.

Eradicate flowering rush in the flowage.

**Goal 3. Manage native aquatic plants to provide navigation without harming the integrity of the aquatic plant community and their habitat benefits to fish and others in the Lower White River Flowage.**

Achieve and maintain a navigable channel (at least by canoe/kayak) from the northern to southern boundary of the Lower White River Flowage.

**Goal 8. Utilize resources for maintenance of healthy water quality.**

**Objective 8.2.** Reduce sediment and pollutant delivery to Lower White River Flowage.

Prevent the discharge/dumping of sediment/muck and/or other noxious materials upstream of the Lower White River Flowage or directly into the flowage. This includes any event similar to the discharge of sediment/muck upstream of Lower White River Flowage in 2012 when the City of Wautoma conducted a drawdown of the Wautoma Mill Pond.

**Goal 9. Provide access to the flowage and adjacent public lands for enjoyment and management.**

Complete needed repairs of the White River Trail landing on the flowage.

Lead persons and resources are given under each objective of this plan. These individuals and organizations are able to provide information, suggestions, or services to accomplish objectives and 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.

<b>Resource</b>	<b>Acronym</b>
<b>Clean Boats, Clean Waters</b>	<b>CBCW</b>
<b>WDNR Citizen Lake Monitoring Network</b>	<b>CLMN</b>
<b>UWSP Center for Watershed Science and Education</b>	<b>CWSE</b>
<b>Wisconsin Department of Agriculture, Trade and Consumer Protection</b>	<b>DATCP</b>
<b>North Central Conservancy Trust</b>	<b>NCCT</b>
<b>USDA Natural Resources Conservation Service</b>	<b>NRCS</b>
<b>Golden Sands Resource Conservation &amp; Development Council, Inc.</b>	<b>RC&amp;D</b>
<b>University of Wisconsin Extension</b>	<b>UWEX</b>
<b>University of Wisconsin-Stevens Point</b>	<b>UWSP</b>
<b>Waushara County Land Conservation Department</b>	<b>WCLCD</b>
<b>Waushara County Watershed Lakes Council</b>	<b>WCWLC</b>
<b>Wisconsin Department of Natural Resources</b>	<b>WDNR</b>
<b>Wisconsin Department of Transportation</b>	<b>WDOT</b>
<b>UWSP Water and Environmental Analysis Lab</b>	<b>WEAL</b>
<b>White River Flowage Lake Management District</b>	<b>WRFLMD</b>

Contact information for organizations and individuals who support lake management in Waushara County can be found in Appendix A. Waushara County Lake Information Directory.

## **In-Lake Habitat and a Healthy Lake**

Many people value Lower White River Flowage for its fishing and wildlife. The health of one part of the flowage 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 flowage. Habitat is the structure for a healthy fishery and wildlife community. It can provide shelter for some animals and food for others.

Lake habitat occurs within the lake, along all of its shorelands, and even extends into its watershed for some species. Many animals that live in and near the lake are only successful if their needs – food, a healthy environment, and shelter – are met. Native vegetation including wetlands along the shoreline and adjacent to the lake provides habitat for safety, reproduction, and food, and can improve water quality and balance water quantity. 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. Aquatic plants infuse oxygen into the water and provide food and shelter for waterfowl, small mammals, and people. 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. Healthy habitat in Lower White River Flowage includes the aquatic plants, branches, and tree limbs above and below the water.



## **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. Activities in and around a lake that can affect a fishery may involve disturbances to the native aquatic plant community or substrate, excessive additions of nutrients or harmful chemicals, removal of woody habitat, shoreline alterations, and/or an imbalance in the fishery. Shoreland erosion can cause sediment to settle onto the substrate, causing the deterioration of spawning habitat. Habitat can be improved by allowing shoreland vegetation to grow, minimizing the removal of aquatic plants, providing fallen trees or limbs in suitable areas, and protecting wetlands and other areas of critical habitat.

People are an important part of a sustainable fish community; their actions on the landscape and the numbers and sizes of fish taken out of the lake can influence the entire lake ecosystem. Putting appropriate fishing regulations in place and adhering to them can help to balance the fishery with healthy prey and predatory species, can be adjusted as the fish community changes, and can provide for excellent fishing.

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. 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. Alternatively, 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. 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.

Dave Bartz, WDNR Fisheries Biologist, presented the following information at the March 22, 2016 planning session:

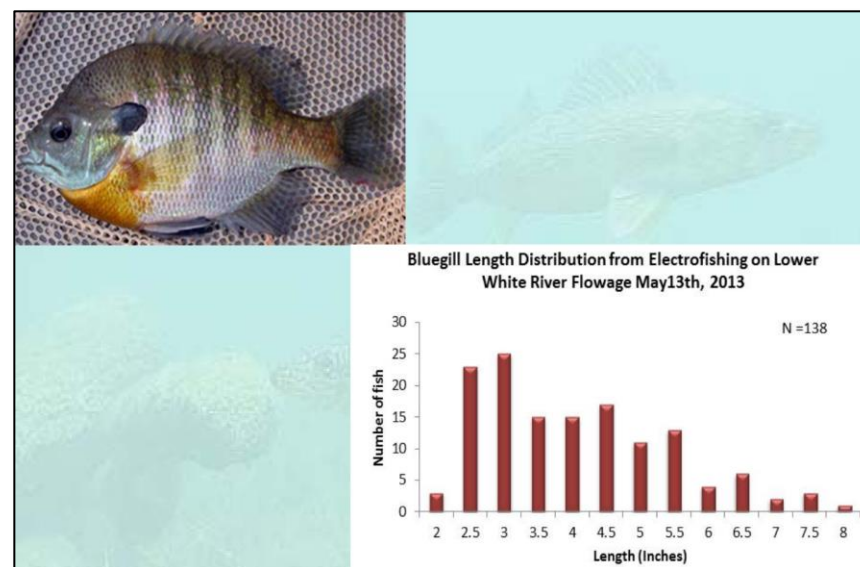
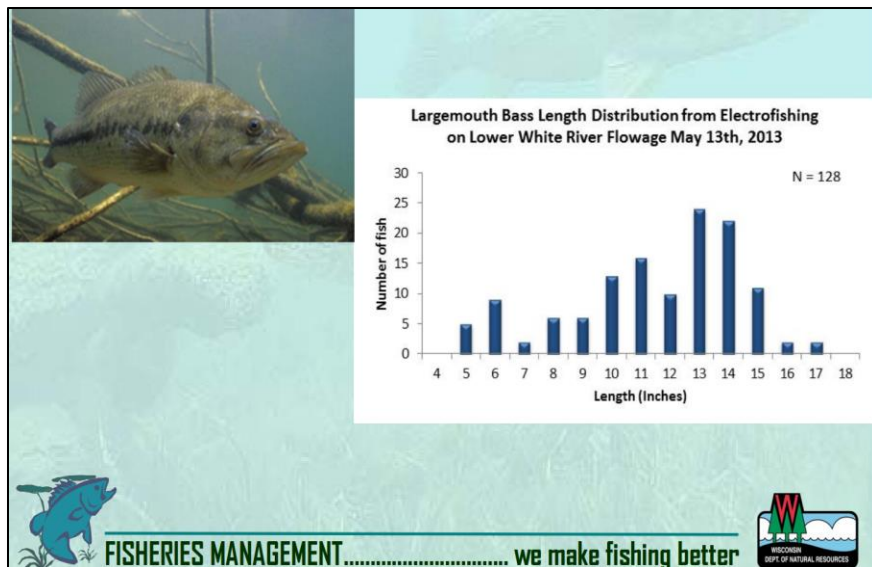
The most recent fishery survey of the White River Flowage occurred in May 2013. Fisheries biologists with the WDNR used electrofishing methods. The next survey is scheduled to occur in 2021. Largemouth bass were observed in above-average abundance, with a capture rate of 75/hour for fish greater than 8 inches. This is down only slightly from the 2005 survey of 86/hour for bass greater than 8 inches. The size structure of the bass was fair (PSD12=63%, RSD14=33%), with an average size of 12 inches.

Panfish had above-average abundance, with a capture rate of 224/hour for panfish greater than 3 inches. This was one-third of what was observed in 2005 (705/hour for fish greater than 3 inches); the preferred rate is 300/hour. The size structure changed slightly (PSD6=14% compared to 11% in 2005). The preference is 40% of the fish greater than 6 inches. The average size during the 2013 survey was 4.6 inches. Survey results suggested there is competition for food among panfish and they may not be getting predated on due to their ability to hide among the aquatic plants. Black crappie, yellow perch and pumpkinseed were also caught, but not in high enough numbers to conduct statistical analyses.

Planning session participants indicated a fish kill early in 2001, likely due to a bacterial infection associated with pine pollen. In White River Flowage, the panfish population may be controlling the carp population.

Bartz indicated stocking is not needed for the fishery in the White River Flowage. Fish populations can be maintained by protecting healthy shoreland areas, and by managing aquatic plants and aquatic invasive species in a way that continues to provide necessary habitat while allowing predatory species to find prey, leading to a balance of all populations. Committee members indicated the fishery in Lower White River Flowage is a primary asset to this waterbody; therefore, efforts should be made to maintain and/or improve it.





### Guiding Vision for the Fish Community

*The Lower White River Flowage will be managed in ways that lead to a healthy and balanced fish community.*

#### Goal 1. Retain and/or improve the healthy fishery in the Lower White River Flowage.

##### Objective 1.1. Manage the Lower White River Flowage and its shorelands to produce a healthy fishery.

Actions	Lead person/group	Resources	Timeline
Protect existing natural habitat including downed trees and woody features around Lower White River Flowage by informing landowners about their importance.	Shoreland property owners	WRFLMD UWEX educational materials WDNR Fisheries Biologist	Ongoing



Maintain in-lake habitat, especially aquatic plants, to keep a balanced fishery (see Aquatic Plants section).	WRFLMD	Shoreland property owners WDNR Fisheries Biologist	Ongoing
Continue channel reconstruction efforts with woody structure to narrow and deepen channels near headwaters.	WRFLMD	Shoreland property owners	As needed
Manage shorelands to provide shade and habitat for the fishery and their prey (see Shorelands section).	Shoreland property owners	UWEX Lakes WCLCD WDNR Fisheries Biologist	Ongoing

**Objective 1.2. Routinely monitor the carp and survey the fishery at least every 8 years.**

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
Continue to monitor carp populations in White River Flowage. Contact WDNR Fisheries Biologist if population increases.	WRFLMD	WDNR Fisheries Biologist	Ongoing – especially in spring
Survey the fishery (at least largemouth bass and panfish) routinely to identify any problems. Share results with WRFLMD.	WDNR Fisheries Biologist		Every 8 years Next survey 2021

## Aquatic Plants

Aquatic plants provide the forested landscape within Lower White River Flowage. 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 creates diversity that makes the aquatic plant community more resilient and can help to prevent the establishment of non-native aquatic species.

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. The aquatic plants that attract the animals to these areas contribute to the beauty of the shoreland and lake.

An aquatic plant survey was conducted in the Lower White River Flowage in August 2013 by staff from Golden Sands Resource Conservation & Development Council, Inc. (RC&D). Eighty-nine percent (179 of 201) of the sites visited had vegetative growth. The greatest depth at which aquatic plant growth was found was 16 feet. Twenty-one species of aquatic plants were found on the Lower White River Flowage, with an additional three species observed visually. This was above average when compared with other Waushara County lakes in the study.

The dominant plant species found in the Lower White River Flowage was common waterweed (*Elodea canadensis*), followed by coontail (*Ceratophyllum demersum*) and water stargrass (*Heteranthera dubia*). Common waterweed is a food source for muskrats and waterfowl, and it also provides shelter and grazing opportunities for fish. Coontail also

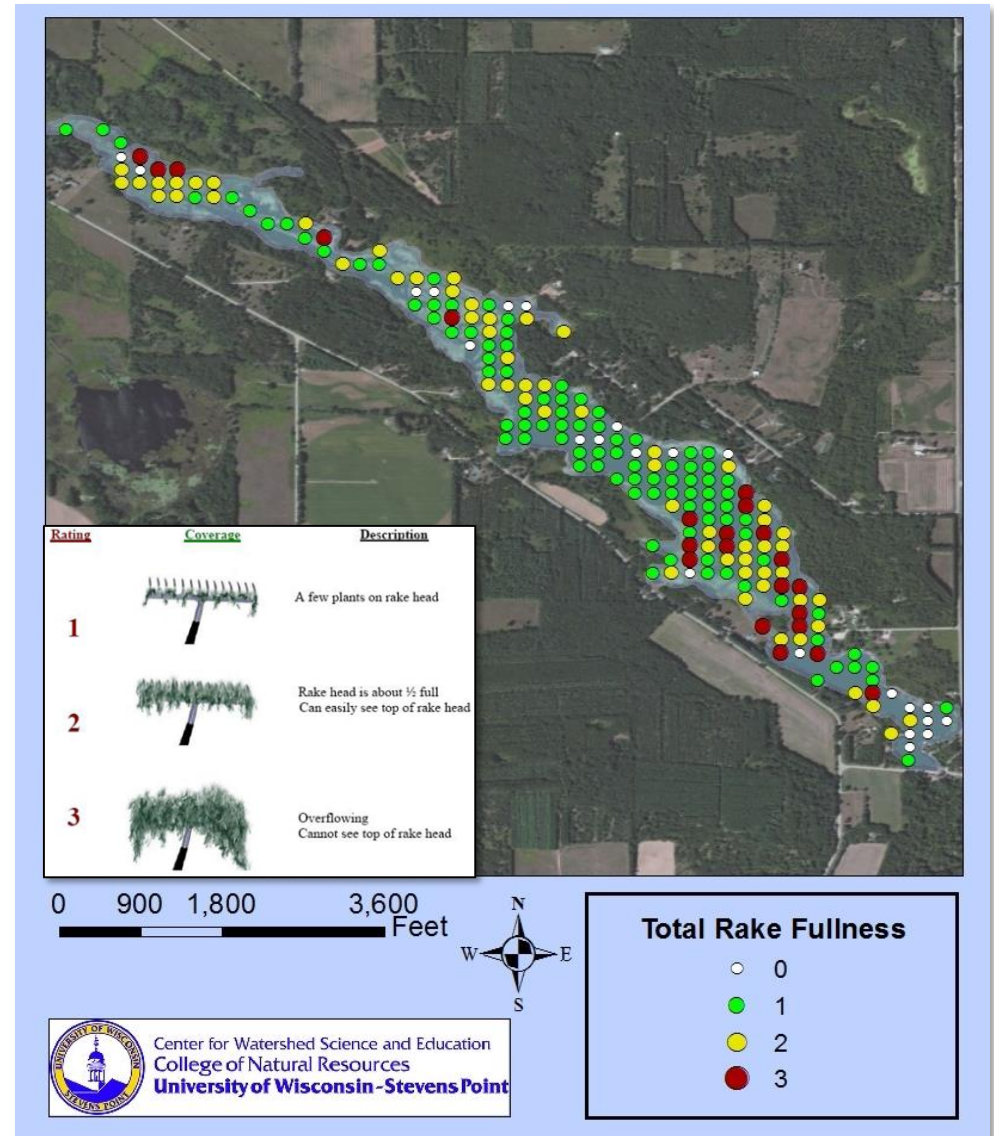


Figure 1. Rake fullness at sample sites in Lower White River Flowage, 2013.

offers an important food source to a wide range of waterfowl species. A number of invertebrate and fish species use the bushy stems and stiff whorls of the leaves of the coontail as habitat, especially in the winter when other aquatic plants have died back. Much like the other two plants, water stargrass serves as an important food source for waterfowl and provides good cover and food opportunities (Borman et al., 2001).

More detailed information can be found in Appendix D. Aquatic Plants; the *Aquatic Macrophyte Survey of Lower White River Flowage, Waushara County, Wisconsin*; and, the *Waushara County Lakes Study – Lower White River Flowage*.



Common Waterweed



Coontail

### 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.

**Curly-leaf pondweed (CLP)** was originally identified in Lower White River Flowage in 2006, scattered in the upper half of the flowage. It continues to persist in small populations throughout the flowage. This plant can live in harmony with the rest of the aquatic plant community, but may become invasive. The die-off of large beds of CLP in June can contribute to nuisance algae blooms throughout the summer. CLP can be harvested in early June to remove phosphorus-rich plant tissue from the flowage or it may be treated concurrently with Eurasian watermilfoil in May-June with a contact herbicide such as Clearcast® (Imazamox). The phosphorus-rich plant material will remain in the flowage with chemical treatments.



(C) Paul Skawinski, 2009

**Eurasian watermilfoil (EWM)** was originally identified in Lower White River Flowage in 2006. EWM can exist as part of the plant community or it can create dense beds that can damage boat motors, make areas non-navigable, and inhibit activities like swimming and fishing. This plant produces viable seeds; however, it often spreads by fragmentation. Just a small fragment of the stem is enough to start a new plant, so spread can occur quickly if plants are located near points of activity such as beaches and boat launches.



EWM persists in the Lower White River Flowage with approximately 11 acres mapped in 2015. The most recent permit for chemical treatment was granted for 9.9 acres in 2016 (Source: Wisconsin Lakes and Ponds Solutions).

Each lake is different and the response to EWM control efforts may vary from lake to lake. No single approach will be appropriate for all lakes. Often multiple approaches and adaptive year-to-year changes in approach are most successful. The EWM population should be evaluated before and after treatments to determine the effectiveness of an approach in a given year. Strategies for the subsequent year should be adjusted accordingly. EWM management involves evolving scientific knowledge; therefore, strategies for EWM management in Lower White River Flowage should be adapted as EWM populations change and as new information becomes available.

Hybrid watermilfoil (HWM) results from a hybridization of native watermilfoil with EWM. There is evidence suggesting HWM can be more tolerant to certain herbicides, such as 2,4-D products; therefore, it is important to know if HWM is present in Lower White River Flowage. HWM may be suspected in the flowage if the following occur: 1) the plant’s appearance is different than EWM; 2) management with chemicals becomes difficult or ineffective; and, 3) the lake is near other lakes with HWM. **If these criteria are met, plant samples should be submitted to a lab for confirmation.** Once HWM is confirmed, a review of past herbicide use in the lake and surrounding lakes may be necessary to assess the likelihood of herbicide tolerance. A “challenge test” may be appropriate if tolerance to herbicides is suspected. This entails growing live specimens obtained from Lower White River Flowage in a controlled setting where a combination of herbicides at different rates are applied to evaluate their effectiveness in controlling that particular strain of HWM. There are many combinations of herbicides and concentrations that can potentially be used to treat HWM. The only way to know the appropriate combination is by sending samples to be challenge tested. Treating HWM without knowing the appropriate combination of chemicals can result in an even more resilient strain in the lake, damage to the native aquatic plant population, and a waste of money. **As of 2016, hybrid watermilfoil had not been confirmed in the Lower White River Flowage.**

**Table 1. Summary of chemical treatments in Lower White River Flowage.**

Year	Target Species	Chemical	Treatment Area (acres)
2011	CLP and EWM	Navigate, Aquathol K, Aquathol Super K	8
2013	CLP and EWM	Clearcast, Navigate	9.9
2016	CLP and EWM		9.9



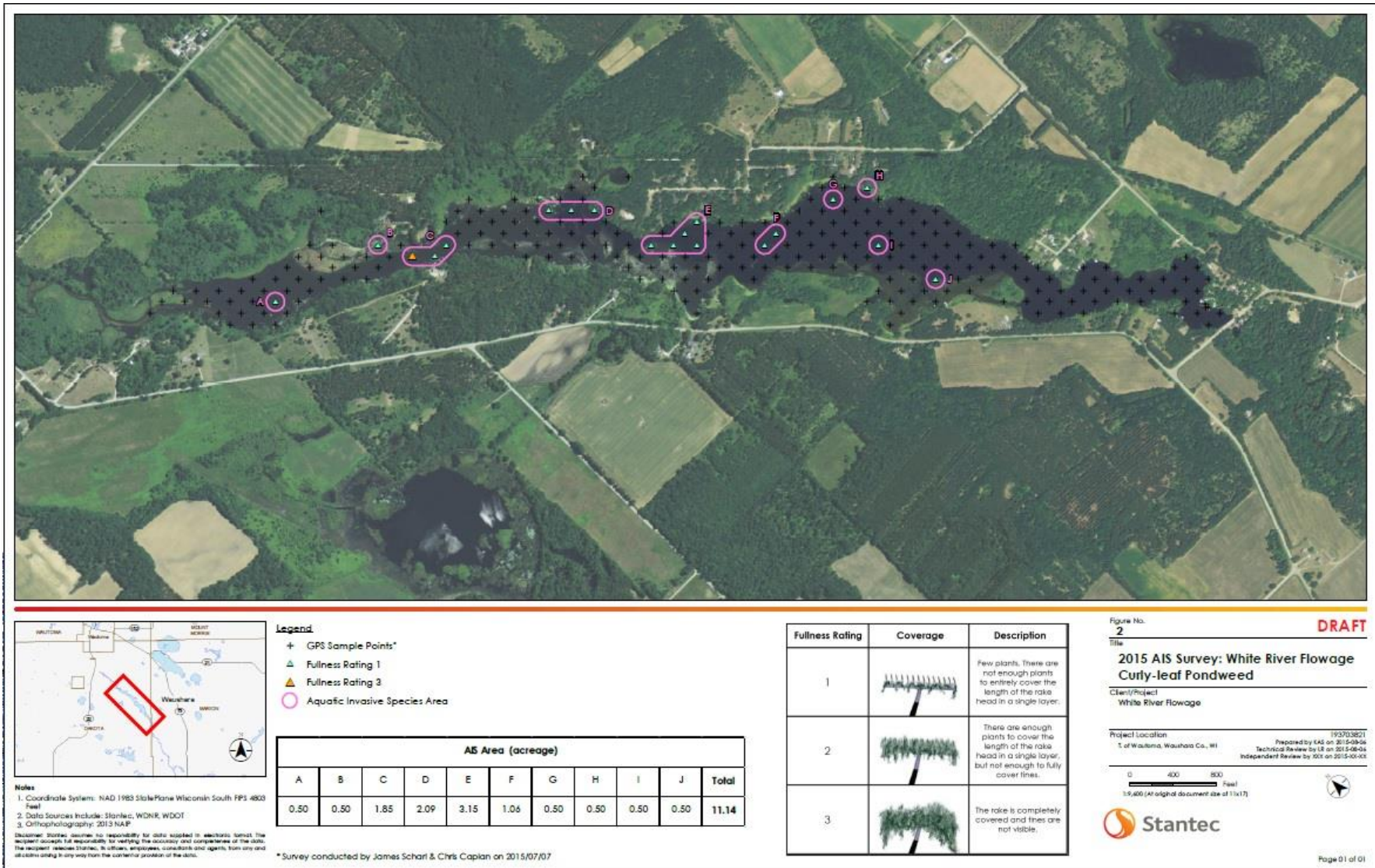


Figure 2. Map displaying curly-leaf pondweed beds in Lower White River Flowage, 2015.

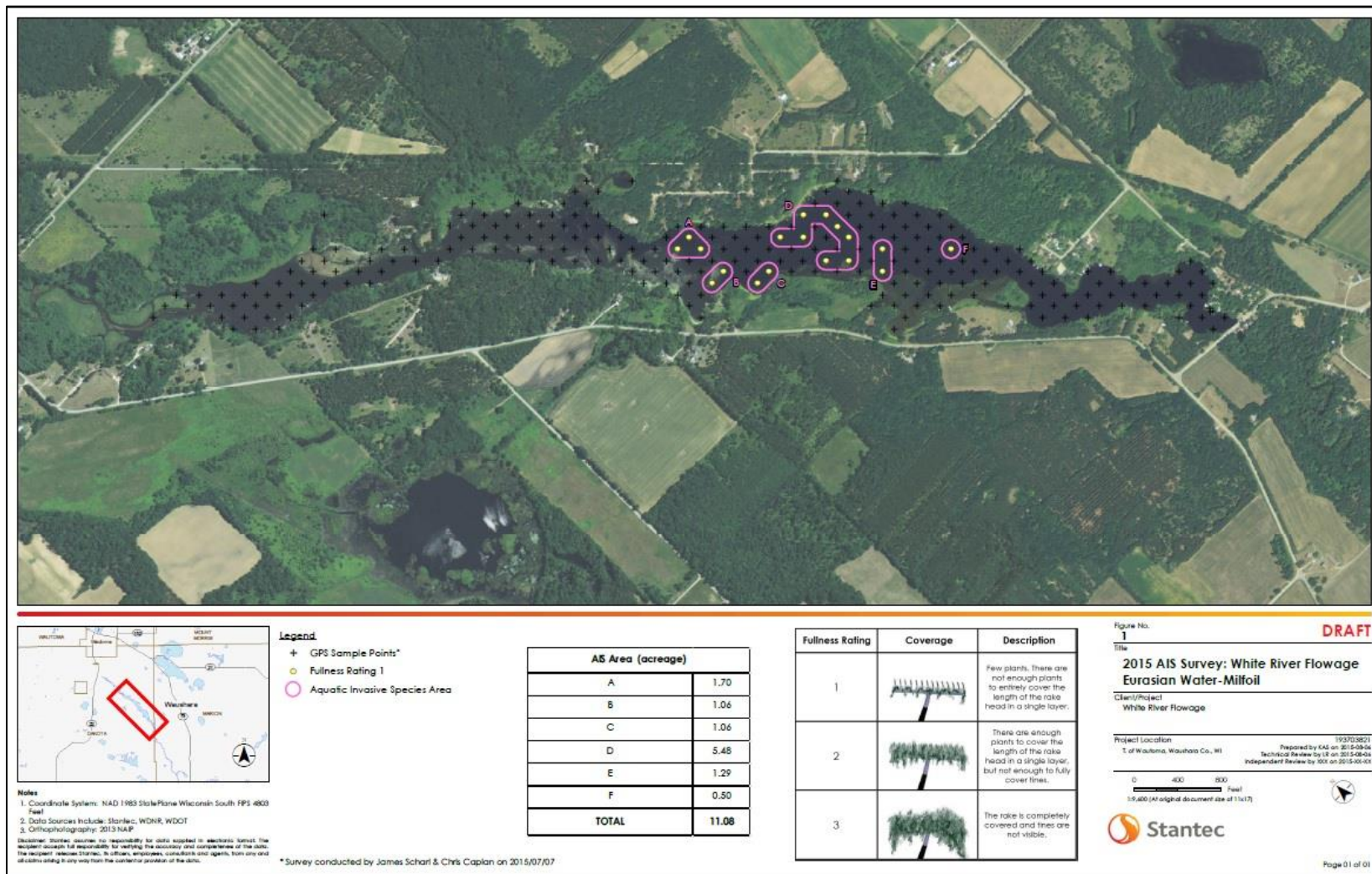


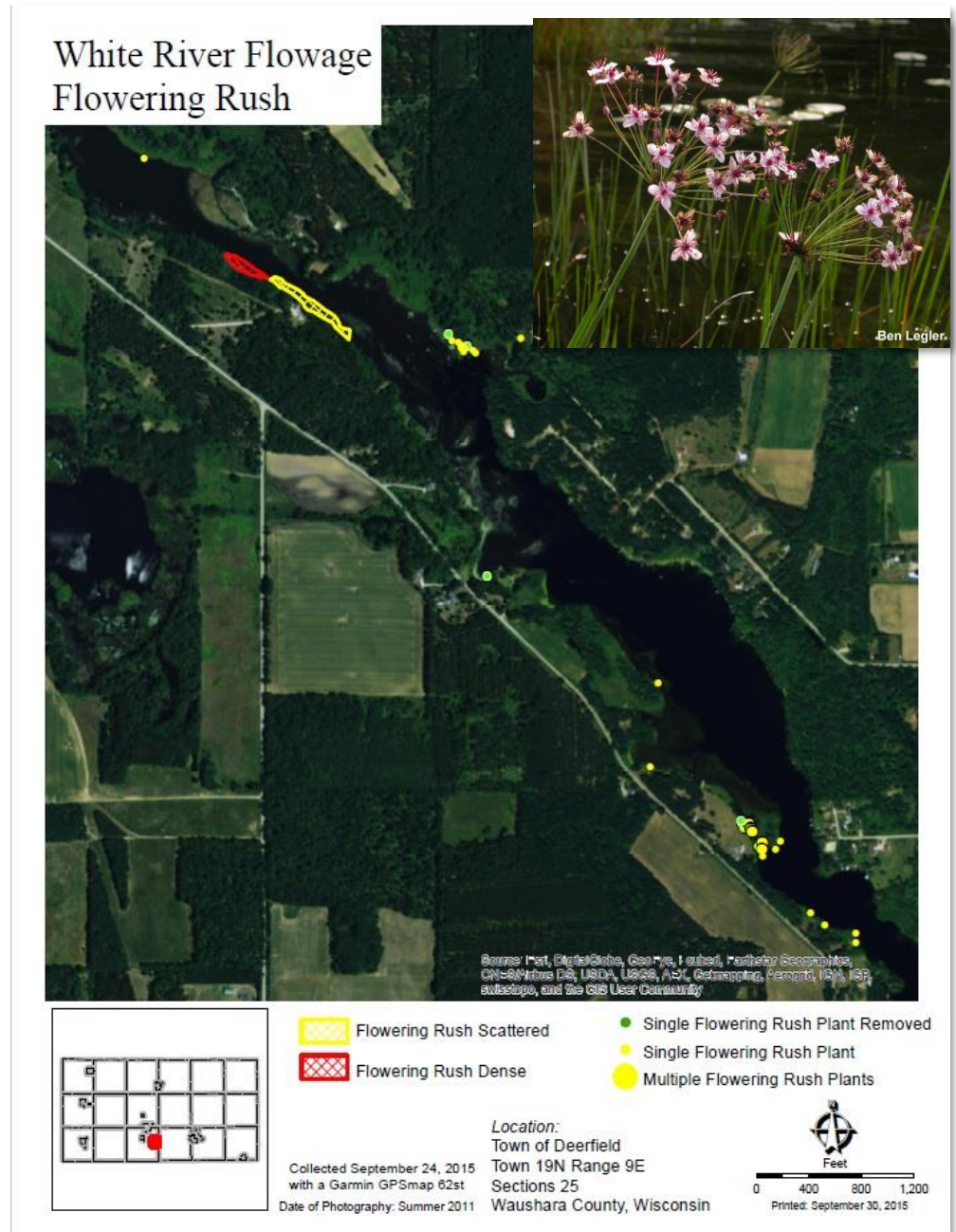
Figure 3. Map displaying Eurasian watermilfoil beds in Lower White River Flowage, 2015.



**Flowering rush** is a non-native, perennial aquatic plant that was introduced from Eurasia as an ornamental for water gardens. They grow from large, dark rhizomes that may be lumpy or hairy and can become dense enough to crowd out important native species or even prevent the passage of boats. In 2015, flowering rush was identified in the Lower White River Flowage. Eradication efforts began almost immediately with the aid of an “Early Detection & Response” grant obtained by the District (expires in 2017).



*Flowering rush rhizomes can be manually removed, with special efforts to remove any fragments.*



## Aquatic Plant Management

Management strategies in Lower White River Flowage were designed to achieve a balance between healthy aquatic habitat, good water quality, and recreation. A variety of management options were discussed during the development of this plan, some of which were rejected due to the nature of the flowage. The following two sections comprise a plan for managing aquatic plants in the Lower White River Flowage – the first section identifies options for managing AIS, and the second section addresses options associated with managing aquatic plants for navigation and recreation.

## Management of AIS in Lower White River Flowage

The decision to manage AIS can result in a variety of approaches, depending in part on the abundance of AIS and the resources available to implement a management strategy. The following guiding vision and management options for AIS were identified during the planning sessions.

### Guiding Vision for Aquatic Invasive Species (AIS) in Lower White River Flowage

*Populations of AIS will not adversely impact recreation or the fishery in the Lower White River Flowage.*

**Goal 2. New AIS will not become established in the Lower White River Flowage. The existing AIS – EWM, CLP, and flowering rush – will be controlled or, if possible, eliminated.**

**Objective 2.1.** Prevent the establishment of any new AIS in Lower White River Flowage.

Actions	Lead person/group	Resources	Timeline
Use signs, newsletters, and other methods to educate lake visitors at the boat launch about AIS and removing aquatic hitchhikers.	WRFLMD or Project Committee	RC&D	Annually
Inform shoreland property owners about maintaining a balance between removal of aquatic plants for lake access while minimizing removal to prevent the establishment of AIS. Educational materials will be provided on the website and at District meetings.	WRFLMD	UWEX Lakes WDNR Lake Manager WCLCD WCWLC	Ongoing
Learn to identify AIS and routinely look for it. Take action if it is suspected; refer to the Rapid Response Plan in the appendices.	WRFLMD	CBCW RC&D WDNR Aquatic Plant Biologist	2016, Ongoing



**Objective 2.2.** Monitor AIS in Lower White River Flowage.

Actions	Lead person/group	Resources	Timeline
Learn to identify AIS and routinely look for it.	Shoreland property owners Lake users	RC&D WDNR Aquatic Plant Biologist	2016, Ongoing
Evaluate the AIS community annually to determine the next steps (or no action) in AIS management.	WRFLMD	Consultant RC&D WDNR Aquatic Plant Biologist	Annually
Evaluate the aquatic plant community with a point-intercept survey at least every 5 years.	WRFLMD	Consultant WDNR Aquatic Plant Biologist	2016 and as needed.

**Objective 2.3.** Reduce or eliminate populations of EWM, CLP and flowering rush in Lower White River Flowage.

Actions	Lead person/group	Resources	Timeline
Conduct pre- and post-treatment aquatic plant surveys with additional observations to determine effectiveness of treatment, impact to native plants, and to inform the approach for the next year.	WRFLMD	Consultant WDNR Aquatic Plant Biologist	Ongoing
Prior to spring, review the results of the previous treatments and survey results, and develop a strategy for the upcoming year.	WRFLMD	Consultant WDNR Aquatic Plant Biologist	Annually in winter
Learn to identify and properly remove AIS.	WRFLMD Shoreland property owners	RC&D	2016 and ongoing
Where small populations exist, consider hand-pulling EWM in shallows and/or hire divers to hand-pull in less accessible areas.	WRFLMD	RC&D WDNR Aquatic Plant Biologist	Ongoing

**Objective 2.4.** Use AIS management options to develop AIS management strategies. Adjust selection based on AIS conditions and success of previous strategies. (Note: this table summarizes steps – for details, see Management Options for AIS section below).

Actions	Lead person/group	Resources	Timeline
Conduct late May/early June harvesting of CLP to reduce plant biomass/phosphorus inputs to the lake and increase navigation. Avoid areas where EWM is present and accessible to the harvester.	WRFLMD	WDNR Aquatic Plant Biologist Consultant	Annually in spring
Test existing EWM to see if HWM exists in Lower White River Flowage if criteria are met (see Aquatic Invasive Species (AIS) section).	WRFLMD	RC&D WDNR Lake Specialist	Prior to chemical treatment

Continue herbicide treatments as appropriate to reduce EWM and CLP populations.	WRFLMD	Consultant WDNR Aquatic Plant Biologist	2016 and as needed
Consider skimming to remove floating plants to reduce biomass/phosphorus inputs from CLP. Avoid areas where EWM is present.	WRFLMD	WDNR Aquatic Plant Biologist Consultants	As needed
Consider a one-year drawdown to kill near shore EWM and compact sediment. Consider compensation of loss of power generation at dam.	WRFLMD	WDNR Aquatic Plant Biologist Consultants	As needed

### **Management Options for AIS**

Often, the use of multiple management options and adaptive year-to-year changes in approach are most successful in controlling AIS. The state of the aquatic plants in Lower White River Flowage should be assessed (surveys and maps marked with CLP beds) periodically, and the results should be reviewed by the WRFLMD, with assistance from the WDNR Lake Manager, RC&D, and/or a consultant during fall or winter. The strategy for the upcoming year should be developed, which may include one or more of the following options. Some options require a permit from the WDNR.

#### **Manual removal, target species: EWM/HWM, CLP, other AIS. Permit not required for AIS. Training in removal techniques is advised.**

Manual removal is focused on limited areas in the Lower White River Flowage. This is commonly conducted by waterfront property owners who are trained in the identification and proper removal techniques for EWM, CLP, or other aquatic invasive species. AIS plants can be manually removed at any time of year. Trained divers can be hired to manually remove EWM in deeper parts of the lake for areas of less than 1 acre. This is most effective where the presence of EWM is spotty, such as a follow-up to chemical treatments.

All hand-pulled AIS material should be removed from Lower White River Flowage and composted away from the flowage. Property owners should diligently monitor any cleared areas in the flowage for new AIS.

Optional: Provide a pick-up service for hand-pulled plants from docks with the harvester.

#### **Mechanical harvesting, target species: CLP. Permit required.**

Benefits of mechanical harvesting AIS include the removal of nutrients and oxygen-demanding plant material from the flowage, and temporary recreational relief from dense AIS beds. Harvesting may have negative effects on native aquatic plants that provide valuable habitat and food. Areas where EWM/HWM is present should not be harvested since these plants spread by fragmentation. Harvesting in water depths less than 3 feet should be avoided to reduce sediment disturbance and resuspension of nutrients, and to minimize impact on near-shore habitat where young fish, turtles, and their food reside.

Mechanical Harvesting Plan for AIS: With a permit from the WDNR, harvesting may be conducted in the Lower White River Flowage. Mechanical harvesting may be used to remove CLP and other AIS that do not spread through fragmentation. Dense beds of CLP can be harvested in late May or early June when the plants surface. Removing the plant material from the flowage via a harvester will reduce nutrients from the system and prevent sediment build-up, unlike chemical treatment which leaves the plants and nutrients in the water. While harvesting, operators should take care (by raising and lowering the harvesting bar) to minimize the impact on habitat and reduce sediment disturbance. Harvesting in depths less than 3 feet should be avoided, but can 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. It is helpful to mount a depth finder on the cutter side of the harvester.

**Areas of EWM/HWM should be avoided** to prevent fragmentation and spread. For more information on mechanical harvester operation, see **Harvester Operation** section, below.

**Skimming Plan, target species: Floating AIS plant material.**

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.

**Herbicide Treatment.** Annual permit required.

The target population of EWM or CLP should be evaluated before and after chemical treatments to determine the effectiveness of an approach. This information should inform management strategies for the following year, such as manual removal. EWM/HWM management involves evolving scientific knowledge; therefore, management strategies for EWM/HWM in Lower White River Flowage should be adapted as EWM/HWM populations in the lake change and as new information becomes available. **As of March 2016, hybrid water milfoil (HWM) had not been confirmed in the Lower White River Flowage.**

Recent studies of chemical spot treatments suggest this method can be less effective than previously thought, and may actually promote chemically-resistant forms of HWM. While herbicides can have immediate desired effects on the target plant species, there can also be unanticipated effects on other species. Of the approximately 300 herbicides registered for use on land in the United States, only 13 can be applied into or near aquatic systems. The toxicity tests that are conducted are related to specific effects such as carcinogenicity, and aquatic ecosystems may be impacted in ways that have not yet been identified. All herbicides must be applied according to the USEPA-approved label rate and require a permit if “you are standing in socks and they get wet”.

Use of chemical spot treatments may still be appropriate in certain conditions. AIS species such as EWM/HWM are best treated early in the growing season when water temperatures are below 60 degrees F (typically prior to June 1) to minimize the impacts of the herbicides on native plants that often emerge later. Balancing the eradication of AIS with the survival and flourishing of native species is essential to long-term success.

Herbicides can be divided into two primary categories: contact herbicides that cause extensive cellular damage upon contact, and systemic herbicides that act more slowly by speeding up cellular division. Systemic herbicides are taken in by the plant and transported throughout the entire plant, often resulting in complete mortality. Successful control of the target plant is achieved when it is exposed to a lethal concentration of the herbicide for a sufficient amount of time.

Herbicides are applied directly to the water, either as a liquid or as an encapsulated granular formation. Factors such as water depth, water flow, treatment area size, retention time, lake stratification, and plant density play roles in herbicide concentration. Application rates and exposure times are important considerations for aquatic herbicides. Herbicide costs vary between \$400 and \$1,500 per acre depending on the chemical used, who applies it, permitting procedures, and the size of the treatment area.

Herbicide Plan for AIS: Conduct herbicide spot treatments may be selected to reduce populations of EWM/HWM and CLP in Lower White River Flowage. The type of chemical(s) used should be based on the specific type of AIS. If treating less than 5 acres, a contact herbicide such as endothall or diquat should be used for control of EWM. Treatment should occur early in the season, prior to emergence of native plants. To reduce the chance of developing resilient strains of HWM, different treatments of, preferably, contact herbicides should be used in subsequent years. Each application should coincide with pre- and post-treatment aquatic plant surveys to monitor the impacts to native plants and to measure the efficacy of the herbicide regime. Treatment may be supplemented with subsequent manual removal of EWM/HWM.

**Water level manipulation (drawdown), target species: EWM/HWM, CLP. Permit required.**

Temporary reduction of the water levels in Lower White River Flowage can be used to reduce AIS populations and has the added benefit of compacting sediment. This technique has the greatest effect on vegetation located in the shallows. If done during late fall and winter, the exposed crowns of plants will desiccate, killing them. Consultation with WDNR lake and fisheries biologists and the dam owner is essential to determine the appropriate timing and duration needed for current conditions.

**Weevils, target species: EWM/HWM.**

Milfoil weevils (*Euhrychiopsis lecontei*) are insects native to some Wisconsin lakes. They feed on both the native northern water-milfoil and the invasive EWM/HWM. They require nearby unmowed shoreline vegetation to overwinter and survive. Milfoil weevils are not commercially available in Wisconsin, so obtaining a starter population and rearing them in predator-free conditions is necessary to enhance the size of the population released into the lake. Milfoil weevils live in the tips of aquatic plants; therefore, harvested areas would not be suitable habitat. Avoid areas where chemicals are used, as

chemical treatments have been shown to be lethal to milfoil weevils. Professional assistance should be sought if stocking weevils or if a survey of the existing weevil population in Lower White River Flowage is pursued.

Milfoil Weevil Plan for AIS: If use of milfoil weevils is desired, have a survey conducted to establish the presence and abundance of native milfoil weevils in Lower White River Flowage. Weevils can be considered for keeping EWM/HWM in balance in the following areas:

1. Shallow water where harvesting and chemical treatment are not conducted.
2. Primarily minimally disturbed/unmowed shoreline.
3. Areas of concentrated EWM/HWM.

## Management of Native Aquatic Plants in Lower White River Flowage

Periodically, portions of the Lower White River Flowage have an abundance of native aquatic plants that can impede navigation to areas of open water. This is primarily due to several unrooted species, such as filamentous algae and coontail (*Ceratophyllum demersum*), that can be moved by the wind and accumulated in an area of the flowage. In addition, there are dense aquatic plant beds that can restrict navigation and may limit the feeding success of predatory fish. Areas of heavy plant growth in 2013 are identified by red markers in Figure 1.

Planning session participants developed the following guiding vision for native aquatic plants, and identified management options that offer the most practical and effective approaches for managing native plants while minimizing impacts to the Lower White River Flowage as a whole.



### Guiding Vision for Aquatic Plants in Lower White River Flowage

*Lower White River Flowage will have a diverse native aquatic plant community that is in balance with habitat needs, good water quality, and recreational uses.*

**Goal 3. Manage native aquatic plants to provide navigation without harming the integrity of the aquatic plant community and their habitat benefits to fish and others in the Lower White River Flowage.**

**Objective 3.1.** Reduce aquatic plant growth in the Lower White River Flowage.

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
To help reduce the growth of dense aquatic plant beds, encourage waterfront property owners to refrain from using fertilizers, and implement runoff management techniques such as rain gardens, rain barrels and increased shoreland vegetation on shoreland properties (see Shoreland section).	WRFLMD	WCWLC UWEX Lakes (educational materials)	Ongoing
Encourage Waushara County to work with watershed property owners to reduce nutrients used on the landscape, and minimize erosion and runoff (see Watershed Land Use section).	WRFLMD	WCLCD County Board Supervisors DATCP and other grant programs NRCS	Ongoing

**Objective 3.2.** Evaluate the aquatic plant community in the White River Flowage.

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
Annually evaluate harvesting need and success. If harvesting is conducted, follow the guidance established below.	WRFLMD	WDNR Lakes Specialist Consultant	Evaluate in fall/winter
Conduct a point-intercept survey of the aquatic plant community prior to applying for a harvesting permit.	WRFLMD	WDNR Lakes Specialist Consultant	2017 and as needed

**Management Options for Native Aquatic Plants**

Depending upon conditions, the following options may be used alone or in combination with others.

**Mechanical Harvesting.** Permit required.

Similar to many flowages, the Lower White River Flowage has historically had an abundance of aquatic plant growth. 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. **Areas with EWM/HWM should be avoided to prevent its fragmentation and spread.**

Mechanical Harvesting Plan for Navigation: Harvesting of dense plant beds that are not comprised of EWM/HWM may be conducted as needed to provide navigation. Paths through the length of the flowage may be cut to improve navigation and the fishery. The primary lanes approved for harvesting of native plants in the Lower White River Flowage are displayed in Figure 4. In addition to these lanes, access lanes between docks and open water may be cut in depths greater than 3 feet and in lower depths with care in accordance with WDNR guidance. Lanes should be no wider than 15 yards. To minimize disturbances to sediment and important fish habitat, harvesting should be avoided or conducted carefully 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 Lower White River Flowage. 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.



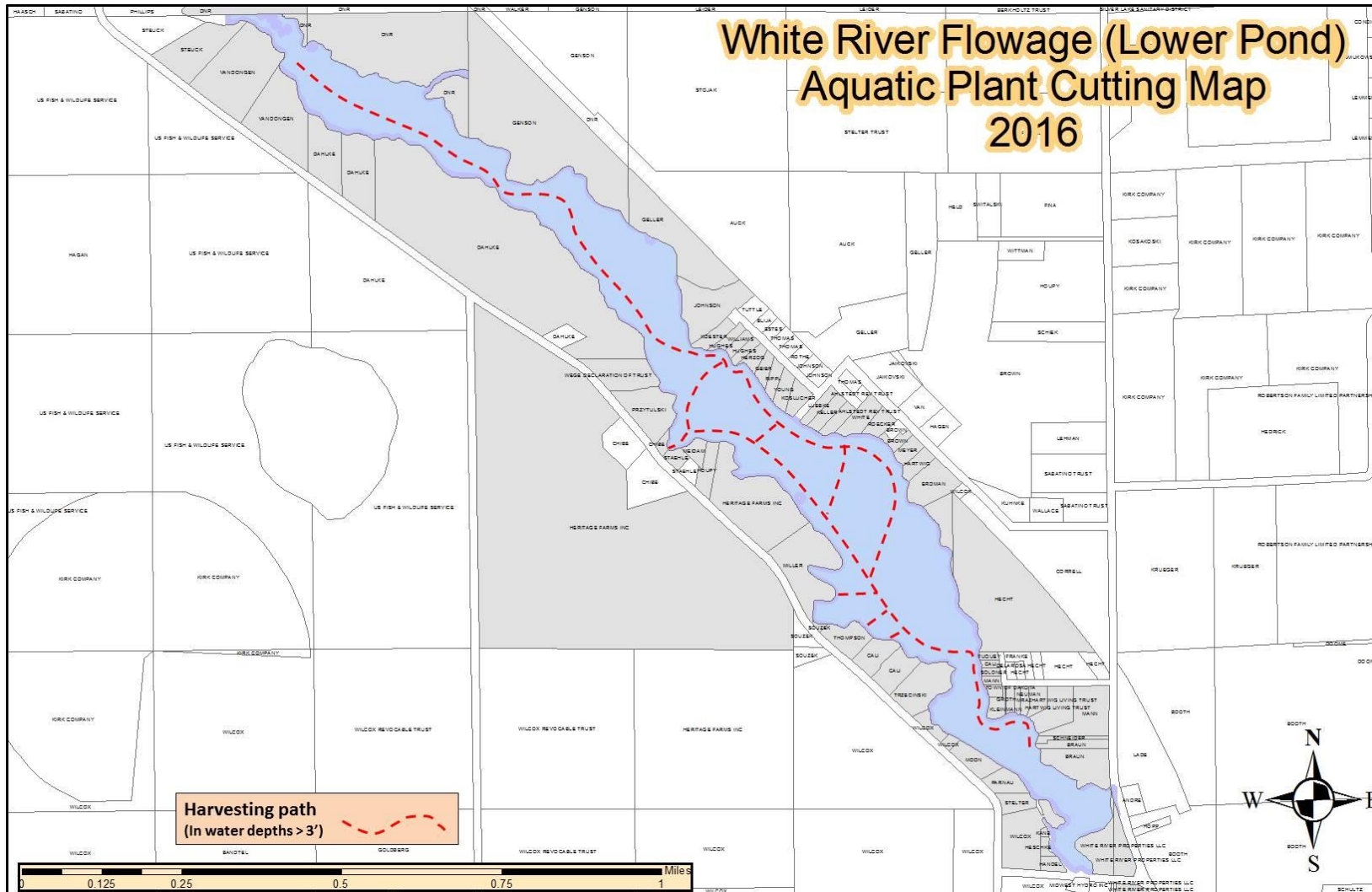


Figure 4. Harvesting path for White River Flowage. Harvesting should occur in water depths greater than 3 feet.



## Harvester Operation

In 2004, the White River Flowage Lake Association (now WRFLMD) purchased an H5-200 Aqua-Marine Harvester and trailer, which included a conveyor system. This harvester was used from 2004-2013 to maintain the primary channel and secondary access channels for property owners. In 2014, following approval of a \$70/unit per year loan payment fee, the WRFLMD purchased an HM-220 series harvester and a trailer. The WRFLMD is currently operating under a 5-year permit (2015-2019) to remove aquatic plants between June and September.

The WRFLMD established the following harvester operation instructions to guide its use:

1. The District Chairman schedules the two-man staff that will be working as needed. One person will operate the harvester and the other person will operate the tow truck/trailer.
2. The harvester operator must inspect and grease all moving parts of the harvester. The tow truck/trailer operator must inspect the truck/trailer for fluids, leaks, necessary tools, etc.
3. The staff will discuss with District Chairman what areas are to be harvested that day. Any areas of concern (stumps, too shallow, etc.) will be identified.
4. New operators must be personally trained by an experienced harvester operator for a minimum of one day to become proficient in harvester operation and to learn the channel system. New operators must read the instruction manual prior to operation.
5. The current cutting permit and map of channel system is kept aboard the harvester as required by the WDNR.
6. The harvester operator communicates by cellphone or two-way radio with the person operating the tow truck/trailer to coordinate unloading of the harvester.
7. Aquatic plants removed from the flowage will be dumped at identified sites located nearby.
8. At the end of the day, the harvester must be cleaned and returned to its mooring site next to the District Chairman's pier. The tow truck/trailer is parked and secured at the White River Trail public landing.



## 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 Lower White River Flowage, a series of successful strategies should lead to a balance between healthy aquatic habitat, water quality, and recreation with minimal annual management. To evaluate if management strategies are succeeding, updates to aquatic plant point-intercept surveys should be conducted at least every five years. If chemical treatments are pursued, more frequent (pre- and post-treatment) surveys are necessary. Assistance in updating surveys can be provided by the WDNR Aquatic Plant Specialist and/or consultants.

## Critical Habitat

Special areas harbor habitat that is essential to the health of a lake and its inhabitants. In Wisconsin, critical habitat areas are identified by biologists and other lake professionals from the Wisconsin Department of Natural Resources in order to protect features that are important to the overall health and integrity of the lake, including aquatic plants and animals. While every lake contains important natural features, not all lakes have official critical habitat designations. Designating areas of the lake as critical habitat enables these areas to be located on maps and information about their importance to be shared. Having a critical habitat designation on a lake can help lake groups and landowners plan waterfront projects that will minimize impact to important habitat, ultimately helping to ensure the long-term health of the lake.

Although White River Flowage does not have an official critical habitat area designation, there are areas within White River Flowage that are important for fish and wildlife. Natural, minimally-impacted areas with woody habitat such as logs, branches, and stumps; areas with emergent and other forms of aquatic vegetation; areas with overhanging vegetation; and wetlands are elements of good quality habitat. Identifying other important areas around the lake that are important habitat and informing lake users of their value can help raise awareness for the protection of these areas.

### Guiding Vision for Lower White River Flowage's Critical Habitat

*Sensitive areas in and around White River Flowage will remain intact and protected.*

#### Goal 4. Protect unique areas that are valuable to the water quality and habitat of Lower White River Flowage.

**Objective 4.1.** Identify and inform others of quality habitat in and near Lower White River Flowage.

Actions	Lead person/group	Resources	Timeline
Consider requesting a critical habitat designation from WDNR.	WRFLMD	WDNR Lake Specialists	2017
If critical habitat is designated on Lower White River Flowage, communicate to property owners, visitors, and Town Board as to why these areas are important.	WRFLMD	WDNR Critical Habitat Report	TBD

## Landscapes and the Lake

Land use and land management practices within a lake's 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. 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 on the land may result in changes to natural drainage patterns and 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. Land management practices can be put into place that better 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.



Shoreland vegetation is critical to a healthy lake's ecosystem. It helps improve the quality of the runoff that is flowing across the landscape towards the lake. It also provides habitat for many aquatic and terrestrial animals including birds, frogs, turtles, and many small and large mammals. Healthy shoreland vegetation includes a mix of tall grasses/flowers, shrubs, and trees which extend at least 35 feet landward from the water's edge. Shorelands include adjacent wetlands, which also serve the lake by allowing contaminants to settle out, providing shelter for fish and wildlife, and decreasing the hazard of shoreline erosion by providing a shoreland barrier from waves and wind.

The water quality in Lower White River Flowage is the result of many factors, including the underlying geology, the climate, and land management practices. Since we have little control over the climate and cannot change the geology, changes to land management practices are the primary actions that can have positive impacts on the lake's water quality. The water quality in Lower White River Flowage was assessed by measuring different characteristics including temperature, dissolved oxygen, water clarity, water chemistry, and algae. All of these factors were taken into consideration when management planning decisions were made.

## Water Quality

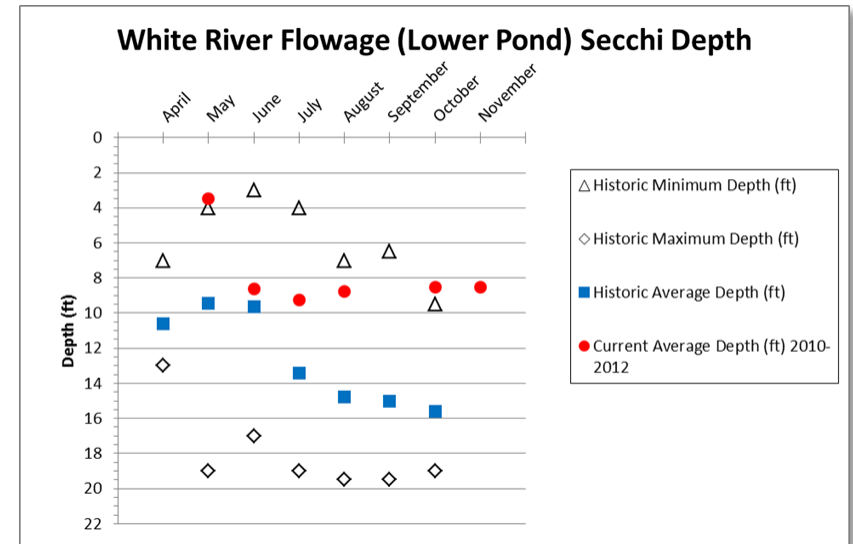
All of the survey respondents felt water quality had an impact on both their personal enjoyment value and economic value of their lake property. Although one-half of the respondents felt swimming and aesthetic enjoyment were adversely affected, one-half also felt conditions have stayed relatively the same during their time at the lake (30% felt that it has improved).

A variety of water chemistry measurements were used to characterize the water quality in Lower White River Flowage. Water quality was assessed during the 2010-2012 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 are used for growth by algae and aquatic plants. 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 Lower White River Flowage's water quality.

Dissolved oxygen is an important measure in Lower White River Flowage 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. Sufficient dissolved oxygen concentrations were present in the upper 7-8 feet of water at all times during the study.

The water clarity measured in the Lower White River Flowage during the study is considered fair. For the Lower White River Flowage, water clarity ranged from 3.5 feet to 11 feet. When compared with historic data, the average water clarity measured during the study was poorer than historic averages in all months sampled. In early June 2012, upstream of the White River Flowage a dam-release event at Wautoma occurred which delivered a large volume of nutrient-rich sediment to the upper reaches of the flowage. In addition to the suspended solids, increased frequency in algal blooms and indistinct channels near the headwaters of the flowage have been observed by lake residents.

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. The Lower White River Flowage had slightly elevated chloride, potassium, and sodium concentrations over the monitoring period. 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. The Lower White River Flowage contains calcium-rich (hard) water which provides calcium for the production of



bones and shells and can help to reduce the impacts of phosphorus. Atrazine (an herbicide) was not detected in water samples collected from the Lower White River Flowage.

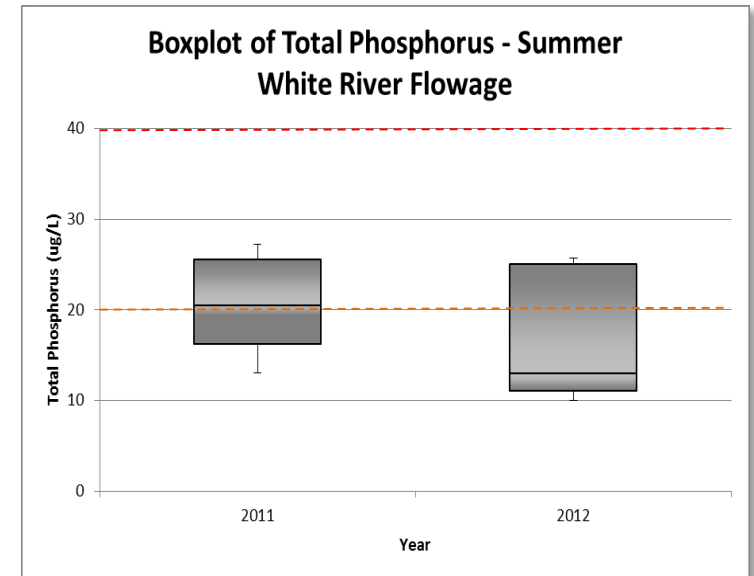
Phosphorus is an element that is essential in trace amounts to most living organisms, including aquatic plants and algae. Sources of phosphorus can include naturally-occurring phosphorus in soils and wetlands, and groundwater. Common sources from human activities include soil erosion, animal waste, fertilizers, 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.

Total phosphorus concentrations for the Lower White River Flowage ranged from a high of 38 ug/L in May 2012 to a low of 10 ug/L in August 2012. The summer median total phosphorus concentrations were 24 and 13 ug/L in 2011 and 2012, respectively. This is below Wisconsin’s phosphorus standard of 40 ug/L for shallow impoundments.

Inorganic nitrogen was elevated in all samples collected from the Lower White River Flowage. Inorganic nitrogen concentrations ranged from 1.4-1.8 mg/L. Concentrations of 0.3 mg/L inorganic nitrogen in spring are sufficient to fuel algal blooms throughout the summer. Sources of inorganic nitrogen include animal waste, septic systems/waste treatment effluent, and fertilizers.

Managing nitrogen, phosphorus and soil erosion throughout the Lower White River Flowage 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 Lower White River Flowage 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.

*One pound of phosphorus entering a lake can result in up to 500 pounds of algal growth!*  
*(Valentyne, 1974)*



### **Guiding Vision for Water Quality in Lower White River Flowage**

*Lower White River Flowage will have good water quality that does not support excessive algal blooms or aquatic plant growth.*

**Goal 5. Minimize nutrient and sediment loading to the lake by improving land management practices near the flowage and in the watershed.**

**Objective 5.1.** Phosphorus concentrations will be maintained the same or better than the average measurements observed during the 2010-2012 study with summer median less than 25 ug/L.

Actions	Lead person/group	Resources	Timeline
Reduce nutrient inputs (P) to the lake by harvesting CLP in June and floating filamentous algae when it occurs and removing the plant material from the aquatic system (see Aquatic Plants section).	WRFLMD	WDNR Lake Manager WDNR AIS grants	Annually, as needed
Improve shoreland areas where needed to reduce sediment and nutrient loading (see Shorelands section).	Shoreland property owners	UWEX Lakes WDNR Healthy Lakes grants	Ongoing
Work within the watershed to reduce runoff, increase infiltration and minimize the application of fertilizers, manure, and other chemicals (see Watershed section).	WCLCD Wautoma	DATCP WDNR Lake Protection Grant Waushara County Board	Ongoing
Inform others around the lake about the impacts of nutrients and land management on water quality through the distribution of an association newsletter and neighborly discussions. Consider including information on a lake sign.	WRFLMD	UWEX Lakes (educational materials)	2016, Ongoing

**Goal 6. Continue long term water quality data collection on Lower White River Flowage to monitor trends over time.**

**Objective 6.1.** Continue current monitoring initiatives and collect data for new initiatives.

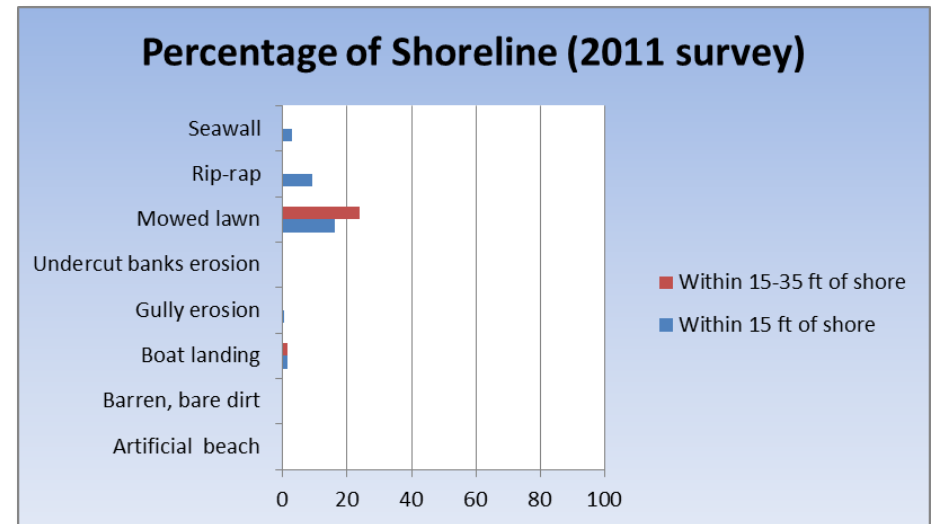
Actions	Lead person/group	Resources	Timeline
Monitor water clarity routinely in deep hole and bays.	WRFLMD or volunteer	CLMN Coordinator	Ongoing – 5 times per summer
Continue monitoring water chemistry (total phosphorus and chlorophyll- <i>a</i> ).	WRFLMD or volunteer	CLMN Coordinator	Ongoing – summer at least monthly
Consider collecting spring and/or fall samples for nutrient analysis.	WRFLMD or volunteer	WEAL Certified Laboratory	Ongoing-spring/fall
Submit all data to WDNR SWIMS for long term storage, interpretation, and use.	WRFLMD or volunteer	CLMN Coordinator	Ongoing - as needed



## 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.

To better understand the health of the Waushara County lakes, shorelands were evaluated. The survey inventoried the type and extent of shoreland vegetation. Areas with erosion, rip-rap, barren ground, sea walls, structures and docks were also inventoried. A scoring system was developed for the collected data to provide a more holistic assessment. Areas that are healthy will need strategies to keep them healthy, and areas with potential problem areas and where management and conservation may be warranted may need strategies for improvement. The scoring system is based on the presence/absence and abundance of shoreline features, as well as their proximity to the water's edge. Values were tallied for each shoreline category and then summed to produce an overall score. Higher scores denote a healthier shoreline with good land management practices. These are areas where protection and/or conservation should be targeted. On the other hand, lower scores signify an ecologically unhealthy shoreline. These are areas where management and/or mitigation practices may be desirable for improving water quality and habitat.



As a whole, the Lower White River Flowage had better shoreland health than the other lakes in the study. The summary of scores for shorelands around Lower White River Flowage is displayed on the map in the appendices. Large stretches of Lower White River Flowage's shorelands are in good shape, but some portions have challenges that should be addressed. None of Lower White River Flowage shoreland was ranked as poor. For a more complete understanding of the ranking, an interactive map showing results of the shoreland surveys can be found on the County's webpage.

Shoreland ordinances were enacted 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 viewing corridor for each shoreland lot. With a total of 47 lakefront lots, 1,410 feet (5%) of disturbed shoreland is permitted. Based on the 2011 shoreland inventory, 24% (7,432 feet) of White River Flowage's shoreland was mowed lawn. 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.

## Guiding Vision for Lower White River Flowage’s Shorelands

*The Lower White River Flowage healthy shorelands will be healthy; providing habitat and good water quality.*

### Goal 7. Shorelands around Lower White River Flowage will be healthy.

**Objective 7.1.** Protect healthy shorelands and improve disturbed shorelands.

Actions	Lead person/group	Resources	Timeline
Spread the word about the importance of healthy shorelands and cost-share opportunities through welcome packets, newsletters, at meetings, and at the Brat Fries at Stone Ridge.	WRFLMD	WCWLC UWEX Lakes (educational material) Wisconsin Healthy Lakes Initiative	Ongoing
Consider using funds from Healthy Lakes Grants to assist with costs associated with shoreland improvements.	Shoreland property owners	WDNR Healthy Lakes grants	Feb 1 deadline
Support the county to provide funding, support, and development of plans for property owners who want to restore shoreland vegetation.	WRFLMD	WCLCD Waushara County Board WDNR Lake Protection grants	Ongoing



## Watershed Land Use

It is important to understand where the Lower White River Flowage's water originates in order to understand the lake's health. During snowmelt or rainstorms, water moves across the surface of the landscape (runoff) towards lower elevations such as lakes, streams, and wetlands. The land area that contributes runoff to a lake is called the surface watershed (Figure 5). Groundwater also feeds Lower White River Flowage; its land area may be slightly different than the surface watershed.

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 ultimately, the lake's water quality and quantity. Essentially, landscapes with greater capacities to hold water during rain events and snowmelt slow the delivery of the water to the lake. 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. A variety of land management practices can be put in place to help reduce impacts to our lakes. Some practices are designed to reduce runoff. These include protecting/restoring wetlands, installing rain gardens, swales, rain barrels, and routing drainage from pavement and roofs away from the lake. Some practices are used to help reduce nutrients from moving across the landscape towards the lake. Examples include manure management practices, 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, and using erosion control practices.

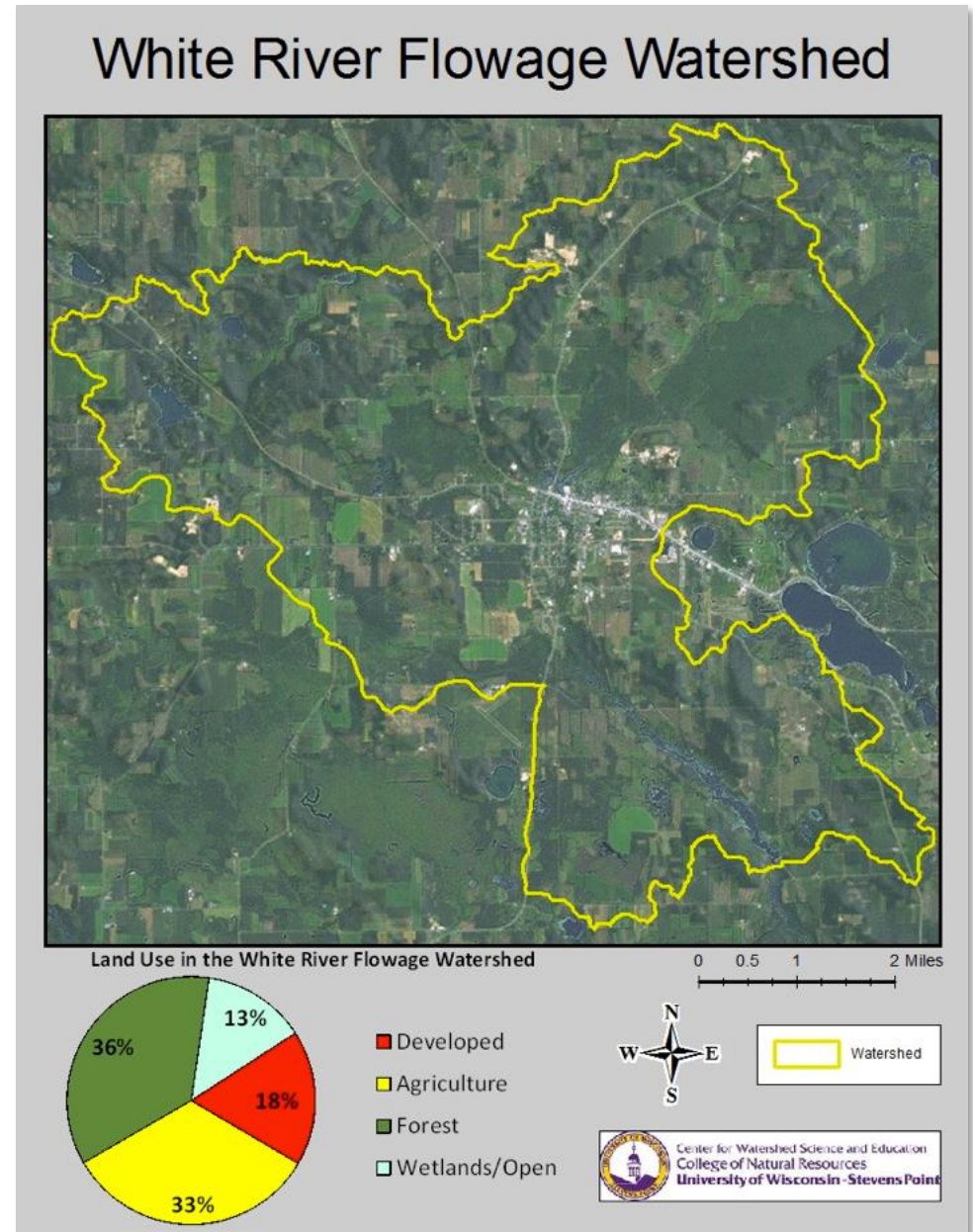
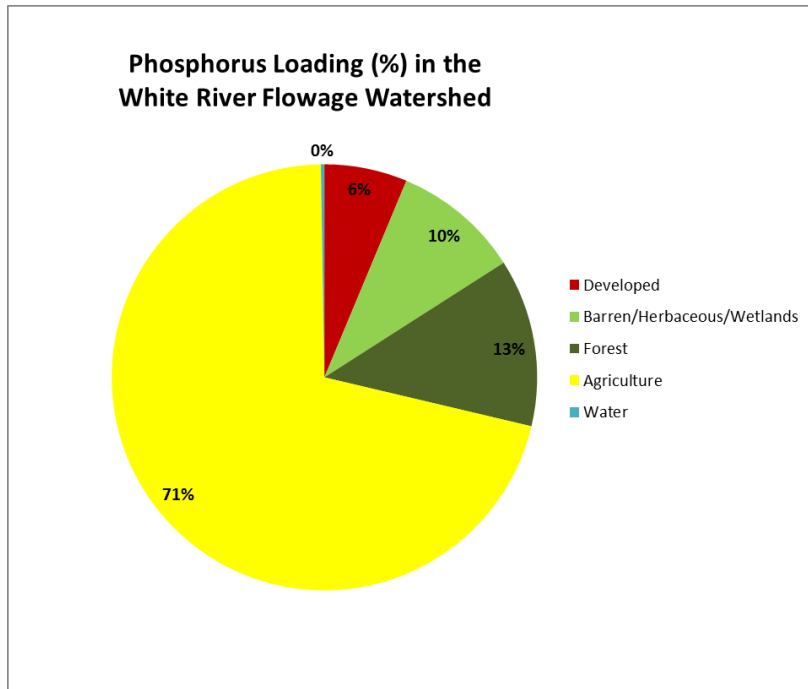


Figure 5. Surface watershed of Lower White River Flowage.



In 2012, a rapid drawdown of the millpond in Wautoma discharged a large volume of nutrient-rich sediment to the Lower White River Flowage. This event disrupted fish habitat, navigation, and aquatic plants which are just beginning to recover. A plan should be developed to avoid such impacts in the future.

The surface watershed for Lower White River Flowage is 33,501 acres. Primary land use is forest and agriculture (Figure 5). The lake’s shoreland is surrounded primarily by cultivated crops, wetlands and forest. In general, the land closest to the lake has the greatest immediate impact on water quality.

Estimates of phosphorus from the landscape can help to understand the phosphorus sources to the Lower White River Flowage. 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. Based on modeling results, agriculture had the greatest percentages of phosphorus contributions from the watershed to the White River Flowage (Panuska and Lillie, 1995). Modeling

results indicated agriculture contributes approximately 71% of the phosphorus load to the lake.

A large volume of sediment was delivered to and deposited in the Lower White River Flowage in 2012 following a drawdown upstream of the Wautoma Mill Pond. This influx resulted in the exodus of trout and the complete loss of navigation in the upper reaches of the flowage. It is believed that the drawdown in Wautoma was conducted inappropriately. Participants at the planning session have observed the slow return of trout as the channel is recut by natural hydrologic cycles. Additionally, the WDNR has been working to place large woody structure in the water to create wing dams and nurture the rechanneling process.

### **Guiding Vision for the Lower White River Flowage Watershed**

*Land within the Lower White River Flowage watershed will be managed in a way that improves the river, lake and drinking water quality.*

**Goal 8. Utilize resources for maintenance of healthy water quality.**

**Objective 8.1.** Increase participation in healthy land management activities around Lower White River Flowage and throughout its watershed.

Actions	Lead person/group	Resources	Timeline
Continue to use WCLCD as a resource for land management activities.	Shoreland and watershed property owners	WCLCD	As needed
Encourage property owners to test their soil. Provide information to landowners on how and where to sample.	WRFLMD	WC UWEX	Fall
Encourage property owners interested in the protection of their land via a conservation program such as a conservation easement, purchase of development rights, or sale of land for protection.	WRFLMD	NCCT NRCS WDNR Lake Protection grants	As needed
Consider exploring funding options for land purchase within the watershed for conservation, preservation, or restoration purposes.	WRFLMD	WDNR Lake Protection grants Knowles-Nelson Stewardship Funds	Ongoing

**Objective 8.2.** Reduce sediment and pollutant delivery to Lower White River Flowage.

Actions	Lead person/group	Resources	Timeline
The County will encourage and provide support for water quality-based Best Management Practices (BMPs) within the watershed.	WCLCD	NRCS County Board Supervisors DATCP WDNR Lake Protection grants	Ongoing
Encourage subdivisions and other new developments to manage storm water on-site and minimize septic system impacts to Lower White River Flowage.	Developers Town of Dakota	Waushara Co. Planning and Zoning City of Wautoma Planning & Zoning	Ongoing
Manage upstream storm water to reduce the amount of sediment and nutrient delivery to Lower White River Flowage.	WCLCD	WDNR	Ongoing
Design road and construction projects in ways that will minimize impacts to Lower White River Flowage from sediment, excessive runoff, and addition of pollutants.	WRFLMD Town of Dakota	WCLCD NRCS Waushara Co. Highway Dept. WDOT	Ongoing, as applicable
Work with WDNR and City of Wautoma to manage the upstream dam in a way that will not deliver sediment to the river and LWRF. Develop a plan to notify WRFLMD of upstream discharge events.	WRFLMD	WDNR City of Wautoma	Ongoing

## 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 lake district, 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.

## Lower White River Dam

The Lower White River Flowage is a 133-acre impoundment along the White River which is located in the Fox River basin. The hypolimnetic dam, located at the southern end of the lake along County Highway YY, was constructed in 1927 and is owned by Eagle Creek Renewable Energy. The power station is a 150-kilowatt hydroelectric generating station equipped with one Leffel turbine producing an average 1 million kilowatt-hours of energy each year. Additional information about this dam can be found in the appendices and on the WDNR website (<http://dnr.wi.gov/topic/dams/>). Contact information for the WDNR Dam Safety Program is:

**Department of Natural Resources**  
**Dam Safety Program, WT/3**  
**101 South Webster Street**  
**PO Box 7921**  
**Madison, WI 53707-7921**  
**608-261-6401**  
[dnrdamsafety@wisconsin.gov](mailto:dnrdamsafety@wisconsin.gov)



## Recreation

According to survey responses, the flowage is enjoyed for its scenery, wildlife, solitude, canoeing, and kayaking. There are two public boat launches located on the eastern side. One is located near 19<sup>th</sup> and Pine View Road, and the other is off of White River Trail Road. Wake speeds are not allowed on the Lower White River Flowage; all survey respondents supported this status. Some respondents suggested recreation is improved when the aquatic plants are managed. They also felt it would be beneficial to better inform lake users about the locations of the channel.



## **Guiding Vision for Recreation**

*Lower White River Flowage will provide recreational opportunities for enjoyment by shoreland property owners and visitors.*

### **Goal 9. Provide access to the flowage and adjacent public lands for enjoyment and management.**

**Objective 9.1.** Safe access to the lake and surrounding public lands will be provided.

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
Improve the landing for harvester access. While doing so, strengthen the shoreland and reduce runoff.	Town of Dakota	WDNR Fisheries Biologist WDNR Healthy Lakes grant	2016
Improve the Pine View landing (currently too steep).	Town of Dakota	WDNR Fisheries Biologist	2016
Complete the needed repairs of the White River Trail landing on the flowage.	Town of Dakota	WDNR	Ongoing
Continue to monitor channelization throughout the flowage to determine if efforts to redevelop a channel near the headwaters where sediment has been deposited.	WRFLMD	WDNR	Ongoing

### **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 District, the Town of Dakota, Waushara 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 Waushara 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 ecosystem in Lower White River Flowage enjoyed by many people. Working together on common values will help to achieve the goals that are outlined in this plan.

## **Guiding Vision for Communication**

*The Lower White River Flowage community will be connected and informed in lake stewardship.*

**Goal 10. Encourage Lower White River Flowage stewardship through communication.**

**Objective 10.1.** Develop opportunities for education and outreach among full and part-time residents.

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
Maintain the WRFLMD website to provide a common source of communication. <a href="http://www.whiteriverflowage.org/">http://www.whiteriverflowage.org/</a>	WRFLMD	UWEX Lakes	Ongoing
Maintain an email list of shoreland property owners and others interested in Lower White River Flowage.	WRFLMD	WC UWEX	Ongoing
Continue to distribute a welcome packet/mailing to all new shoreland property owners with basic lake stewardship information/brochures.	WCWLC	UWEX Lakes WC UWEX	Ongoing
Communicate updates of lake management plan and management activities to residents and users of the lake via email list, newsletter, and/or at meetings.	WRFLMD	UWEX	Ongoing
Host an annual meeting to review the plan, and discuss lake management and opportunities for shoreland property owners.	WRFLMD	WC UWEX	Annually
Consider hosting gatherings to learn about topics identified in this LMP. Invite speakers or conduct demonstrations. Incorporate food (potlucks, etc.) to increase attendance and make them more fun. Continue to attend the annual brat fry at Stone Ridge.	WRFLMD	WCLCD WC UWEX WDNR biologists Consultants	Ongoing

**Objective 10.2.** Achieve good communication with clubs, municipalities, agency staff, elected officials, and organizations interested in the health of Lower White River Flowage.

<b>Actions</b>	<b>Lead person/group</b>	<b>Resources</b>	<b>Timeline</b>
Continue to represent the Lower White River Flowage on the WCWLC.	WRFLMD	WC UWEX	Quarterly
Consider networking with other lakes in the state to learn lake management strategies, etc. by having a representative attend the Wisconsin Lakes Convention.	WRFLMD	UWEX Lakes	Annually in spring
Consider sending an individual or board member to the Lake Leaders Institute.	WRFLMD	UWEX Lakes	Even calendar years - fall
Maintain communication with the dam owners/operators.	WRFLMD		Ongoing

## 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.

### Guiding Vision for Updates and Revisions

*Lower White River Flowage will have an accurate, relevant, comprehensive lake management plan that is reviewed annually and documents all management activities and results.*

#### Goal 11. Review plan annually and update as needed.

**Objective 11.1.** Work with those involved in this plan to update the plan and communicate updates with community members and members of the District.

Actions	Lead person/group	Resources	Timeline
Review plan at the annual meeting and discuss accomplishments and identify goals/objectives/actions for upcoming year.	WRFLMD	Varies based on topic	Annually
Review activities of plan partners in regard to the Lower White River Flowage.	WRFLMD	Plan partners	As needed
Update this LMP every 5 years.	WRFLMD	WCWLC WC UWEX	2021

## **Governance**

*This section was prepared by Waushara County UW-Extension.*

### **Lake Management Plan Approval**

The draft lake management plan will be completed by the lake district board. The final draft of the lake management plan will be approved through a vote of the lake district board. The final draft will be approved by the Wisconsin Department of Natural Resources (DNR) to have met the lake management plan requirements and grant requirements. If the DNR requires modifications or additional information before approving the plan, the plan will be changed to meet DNR requirements that are acceptable to the lake district. The completed plan that has been approved by the lake district and the DNR will be presented to the municipalities containing the lake and Waushara County. The municipality may reference the lake management plan or parts of the plan in their comprehensive plan to guide municipal or county decisions.

### **Lake Assistance**

The lake management plan will enhance the ability of the lake to apply for financial assistance. The lake management plan will be considered as part of the application for grants through the Wisconsin Department of Natural Resources. Current listings of grants available from the DNR can be found at <http://dnr.wi.gov/aid/>. Waushara County offers technical and financial assistance through the Land Conservation and Zoning Department and University of Wisconsin-Extension Department. Additional assistance may be available from other agencies and organizations, including DNR, UW-Extension Lakes Program, Golden Sands RC&D, Wisconsin Wetlands Association, and Wisconsin Trout Unlimited.

### **Lake Regulations**

The lake management plan is superseded by federal, state, county, and municipal laws and court rulings. However, the lake management plan may influence county and municipal ordinances and enforcement, which is why the lake management plan will be reviewed and included or referenced in the county and related municipal comprehensive plans. Federal laws contain regulations related to water quality, wetlands, dredging, and filling. State laws contain regulations related to water quality, water and lake use, aquatic plants and animals, shoreline vegetation, safety, and development. County laws contain regulations related to development, safety, use, and aquatic plants and animals. Municipal laws contain regulation of use and safety. The court system interprets these rules and regulations. The rules and regulations are primarily enforced by the US Army Corps of Engineers, the Wisconsin Department of Natural Resources, the Waushara County Sheriff Department, and the Waushara County Land Conservation and Zoning Office. If considering development near or on a lake, addressing problem plants or animals, or changing the lake bottom contact the Waushara County Land Conservation & Zoning Department at the Waushara County Courthouse (920) 787-0443 and/or the Wisconsin Department of Natural Resources (888) 936-7463.



## Comprehensive Plans

The lake management plan and changes to the plan will be presented to the County and the Municipality for review and possible incorporation into their comprehensive plans. The comprehensive plan is intended to be used to guide future decision. Zoning, subdivision, and official mapping decisions must be consistent with the comprehensive plan.

### Process for Inclusion in the Municipal Comprehensive Plan

The Municipal Plan Commission will review the lake management plan to determine if it is consistent with the municipality's comprehensive plan. If the lake management plan is found by the Municipal Plan Commission to not be consistent with the municipality's comprehensive plan, the plan commission may (a) recommend changes to the comprehensive plan or (b) ask that an aspect of the lake management plan be revisited. When the Municipal Plan Commission has reached a consensus that the lake management plan aligns with the municipality's vision, the Municipal Plan Commission will develop an amendment to the comprehensive plan referencing the lake management plan. This could include a reference to the lake management plan under local policies in the agricultural, natural and cultural resources background information and the addition of a recommendation to support the lake management plan and to implement the applicable recommendations contained in the lake management. The Municipal Plan Commission will recommend by resolution that the amendment to the comprehensive plan be accepted by the Municipal Board. A public hearing on the changes to the comprehensive plan will be held with a thirty-day class one notice. The Municipal Board will consider the recommendations from the Municipal Plan Commission. The Municipal Board may (a) accept the recommendations to the comprehensive plan by ordinance, (b) accept by ordinance the recommendations with changes, or (c) request the plan commission revisit the changes to the comprehensive plan.

### Process for Inclusion in the County Comprehensive Plan

Waushara County Land Use Committee will review the updates to the municipality's comprehensive plan and the lake management plan as referenced by the municipality's comprehensive plan to determine if they are consistent with the County's comprehensive plan. If they are found by the land use committee to not be consistent with the municipality's comprehensive plan, the land use committee may (a) recommend changes to the County's comprehensive plan or (b) ask that an aspect of the lake management plan or municipality's comprehensive plan be revisited. When the Land Use Committee has reached a consensus that the updates to the municipality's comprehensive plan and the lake management plan aligns with the county's vision, and if it is not already consistent, it will develop an amendment to the County's comprehensive plan. The amendment may include a reference to the lake management plan under local policies in the agricultural, natural and cultural resources background information and the addition of a recommendation to support the lake management plan and to implement the applicable recommendations contained in the lake management. The Land Use Committee will recommend the amendment to the comprehensive plan to the Land, Water, and Education Committee.

The Land, Water, and Education Committee will review the amendment and if it concurs with the recommendation from the Land Use Committee, it will make a recommendation to the Planning & Zoning Committee. The Planning & Zoning Committee will hold a public hearing with a thirty-day class one notice. The Planning & Zoning Committee will recommend by resolution the amendment to the comprehensive plan or the amendment with changes be accepted by the County Board.

The County Board will consider the recommendations from the Planning & Zoning Committee. The County Board may (a) accept the amendment to the comprehensive plan by ordinance, (b) accept the amendment with changes, or (c) request the Land Use Committee or Planning & Zoning Committee revisit the changes to the comprehensive plan.

#### Use of the Comprehensive Plan

The lake management plans as referenced in the comprehensive plans may be used by the County and the Municipality to consider certain actions or in the implementation of zoning and other applicable regulations. The County Board of Adjustments and the County Planning and Zoning Committee may reference the lake management plans as referenced in the comprehensive plan when considering zone changes, variances, conditional uses, and suitable mitigation measures. The Municipality and County may take action as called for in the lake management plan as referenced in the comprehensive plan, including changes to zoning and other applicable regulations, shortly after the County's comprehensive plan has been updated or may take action as needed.

The lake organization, lake residents, riparian property owners, or other citizens may request that the Municipality or County take a specific action to implement aspects of the lake management plan as referenced in the comprehensive plan. The lake organization lake residents, riparian property owners, or other citizens may provide written or oral support to encourage the Municipality and County to reference the lake management plan when considering regulation or action that may impact the lake. The lake organization will inform the Municipality and the County when the lake management plan is updated and allow the Municipality and County an opportunity to participate in the update process.

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- Bartz, David, 2016. *Fisheries of Huron and White River Flowage*. Presentation given March 22, 2016 at the Waushara County Courthouse.
- Boat Ed, 2013. The Handbook of Wisconsin Boating Laws and Responsibilities. Approved by Wisconsin Department of Natural Resources. [www.boat-ed.com](http://www.boat-ed.com)
- Borman, Susan, Robert Korth, and Jo Temte, 2001. *Through the looking glass, a field guide to aquatic plants*. Reindl Printing, Inc. Merrill, Wisconsin.
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- Turyk, Nancy, 2016. *Aquatic Plants and Invasive Species in Lake Huron and White River Flowage*. Presentation given January 28, 2016 at the Waushara County Courthouse.
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- Turyk, Nancy, 2016. *Healthy Shorelands*. Presentation given March 22, 2016 at the Waushara County Courthouse.
- UW-Stevens Point Center for Watershed Science and Education, 2014. *Waushara County Lakes Study – Lower White River Flowage*. Final Report to Waushara County and Wisconsin Department of Natural Resources.
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- Vallentyne, J.R., 1974. *The Algal Bowl-Lakes and Man*. Ottawa Department of the Environment.
- Wetzel, R.G., 2001. *Limnology, Lake and River Ecosystems, Third Edition*. Academic Press. San Diego, California.

# Appendices

## Appendix A. Waushara County Lake Information Directory

### Algae - Blue-Green

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@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:  
<http://www.dhs.wisconsin.gov/eh/bluegreenalgae/contactus.htm>

### Aquatic Invasive Species/Clean Boats Clean Water

Contact: Golden Sands RC&D  
1100 Main St., Suite 150, Stevens Point, WI 54481  
Phone: 715-343-6215  
Websites: [www.goldensandsrcd.org](http://www.goldensandsrcd.org)  
<http://dnr.wi.gov/invasives/>

### Aquatic Plant Management (Native and Invasive)

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)  
Website: <http://dnr.wi.gov/lakes/plants/>

### Aquatic Plant Identification

Contact: Golden Sands RC&D  
1100 Main St., Suite 150, Stevens Point, WI 54481  
Phone: 715-343-6215  
Website: [www.goldensandsrcd.org](http://www.goldensandsrcd.org)

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](mailto:ejudziew@uwsp.edu)

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)

### Aquatic Plant Surveys/Management

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)  
Website: <http://dnr.wi.gov/lakes/plants/>

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

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

### Boat Landings, Signage, Permissions (County)

Contact: Scott Schuman  
Waushara County Parks  
PO Box 300, Wautoma, WI 54982  
Phone: 920-787-7037  
E-mail: [wcparks.parks@co.waushara.wi.us](mailto:wcparks.parks@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/parks.htm>

### Boat Landings (State)

Contact: Dave Bartz  
Wisconsin Department of Natural Resources  
Hwy 22N, Box 430, Montello, WI 53949  
Phone: 608-635-4989  
E-mail: [David.Bartz@wisconsin.gov](mailto:David.Bartz@wisconsin.gov)  
Website:  
<http://dnr.wi.gov/org/land/facilities/boataccess/>

### Boat Landings (Town)

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

### Citizen Lake Monitoring Network

Contact: Brenda Nordin, Wisconsin Department of Natural Resources  
Phone: 920-662-5141  
E-mail: [brenda.nordin@wisconsin.gov](mailto:brenda.nordin@wisconsin.gov)

## Conservation Easements

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

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)

Contact: Patrick Sorge  
Wisconsin Department of Natural Resources  
PO Box 4001, Eau Claire, WI 54702  
Phone: 715-839-3794  
E-mail: [Patrick.Sorge@wisconsin.gov](mailto:Patrick.Sorge@wisconsin.gov)

Contact: North Central Conservancy Trust  
PO Box 124, Stevens Point, WI 54481  
Phone: 715-344-1910  
E-mail: [info@ncctwi.org](mailto:info@ncctwi.org)  
Website: <http://www.ncctwi.org/>

Contact: NRCS Stevens Point Service Center  
1462 Strongs Ave., Stevens Point, WI 54481  
Phone: 715-346-1325

## Critical Habitat and Sensitive Areas

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)  
Website: <http://dnr.wi.gov/lakes/criticalhabitat/>

## Dams

Contact: Joe Behlen  
Wisconsin Department of Natural Resources  
473 Griffith Ave., Wisconsin Rapids, WI 54494  
Phone: 715-421-9940  
E-mail: [joseph.behlen@wisconsin.gov](mailto:joseph.behlen@wisconsin.gov)  
Website: <http://dnr.wi.gov/org/water/wm/dsfm/dams/>

## Fertilizers/Soil Testing

Contact: Ken Williams  
Waushara County UW- Extension  
209 S St. Marie St, PO Box 487, Wautoma, WI 54982  
Phone: 920-787-0416  
E-mail: [ken.williams@ces.uwex.edu](mailto:ken.williams@ces.uwex.edu)  
<http://waushara.uwex.edu/agriculture/services>

## Fisheries Biologist (management, habitat)

Contact: Dave Bartz  
Wisconsin Department of Natural Resources  
Hwy 22N, Box 430, Montello, WI 53949  
Phone: 608-635-4989  
E-mail: [David.Bartz@wisconsin.gov](mailto:David.Bartz@wisconsin.gov)  
Website: <http://dnr.wi.gov/fish/>

## Frog Monitoring—Citizen Based

Contact: Andrew Badje, Wisconsin Department of Natural Resources  
Phone: 608-266-3336  
E-mail: [Andrew.badje@wisconsin.gov](mailto:Andrew.badje@wisconsin.gov)  
E-mail: [WFTS@wisconsin.gov](mailto:WFTS@wisconsin.gov)

## Grants

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)  
Website: <http://dnr.wi.gov/Aid/Grants.html#tabx8>

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

## 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](mailto:kmasarik@uwsp.edu)  
Website: <http://www.uwsp.edu/cnr/watersheds/>

## Groundwater Levels/Quantity

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
Address: PO Box 1109 Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)



### **Groundwater Levels/Quantity (Cont'd)**

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](mailto:george.kraft@uwsp.edu)

Contact: Scott Provost  
Wisconsin Department of Natural Resources  
473 Griffith Ave., Wisconsin Rapids, WI 54494  
Phone: 715-421-7881  
E-mail: [scott.provost@wisconsin.gov](mailto:scott.provost@wisconsin.gov)  
Website:  
[http://prodoasext.dnr.wi.gov/inter1/hicap\\$.st](http://prodoasext.dnr.wi.gov/inter1/hicap$.st)  
[artup](http://artup)

### **Informational Packets**

Contact: UWSP Center for Watershed Science & Education  
TNR 224, 800 Reserve St. Stevens Point, WI 54481  
Phone: 715-346-2497  
E-mail: [pclakes@uwsp.edu](mailto:pclakes@uwsp.edu)

### **Lake Groups – Friends, Associations, Districts**

Contact: Patrick Nehring  
UWEX Economic Resource Development Agent  
PO Box 487, Wautoma, WI 54982  
Phone: 920-787-0416  
E-mail: [Patrick.nehring@ces.uwex.edu](mailto:Patrick.nehring@ces.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](mailto: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](mailto:eolson@uwsp.edu)  
Website:  
<http://www.uwsp.edu/cnr/uwexlakes/organizations/>

### **Lake Groups (cont'd)**

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

### **Land Use Plans and Zoning Ordinances**

Contact: Terri Dopp-Paukstat  
Waushara County Planning and Zoning  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

### **Land Use Plans and Zoning Ordinances (cont'd)**

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](mailto:Center.for.Land.Use.Education@uwsp.edu)  
Website: <http://www.uwsp.edu/cnr/landcenter/>

### **Nutrient Management Plans**

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

Contact: NRCS Stevens Point Service Center  
1462 Strongs Ave., Stevens Point, WI 54481  
Phone: 715-346-1325

### **Parks (County)**

Contact: Scott Schuman  
Waushara County Parks  
PO Box 300, Wautoma, WI 54982  
Phone: 920-787-7037  
E-mail: [wcparks.parks@co.waushara.wi.us](mailto:wcparks.parks@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/parks.htm>

### **Purchase of Development Rights**

Contact: North Central Conservancy Trust  
PO Box 124, Stevens Point, WI 54481  
Phone: 715-341-7741  
E-mail: [info@ncctwi.org](mailto:info@ncctwi.org)  
Website: <http://www.ncctwi.org/>

### **Purchase of Land**

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)  
Website: <http://dnr.wi.gov/topic/stewardship/>

### **Rain Barrels – Order**

Contact: Golden Sands RC&D  
1100 Main St., Suite 150, Stevens Point, WI 54481  
Phone: 715-343-6215  
Website: <http://www.goldensandsrcd.org/store>

### **Rain Gardens and Stormwater Runoff**

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

### **Septic Systems/Onsite Waste**

Contact: Terri Dopp-Paukstat  
Waushara County Planning and Zoning  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

### **Shoreland Management**

Contact: Ed Hernandez  
Waushara County Land Conservation Department  
PO Box 1109, Wautoma, WI 54982  
Phone: 920-787-0453  
E-mail: [lcdzoning.courthouse@co.waushara.wi.us](mailto:lcdzoning.courthouse@co.waushara.wi.us)  
Website: <http://www.co.waushara.wi.us/zoning.htm>

### **Shoreland Vegetation**

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

### **Shoreland Zoning Ordinances**

See: Land Use Plans and Zoning Ordinances

### **Soil Fertility Testing**

Contact: Ken Williams  
Waushara County UW- Extension  
209 S St. Marie Street, PO Box 487, Wautoma, WI 54982  
Phone: 920-787-0416  
E-mail: [Ken.williams@ces.uwex.edu](mailto:Ken.williams@ces.uwex.edu)  
Website: <http://waushara.uwex.edu/index.html>

### **Water Quality Monitoring**

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)

### **Water Quality Problems**

Contact: Ted Johnson  
Wisconsin Department of Natural Resources  
Phone: 920-424-2104  
E-mail: [TedM.Johnson@wisconsin.gov](mailto:TedM.Johnson@wisconsin.gov)

Contact: Nancy Turyk  
UWSP Center for Watershed Science and Education  
TNR 216, 800 Reserve St., Stevens Point, WI 54481  
Phone: 715-346-4155  
E-mail: [nturyk@uwsp.edu](mailto:nturyk@uwsp.edu)

## **Wetlands**

Contact: Keith Patrick  
Wisconsin Department of Natural Resources  
5301 Rib Mountain Drive, Wausau, WI 54401  
Phone: 715-241-7502  
E-mail: [keith.patrick@wisconsin.gov](mailto:keith.patrick@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](mailto: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](mailto:ejudziew@uwsp.edu)

## **Woody Habitat**

Contact: Dave Bartz, Wisconsin Department of  
Natural Resources  
Phone: 608-635-4989  
Address: Hwy 22N Box 430, Montello, WI 53949  
E-mail: [David.Bartz@wisconsin.gov](mailto:David.Bartz@wisconsin.gov)

If you are looking for any information that is not listed in this directory, please contact:  
Ryan Haney ([wclakes@uwsp.edu](mailto:wclakes@uwsp.edu))  
UWSP Center for Watershed Science and  
Education  
TNR 224, 800 Reserve St., Stevens Point, WI 54481  
Phone: 715-346-2497

## Appendix B. Lower White River Dam Report

### Detailed Information for Dam LOWER WHITE RIVER

Dam Key Seq No		59	Field File No		69.12
Size	LARGE		NID	58	
Popular Name			Former Name		

#### Location

County	Waushara		Longitude		-89.247923
Latitude	44.020730		<b>Located TRS</b>		
<b>Permitted TRS</b>			<b>Located TRS</b>		
QQQ:SW QQ:NE Q:NE - Sec:24 T:18N R:10			QQ:SE Q:NE - Sec:24 T:18N R:10		

#### Contacts

<b>Owner</b>		<b>Alternate</b>			
Organization	Eagle Creek Renewable Energy	Organization			
Name	Dave Brown	Name			

#### Waterbody

Drainage Basin (sq mi)		83.00			
<b>Stream</b>			<b>Impoundment</b>		
Local Name	WHITE		Local Name	LOWER WHITE RIVER POND	
Row and Official Name			Row and Official Name		
Navigable?	non-navigable		Size (acres)		133.00
When was navigability determined?			Maximum Depth (ft)		20.00

#### Regulatory/Inspection

NR 333 Years	EAP:2015 IOM: HYD: STAB: ZONE:				
Auth. Approval Desc	WP271		Regulatory Agency	WIDNR	
Hazard Rating	None		Estimated Hazard Rating	Low	
Ferc. No			Exempt Issue Date		
Ferc. Inspection Year			License Expiration Year		

#### Construction Characteristics

Normal Storage (acre-ft)	739.00	Max Storage (acre-ft)	1,000.00		
Structural Height (ft)	27.00	Hydraulic Height (ft)	23.00		
Crest Length (ft)	150.00	Spillway Type	C		
Discharge Through Principal Spillway (cfs)	2,370.00	Width/Diameter of Principal Spillway (ft)	23.00		
Total Discharge Through All Spillways (cfs)	3,707.00	Total Width/Diameter of All Spillways (ft)			
Core Type		Position			
Foundation Type		Foundation Certainty			
Purposes	H	Structural Types	PG		
	R		RE		

## Detailed Information for Dam LOWER WHITE RIVER

### Water Levels

	Normal		Winter	
	MSL	Datum	MSL	Datum
Minimum	831.20	NGVD 29		
Normal				
Maximum	831.70	NGVD 29		

### Construction History

Designer	Construction Firm	Complete Year
JACOBSON ENGINEERING CO.		1927

### Outlet Gates

No data found.

### Inspection History

Inspection Date	Inspection Report Date	DNR Engineer Initials	Inspection Type
10/25/2011	6/12/2012	LJH	CNSLT
6/24/1986	1/14/1987	WDS	31.19
6/20/1984			LEVEL
2/23/1984			LEVEL
4/12/1983			LEVEL
6/4/1981			GEN
7/17/1980			LEVEL
4/19/1974	4/26/1974		GEN
8/17/1970	8/24/1970		GEN
5/4/1961	5/10/1961		GEN
4/4/1961			LEVEL
8/30/1949	9/8/1949		GEN
9/10/1938	11/24/1939		GEN
8/21/1930	8/21/1930		GEN
6/14/1926	6/14/1926		GEN
6/1/1926			GEN
9/2/1925			LEVEL
10/3/1924	10/3/1924		GEN
9/20/1923	11/23/1923		GEN
9/2/1923	6/25/1925		GEN

### Followups

Type of Followup	Due Date	Extension Date	Completion Date
EMERGENCY ACTION PLAN	6/1/2017		
DAM FAILURE ANALYSIS	12/31/2016		
EMERGENCY ACTION PLAN	12/31/2012		1/11/2013
INSPECTION, OPERATION & MAINTENANCE MANUAL	12/31/2012		
MONITORING	10/19/2012		1/11/2013
MONITORING	10/19/2012		1/11/2013
CONCRETE REPAIRS	10/1/2012		1/11/2013
EMBANKMENT REPAIRS	10/1/2012		1/11/2013
EMBANKMENT REPAIRS	10/1/2012		1/11/2013
EMBANKMENT REPAIRS	10/1/2012		1/11/2013
SIGNING	6/1/2012		1/11/2013
	1/1/1992		1/1/2013

	1/1/1991		12/1/1993
	1/1/1990		12/1/1993
	1/1/1990		12/1/1993
	1/1/1988		1/1/2013

**Approvals**

Approval Month	Approval Year	Docket ID	Approval Type	DNR Engineer Initials
11	1923	WP-192	PERMIT TO CONSTRUCT-NAV STREAM; STAT 31.06	XXX
4	1925	WP-203	TRANSFER; STAT 31.185B	XXX
11	1926	WP-271	ENLARGEMENT; STAT 31.13	XXX
11	1986	3-LM-79-803	TRANSFER; STAT 31.185B	XXX

**Orders**

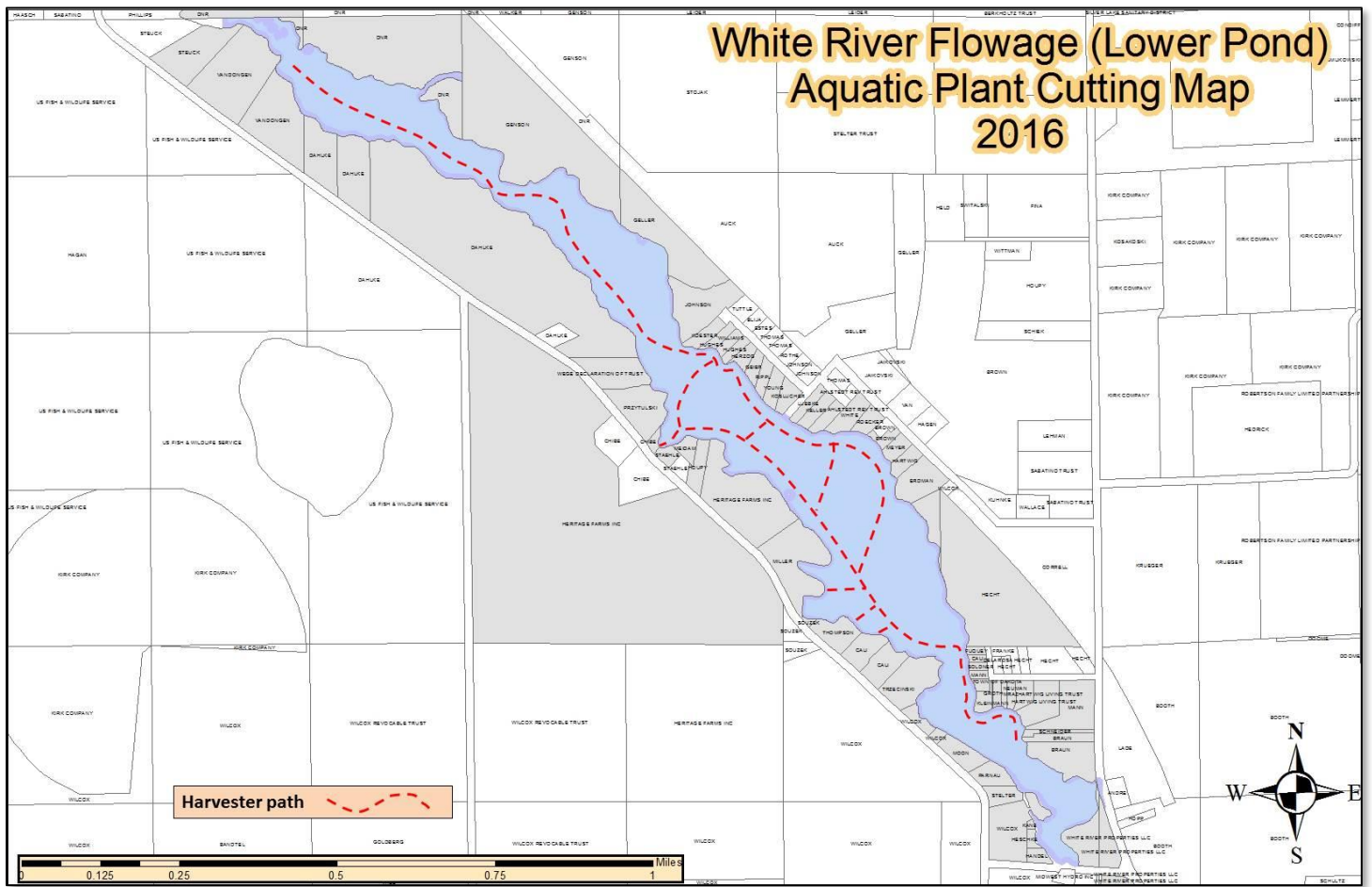
Issue Date	Complied On Date	Docket ID	Order Description
6/4/1981		3-LM-81-910	Warning Signs

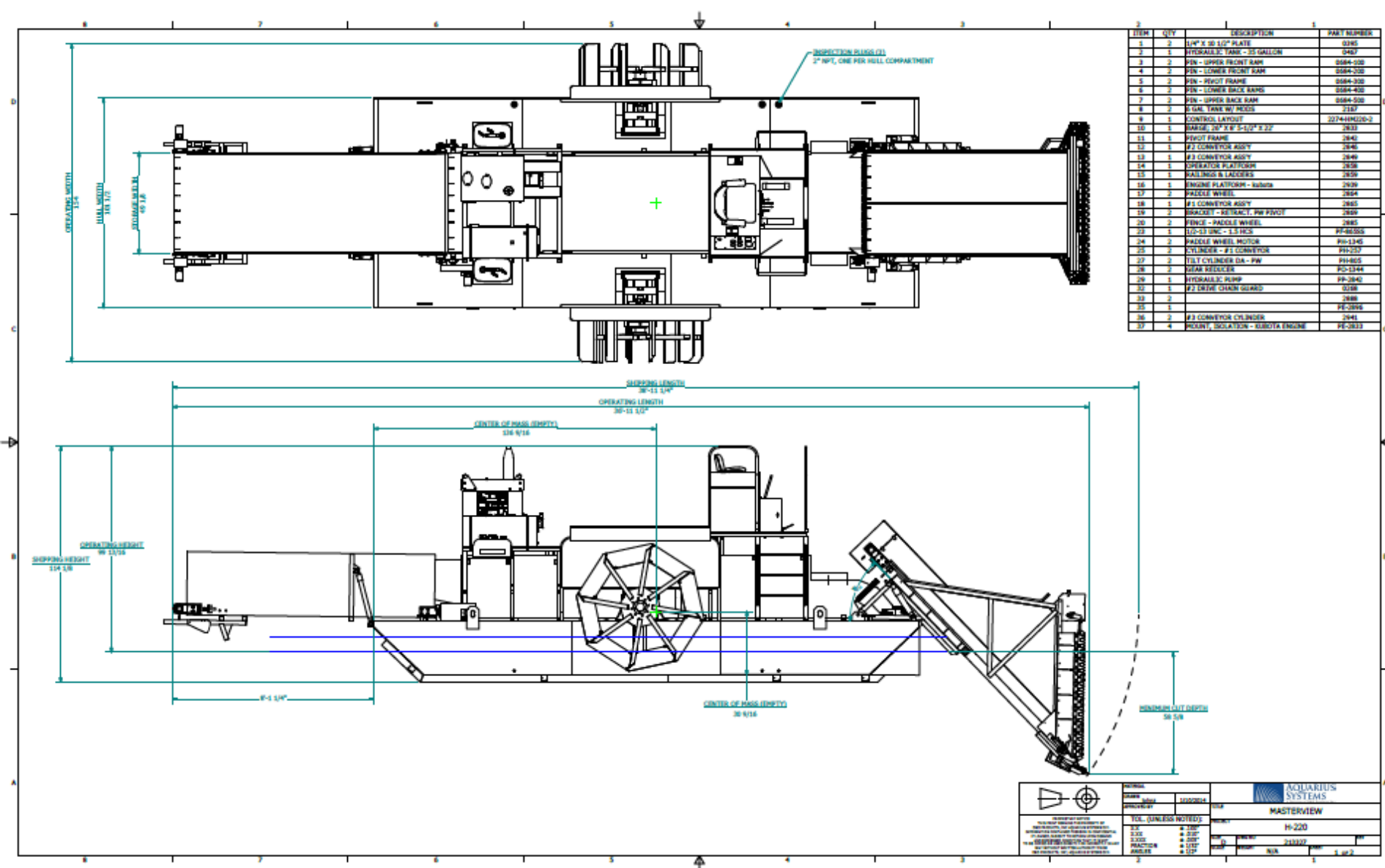
**Inspection Schedule**

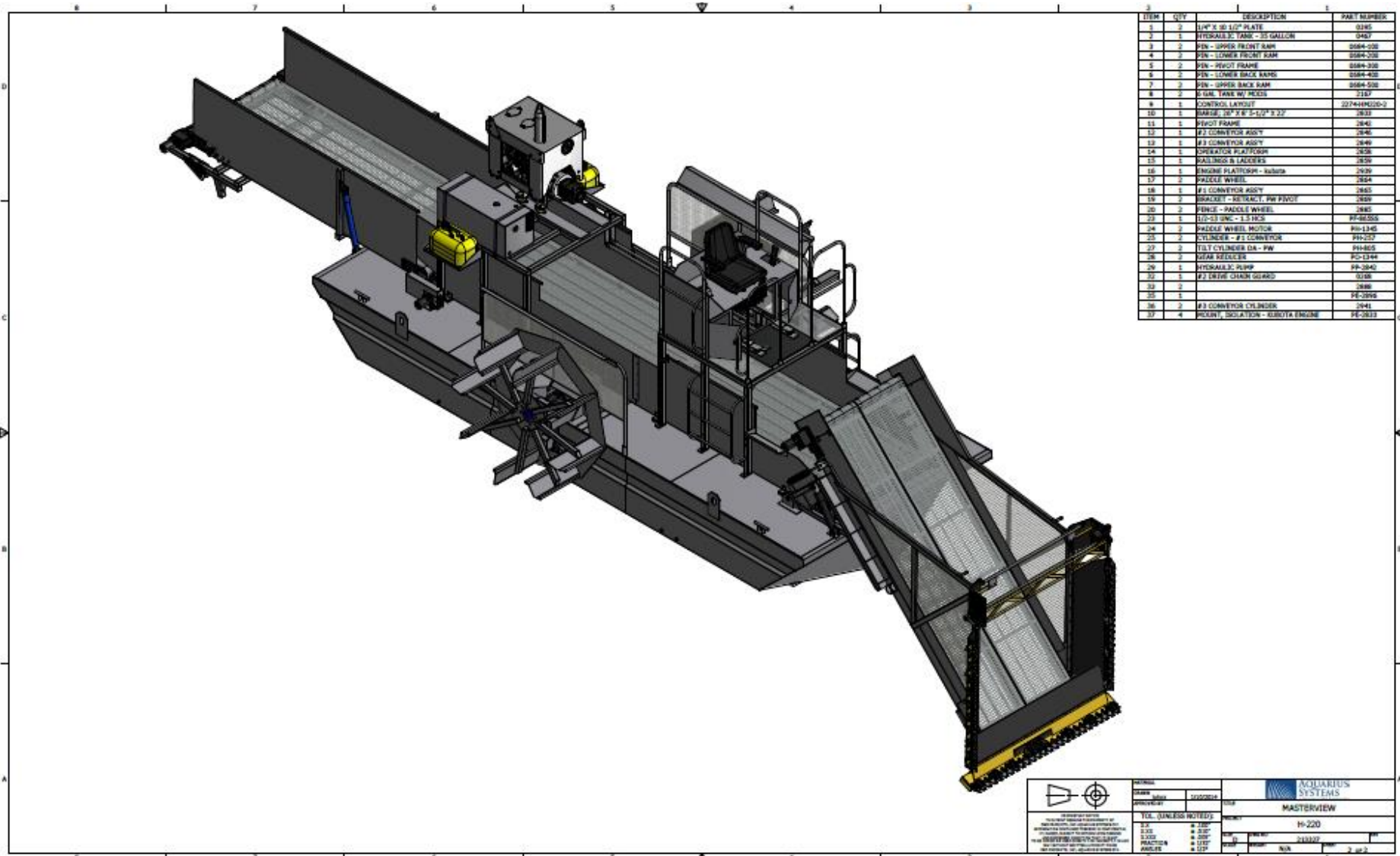
Inspection Year	Inspection Type
2021	OWNER
2031	OWNER



# Appendix C. Harvesting Map and Harvester Specifications







## Appendix D. Aquatic Plants

### Lower White River Flowage aquatic plant survey summary, 2013.

	Lake Average	Statewide Average	North Central Hardwood Forests Ecoregion Average
Littoral Frequency of Occurrence (%)	91.79	74.3	76
Maximum Depth of Plant Growth (ft)	16	15.3	15.9
Species Richness (Including visuals)	22	16.8	16.2
Floristic Quality Index (FQI)	26.2	24.1	23.3

### Frequency of occurrence of aquatic plant species observed in Lower White River Flowage, 2013.

Scientific Name	Common Name	Coefficient of Conservatism Value (C Value)	2013 % Frequency of Occurrence
<b>Free-floating Species</b>			
<i>Lemna trisulca</i>	Forked duckweed	6	3.35
<b>Floating-leaf Species</b>			
<i>Nymphaea odorata</i>	White water lily	6	1.12
<b>Emergent Species</b>			
<i>Heteranthera dubia</i>	Water star-grass	6	26.26
<i>Zizania</i> sp.	Wild rice	8	0.56
<b>Submergent Species</b>			
<i>Elodea canadensis</i>	Common waterweed	3	64.8
<i>Ceratophyllum demersum</i>	Coontail	3	52.51
<i>Potamogeton zosteriformis</i>	Flat-stem pondweed	6	22.35
<i>Myriophyllum sibiricum</i>	Northern water-milfoil	6	20.11
<i>Stuckenia pectinata</i>	Sago pondweed	3	13.97
<i>Chara</i>	Muskgrasses	7	12.85
<i>Najas guadalupensis</i>	Southern naiad	8	12.85
<i>Potamogeton friesii</i>	Fries' pondweed	8	12.85
<i>Potamogeton natans</i>	Floating-leaf pondweed	5	11.73
<i>Vallisneria americana</i>	Wild celery	6	11.17
<i>Potamogeton crispus</i>	Curly-leaf pondweed	0	10.61
<i>Potamogeton pusillus</i>	Small pondweed	7	7.26
	Filamentous Algae	0	6.7
<i>Ranunculus aquatilis</i>	White water crowfoot	8	4.47
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	0	4.47
<i>Potamogeton praelongus</i>	White-stem pondweed	8	2.23
<i>Potamogeton nodosus</i>	Long-leaf pondweed	7	0.56

## Management Strategies

### **General recommendations:**

- \* Reduce nutrients traveling to the lake from the landscape.
- \* Avoid increasing algal blooms by maintaining a healthy amount of aquatic plants.
- \* Don't denude the lakebed.
  - \* Increases potential for aquatic invasive species establishment.
  - \* Sediments can add phosphorus to the water which may lead to increased algal growth.
- \* Choose options that are appropriate for your lake's situation.
- \* Monitor and adjust your strategies if you are not making headway!

### **List of Aquatic Plant Management Options (selection of options varies with situation):**

#### **No Action**

---

##### ADVANTAGES

- \* No associated cost.
- \* Least disruptive to lake ecosystem.

##### LIMITATIONS

- \* May not be effective in achieving aquatic plant management objectives.

#### **Hand Pulling**

---

##### ADVANTAGES

- \* Can be used for thinning aquatic plants around docks.
- \* Can target specific plants - with proper training.
- \* Can be effective in controlling small infestations of aquatic invasive species.
- \* No associated cost.

##### LIMITATIONS

- \* Removes near-shore wildlife and fish habitat.
- \* Opens up areas where invasives can become established.
- \* If aquatic invasive species are not pulled properly, could worsen the problem.

## Hand Pulling Using Suction

---

### ADVANTAGES

- \* Can be used for thinning plants around docks.
- \* Can be used in deeper areas (with divers).
- \* Can target specific plants with proper training.
- \* Can be effective in controlling small infestations of aquatic invasive species.
- \* May be useful in helping to remove upper root mass of aquatic invasive species.

### LIMITATIONS

- \* Costs associated with hiring a diver may be comparable to chemical treatment expenses.
- \* Currently an experimental treatment – not readily available.
- \* If aquatic invasive species are not pulled properly, could worsen the problem.

## Mechanical Harvesting

---

### ADVANTAGES

- \* Removes plant material and nutrients.
- \* Can target specific locations.
- \* Used to manage larger areas for recreational access or fishery management.

### LIMITATIONS

- \* Not used in water depths less than 3 feet.
- \* Some harm to aquatic organisms.
- \* Is a temporary control.
- \* Risk of introduction of new aquatic invasive species (on a hired harvester) or spread of some existing invasive species.
- \* Hired cost at least \$150/hr.

## Water Level Manipulation

---

### ADVANTAGES

- \* Controls aquatic plants in shallower, near-shore areas.
- \* Can be low cost.

### LIMITATIONS

- \* Requires a controlling structure on the lake.
- \* May cause undesired stress on ecosystem.
- \* Cannot be used frequently.

## Milfoil Weevils

---

### ADVANTAGES

- \* Natural, native maintenance of native and exotic milfoils.
- \* Prefers the aquatic invasive Eurasian Watermilfoil.
- \* Some lakes may already have native populations; need a professional stem count and assessment of shoreland health, structure of fishery, etc.
- \* Doesn't harm lake ecosystem.

### LIMITATIONS

- \* Require healthy shoreline habitat for overwintering.
- \* Cannot survive in areas of mechanical harvesting or herbicide application.
- \* Effectiveness highly variable between lakes (only works well for some lakes).
- \* Limited access to weevils for purchase in WI.
- \* Still considered experimental.



## Chemical Treatment: Spot

---

### ADVANTAGES

- \* May be less destructive to lake ecosystem than lake-wide treatment.

### LIMITATIONS

- \* Only considered in lakes with aquatic invasive plants.
  - \* Usually not fully effective in eradicating target species.
  - \* Contaminants may remain in sediment.
  - \* Effects on lake ecosystem not fully understood.
  - \* Does not remove dead vegetation, which depletes oxygen and releases nutrients, adds to build-up of muck.
  - \* Extra nutrients may spur additional aquatic plant and algae growth.
-

## Appendix E. Shoreland Survey – 2011

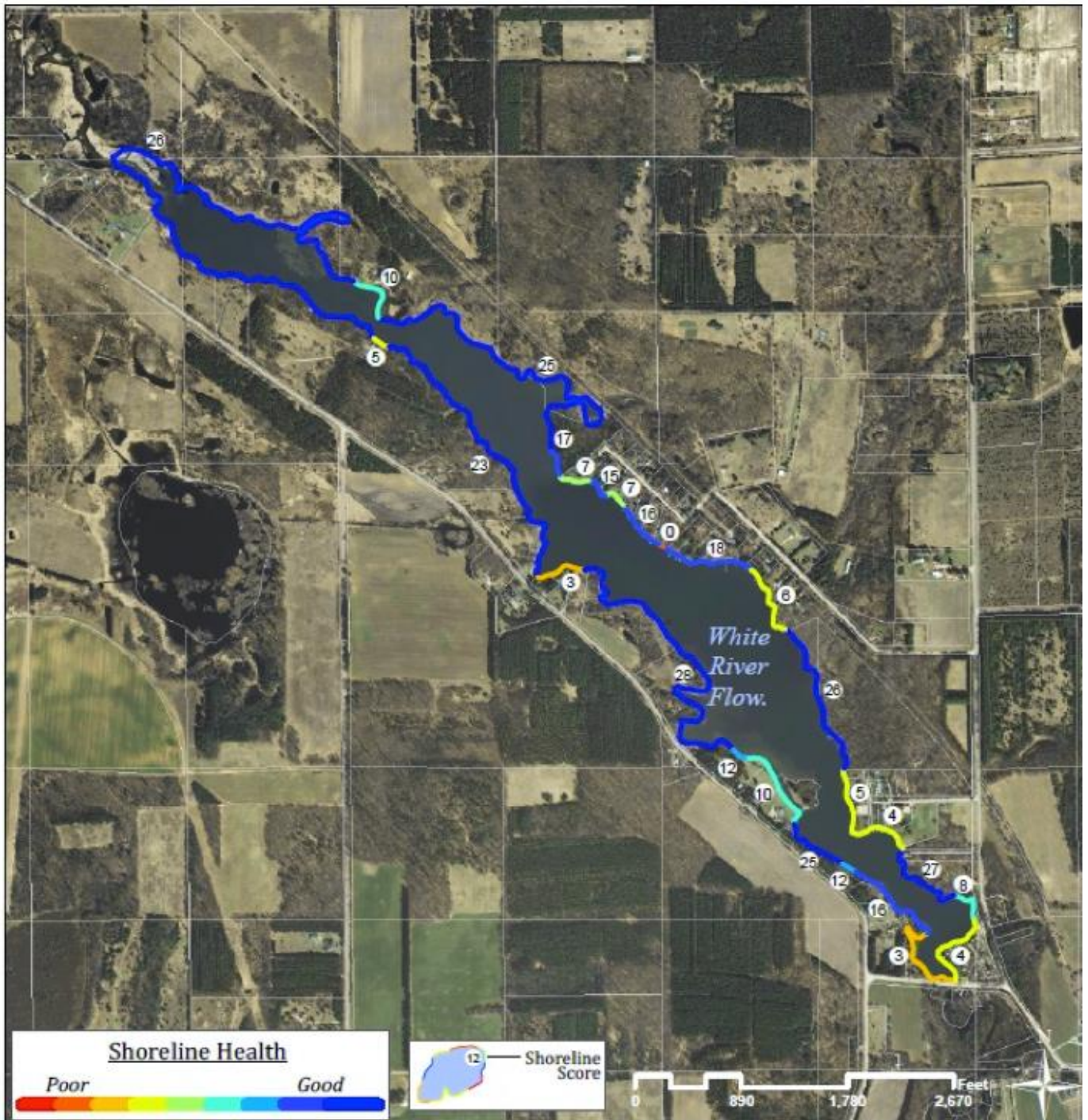
A scoring system was developed for the collected data to provide a more holistic assessment. Areas that are healthy will need strategies to keep them healthy, and areas with potential problem areas and where management and conservation may be warranted may need a different set of strategies for improvement. The scoring system is based on the presence/absence and abundance of shoreline features, as well as their proximity to the water's edge. Values were tallied for each shoreline category and then summed to produce an overall score. Higher scores denote a healthier shoreline with good land management practices. These are areas where protection and/or conservation should be targeted. On the other hand, lower scores signify an ecologically unhealthy shoreline. These are areas where management and/or mitigation practices may be desirable for improving water quality.

The summary of scores for shorelands around White River Flowage are displayed on the next page. The shorelands were color-coded to show their overall health based on natural and physical characteristics. Blue shorelands identify healthy shorelands with sufficient vegetation and few disturbances. Red shorelands indicate locations where changes in management or mitigation may be warranted. Large stretches of White River Flowage's shorelands are in good shape, but some portions have challenges that should be addressed. **None of White River Flowage shoreland was ranked as poor.** For a more complete understanding of the ranking, an interactive map showing results of the shoreland surveys can be found on the County's webpage at <http://gis.co.waushara.wi.us/ShorelineViewer/>.

# Waushara County Shoreline Assessment

Map Date – July, 2011  
Aerial Date – April, 2010

## WHITE RIVER FLOW.



### Summary

Shorelines are color-coded to show their overall health based on natural and physical characteristics. For example, shorelines shown in red indicate locations where management or mitigation may be warranted. Blue shorelines mark healthy riparian areas with natural vegetation and few human influences.

### Calculating Shoreline Scores

Scores are based on the presence/absence of:

- + Natural vegetation
- + Human influences (docks, boathouses, etc)
- + Erosion
- + Structures

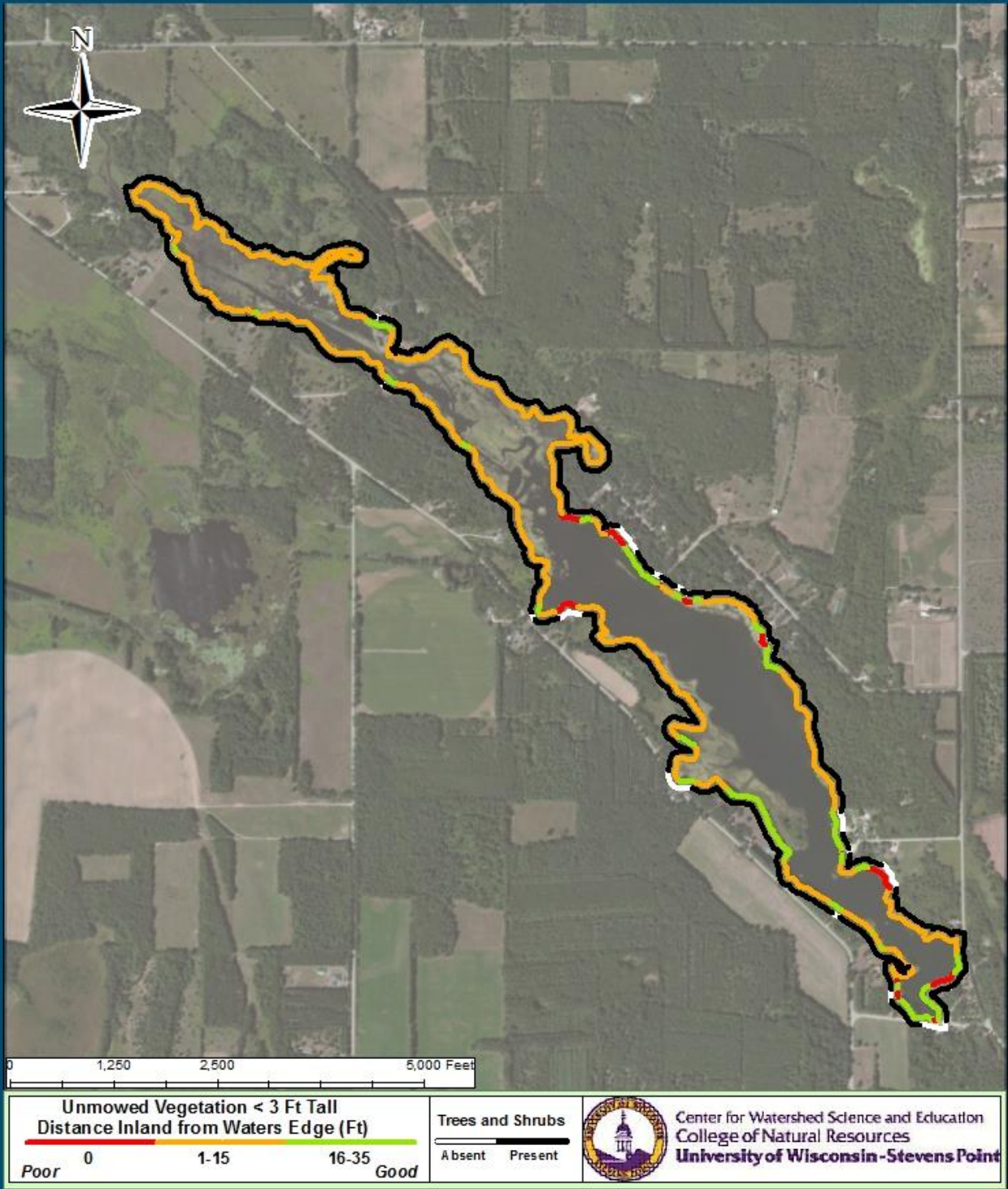


Map created by Dan McFarlane  
Center for Land Use Education



# White River Flowage Lake Shoreland Vegetation

## Waushara Co. Wisconsin



## **Appendix F. Lake User Survey Results**

### Q1 What is your Waushara County Lakes Survey ID?

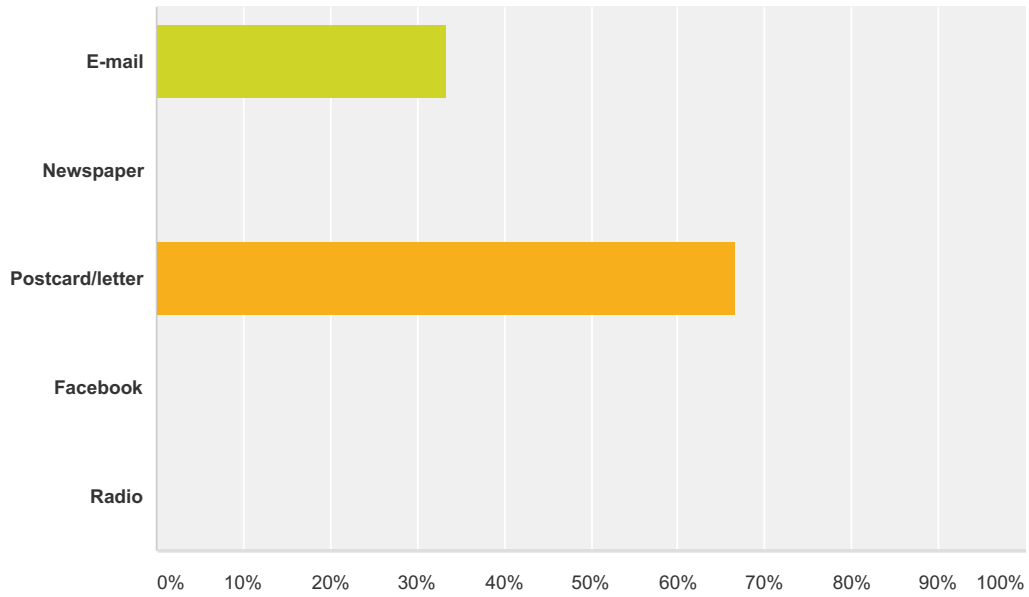
Answered: 3 Skipped: 0

#	Responses	Date
1	████	12/11/2015 12:42 PM
2	████	12/10/2015 4:28 PM
3	████	11/25/2015 2:12 PM



## Q2 How did you hear about this survey?

Answered: 3 Skipped: 0

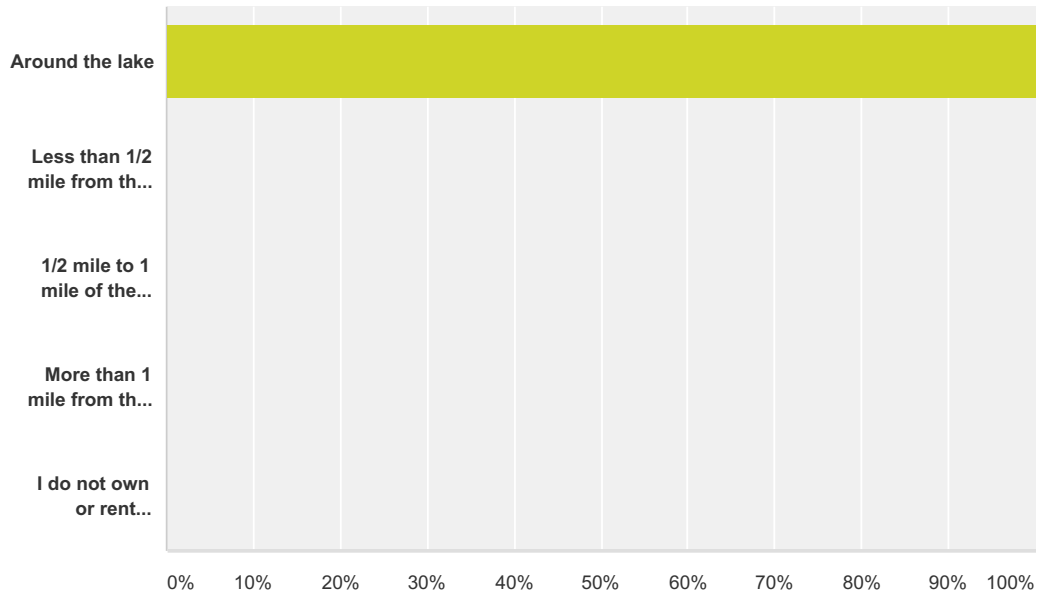


Answer Choices	Responses
E-mail	33.33% 1
Newspaper	0.00% 0
Postcard/letter	66.67% 2
Facebook	0.00% 0
Radio	0.00% 0
<b>Total</b>	<b>3</b>

#	Other (please specify)	Date
	There are no responses.	

### Q3 Do you own or rent property...

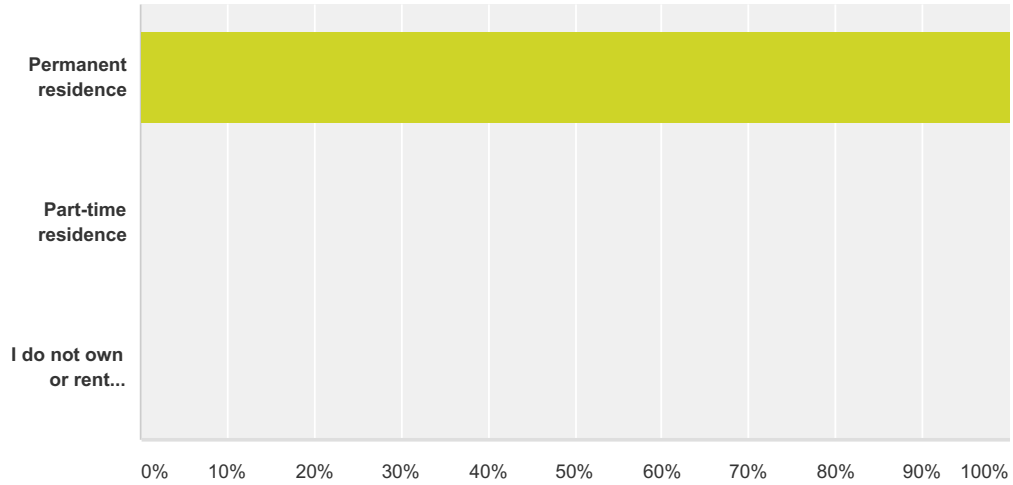
Answered: 3 Skipped: 0



Answer Choices	Responses
Around the lake	100.00% 3
Less than 1/2 mile from the lake	0.00% 0
1/2 mile to 1 mile of the lake	0.00% 0
More than 1 mile from the lake	0.00% 0
I do not own or rent property near the lake	0.00% 0
<b>Total</b>	<b>3</b>

**Q4 If you own or rent property near the lake, is this property your permanent residence, a part-time residence (such as a vacation home, rental, etc.), or other?**

Answered: 2 Skipped: 1

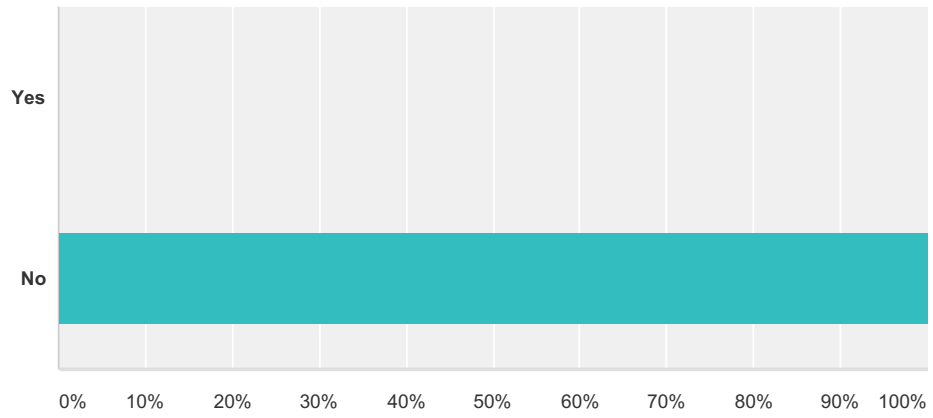


Answer Choices	Responses
Permanent residence	100.00% 2
Part-time residence	0.00% 0
I do not own or rent property near the lake	0.00% 0
<b>Total</b>	<b>2</b>

#	Other (please specify)	Date
1	Vacant land	12/11/2015 12:45 PM

### Q5 I own property on or near the lake because I inherited it.

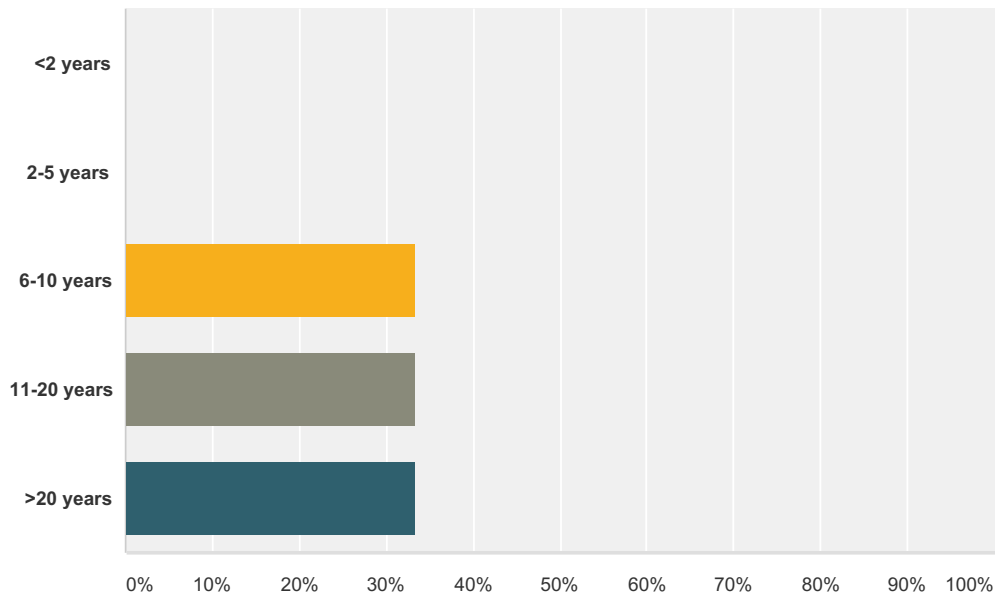
Answered: 3 Skipped: 0



Answer Choices	Responses	
Yes	0.00%	0
No	100.00%	3
<b>Total</b>		<b>3</b>

### Q6 How long have you lived on, visited or recreated on the lake?

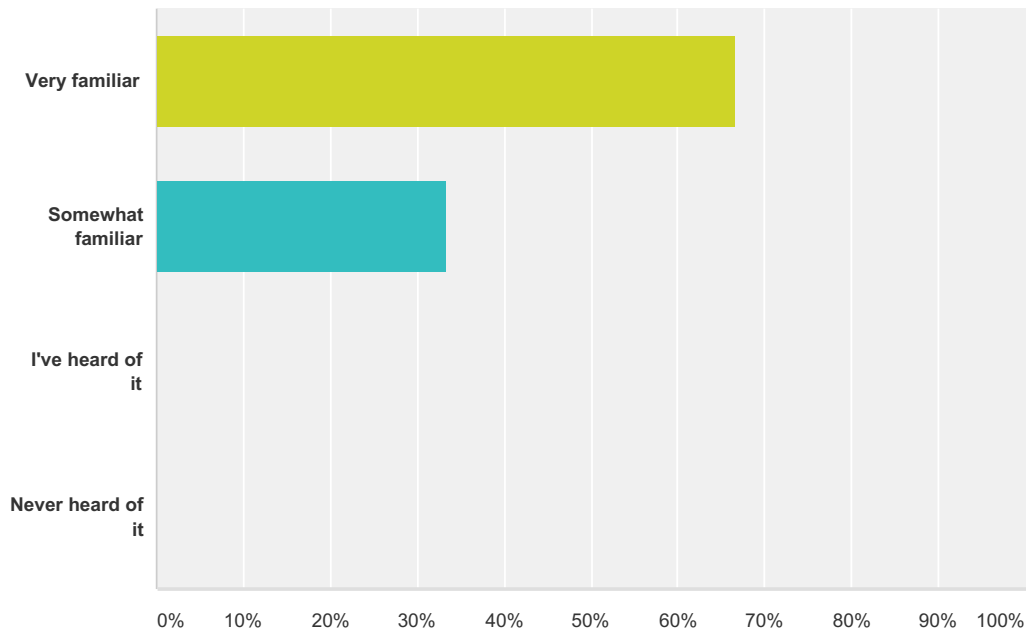
Answered: 3 Skipped: 0



Answer Choices	Responses
<2 years	0.00% 0
2-5 years	0.00% 0
6-10 years	33.33% 1
11-20 years	33.33% 1
>20 years	33.33% 1
<b>Total</b>	<b>3</b>

### Q7 Are you familiar with the White River Flowage Lake Management District?

Answered: 3 Skipped: 0

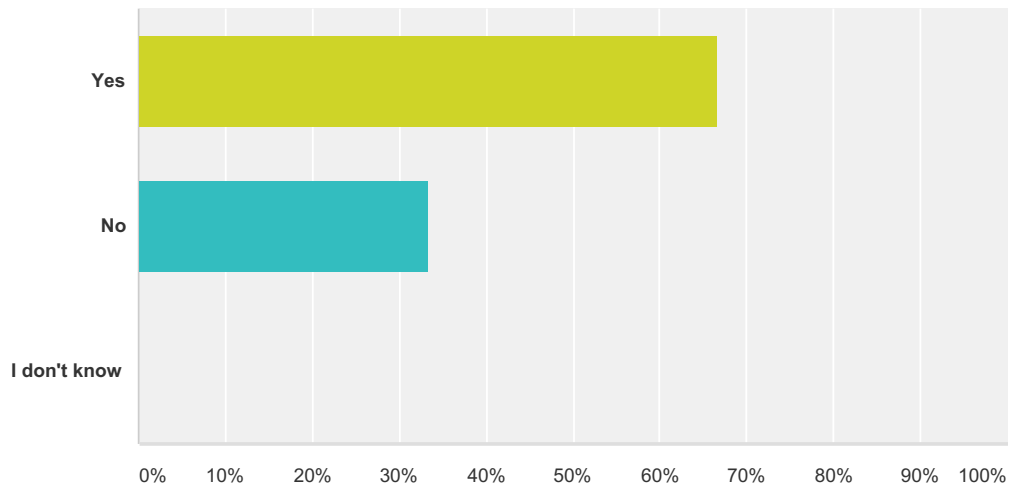


Answer Choices	Responses
Very familiar	66.67% 2
Somewhat familiar	33.33% 1
I've heard of it	0.00% 0
Never heard of it	0.00% 0
<b>Total</b>	<b>3</b>



### Q8 Are you a member of the White River Flowage Lake Management District?

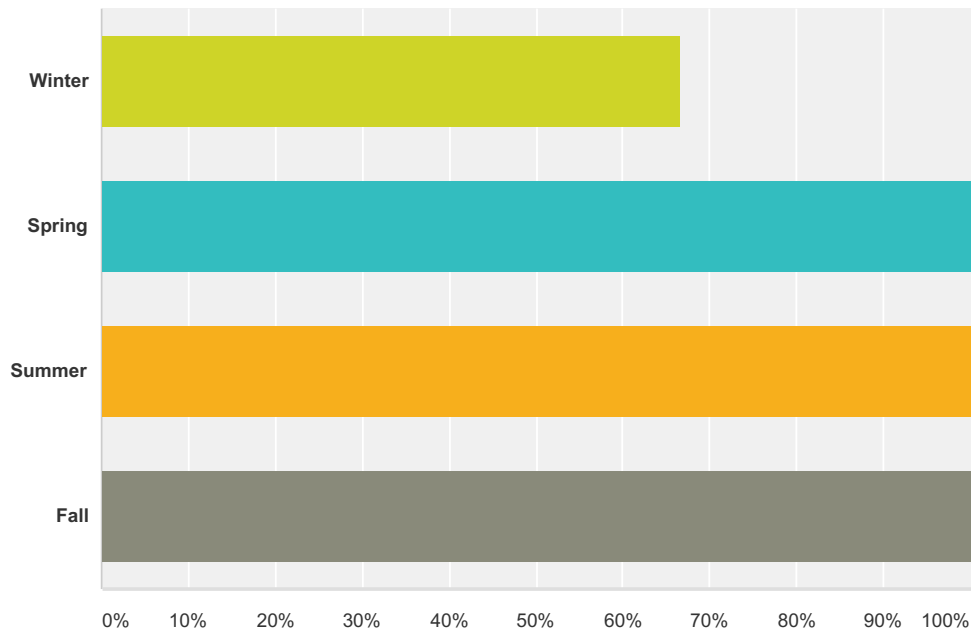
Answered: 3 Skipped: 0



Answer Choices	Responses
Yes	66.67% 2
No	33.33% 1
I don't know	0.00% 0
<b>Total</b>	<b>3</b>

**Q9 What time of year do you generally use the lake? Select all that apply.**

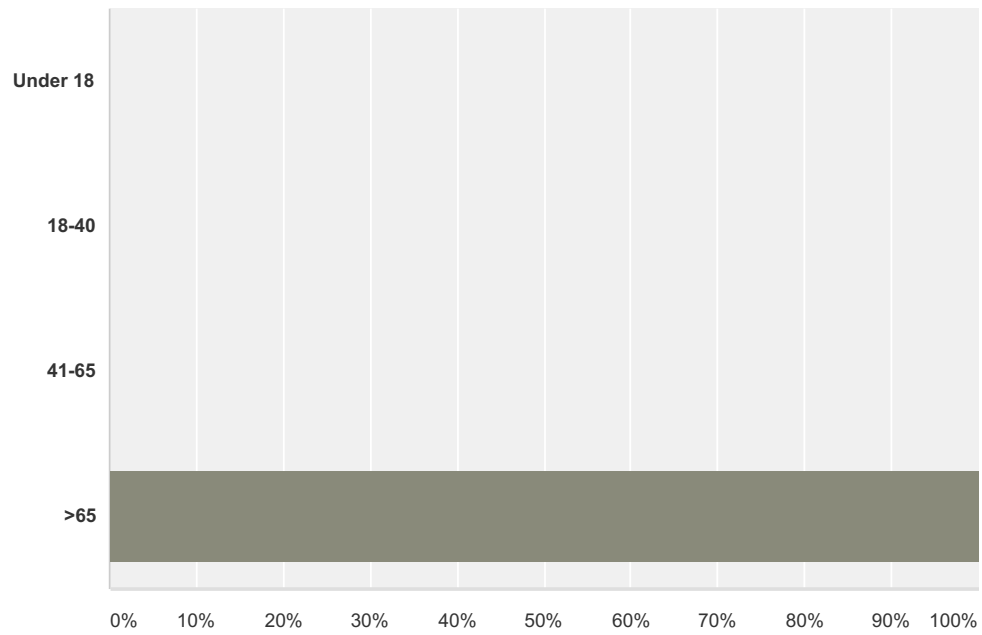
Answered: 3 Skipped: 0



Answer Choices	Responses	
Winter	66.67%	2
Spring	100.00%	3
Summer	100.00%	3
Fall	100.00%	3
<b>Total Respondents: 3</b>		

### Q10 Which category below includes your age?

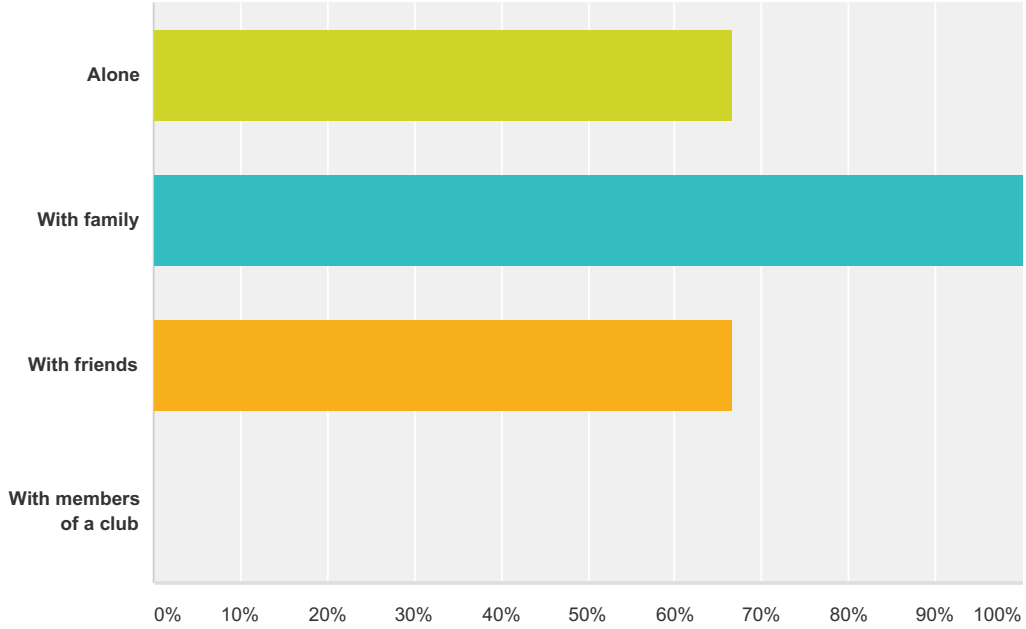
Answered: 3 Skipped: 0



Answer Choices	Responses	Count
Under 18	0.00%	0
18-40	0.00%	0
41-65	0.00%	0
>65	100.00%	3
<b>Total</b>		<b>3</b>

**Q11 When you visit the White River Flowage, are you typically...(check all that apply)**

Answered: 3 Skipped: 0

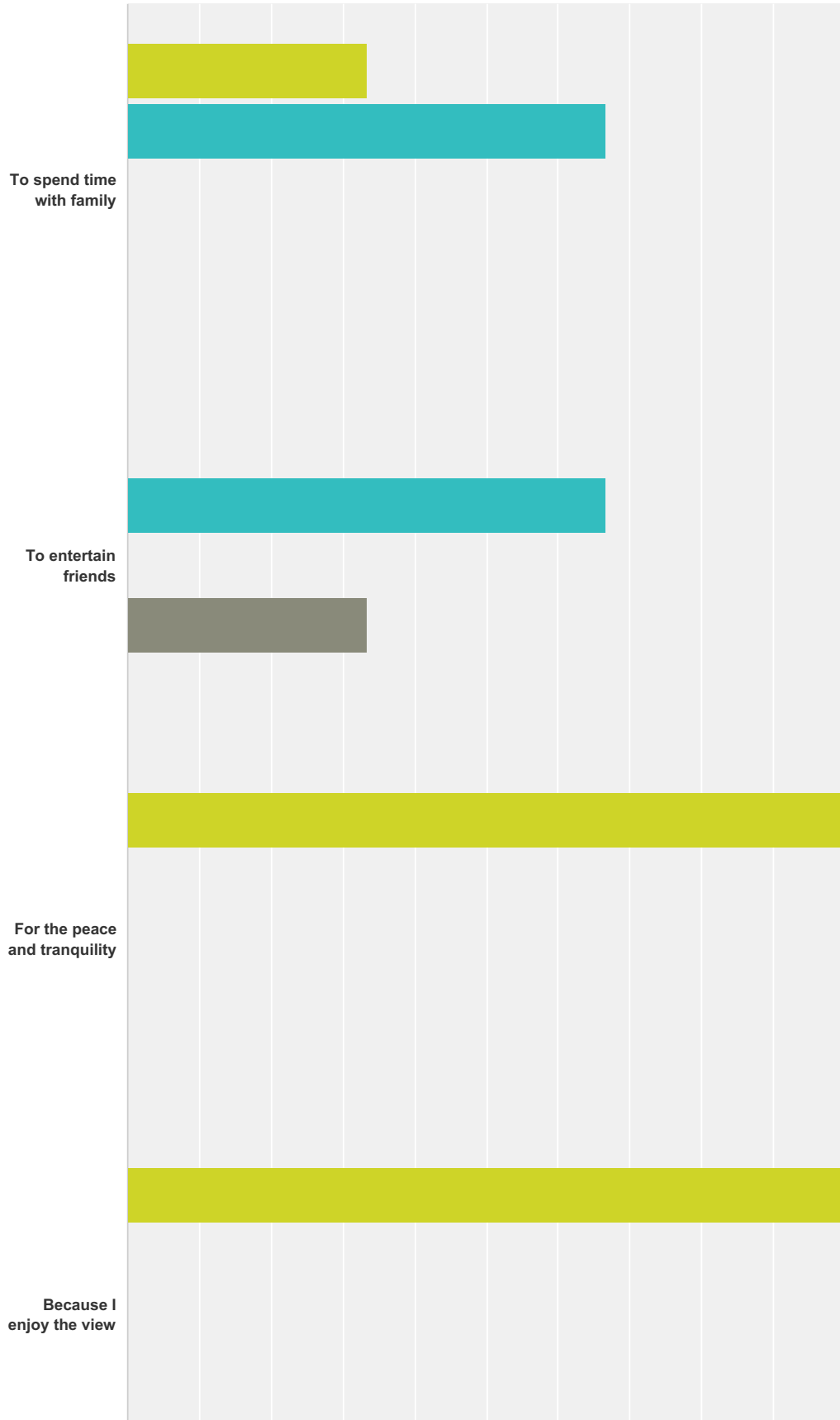


Answer Choices	Responses
Alone	66.67% 2
With family	100.00% 3
With friends	66.67% 2
With members of a club	0.00% 0
<b>Total Respondents: 3</b>	

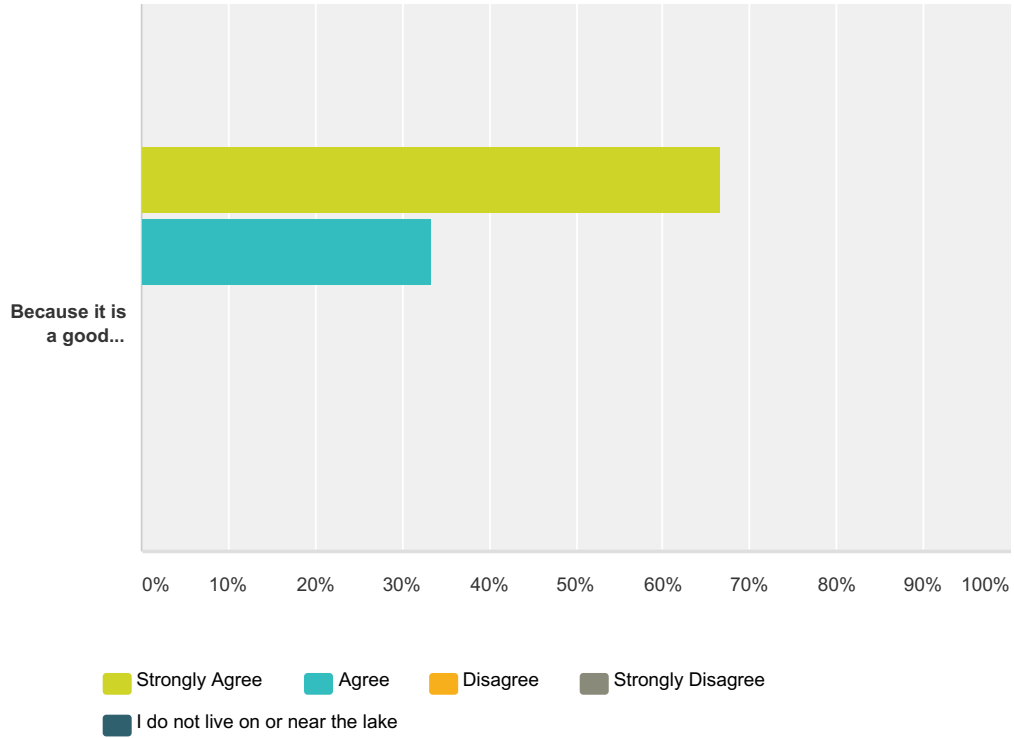
#	Other (please specify)	Date
	There are no responses.	

### Q12 I live on or near the lake...

Answered: 3 Skipped: 0



# White River Flowage Survey #1



	Strongly Agree	Agree	Disagree	Strongly Disagree	I do not live on or near the lake	Total
To spend time with family	33.33% 1	66.67% 2	0.00% 0	0.00% 0	0.00% 0	3
To entertain friends	0.00% 0	66.67% 2	0.00% 0	33.33% 1	0.00% 0	3
For the peace and tranquility	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3
Because I enjoy the view	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3
Because it is a good investment	66.67% 2	33.33% 1	0.00% 0	0.00% 0	0.00% 0	3



### Q13 What do you value most about the White River Flowage?

Answered: 3 Skipped: 0

#	Responses	Date
1	Abundant wildlife, minimal development, quietude, lack of bright lights in the area.	12/11/2015 12:45 PM
2	nature--bird life and animals plus the calm and beautiful environment	12/10/2015 4:34 PM
3	the environment	11/25/2015 2:14 PM

White River Flowage Survey #1

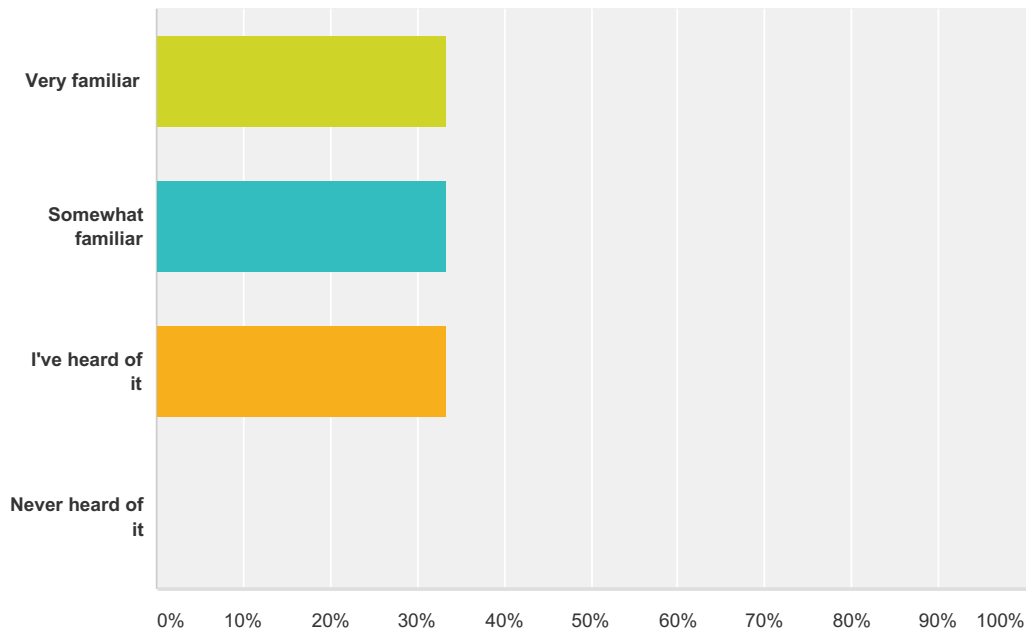
**Q14 In your opinion, what should be done to restore, maintain, or improve the White River Flowage?**

Answered: 3 Skipped: 0

#	Responses	Date
1	Preserve the current feel of the area and continue to improve the water and shoreline quality.	12/11/2015 12:45 PM
2	Further eliminate invasive specie vegetation. Increase water flow to help move muck and sediment out of flowage as much as possible. Dredge beginning upstream and then downstream.	12/10/2015 4:34 PM
3	maintain the lake as is being done by the District at present	11/25/2015 2:14 PM

### Q15 How familiar are you with Wisconsin's Public Trust Doctrine?

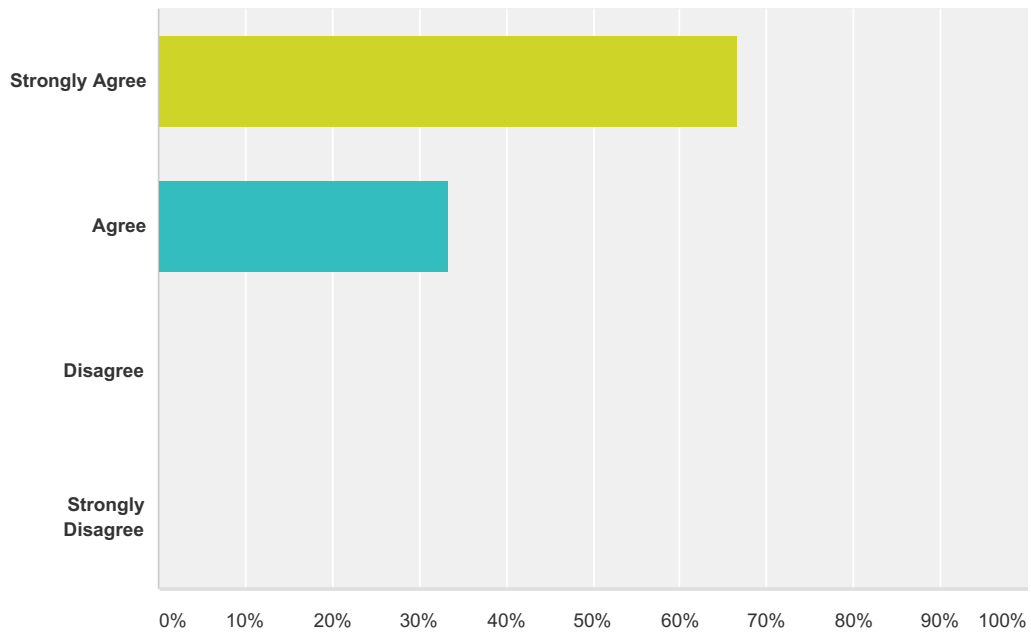
Answered: 3 Skipped: 0



Answer Choices	Responses
Very familiar	33.33% 1
Somewhat familiar	33.33% 1
I've heard of it	33.33% 1
Never heard of it	0.00% 0
<b>Total</b>	<b>3</b>

**Q16 How I recreate in and around the lake can affect other lake users.**

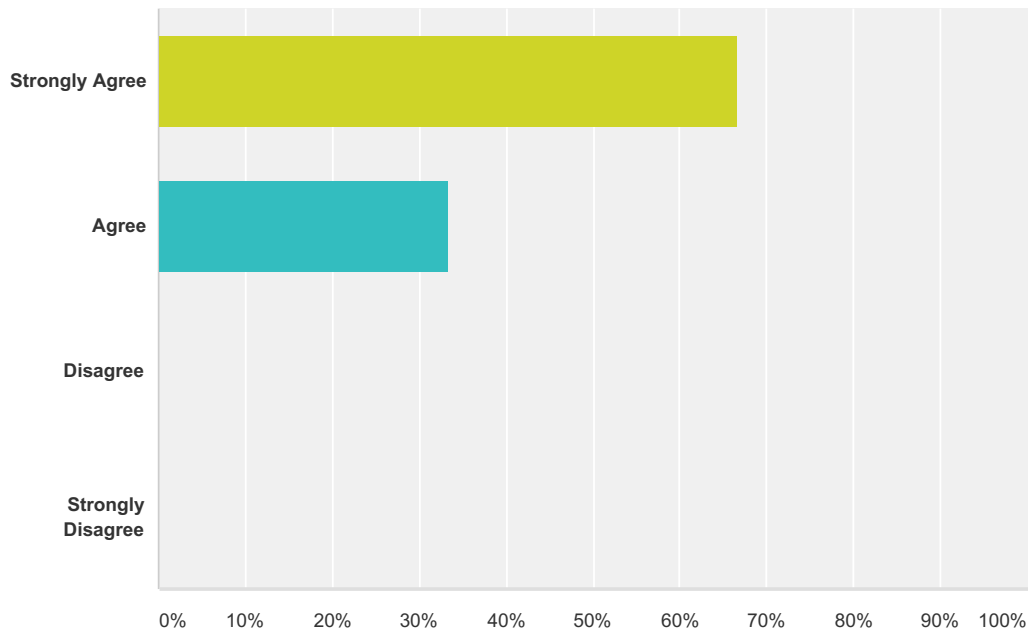
Answered: 3 Skipped: 0



Answer Choices	Responses
Strongly Agree	66.67% 2
Agree	33.33% 1
Disagree	0.00% 0
Strongly Disagree	0.00% 0
<b>Total</b>	<b>3</b>

### Q17 How I manage my land can affect other lake users.

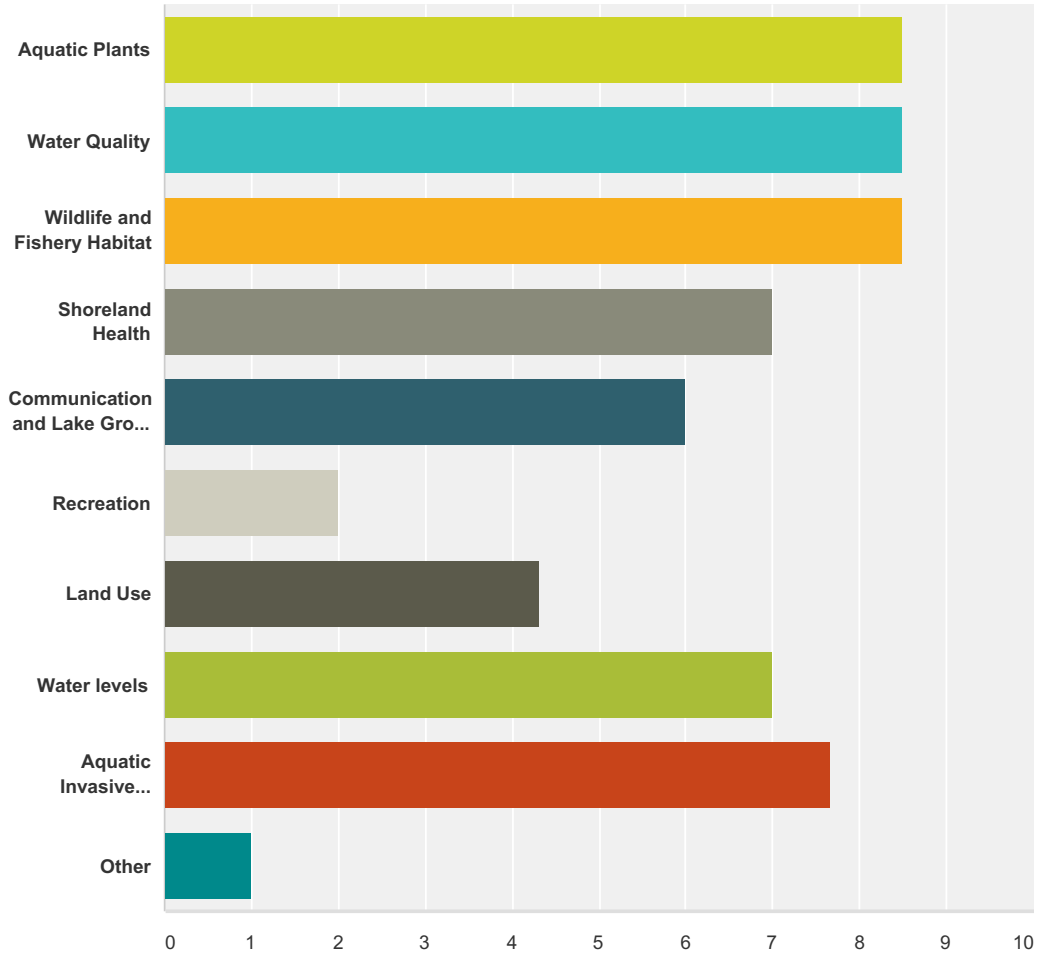
Answered: 3 Skipped: 0



Answer Choices	Responses	
Strongly Agree	66.67%	2
Agree	33.33%	1
Disagree	0.00%	0
Strongly Disagree	0.00%	0
<b>Total</b>		<b>3</b>

**Q18 Which of the following meeting topics, in your opinion, are the most important to talk about regarding the White River Flowage? (Please rank at least your top three.)**

Answered: 3 Skipped: 0



	1	2	3	4	5	6	7	8	9	10	Total	Score
Aquatic Plants	50.00% 1	0.00% 0	0.00% 0	50.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	2	8.50
Water Quality	0.00% 0	50.00% 1	50.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	2	8.50
Wildlife and Fishery Habitat	0.00% 0	50.00% 1	50.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	2	8.50
Shoreland Health	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1	7.00
Communication and Lake Group Support	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1	6.00
Recreation	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1	2.00

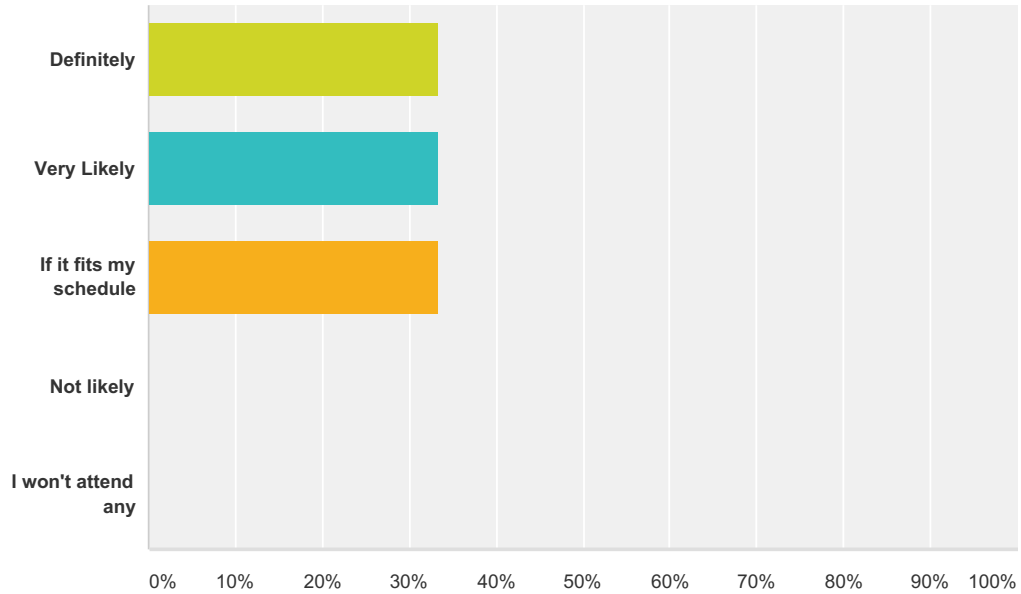


### White River Flowage Survey #1

Land Use	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>33.33%</b> 1	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>33.33%</b> 1	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>33.33%</b> 1	3	4.33
Water levels	<b>0.00%</b> 0	<b>50.00%</b> 1	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>50.00%</b> 1	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	2	7.00
Aquatic Invasive Species	<b>66.67%</b> 2	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>33.33%</b> 1	<b>0.00%</b> 0	<b>0.00%</b> 0	3	7.67
Other	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>0.00%</b> 0	<b>100.00%</b> 1	1	1.00

**Q19 Many of the decisions determining the final lake management plan will be made at the planning sessions. Sessions will typically take place monthly on weeknights or Friday afternoons. How likely is it that you will attend one or more of the planning sessions?**

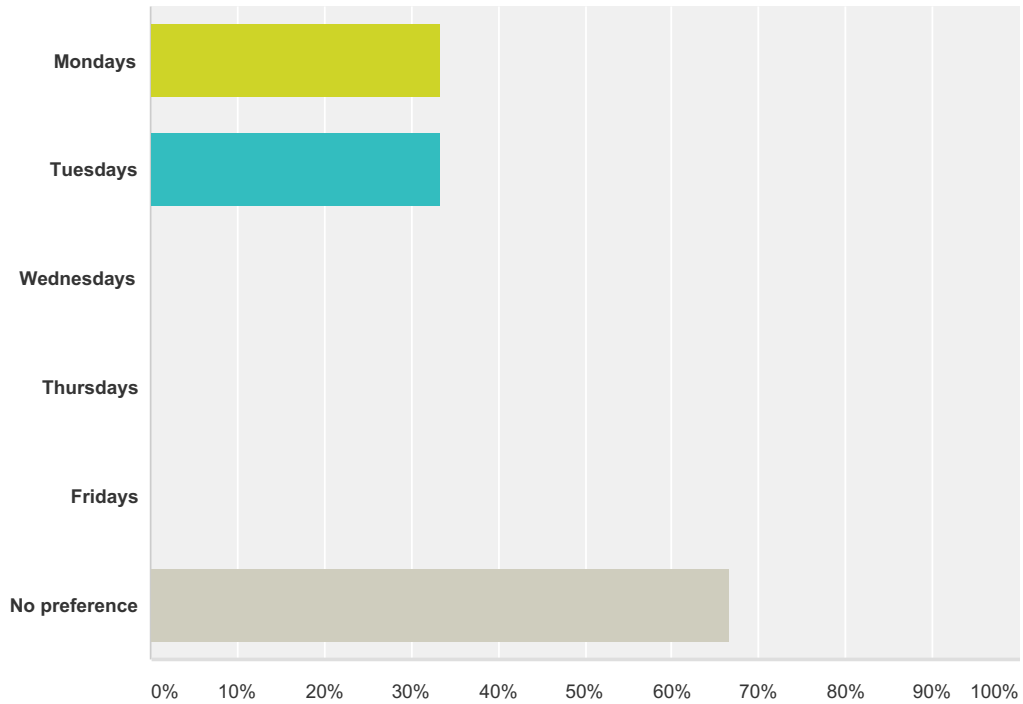
Answered: 3 Skipped: 0



Answer Choices	Responses
Definitely	33.33% 1
Very Likely	33.33% 1
If it fits my schedule	33.33% 1
Not likely	0.00% 0
I won't attend any	0.00% 0
<b>Total</b>	<b>3</b>

**Q20 If you will attend the planning sessions, which days do you prefer?  
(Previous experience indicates weekday evenings are best).**

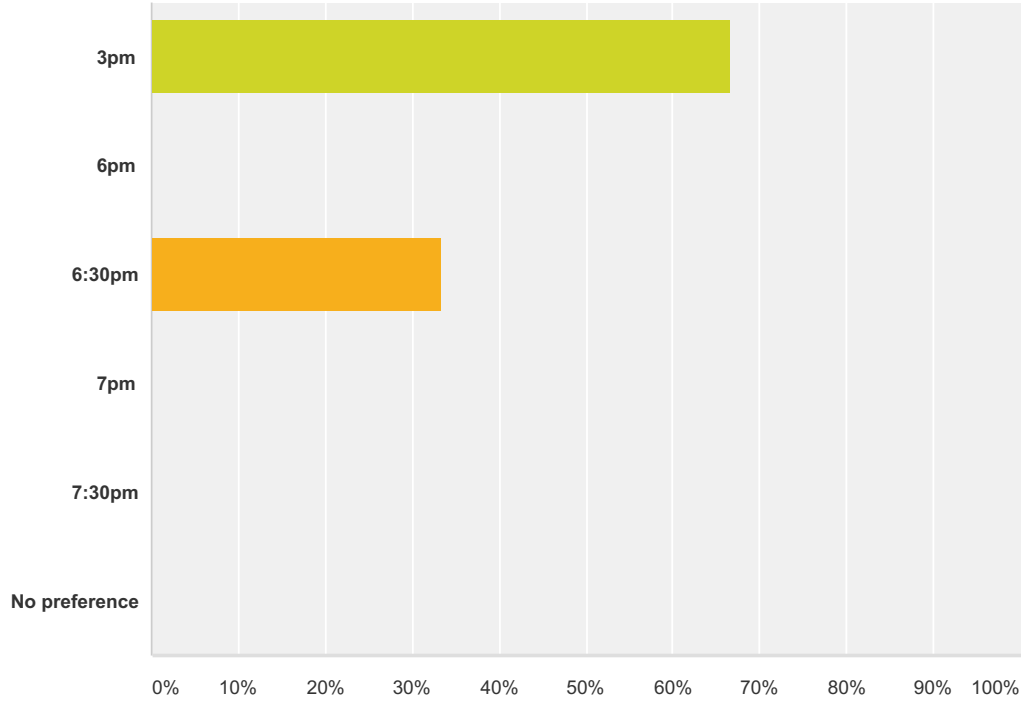
Answered: 3 Skipped: 0



Answer Choices	Responses	
Mondays	33.33%	1
Tuesdays	33.33%	1
Wednesdays	0.00%	0
Thursdays	0.00%	0
Fridays	0.00%	0
No preference	66.67%	2
<b>Total Respondents: 3</b>		

**Q21 Most sessions will last around 2 hours.  
If you will attend the planning sessions,  
which times do you prefer to start?**

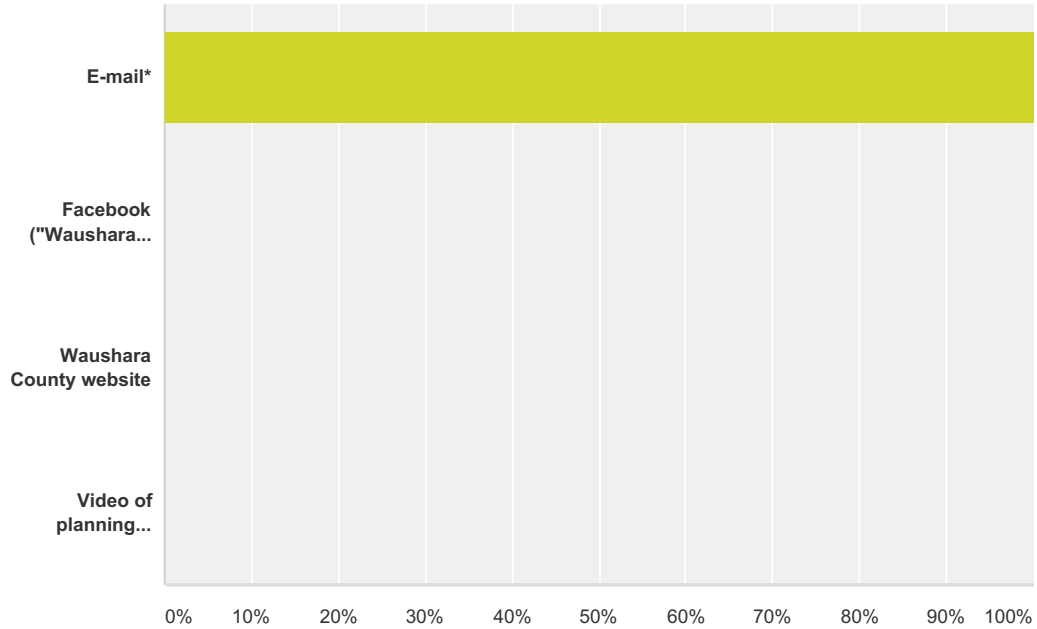
Answered: 3 Skipped: 0



Answer Choices	Responses	Count
3pm	66.67%	2
6pm	0.00%	0
6:30pm	33.33%	1
7pm	0.00%	0
7:30pm	0.00%	0
No preference	0.00%	0
<b>Total</b>		<b>3</b>

**Q22 How would you like to receive information about meetings (agendas, minutes), the planning process, and updates? (Select all that apply)**

Answered: 3 Skipped: 0



Answer Choices	Responses
E-mail*	100.00% 3
Facebook ("Waushara County Lakes Project")	0.00% 0
Waushara County website	0.00% 0
Video of planning meeting posted on the web	0.00% 0
<b>Total Respondents: 3</b>	

#	Other (please specify)	Date
	There are no responses.	

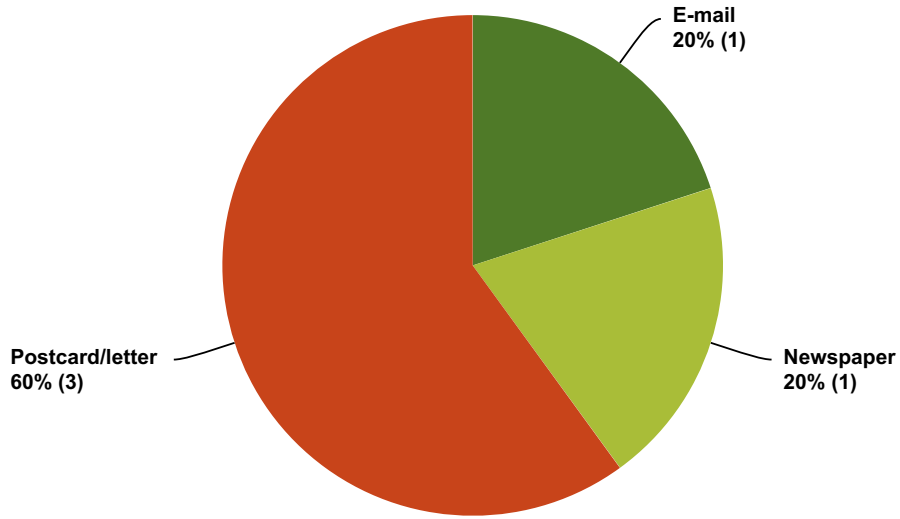
**Q1 Enter your Waushara County Lakes Survey ID. If you've forgotten your ID or haven't created one yet, follow the instructions below.**

Answered: 5 Skipped: 0

#	Responses	Date
1	████	1/21/2016 2:47 PM
2	████	1/19/2016 5:34 PM
3	████	1/16/2016 12:26 PM
4	████	1/15/2016 9:45 PM
5	████	1/13/2016 8:31 PM

**Q2 How did you hear about this survey?**

Answered: 5 Skipped: 0



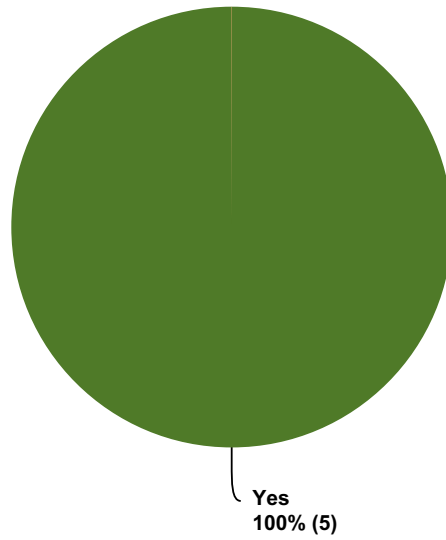
Answer Choices	Responses
E-mail	20% 1
Newspaper	20% 1
Postcard/letter	60% 3
Facebook	0% 0
Radio	0% 0
<b>Total</b>	<b>5</b>

#	Other (please specify)	Date
	There are no responses.	



### Q3 Were you aware of the importance of aquatic plants?

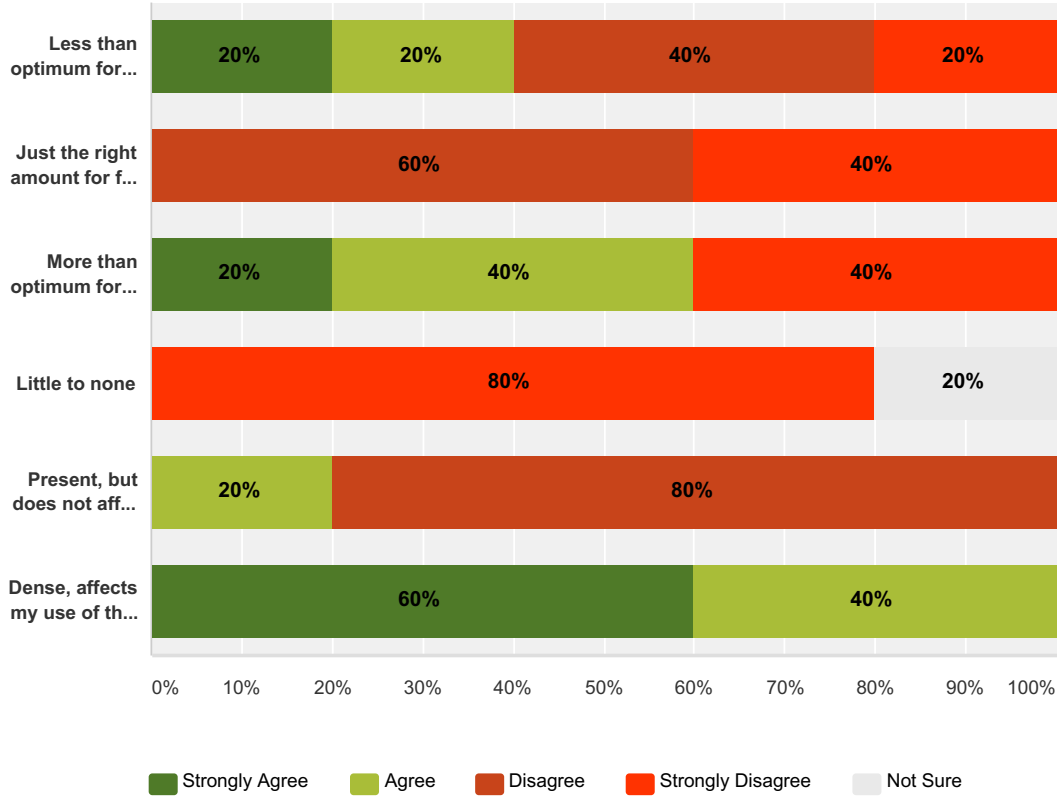
Answered: 5 Skipped: 0



Answer Choices	Responses
Yes	100% 5
No	0% 0
Unsure	0% 0
<b>Total</b>	<b>5</b>

### Q4 In your opinion, which statement best describes the amount of aquatic plant growth in the White River Flowage?

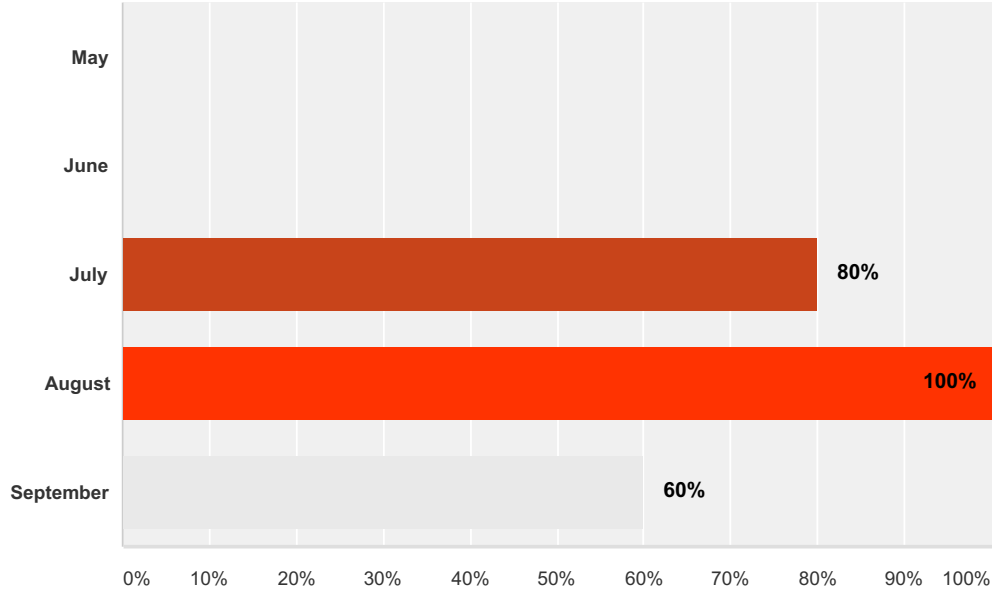
Answered: 5 Skipped: 0



	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure	Total
Less than optimum for fish and wildlife	20% 1	20% 1	40% 2	20% 1	0% 0	5
Just the right amount for fish and wildlife	0% 0	0% 0	60% 3	40% 2	0% 0	5
More than optimum for fish and wildlife	20% 1	40% 2	0% 0	40% 2	0% 0	5
Little to none	0% 0	0% 0	0% 0	80% 4	20% 1	5
Present, but does not affect my use of the lake	0% 0	20% 1	80% 4	0% 0	0% 0	5
Dense, affects my use of the lake	60% 3	40% 2	0% 0	0% 0	0% 0	5

**Q5 If you selected dense or choked, what month(s) do the problems occur? Check all that apply.**

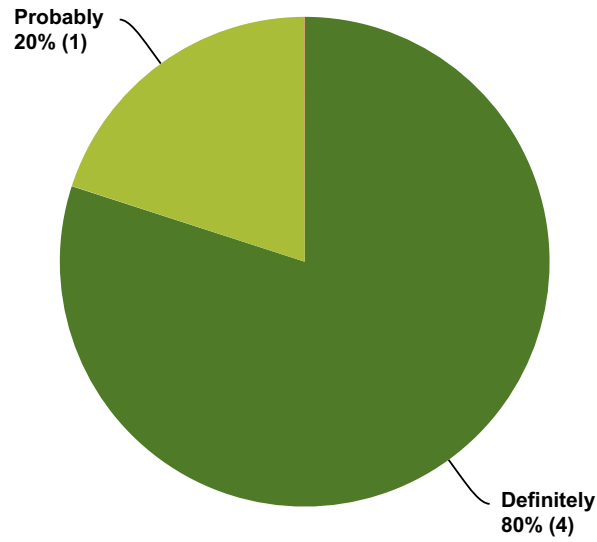
Answered: 5 Skipped: 0



Answer Choices	Responses	
May	0%	0
June	0%	0
July	80%	4
August	100%	5
September	60%	3
<b>Total Respondents: 5</b>		

**Q6 Do you believe aquatic plant control is needed on the White River Flowage?**

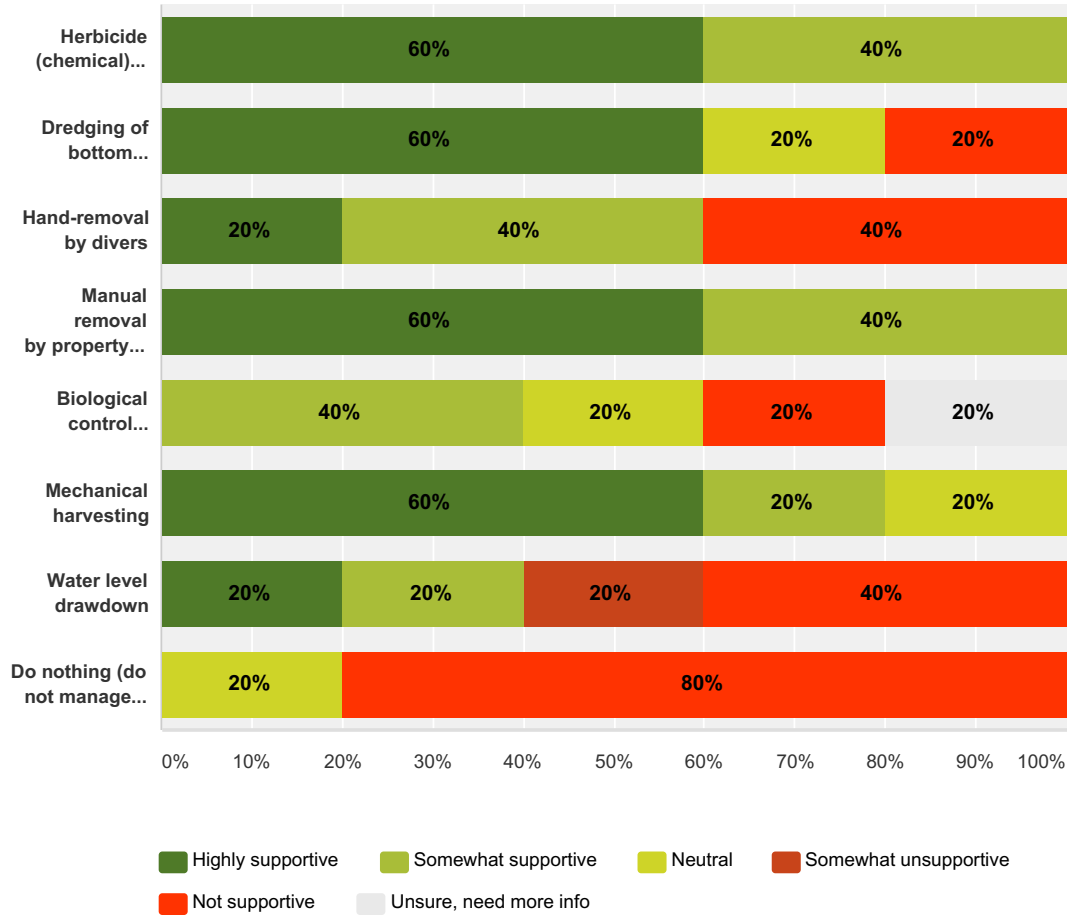
Answered: 5 Skipped: 0



Answer Choices	Responses
Definitely	80% 4
Probably	20% 1
Unsure	0% 0
Probably not	0% 0
Definitely not	0% 0
<b>Total</b>	<b>5</b>

### Q7 What is your level of support for the responsible use of the following techniques TO MANAGE AQUATIC PLANTS on the White River Flowage?

Answered: 5 Skipped: 0



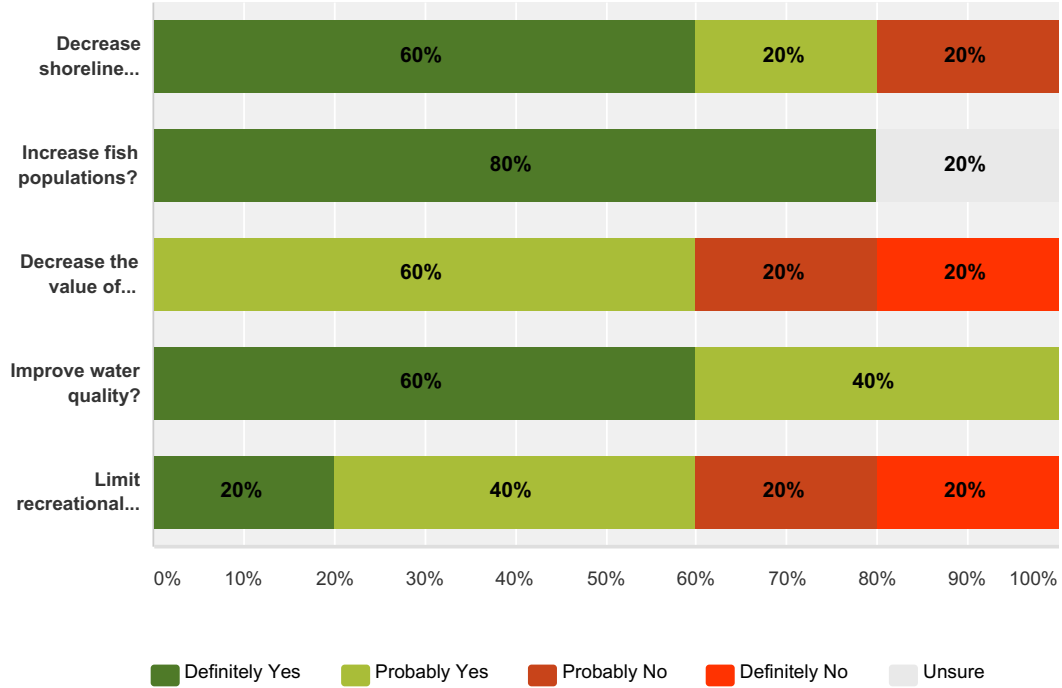
	Highly supportive	Somewhat supportive	Neutral	Somewhat unsupportive	Not supportive	Unsure, need more info	Total	Weighted Average
Herbicide (chemical) control	60% 3	40% 2	0% 0	0% 0	0% 0	0% 0	5	1.40
Dredging of bottom sediments	60% 3	0% 0	20% 1	0% 0	20% 1	0% 0	5	2.20
Hand-removal by divers	20% 1	40% 2	0% 0	0% 0	40% 2	0% 0	5	3.00
Manual removal by property owners	60% 3	40% 2	0% 0	0% 0	0% 0	0% 0	5	1.40
Biological control (milfoil weevil, loosestrife beetle, etc.)	0% 0	40% 2	20% 1	0% 0	20% 1	20% 1	5	2.40
Mechanical harvesting	60% 3	20% 1	20% 1	0% 0	0% 0	0% 0	5	1.60
Water level drawdown	20% 1	20% 1	0% 0	20% 1	40% 2	0% 0	5	3.40

## White River Flowage Survey #2 AP

Do nothing (do not manage plants)	<b>0%</b> 0	<b>0%</b> 0	<b>20%</b> 1	<b>0%</b> 0	<b>80%</b> 4	<b>0%</b> 0	5	4.60
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**Q8 In your opinion, does establishing or maintaining native vegetation IN THE WATER in the near-shore area...**

Answered: 5 Skipped: 0

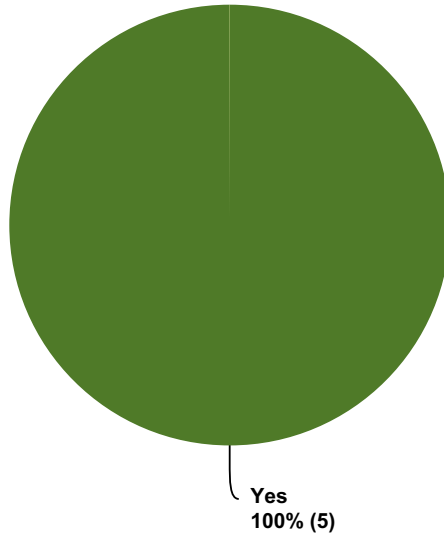


	Definitely Yes	Probably Yes	Probably No	Definitely No	Unsure	Total
Decrease shoreline erosion?	60% 3	20% 1	20% 1	0% 0	0% 0	5
Increase fish populations?	80% 4	0% 0	0% 0	0% 0	20% 1	5
Decrease the value of shoreline property?	0% 0	60% 3	20% 1	20% 1	0% 0	5
Improve water quality?	60% 3	40% 2	0% 0	0% 0	0% 0	5
Limit recreational enjoyment?	20% 1	40% 2	20% 1	20% 1	0% 0	5



### Q9 Have you ever heard of aquatic invasive species?

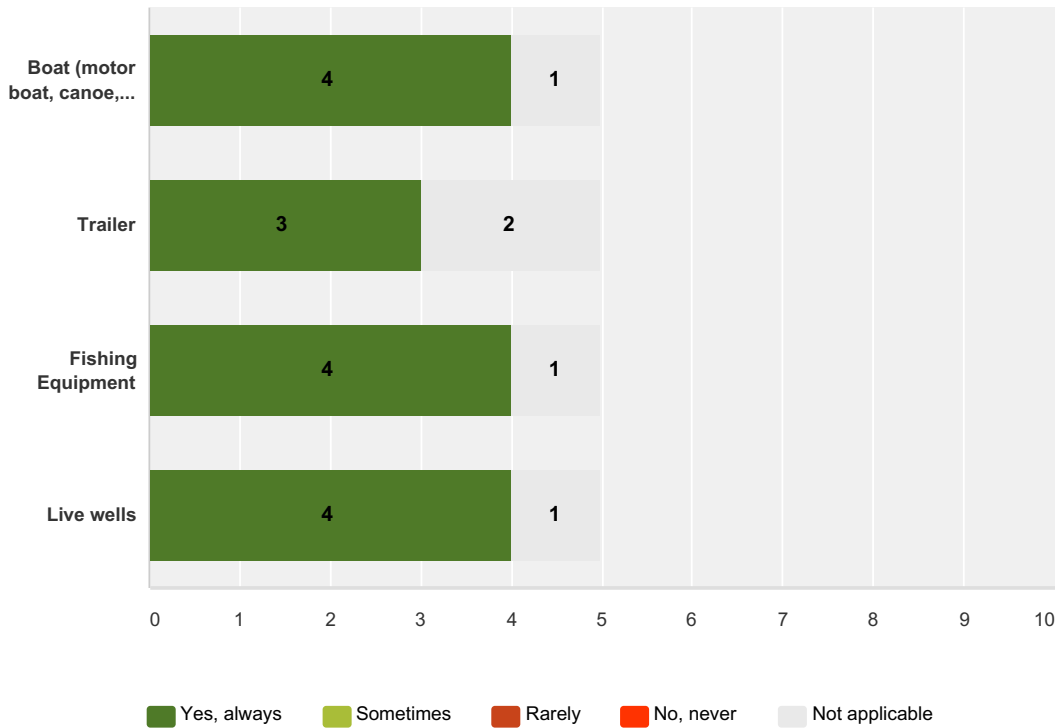
Answered: 5 Skipped: 0



Answer Choices	Responses
Yes	100% 5
No	0% 0
<b>Total</b>	<b>5</b>

**Q10 After you have been to another lake, do you clean your ... before bringing it back to the White River Flowage?**

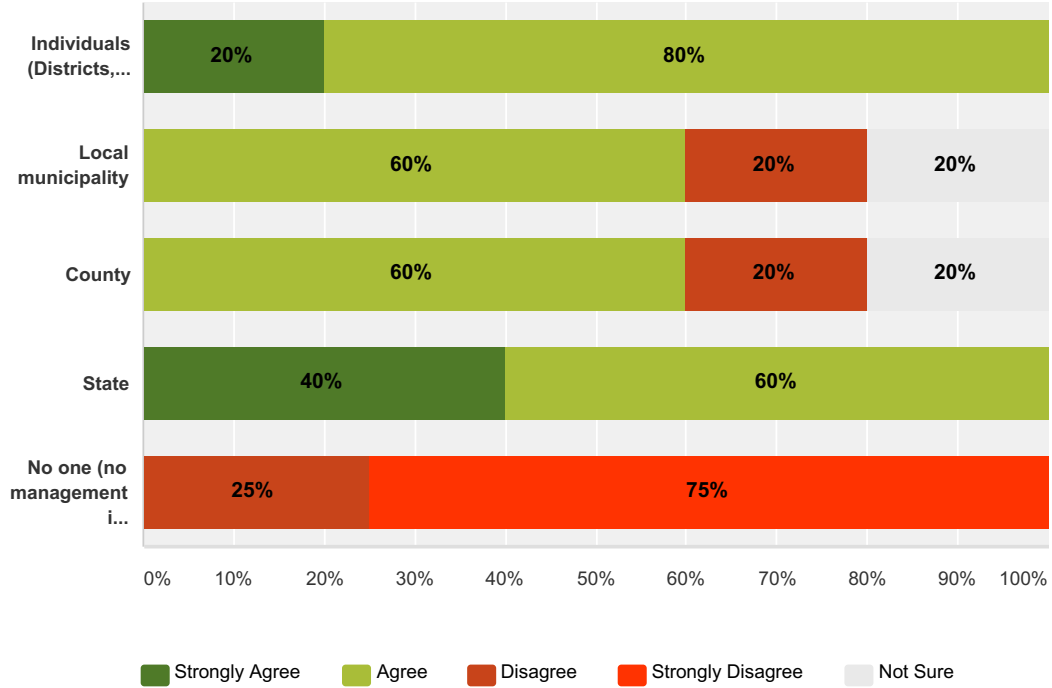
Answered: 5 Skipped: 0



	Yes, always	Sometimes	Rarely	No, never	Not applicable	Total Respondents
Boat (motor boat, canoe, kayak, etc.)	80% 4	0% 0	0% 0	0% 0	20% 1	5
Trailer	60% 3	0% 0	0% 0	0% 0	40% 2	5
Fishing Equipment	80% 4	0% 0	0% 0	0% 0	20% 1	5
Live wells	80% 4	0% 0	0% 0	0% 0	20% 1	5

**Q11 Who should pay for the cost of managing invasive aquatic plants? Check all that apply.**

Answered: 5 Skipped: 0

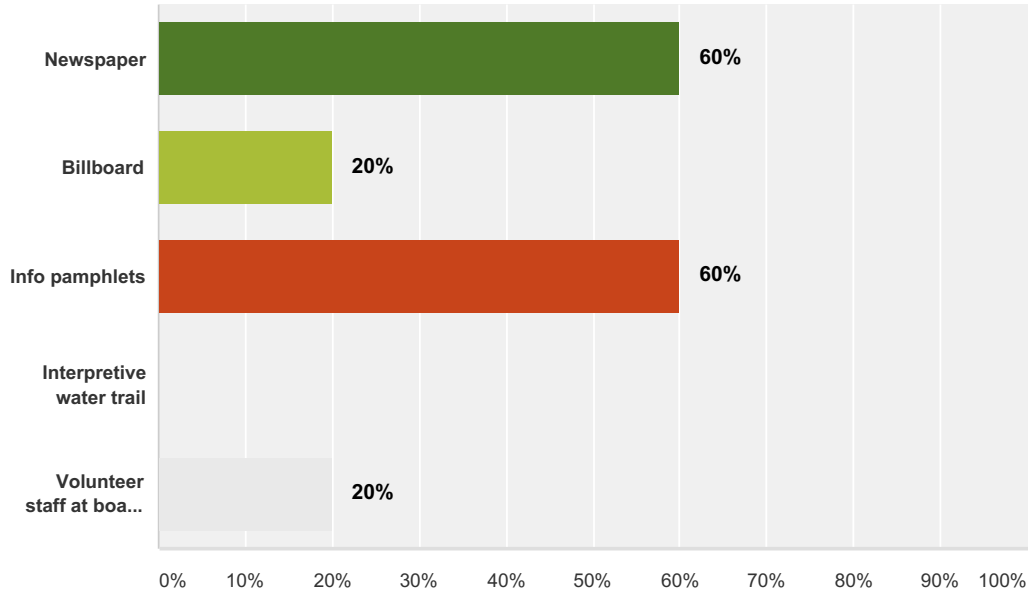


	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure	Total
Individuals (Districts, associations, lakefront property owners)	20% 1	80% 4	0% 0	0% 0	0% 0	5
Local municipality	0% 0	60% 3	20% 1	0% 0	20% 1	5
County	0% 0	60% 3	20% 1	0% 0	20% 1	5
State	40% 2	60% 3	0% 0	0% 0	0% 0	5
No one (no management is undertaken)	0% 0	0% 0	25% 1	75% 3	0% 0	4

#	Other (please specify)	Date
	There are no responses.	

### Q12 What is the most effective way to inform others about aquatic invasive species?

Answered: 5 Skipped: 0



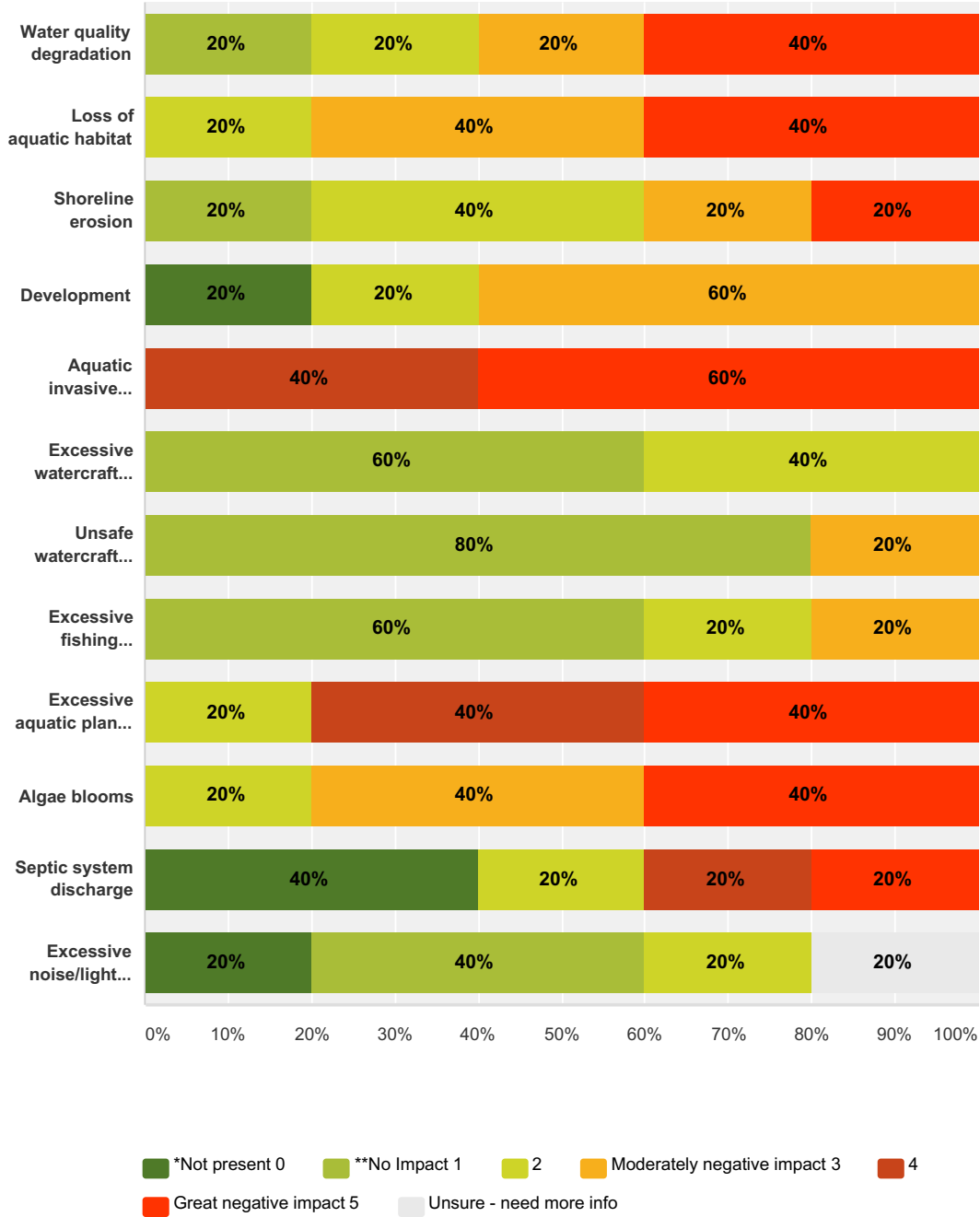
Answer Choices	Responses
Newspaper	60% 3
Billboard	20% 1
Info pamphlets	60% 3
Interpretive water trail	0% 0
Volunteer staff at boat launch	20% 1
<b>Total Respondents: 5</b>	

#	Other (please specify)	Date
1	Signs at public landings	1/15/2016 10:00 PM

**Q13 Below is a list of possible negative impacts commonly found in Wisconsin lakes. To what level do you believe each of the following factors may be impacting the White River Flowage? (Please rate 0 - 5)\***  
**Not Present means that you believe the issue does not exist on the White River Flowage.\*\*No Impact means that the issue may exist on the White River Flowage, but it is not negatively impacting the lake.**

Answered: 5 Skipped: 0

## White River Flowage Survey #2 AP



	*Not present 0	**No Impact 1	2	Moderately negative impact 3	4	Great negative impact 5	Unsure - need more info	Total	Weighted Average
Water quality degradation	0% 0	20% 1	20% 1	20% 1	0% 0	40% 2	0% 0	5	3.20
Loss of aquatic habitat	0% 0	0% 0	20% 1	40% 2	0% 0	40% 2	0% 0	5	3.60
Shoreline erosion	0% 0	20% 1	40% 2	20% 1	0% 0	20% 1	0% 0	5	2.60
Development	20% 1	0% 0	20% 1	60% 3	0% 0	0% 0	0% 0	5	2.20
Aquatic invasive species introduction	0% 0	0% 0	0% 0	0% 0	40% 2	60% 3	0% 0	5	4.60

## White River Flowage Survey #2 AP

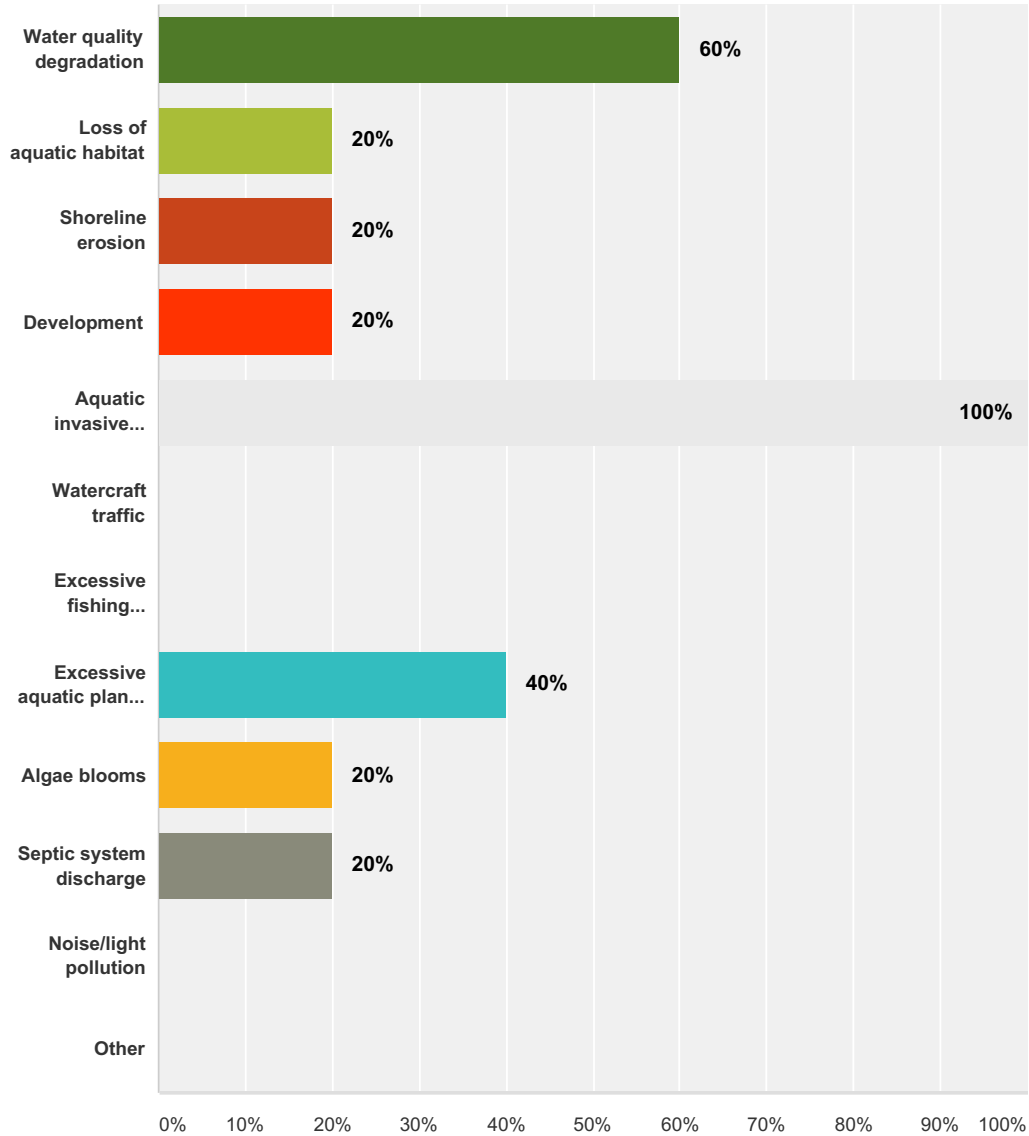
Excessive watercraft traffic	0% 0	60% 3	40% 2	0% 0	0% 0	0% 0	0% 0	5	1.40
Unsafe watercraft practices	0% 0	80% 4	0% 0	20% 1	0% 0	0% 0	0% 0	5	1.40
Excessive fishing pressure	0% 0	60% 3	20% 1	20% 1	0% 0	0% 0	0% 0	5	1.60
Excessive aquatic plant growth (excluding algae)	0% 0	0% 0	20% 1	0% 0	40% 2	40% 2	0% 0	5	4.00
Algae blooms	0% 0	0% 0	20% 1	40% 2	0% 0	40% 2	0% 0	5	3.60
Septic system discharge	40% 2	0% 0	20% 1	0% 0	20% 1	20% 1	0% 0	5	2.20
Excessive noise/light pollution	20% 1	40% 2	20% 1	0% 0	0% 0	0% 0	20% 1	5	0.80

#	Other (please specify)	Date
1	mucky sediment from upstream	1/19/2016 5:48 PM



**Q14 From the list below, please mark your top three concerns regarding the White River Flowage.**

Answered: 5 Skipped: 0



Answer Choices	Responses
Water quality degradation	60% 3
Loss of aquatic habitat	20% 1
Shoreline erosion	20% 1
Development	20% 1
Aquatic invasive species introduction	100% 5
Watercraft traffic	0% 0

## White River Flowage Survey #2 AP

Excessive fishing pressure	0%	0
Excessive aquatic plant growth (excluding algae)	40%	2
Algae blooms	20%	1
Septic system discharge	20%	1
Noise/light pollution	0%	0
Other	0%	0
<b>Total Respondents: 5</b>		

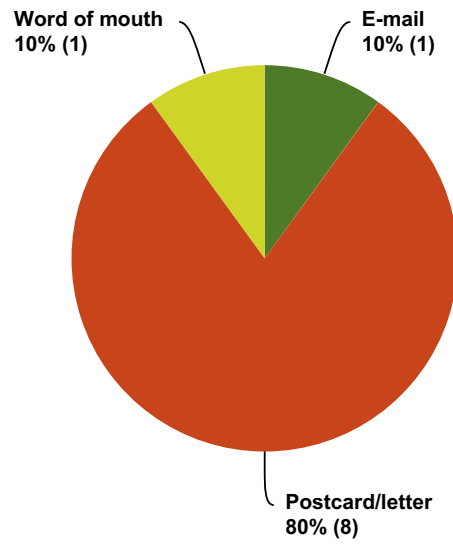
### Q1 What is your Waushara County Lakes Study ID?

Answered: 10 Skipped: 0

#	Responses	Date
1	████	2/24/2016 1:08 PM
2	████	2/23/2016 5:38 PM
3	██████	2/23/2016 1:02 PM
4	████	2/22/2016 10:47 AM
5	████	2/22/2016 10:38 AM
6	████	2/22/2016 9:43 AM
7	████	2/22/2016 9:34 AM
8	████	2/21/2016 12:04 PM
9	████	2/14/2016 8:40 AM
10	████	2/11/2016 2:20 PM

## Q2 How did you hear about this survey?

Answered: 10 Skipped: 0

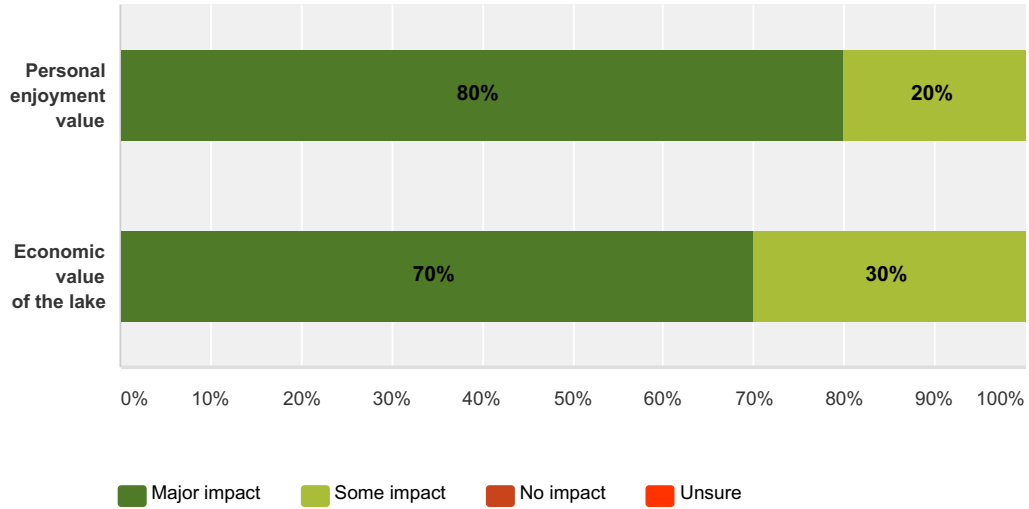


Answer Choices	Responses
E-mail	10% 1
Newspaper	0% 0
Postcard/letter	80% 8
Facebook	0% 0
Radio	0% 0
Word of mouth	10% 1
<b>Total</b>	<b>10</b>

#	Other (please specify)	Date
	There are no responses.	

### Q3 How much impact does the water quality of the White River Flowage have on the following?

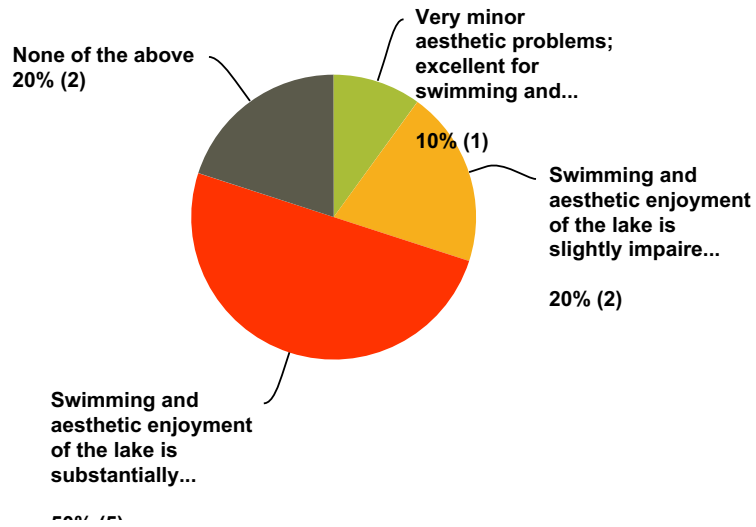
Answered: 10 Skipped: 0



	Major impact	Some impact	No impact	Unsure	Total
Personal enjoyment value	80% 8	20% 2	0% 0	0% 0	10
Economic value of the lake	70% 7	30% 3	0% 0	0% 0	10

### Q4 Which statement best describes water clarity during the times you spend most on the lake?

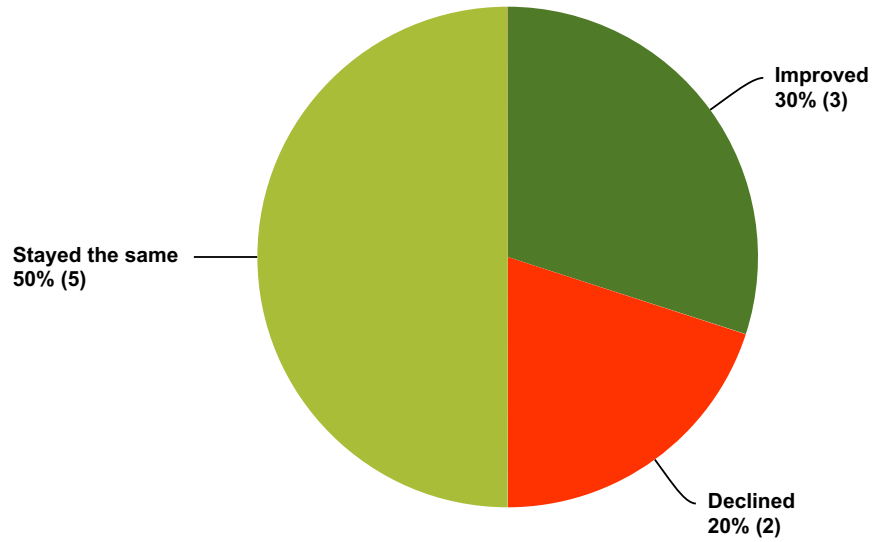
Answered: 10 Skipped: 0



Answer Choices	Responses
Beautiful, could not be any nicer	0% 0
Very minor aesthetic problems; excellent for swimming and boating enjoyment	10% 1
Swimming and aesthetic enjoyment of the lake is slightly impaired because of algae	20% 2
Swimming and aesthetic enjoyment of the lake is moderately reduced because of algae	0% 0
Swimming and aesthetic enjoyment of the lake is substantially reduced because of algae	50% 5
None of the above	20% 2
Unsure	0% 0
<b>Total</b>	<b>10</b>

**Q5 During the time that you have lived on, visited, or recreated on the lake, how would you say the water quality has changed?**

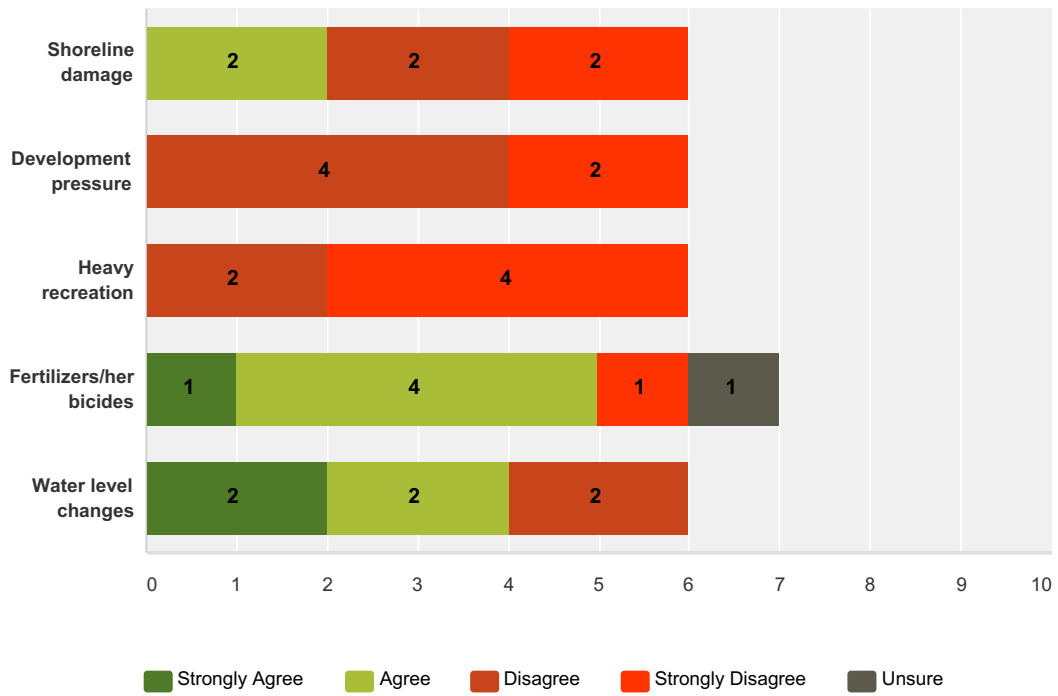
Answered: 10 Skipped: 0



Answer Choices	Responses	
Improved	30%	3
Declined	20%	2
Stayed the same	50%	5
Unsure	0%	0
<b>Total</b>		<b>10</b>

### Q6 If it has declined, in your opinion, what are the primary causes?

Answered: 7 Skipped: 3



	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure	Total Respondents
Shoreline damage	0% 0	33% 2	33% 2	33% 2	0% 0	6
Development pressure	0% 0	0% 0	67% 4	33% 2	0% 0	6
Heavy recreation	0% 0	0% 0	33% 2	67% 4	0% 0	6
Fertilizers/herbicides	14% 1	57% 4	0% 0	14% 1	14% 1	7
Water level changes	33% 2	33% 2	33% 2	0% 0	0% 0	6



### Q7 Do you use herbicides or pesticides (i.e. "weed and feed") on your land?

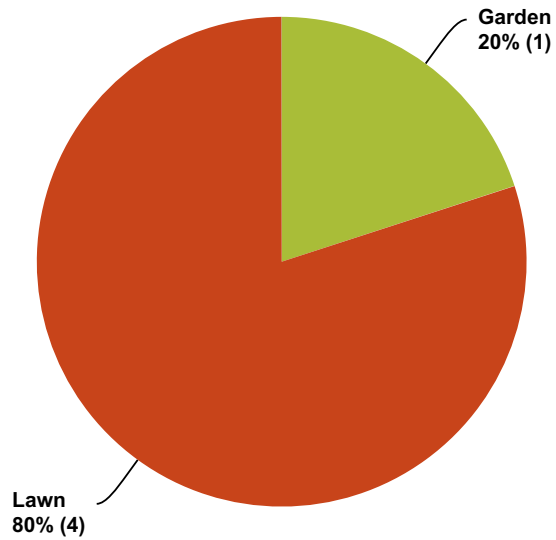
Answered: 10 Skipped: 0



Answer Choices	Responses	
Yes	50%	5
No	50%	5
<b>Total</b>		<b>10</b>

### Q8 Where do you apply herbicides and/or pesticides?

Answered: 5 Skipped: 5

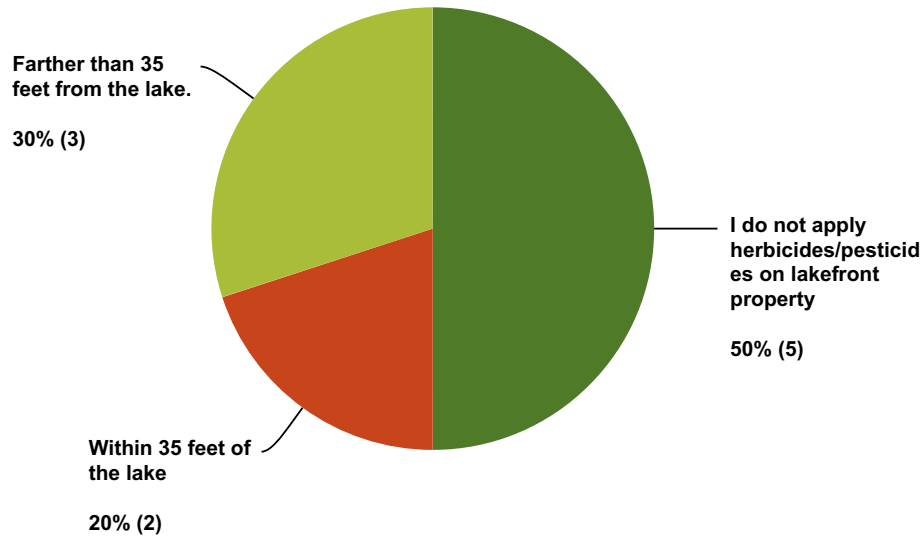


Answer Choices	Responses
Agricultural fields	0% 0
Garden	20% 1
Lawn	80% 4
<b>Total</b>	<b>5</b>

#	Other (please specify)	Date
1	Don't use any	2/24/2016 1:10 PM
2	tick killer	2/23/2016 1:04 PM
3	don't apply	2/11/2016 2:25 PM

**Q9 If you apply herbicides and/or pesticides on lakefront property, how close to the lake are they applied (select the closest distance to the lake where herbicides/pesticides are applied)?**

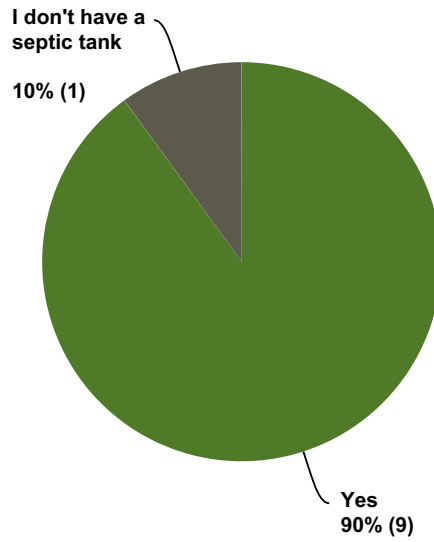
Answered: 10 Skipped: 0



Answer Choices	Responses	
I do not apply herbicides/pesticides on lakefront property	50%	5
Up to the lake	0%	0
Within 35 feet of the lake	20%	2
Farther than 35 feet from the lake.	30%	3
<b>Total</b>		<b>10</b>

### Q10 Do you have your septic tank pumped at least every 3 years?

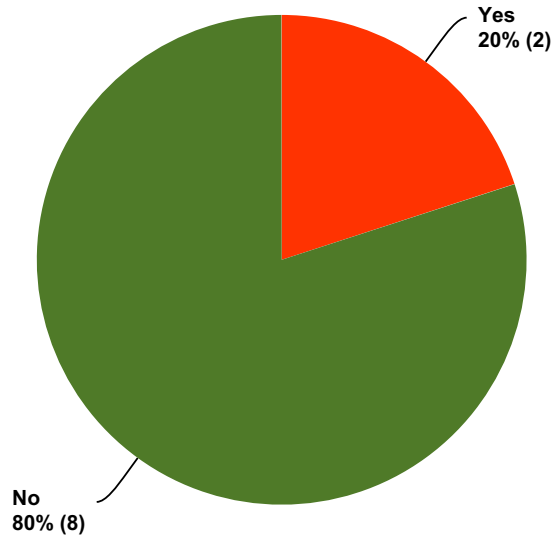
Answered: 10 Skipped: 0



Answer Choices	Responses	
Yes	90%	9
No	0%	0
I don't have a septic tank	10%	1
<b>Total</b>		<b>10</b>

### Q11 Do you use fertilizer on your land?

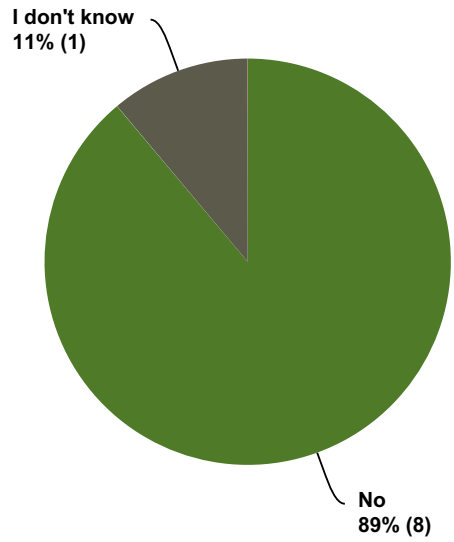
Answered: 10 Skipped: 0



Answer Choices	Responses	
Yes	20%	2
No	80%	8
<b>Total</b>		<b>10</b>

### Q12 Do you use fertilizer which contains phosphorus?

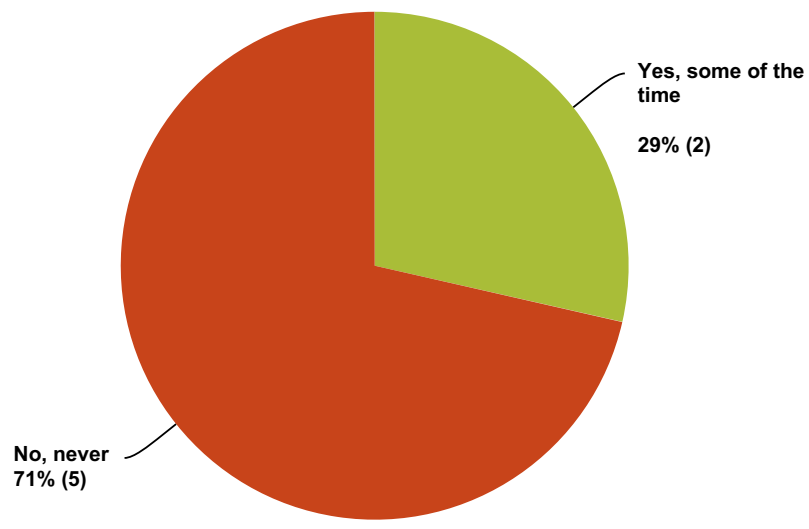
Answered: 9 Skipped: 1



Answer Choices	Responses	
Yes	0%	0
No	89%	8
I don't know	11%	1
<b>Total</b>		<b>9</b>

### Q13 Do you have your soil tested before applying fertilizer?

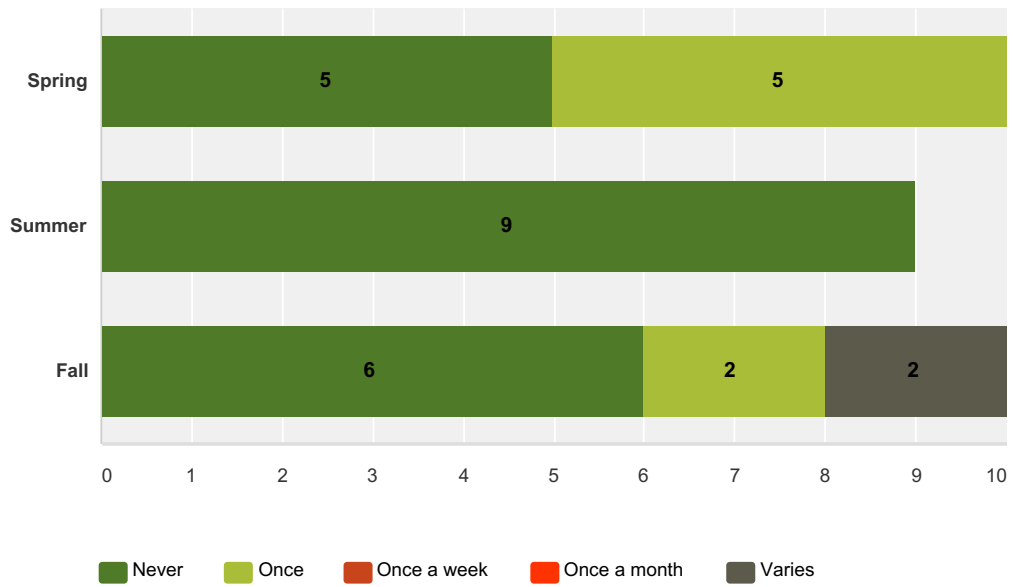
Answered: 7 Skipped: 3



Answer Choices	Responses
Yes, all of the time	0% 0
Yes, some of the time	29% 2
No, never	71% 5
<b>Total</b>	<b>7</b>

### Q14 In a typical year, how often do you apply herbicides and/or pesticides?

Answered: 10 Skipped: 0

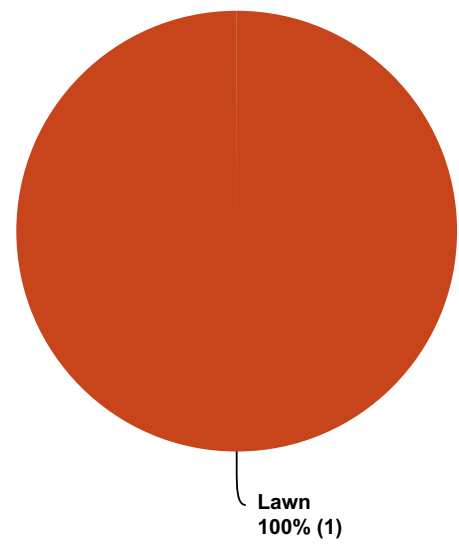


	Never	Once	Once a week	Once a month	Varies	Total Respondents
Spring	50% 5	50% 5	0% 0	0% 0	0% 0	10
Summer	100% 9	0% 0	0% 0	0% 0	0% 0	9
Fall	60% 6	20% 2	0% 0	0% 0	20% 2	10



### Q15 Where do you apply fertilizer?

Answered: 1 Skipped: 9

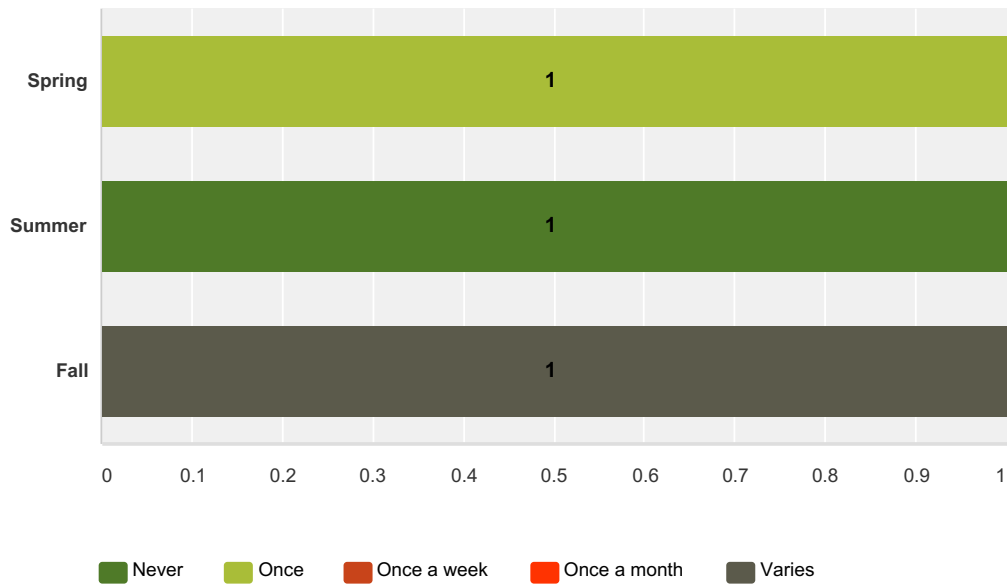


Answer Choices	Responses
Agricultural fields	0% 0
Garden	0% 0
Lawn	100% 1
<b>Total</b>	<b>1</b>

#	Other (please specify)	Date
	There are no responses.	

### Q16 In a typical year, how often do you apply fertilizer?

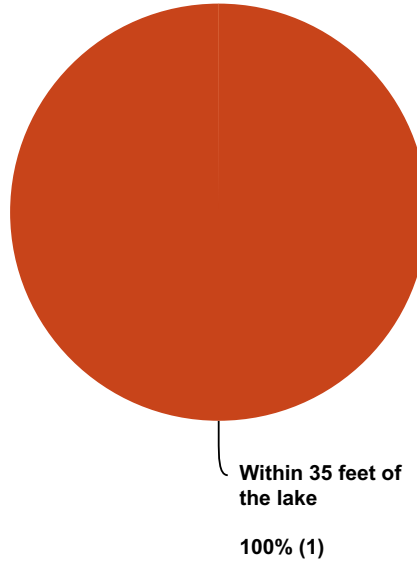
Answered: 1 Skipped: 9



	Never	Once	Once a week	Once a month	Varies	Total Respondents
Spring	0% 0	100% 1	0% 0	0% 0	0% 0	1
Summer	100% 1	0% 0	0% 0	0% 0	0% 0	1
Fall	0% 0	0% 0	0% 0	0% 0	100% 1	1

**Q17 If you apply fertilizer on lakefront property, how close to the lake is it applied (select the closest distance to the lake where fertilizer is applied)?**

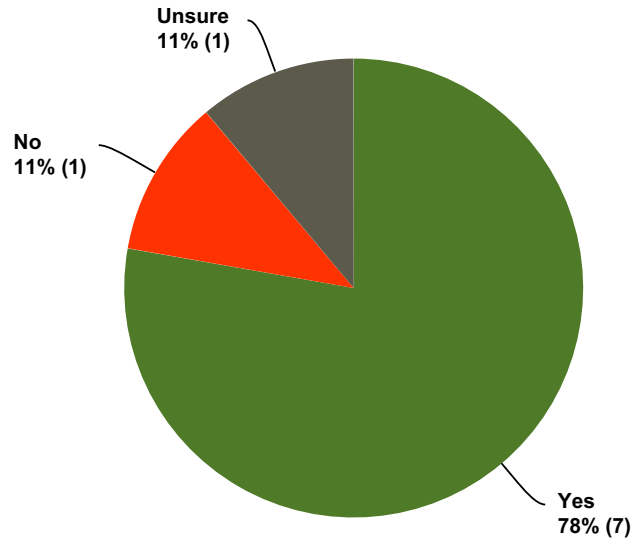
Answered: 1 Skipped: 9



Answer Choices	Responses
I do not apply fertilizer on lakefront property	0% 0
Up to the lake	0% 0
Within 35 feet of the lake	100% 1
Farther than 35 feet from the lake.	0% 0
<b>Total</b>	<b>1</b>

**Q18 Before reading the previous paragraph, did you know about the effects of phosphorus on lakes?**

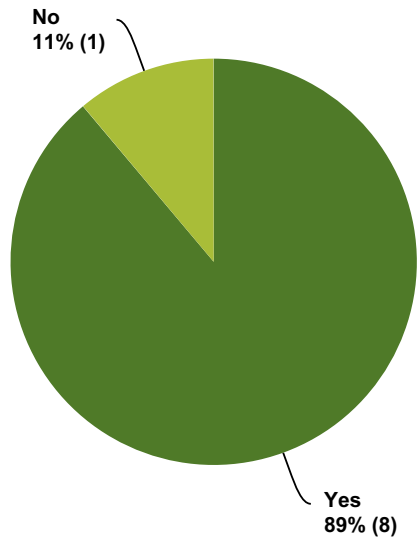
Answered: 9 Skipped: 1



Answer Choices	Responses	
Yes	78%	7
No	11%	1
Unsure	11%	1
<b>Total</b>		<b>9</b>

### Q19 Do you own shoreland property?

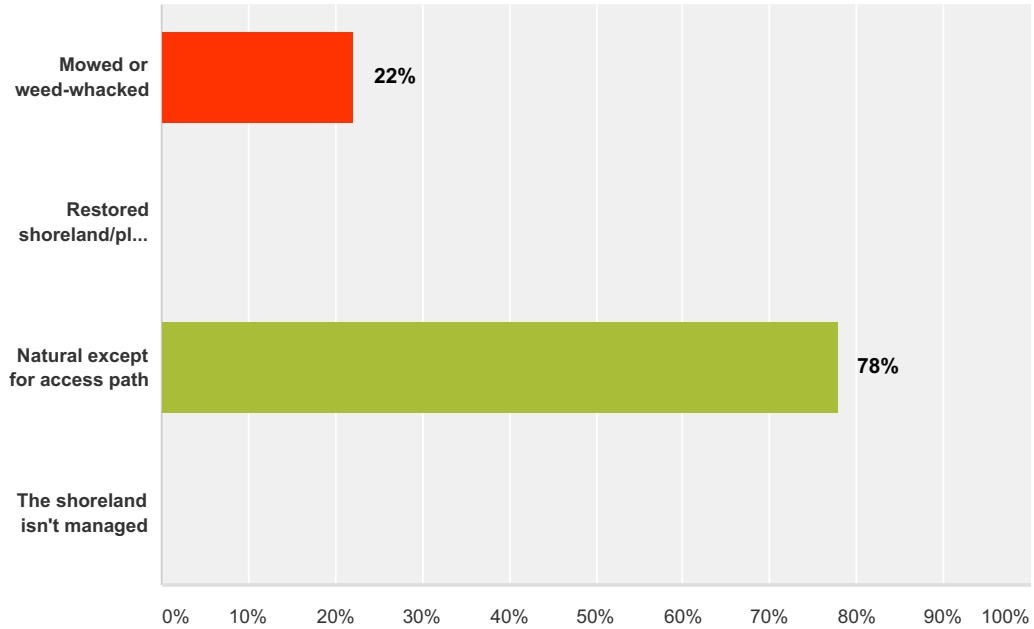
Answered: 9 Skipped: 1



Answer Choices	Responses	
Yes	89%	8
No	11%	1
<b>Total</b>		<b>9</b>

### Q20 How do you currently manage the majority of your property within 35 feet of the lake?

Answered: 9 Skipped: 1

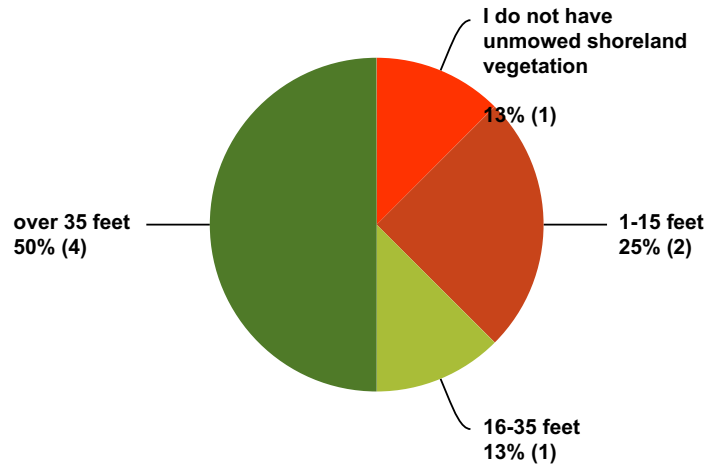


Answer Choices	Responses
Mowed or weed-whacked	22% 2
Restored shoreland/planted	0% 0
Natural except for access path	78% 7
The shoreland isn't managed	0% 0
<b>Total Respondents: 9</b>	

#	Other (please specify)	Date
	There are no responses.	

**Q21 If you have unmowed shoreland vegetation, how far inland from the water's edge does it extend?**

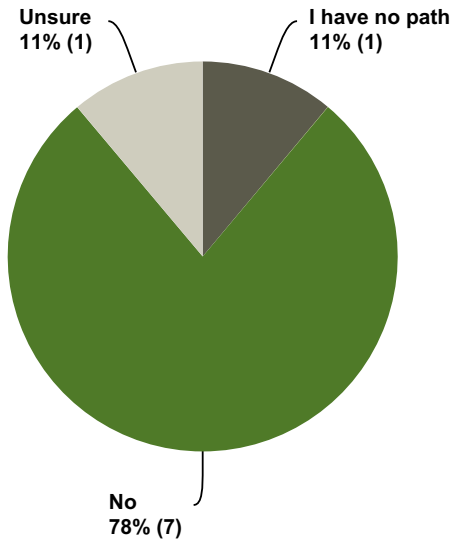
Answered: 8 Skipped: 2



Answer Choices	Responses
I do not have unmowed shoreland vegetation	13% 1
1-15 feet	25% 2
16-35 feet	13% 1
over 35 feet	50% 4
<b>Total</b>	<b>8</b>

### Q22 Have you observed erosion from your path to the lake?

Answered: 9 Skipped: 1

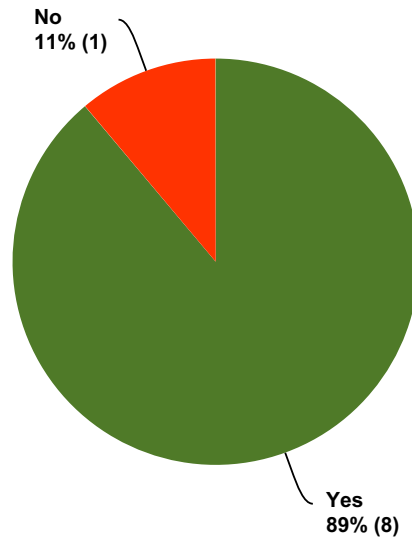


Answer Choices	Responses	
I have no path	11%	1
Yes	0%	0
No	78%	7
Unsure	11%	1
<b>Total</b>		<b>9</b>



### Q23 Did you understand the importance of shoreland vegetation before reading this?

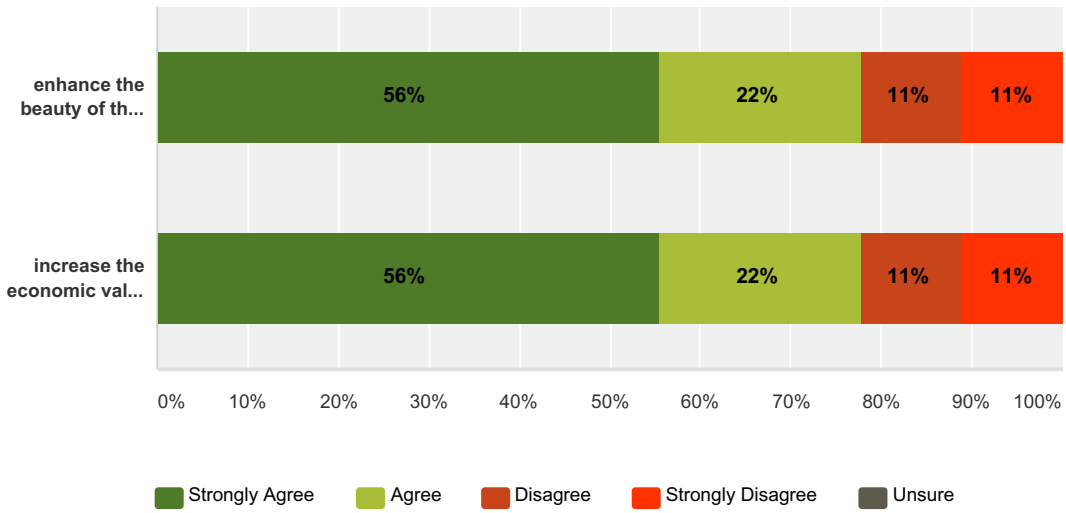
Answered: 9 Skipped: 1



Answer Choices	Responses	
Yes	89%	8
No	11%	1
Unsure	0%	0
<b>Total</b>		<b>9</b>

### Q24 In your opinion, does shoreland vegetation...

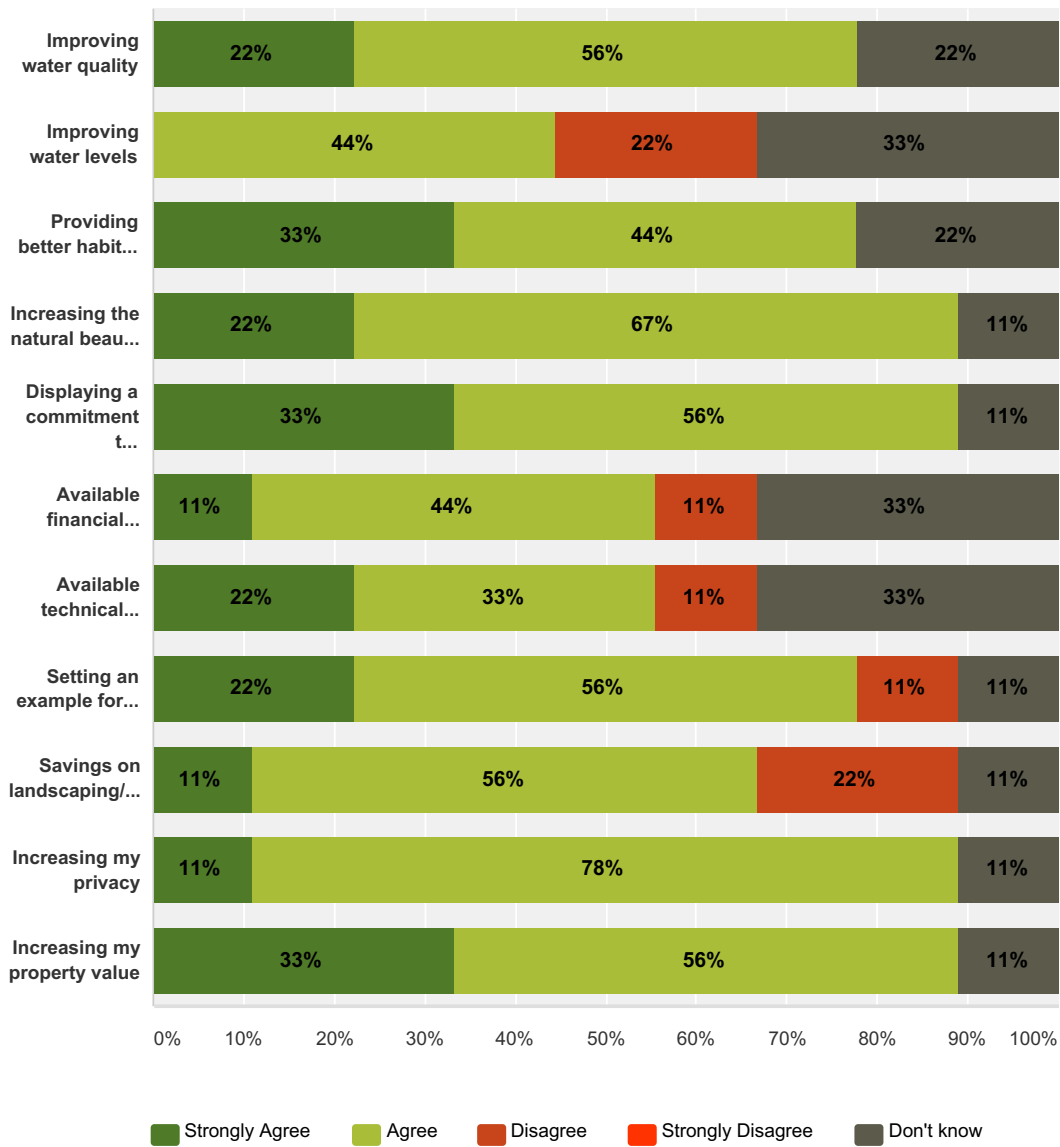
Answered: 9 Skipped: 1



	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure	Total
enhance the beauty of the property?	56% 5	22% 2	11% 1	11% 1	0% 0	9
increase the economic value of the property?	56% 5	22% 2	11% 1	11% 1	0% 0	9

### Q25 What might motivate you to change how you manage your land?

Answered: 9 Skipped: 1



	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know	Total
Improving water quality	22% 2	56% 5	0% 0	0% 0	22% 2	9
Improving water levels	0% 0	44% 4	22% 2	0% 0	33% 3	9
Providing better habitat for fish and wildlife	33% 3	44% 4	0% 0	0% 0	22% 2	9
Increasing the natural beauty of my property	22% 2	67% 6	0% 0	0% 0	11% 1	9
Displaying a commitment to the environment	33% 3	56% 5	0% 0	0% 0	11% 1	9

## White River Flowage Survey #3 Water Quality

Available financial assistance	<b>11%</b> 1	<b>44%</b> 4	<b>11%</b> 1	<b>0%</b> 0	<b>33%</b> 3	9
Available technical assistance	<b>22%</b> 2	<b>33%</b> 3	<b>11%</b> 1	<b>0%</b> 0	<b>33%</b> 3	9
Setting an example for community members	<b>22%</b> 2	<b>56%</b> 5	<b>11%</b> 1	<b>0%</b> 0	<b>11%</b> 1	9
Savings on landscaping/maintenance costs	<b>11%</b> 1	<b>56%</b> 5	<b>22%</b> 2	<b>0%</b> 0	<b>11%</b> 1	9
Increasing my privacy	<b>11%</b> 1	<b>78%</b> 7	<b>0%</b> 0	<b>0%</b> 0	<b>11%</b> 1	9
Increasing my property value	<b>33%</b> 3	<b>56%</b> 5	<b>0%</b> 0	<b>0%</b> 0	<b>11%</b> 1	9

#	Other (please specify)	Date
1	I would say about 95% of our shoreline is natural; we are already doing what we should be doing.	2/24/2016 1:16 PM
2	What I would like to get more info on and implement is a plan for my shoreline improvement. I wanted to see the water but still want to keep my shoreline stable. I took out some large bushes and now have grasses, however, would like to build up shoreline for less erosion.	2/22/2016 10:43 AM
3	The up river portion of the White River Flowage, where we live is extremely degraded due to sedimentation resulting in loss of water depth. This has resulted in the growth of wild rice and aquatic weeds. None of the efforts at weed cutting, and herbicides has been a benefit.	2/22/2016 9:53 AM

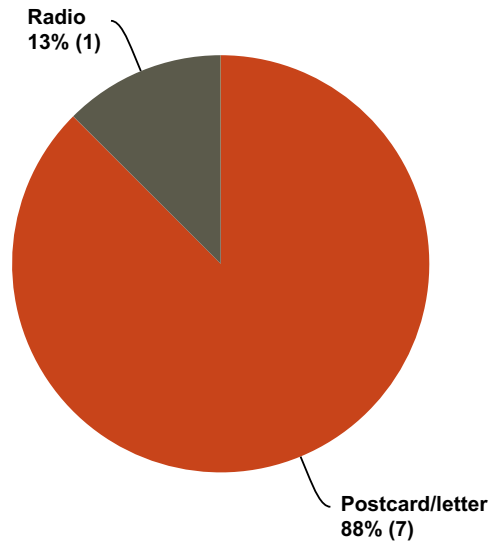
**Q1 Enter your Waushara County Lakes Survey ID. Your survey cannot be processed without this information. If you've forgotten your ID or haven't created one yet, follow the instructions below.**

Answered: 8 Skipped: 0

#	Responses	Date
1	████	3/21/2016 11:07 AM
2	████	3/20/2016 4:43 PM
3	████	3/20/2016 12:43 AM
4	████	3/19/2016 2:27 PM
5	████	3/10/2016 2:15 PM
6	████	3/10/2016 2:14 PM
7	████	3/9/2016 5:12 PM
8	████	3/5/2016 2:27 PM

## Q2 How did you hear about this survey?

Answered: 8 Skipped: 0

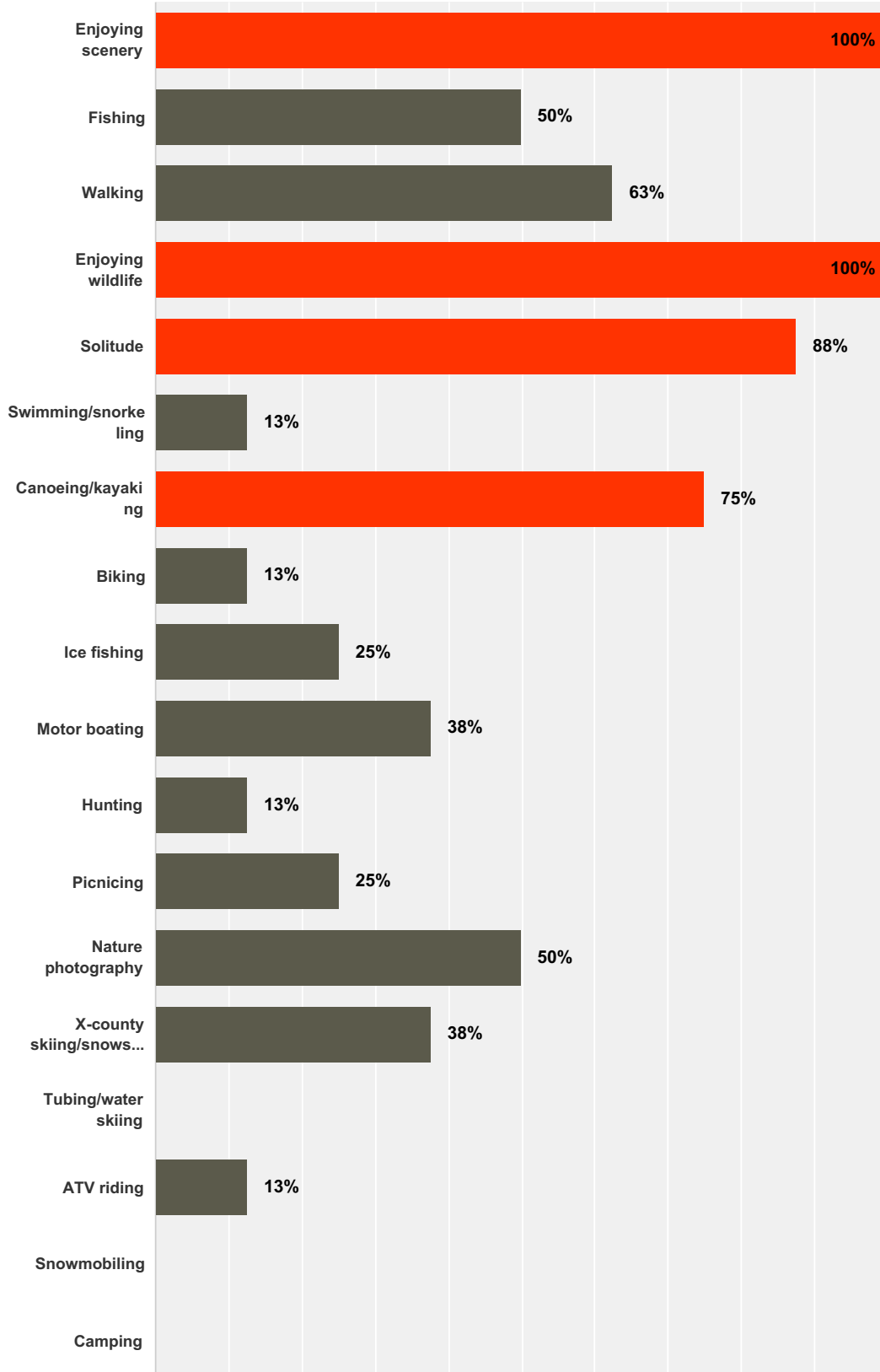


Answer Choices	Responses
E-mail	0% 0
Newspaper	0% 0
Postcard/letter	88% 7
Facebook	0% 0
Radio	13% 1
<b>Total</b>	<b>8</b>

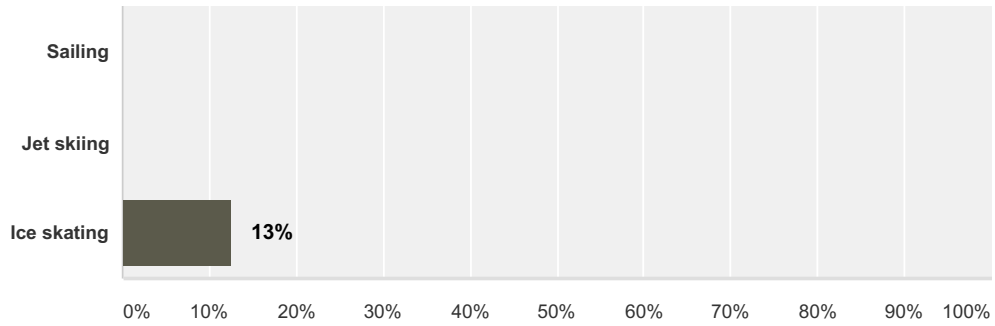
#	Other (please specify)	Date
	There are no responses.	

### Q3 What recreational activities do you partake in on the White River Flowage (check all that apply)?

Answered: 8 Skipped: 0



### White River Flowage Survey #4 Fish & Rec



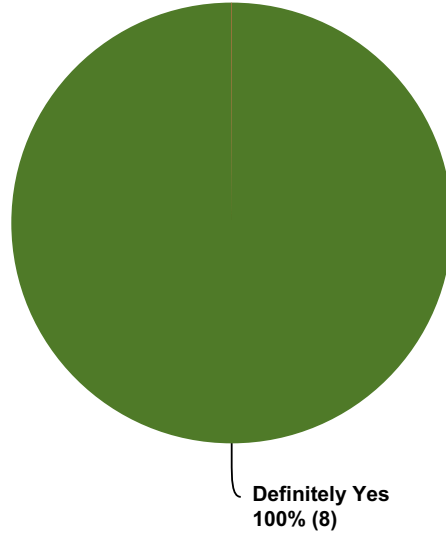
Answer Choices	Responses	
Enjoying scenery	100%	8
Fishing	50%	4
Walking	63%	5
Enjoying wildlife	100%	8
Solitude	88%	7
Swimming/snorkeling	13%	1
Canoeing/kayaking	75%	6
Biking	13%	1
Ice fishing	25%	2
Motor boating	38%	3
Hunting	13%	1
Picnicing	25%	2
Nature photography	50%	4
X-county skiing/snowshoeing	38%	3
Tubing/water skiing	0%	0
ATV riding	13%	1
Snowmobiling	0%	0
Camping	0%	0
Sailing	0%	0
Jet skiing	0%	0
Ice skating	13%	1
<b>Total Respondents: 8</b>		

#	Other (please specify)	Date
	There are no responses.	



**Q4 "No Wake" is allowed on the White River Flowage at any time. Do you like the current "No Wake" rules as they are?**

Answered: 8 Skipped: 0



Answer Choices	Responses	
Definitely Yes	100%	8
Yes, most of the time	0%	0
No, not most of the time	0%	0
Definitely No	0%	0
Unsure	0%	0
<b>Total</b>		<b>8</b>

**Q5 If you think the "No Wake" rules should be adjusted...in what way?**

Answered: 5 Skipped: 3

#	Responses	Date
1	NO!	3/21/2016 11:08 AM
2	NO	3/20/2016 4:47 PM
3	Leave them as is!!!	3/19/2016 2:31 PM
4	Leave as is.	3/10/2016 2:16 PM
5	Do Not Adjust the "No Wake" Keep it.	3/9/2016 5:13 PM

White River Flowage Survey #4 Fish & Rec

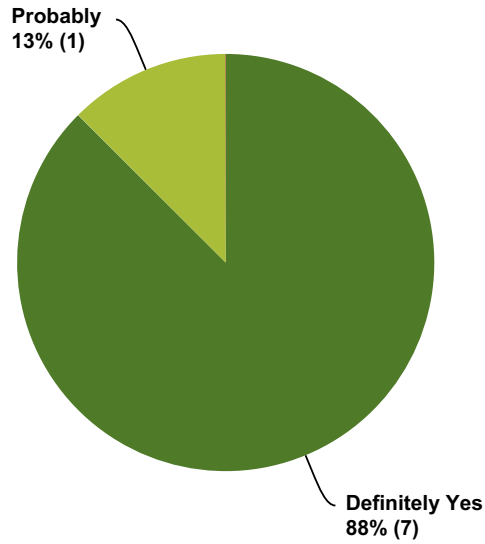
**Q6 What could be done to improve your recreation experience on the White River Flowage?**

Answered: 6 Skipped: 2

#	Responses	Date
1	Continued monitoring and mitigation of exotic species and improvement in water quality.	3/21/2016 11:08 AM
2	Increase the depth of the water as only the channel has much depth; it is not fully navigable. Also better algae and weed control.	3/20/2016 4:47 PM
3	Remove more of the weeds and deepen water level...	3/19/2016 2:31 PM
4	Improve fishing Restock program	3/10/2016 2:16 PM
5	Nothing	3/9/2016 5:13 PM
6	Need visitors to know the channel system on the flowage better. Also need a fish survey be conducted by the DNR to identify the fish population.	3/5/2016 2:32 PM

**Q7 Does a desire to provide better habitat for fish and wildlife motivate you to support (morally) efforts to improve the White River Flowage?**

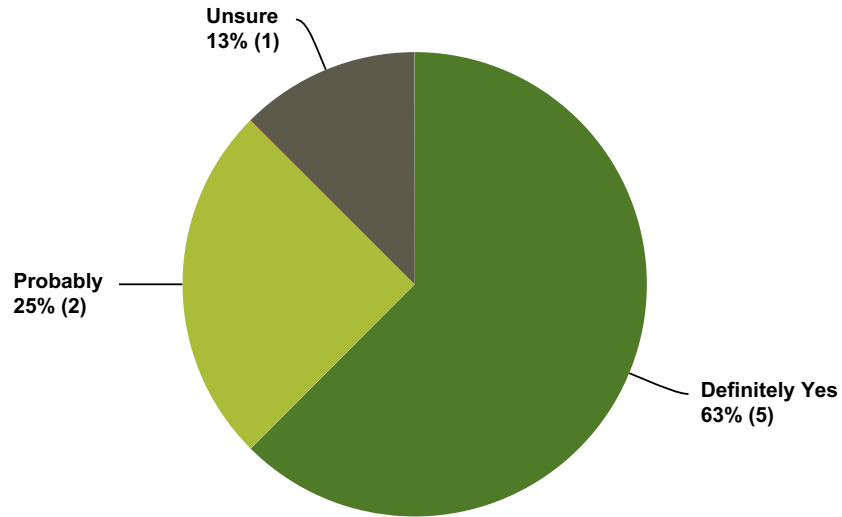
Answered: 8 Skipped: 0



Answer Choices	Responses	
Definitely Yes	88%	7
Probably	13%	1
Not Likely	0%	0
Definitely No	0%	0
Unsure	0%	0
<b>Total</b>		<b>8</b>

**Q8 Does a desire to provide better habitat for fish and wildlife motivate you to support (by direct action) efforts to improve the White River Flowage?**

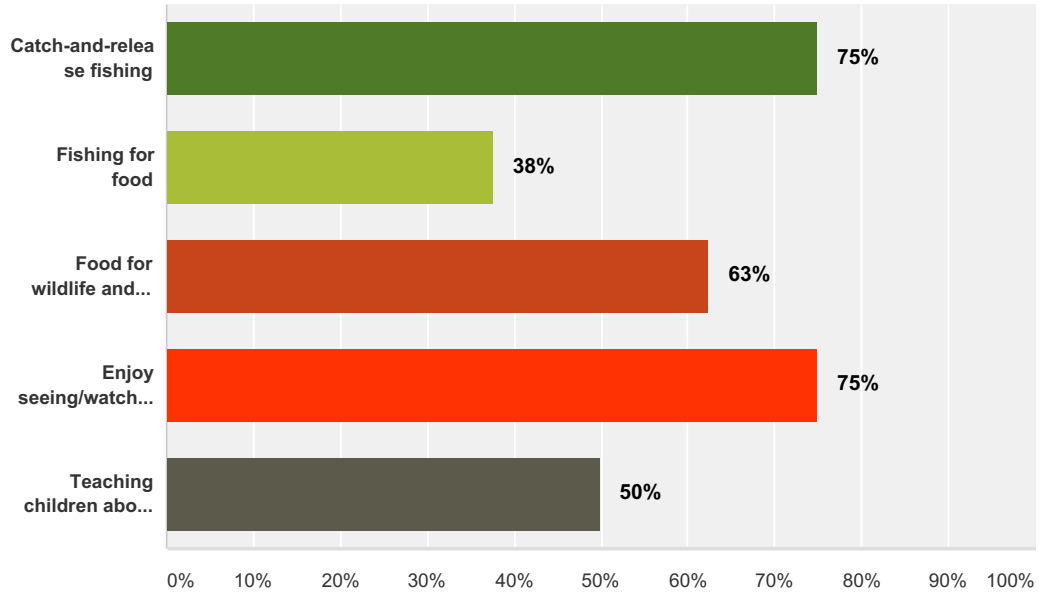
Answered: 8 Skipped: 0



Answer Choices	Responses
Definitely Yes	63% 5
Probably	25% 2
Not Likely	0% 0
Definitely No	0% 0
Unsure	13% 1
<b>Total</b>	<b>8</b>

**Q9 For what purposes do you value the fishery in the White River Flowage? (Check all that apply.)**

Answered: 8 Skipped: 0

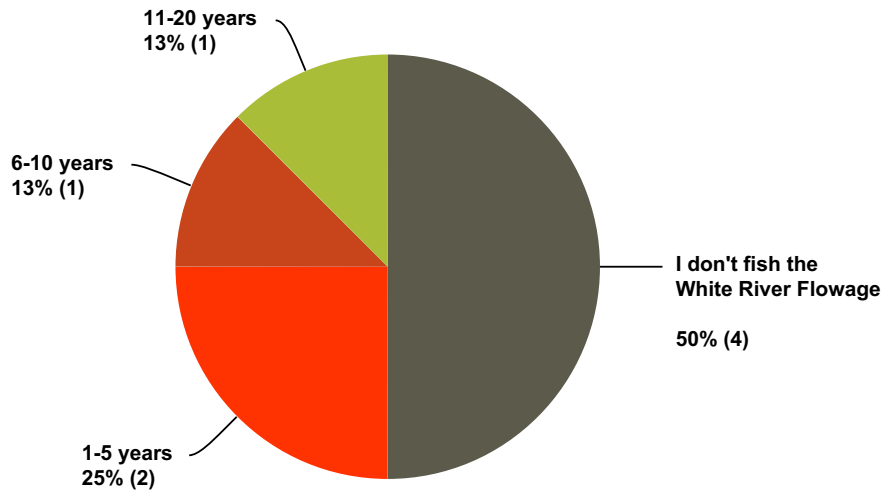


Answer Choices	Responses
Catch-and-release fishing	75% 6
Fishing for food	38% 3
Food for wildlife and birds	63% 5
Enjoy seeing/watching fish	75% 6
Teaching children about fishing/lakes	50% 4
<b>Total Respondents: 8</b>	

#	Other (please specify)	Date
	There are no responses.	

### Q10 How many years of fishing experience do you have on the White River Flowage?

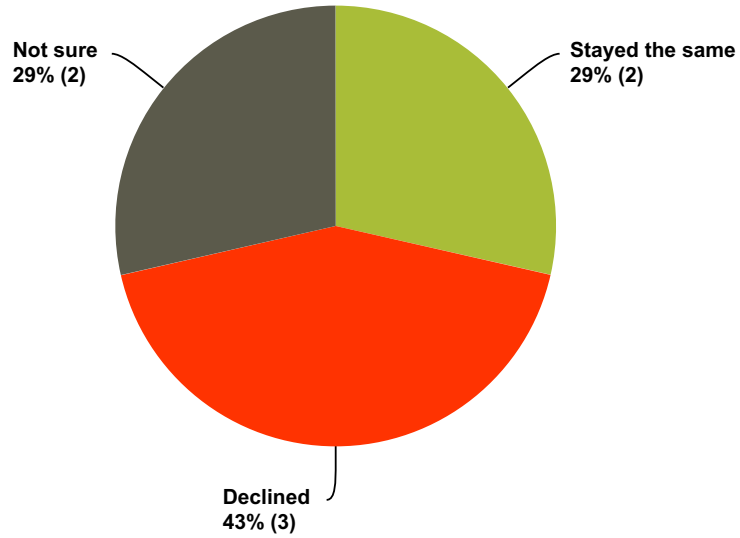
Answered: 8 Skipped: 0



Answer Choices	Responses	
I don't fish the White River Flowage	50%	4
1-5 years	25%	2
6-10 years	13%	1
11-20 years	13%	1
More than 20 years	0%	0
<b>Total</b>		<b>8</b>

**Q11 In the years you have been fishing the White River Flowage, would you say the quality of fishing has...**

Answered: 7 Skipped: 1



Answer Choices	Responses	
Improved	0%	0
Stayed the same	29%	2
Declined	43%	3
Not sure	29%	2
<b>Total</b>		<b>7</b>



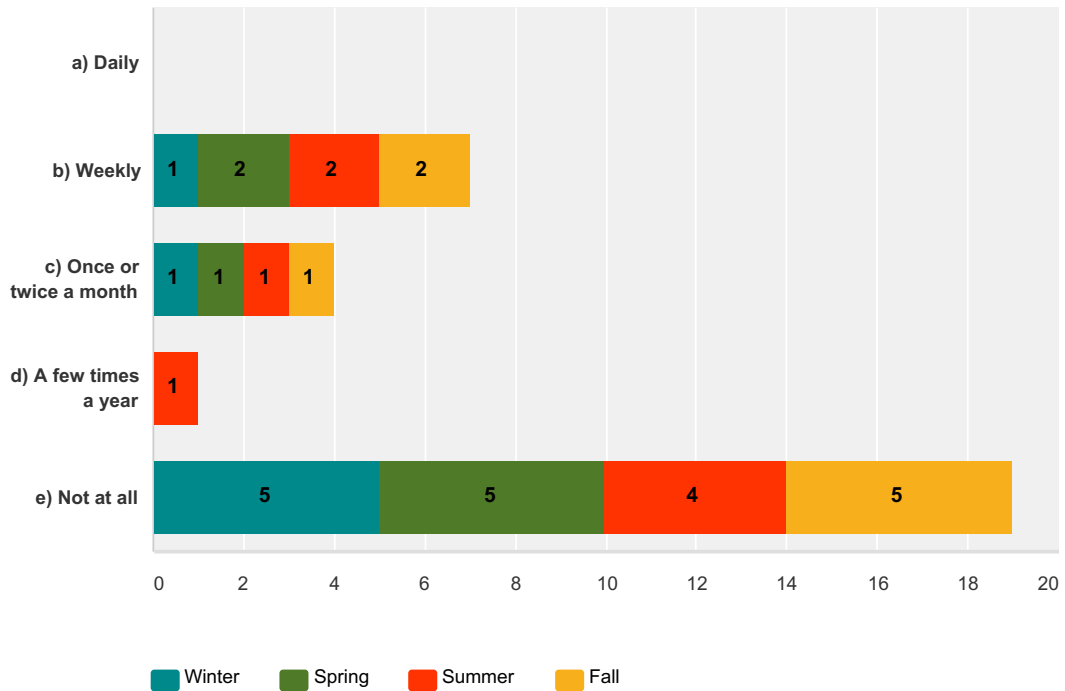
**Q12 What factors do you feel have contributed to the change in fishing?**

Answered: 3 Skipped: 5

#	Responses	Date
1	poor water quality due in part to the sediment/sludge released into the river from draw-down of Wautoma mill pond	3/20/2016 4:53 PM
2	Small body of water for fishing pressure	3/10/2016 2:18 PM
3	Over fished and too many large fish are taken out of the flowage.	3/5/2016 2:38 PM

### Q13 When and how often do you typically fish the White River Flowage?(Please answer a-e)

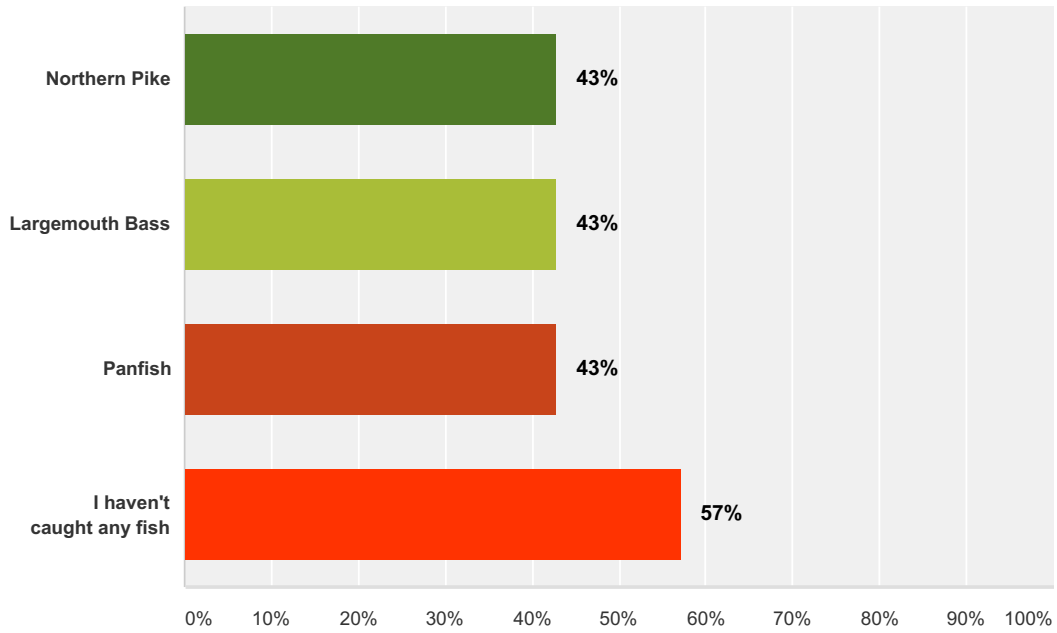
Answered: 8 Skipped: 0



	Winter	Spring	Summer	Fall	Total Respondents
a) Daily	0% 0	0% 0	0% 0	0% 0	0
b) Weekly	50% 1	100% 2	100% 2	100% 2	2
c) Once or twice a month	50% 1	50% 1	50% 1	50% 1	2
d) A few times a year	0% 0	0% 0	100% 1	0% 0	1
e) Not at all	100% 5	100% 5	80% 4	100% 5	5

**Q14 What fish do you typically catch at the White River Flowage? Check all that apply.**

Answered: 7 Skipped: 1

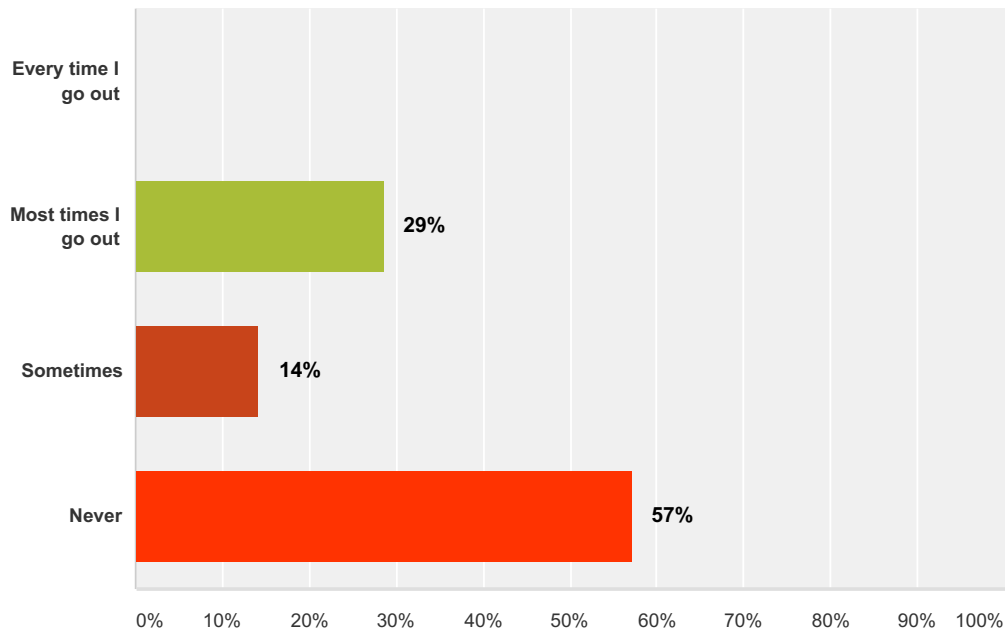


Answer Choices	Responses
Northern Pike	43% 3
Largemouth Bass	43% 3
Panfish	43% 3
I haven't caught any fish	57% 4
<b>Total Respondents: 7</b>	

#	Other (please specify)	Date
	There are no responses.	

### Q15 In general, how often do you catch fish on the White River Flowage?

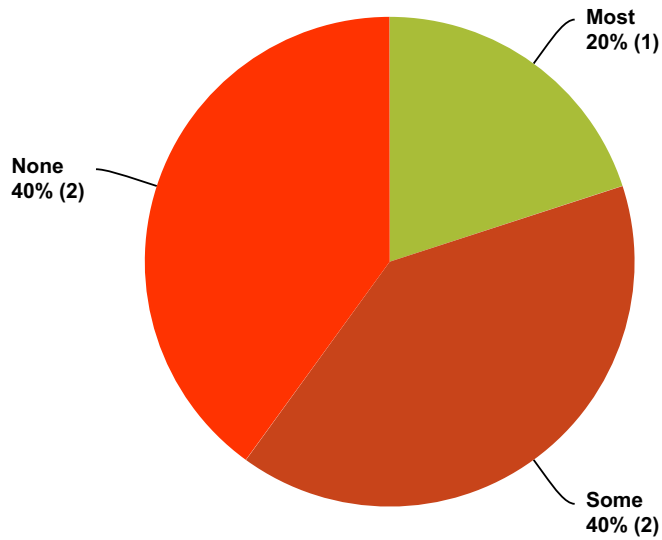
Answered: 7 Skipped: 1



Answer Choices	Responses
Every time I go out	0% 0
Most times I go out	29% 2
Sometimes	14% 1
Never	57% 4
<b>Total Respondents: 7</b>	

### Q16 In general, how many of the fish you catch are big enough to keep?

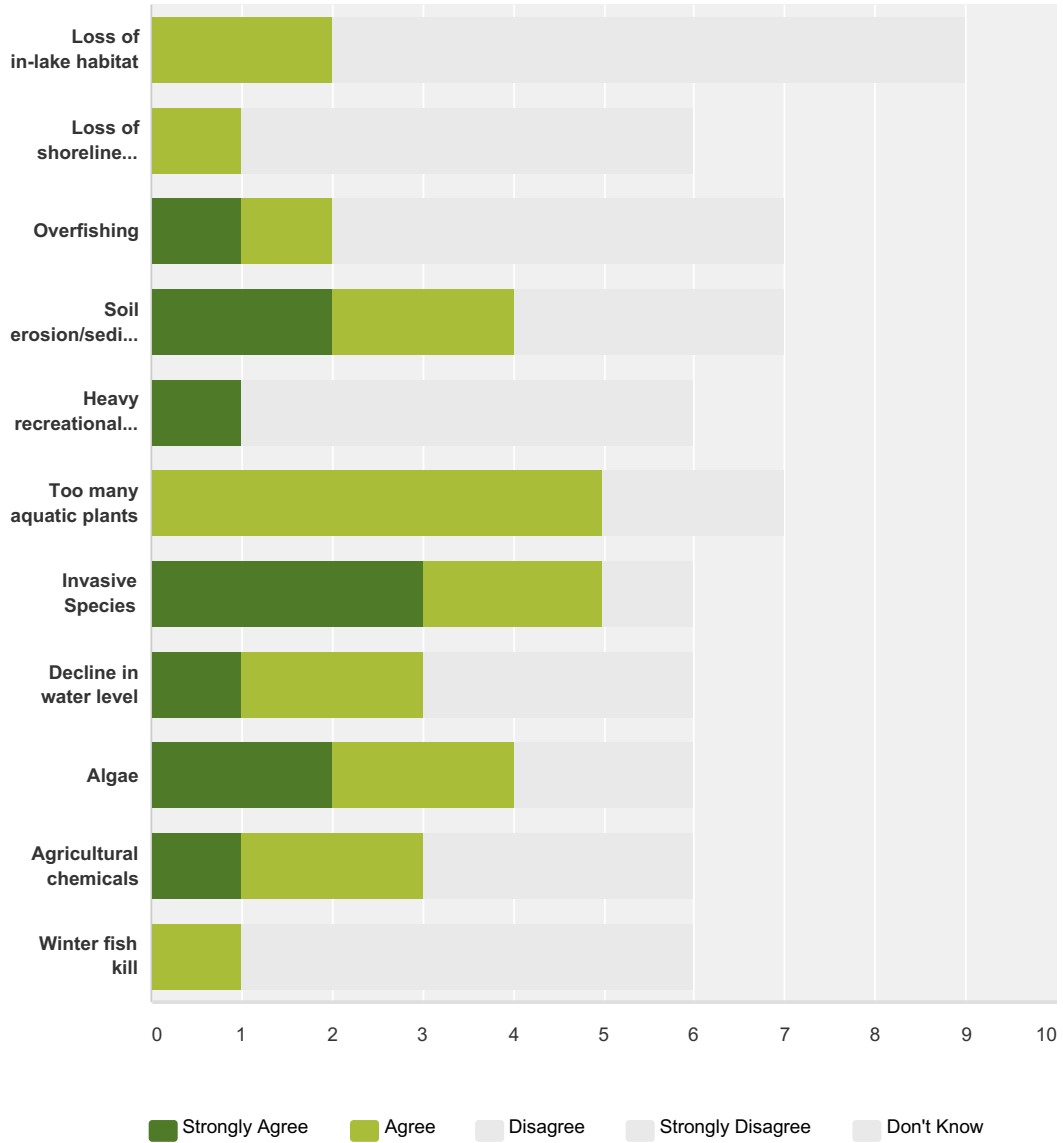
Answered: 5 Skipped: 3



Answer Choices	Responses	
All	0%	0
Most	20%	1
Some	40%	2
None	40%	2
<b>Total</b>		<b>5</b>

### Q17 What do you believe is the greatest threat to the fishery in the White River Flowage in the next 10 years?

Answered: 7 Skipped: 1



	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know	Total Respondents
Loss of in-lake habitat	0%	29%	57%	29%	14%	7
Loss of shoreline habitat	0%	17%	50%	17%	17%	6
Overfishing	14%	14%	29%	14%	29%	7
Soil erosion/sedimentation	29%	29%	14%	29%	0%	7

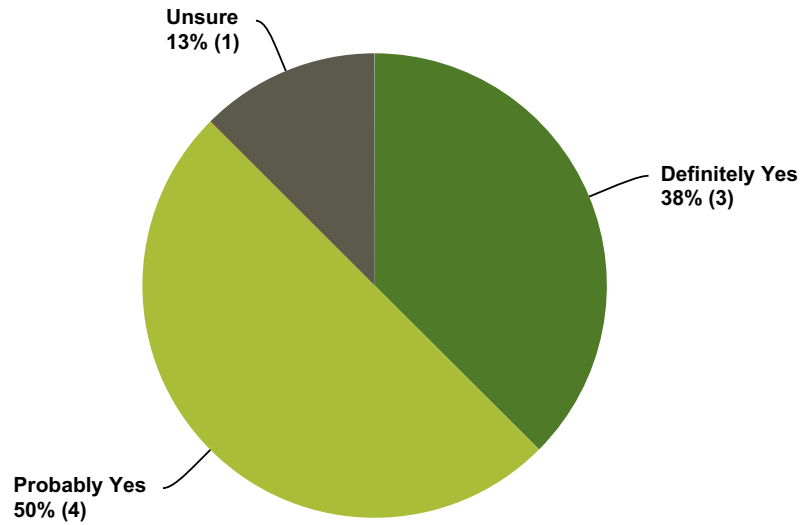
### White River Flowage Survey #4 Fish & Rec

Heavy recreational use	17% 1	0% 0	33% 2	33% 2	17% 1	6
Too many aquatic plants	0% 0	71% 5	14% 1	0% 0	14% 1	7
Invasive Species	50% 3	33% 2	17% 1	0% 0	0% 0	6
Decline in water level	17% 1	33% 2	17% 1	17% 1	17% 1	6
Algae	33% 2	33% 2	17% 1	17% 1	0% 0	6
Agricultural chemicals	17% 1	33% 2	33% 2	0% 0	17% 1	6
Winter fish kill	0% 0	17% 1	17% 1	17% 1	50% 3	6

#	Other (please specify)	Date
	There are no responses.	

### Q18 Do you believe fish from the White River Flowage are safe to eat?

Answered: 8 Skipped: 0



Answer Choices	Responses	
Definitely Yes	38%	3
Probably Yes	50%	4
Probably No	0%	0
Definitely No	0%	0
Unsure	13%	1
<b>Total</b>		<b>8</b>



**Q19 Do you have any additional comments regarding the fishery in the White River Flowage?**

Answered: 2 Skipped: 6

#	Responses	Date
1	We appreciate any and all things done to improve a great asset to Wautoma!!	3/19/2016 2:38 PM
2	I would like to see a fish count, numbers, size, species to give an indication of health of the flowage. If needed a restocking program by DNR	3/10/2016 2:18 PM