2015

West Branch Mill Pond, 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

Management Plan for the West Branch Mill Pond, Waushara County, Wisconsin

The West Branch Mill Pond Management Plan was developed with input from residents and lake users at a series of four public planning sessions held at the Deerfield Town Hall in Hancock, Wisconsin in October, November and December 2014, and January 2015. 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 in developing a strategic lake management plan (LMP).

The plan was adopted by the White River Lake Protection and Rehabilitation District on: July 23, 2016.
Date

The plan was adopted by the Town of Deerfield on: _____.
Date

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

The plan was approved by the Wisconsin Department of Natural Resources on: April 19, 2016.
Date

A special thanks to all who helped to create the West Branch Mill Pond Management Plan and provided guidance during the plan's development.

West Branch Mill Pond Management Planning Committee Members and Resources

Planning Committee

Steve Meyer
Roger Stratton
Tom Whalley
Ed Stelmachowski
Tom Klusmeyer
Rich Burkwald
Ken Wenninger
Lee Simono
Jim Hoegemeier
Sue Stenz
Cindie Henning
Terry Henning
Phil Sterz

Waushara County

County Conservationist – Ed Hernandez
Land Conservation Department
Community, Natural Resources and Economic Development Agent—
Patrick Nehring
University of Wisconsin-Extension

University of Wisconsin – Stevens Point
Center for Watershed Science and Education

Water Resource Specialists – Melis Arik, Ryan Haney, and Danielle Rupp
Water Resource Scientist – Nancy Turyk

Wisconsin Department of Natural Resources

Water Resources Management Specialist – Ted Johnson
Fisheries Biologists – Dave Bartz and Scott Bunde

Golden Sands Resource Conservation & Development Council, Inc.

Regional Aquatic Invasive Species Education Specialist – Paul Skawinski
Regional Aquatic Invasive Species Specialist – Kaycie Stushek

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

Contents

Overarching Vision for West Branch Mill Pond

The West Branch Mill Pond will remain a quiet, no-wake lake where family and friends can sustain the tradition of great fishing, abundant wildlife, the sounds and smells of summer camp, and clean, clear water.

Introduction

The West Branch Mill Pond is a 60-acre impoundment on the White River located in the Town of Deerfield, south of the city of Wautoma. The pond has a maximum depth of 20 feet. Its bottom sediments are predominantly sand, with a small amount of muck in the pond's northern half. The lands adjacent to the White River and the northern end of the pond are included in the Wisconsin Department of Natural Resources White River Fishery Area. Many lake users value West Branch Mill Pond for its peace and quiet, wildlife, clear water, great fishing, and sounds of children laughing and singing in the camp. These values, along with others, inspired West Branch Mill Pond community members to come together in partnership with Waushara County and technical professionals to develop this lake management plan.

The purpose of this plan is to provide a framework for the protection and improvement of West Branch Mill Pond. Implementing the content of this lake management plan (LMP) will enable citizens and other supporters to achieve the vision for West Branch Mill Pond now and in the years to come. The plan was developed by community members who learned about the lake and identified features important to the West Branch Mill Pond community to help guide the fate of the lake. It is a dynamic document that identifies goals and action items for the purpose of maintaining, protecting and/or creating desired conditions in a 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.

Who can use the West Branch Mill Pond 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 West Branch Mill Pond can have the greatest influence on the lake by understanding and choosing lake-friendly options to manage their land and the lake.
- **White River Lake Protection and Rehabilitation 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 West Branch Mill Pond.

- **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 enjoyable.
- **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**: 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 lake and its ecosystem to understand past and current lake 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 Wisconsin Department of Natural Resources 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 Wisconsin Department of Natural Resources 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 West Branch Mill Pond 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 – West Branch Mill Pond*, University of Wisconsin-Stevens Point.

The Planning Process

The planning process included a series of four public planning sessions held between October 2014 and January 2015 at the Deerfield Town Hall. The West Branch Mill Pond Planning Committee consisted of property owners, recreational users and town board members. 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), Golden Sands Resource Conservation & Development Council, Inc. (RC&D), 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 sent directly to West Branch Mill Pond 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 E. Lake User Survey Results.

Implementing the content of this lake management plan will enable citizens and other supporters to achieve the vision for West Branch Mill Pond now and in the years to come.

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 West Branch Mill Pond and members of the Management Planning Committee, as well as the known science about West Branch Mill Pond, its ecosystem and the landscape within its watershed. A lake management plan is a living document that changes over time to meet the current needs, challenges and desires of the lake and its community. Implementing and regularly updating the goals and actions in the West Branch Mill Pond Management Plan will ensure that the vision is supported and that changes or new challenges are incorporated into the plan. **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 and have been grouped as follows:

In-Lake Habitat and a Healthy Lake

Fish Community—fish species, abundance, size, important habitat and other needs
Aquatic Plant Community—habitat, food, health, native species, and invasive species
Critical Habitat—areas of special importance to the wildlife, fish, water quality, and aesthetics of the lake

Landscapes and the Lake

Water Quality 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, West Branch Mill Pond Lake Management District

List of Goals

Goal 1. Conditions that support a healthy fishery will be present in the West Branch Mill Pond.

Goal 2. Protect native plants in the lake while providing for recreational activities.

Goal 3. Prevent new AIS from becoming established and EWM and CLP will be controlled (<1%) or eliminated from West Branch Mill Pond.

Goal 4. Protect sensitive areas in and around West Branch Mill Pond.

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

Goal 6. Shoreland property owners will work to preserve and restore healthy shorelands.

Goal 7. Watershed property owners will be knowledgeable about and choose healthy land management practices.

Goal 8. Pond users will be knowledgeable about the rules associated with invasive species, fishing, and recreating on the pond.

Goal 9. Maintain open communication between waterfront property owners, pond users, the Town and others named in this plan.

Goal 10. Review plan annually and update every 5 years or as needed.

The following goals were identified as 'high priority' for West Branch Mill Pond:

Goal 3. Prevent new AIS from becoming established and EWM and CLP will be controlled (<1%) or eliminated from West Branch Mill Pond.

Objective 3.1. Reduce or eliminate populations of EWM and CLP.
Refrain from removal of native aquatic plants when possible, test milfoil to see if hybrid exists, receive proper training and hand pull EWM when encountered, hire divers to pull EWM at depth, and explore the use of weevils.

Goal 5. Minimize nutrient and sediment loading to the lake by improving land management practices near the lake 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 (summer median less than 12 ug/L). A stable trend in total phosphorus and nitrate concentrations will be attained over the next 10 years.
Refrain from the use of fertilizers, encourage development of additional shoreland vegetation, establish a water quality monitoring program.

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.

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

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 lake users value West Branch Mill Pond for its fishing, wildlife, and good water quality. These attributes are all interrelated; the health of one part of the lake system affects the health of the rest of the plant and animal community, the experiences of the people seeking pleasure at the lake, and the quality and quantity of water in the lake. Habitat is the structure for a healthy fishery and wildlife community. It can provide shelter for some animals and food for others.

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 West Branch Mill Pond includes the aquatic plants, branches, and tree limbs above and below the water.

The White River System Fishery Area lies adjacent to the inflowing stream and the north end of the White River Mill Pond http://dnr.wi.gov/topic/Lands/FisheriesAreas/2855whiteriver.html. According to the WDNR's website, "White River Fishery Area is managed to preserve and protect the White River, and to provide multiple benefits and public uses consistent with natural resource capabilities of the area. The vegetative cover is rich with diversity with a large portion being lowland brush and swamp hardwoods to upland forests and grasslands. Additionally, many old agricultural fields have been abandoned and are reverting to natural vegetation; others have planted into pine plantations, converted into native prairies, or continued to be farmed in share crop agreements. This unique mix of woods, water, and fields provides prime habitat for a variety of game and non-game species as well offering a pleasant satisfaction to all who visit this natural and beautiful area". The master plan for this area can be found at http://dnr.wi.gov/topic/lands/MasterPlanning/documents/MP-FA-WhiteRiverSystem(Waushara)_1986.pdf.

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 in order 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 needed 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 that are present within the lake and provide fishing opportunities for people without a lot of supplemental effort and associated expenses to maintain these conditions.

According to the Master Plan for the White River System Fishery Area, the West Branch River has naturally producing populations of brown, rainbow, and brook trout. Results from a survey conducted in 1978 estimated the stream contained a total trout abundance of 681 fish per acre and 1,781 trout per mile. The plan recommended that special attention be given to the West Branch as it is one of the very few streams in Wisconsin with a self-perpetuating population of rainbow trout (Primsing et al., 1986).

More than one-half of the survey respondents indicated the fishing had declined during their times at the pond, with the primary threat being overfishing. The most recent fish survey was conducted by fisheries biologists with the WDNR in spring 2013 using electrofishing. Results indicated an above-average abundance of largemouth bass (102/hr > 8”) with an above-average size structure (PSD12=53%, RSD14=30%). This is a higher abundance than was observed in the 2005 survey. Bluegill also had an above-average abundance (404/hr) with an average size structure (PSD6=22%, RSD7=9%). Approximately 1,200 black crappie were stocked in the lake in 2014 by the We Really Kare, Inc. fishing club.

Fisheries biologist recommendations focused primarily on improving habitat near shore. This includes restoration/protection of natural shoreland vegetation, restoring emergent near-shore aquatic plants (bulrush), minimizing the removal of aquatic plants near shore, and increasing woody habitat near shore.

Guiding Vision for the Fish Community

The West Branch Mill Pond will have a well-balanced, sustainable fish community.

Goal 1. Conditions that support a healthy fishery will be present in the West Branch Mill Pond.

Objective 1.1. Enhance and restore fish habitat in the West Branch Mill Pond.

Actions	Lead person/group	Resources	Timeline
Inform riparian landowners about the importance of woody habitat in shallow water near shore and encourage its placement in appropriate areas.	WRLPRD	WCWLC UWEX Lakes (educational material) WDNR Fisheries Biologist WDNR Healthy Lakes grants	Ongoing
Add woody habitat near shore for fish, turtles, birds, and aquatic insects such as dragonfly nymphs. Use a combination of tree drops, "fish sticks", bundles of trees beneath docks, etc.	Shoreland property owners	WDNR Fisheries Biologist WRK WDNR Healthy Shorelands grant	Ongoing
Encourage landowners to leave fallen woody habitat in the lake.	WRLPRD	UWEX Lakes (educational material)	Ongoing
Minimize the removal of aquatic plants from the lakebed to provide fishery habitat.	Shoreland property owners	WCWLC UWEX Lakes (educational material)	Ongoing
Identify shoreland property owners to assist in restoration of near-shore habitat including emergent vegetation like bulrush and/or addition of woody habitat.	WRLPRD	WDNR Lakes Specialist	Ongoing
Encourage property owners with docks to safely place and secure woody habitat (bundled Christmas trees, etc.) beneath docks to create additional habitat.	WRLPRD	WDNR Fisheries Biologist	Ongoing

Objective 1.2. When needed, balance the fishery through use of regulations and/or addition of fish.

Actions	Lead person/group	Resources	Timeline
Work with WDNR Fisheries Biologist to understand how best to balance the fishery in the Mill Pond.	WRLPRD WRK	WDNR Fisheries Biologist	As needed
Participate in the listening sessions regarding any new fishery regulations recommended by the WDNR Fisheries Biologist.	WRLPRD WRK	WDNR Fisheries Biologist	As needed

Continue fish stocking program. Make adjustments based on annual qualitative review and discussions with the WDNR Fisheries Biologist.	WRK	WRLPRD WDNR Fisheries Biologist	As needed

Aquatic Plant Community

Aquatic plants provide the forested landscape within West Branch Mill Pond. 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 on the West Branch Mill Pond in August 2013 by staff from Golden Sands Resource Conservation & Development Council, Inc. (RC&D). Twenty-one species of aquatic plants were found in the West Branch Mill Pond, with an additional three species observed visually. The twenty-four total species observed within the West Branch Mill Pond ranked it slightly below average for the lakes in the Waushara County Lakes Study. 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.

The dominant plant species found in the West Branch Mill Pond 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 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 previous two plants, water stargrass serves as an important food source for waterfowl and provides good cover and food opportunities (Borman et al., 2001). Four high-quality species (with a C-value of 8) were identified in West Branch Mill Pond: Fries' pondweed, southern naiad, white-stem pondweed, and white water crowfoot. One invasive aquatic plant species was sampled, Eurasian watermilfoil (EWM).

Annual harvesting for nuisance level aquatic plants has taken place since approximately 2000. The total acreage and locations of harvesting is not known. Additionally, the harvester is reportedly being operated in very shallow water (less than 3 feet), causing disturbance of sediment and the most sensitive part of the lake.

Eurasian watermilfoil (EWM) was first confirmed in the West Branch Mill Pond in 2002. Residents reportedly have hand-pulled it intermittently since then. Because EWM is spread primarily by fragmentation of the plant, operating harvesting equipment on the pond can significantly enhance the spread of this aggressive plant.

More detailed information can be found in the *Aquatic Macrophyte Survey of West Branch Millpond, Waushara County, Wisconsin*; *Waushara County Lakes Study – West Branch Mill Pond*; and, Appendix B. Aquatic Plants.

Guiding Vision for Aquatic Plants in West Branch Mill Pond

West Branch Mill Pond will host a healthy aquatic plant community that does not severely impede recreation and provides quality habitat for lake organisms.

Goal 2. Protect native plants in the lake while providing for recreational activities.

Objective 2.1. Avoid disturbing native aquatic plants when possible.

Actions	Lead person/group	Resources	Timeline
Inform shoreland property owners about the importance of native aquatic vegetation via educational materials provided in annual mailing and in welcome packets.	Waushara County WRLPRD	UWEX Lakes (educational materials)	Ongoing
Minimize removal and disturbance of native vegetation. Routinely look for AIS where removal occurred.	Shoreland property owners	WCWLC UWEX Lakes (educational materials)	Ongoing
Reevaluate harvesting of native plants in West Branch Mill Pond. Discuss with membership at annual meeting. To limit the spread of EWM, discontinue or limit to areas where it is not present.	WRLPRD	WDNR Lakes Specialist Consultant	2015
If harvesting is continued, establish specific areas for harvesting that do not include sensitive habitat, EWM, and only in water depths greater than 3 feet.	WRLPRD	WDNR Lakes Specialist Consultant	2015
To reduce the growth of dense aquatic plant beds, ask 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 of this plan).	WRLPRD	WCWLC UWEX Lakes (educational materials)	Ongoing

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 most 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 documented in West Branch Mill Pond in 2008, although it has not established itself in significant abundance. Individual plants and small beds were observed during an AIS meander survey in 2013 by RC&D. 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. In West Branch Mill Pond, CLP should be properly removed when encountered and monitored annually in early June. If beds expand, additional management should be considered.

Curly-leaf pondweed.

Eurasian watermilfoil (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 was first documented in West Branch Mill Pond in 2002. Lake residents have been intermittently hand-pulling since its discovery, but no aggressive management was undertaken until 2014. EWM was observed in multiple locations during a June 2013 AIS meander survey and during the August 2013 aquatic plant point-intercept survey. In June 2014, Stantec, Inc. carried out a 4-acre chemical spot treatment using a granular 2,4-D product applied at a concentration of 4 parts per million (Appendix B. Aquatic Plants). No post-treatment survey was conducted, but the August 2014 point-intercept survey identified EWM in several locations.

Eurasian watermilfoil.

Options for Managing AIS in the West Branch Mill Pond

Each lake is different and responses to AIS control efforts may differ 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 in West Branch Mill Pond should be evaluated by survey before and after treatments to determine the effectiveness of an approach in a given year. Strategies for the subsequent year should be adjusted accordingly. A point-intercept survey should be conducted at least every 5 years. EWM management involves evolving scientific knowledge; therefore, EWM management strategies in West Branch Mill Pond should be adapted as EWM populations in the lake change and as new information becomes available.

The selection of management strategies for a given year will change depending upon the amount of EWM and/or CLP in West Branch Mill Pond; therefore, routine annual monitoring of these species is essential. The presence of AIS will also define the type of aquatic plant management that could be conducted to address recreational impediments. The following aquatic plant management options were determined to be the most practical and effective options that would minimize impacts to West Branch Mill Pond as a whole.

Hand-Pulling and/or Hand-Pulling using Suction

Hand-pulling is a nontoxic management technique preferred in areas of the lake with smaller populations of AIS or where other control methods cannot be employed. Properly trained individuals and divers can target specific aquatic plant species and avoid damage to native species. Proper removal by hand can result in a healthy native plant community that will help to provide a barrier for the re-establishment of non-native species, while providing habitat for fish and other lake inhabitants and helping to maintain a balance with the algal populations. Hand-pulling also removes dead plants from the water, lessening the amount of nutrients released by decaying plant tissue.

Action: Conduct hand-pulling with properly trained volunteers. Work with RC&D and other lake groups in the area to apply for a grant to help pay hired divers who are trained to hand-pull EWM in deeper zones of the pond. Following this effort, monitoring for EWM species should be conducted and documented at the beginning of and throughout each season. This approach can be coupled with chemical treatments if necessary.

No Action

EWM and CLP have difficulty becoming established where well-established populations of native plants exist. In some lakes, these species appear to coexist with native flora and have little impact on fish and other aquatic animals. Removing native vegetation, whether physically or with herbicides, can create a perfect opportunity for the spread of AIS. A 'no action' approach coupled with thorough monitoring is a low cost alternative that could be tried until monitoring results indicate the need for more aggressive management.

Action: Monitor CLP in late spring and EWM in late summer to track population density and distribution and determine if the populations stabilize.

Milfoil Weevils (EWM)

This option can be considered in areas of the lake with native or restored shorelines. The milfoil weevil (*Euhrychiopsis lecontei*) is a native weevil that can be used to keep EWM in check in some lakes. The success depends upon the composition of the fishery and the health of the shoreland vegetation. Use of milfoil weevils is not compatible with the use of chemicals. These insects can be enhanced in a lake; however, milfoil weevils are expensive, so obtaining a starter population and rearing them in predator-free conditions may be desirable from a financial standpoint. Professional assistance from consultants or RC&D staff should be sought if stocking or rearing is pursued. It is unknown if native milfoil weevil populations are present in West Branch Mill Pond.

Chemical Spot Treatment (EWM)

If warranted, chemical control of EWM beds that are less than 5 acres in size should be done using a contact herbicide (examples: endothall and diquat). Systemic herbicides should be avoided if dilution rates exceed the necessary contact exposure time needed for that particular herbicide. Treatment should occur early in the season, prior to emergence of native plants. Early spring treatments take advantage of the seasonally stressed EWM plants and reduce damage to native plants, which helps to protect against the spread of EWM. To reduce the chance of developing resilient strains of EWM, integrated pest management (IPM) techniques should be employed. IPM utilizes different methods of management to prevent target species from becoming tolerant to a redundant control method (e.g. continual herbicide treatment using the same product and dose rate). Different methods should be used each year.

Hybrid watermilfoil (HWM) results from a hybridization of native watermilfoil with EWM. HWM tends to be more resilient and less affected by chemical treatment. HWM may be suspect in a lake if 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 *challenge test* should be conducted to determine which combination of chemicals will be effective in controlling that particular strain of HWM. Many combinations of chemicals 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.

Action: Conduct a point-intercept survey, and if EWM and/or CLP populations exceed 5-10% of the pond's surface area, consider chemical treatment. Following a treatment, monitoring for the target species should be conducted during that summer at least 30 days after the treatment, and the results of its effectiveness on the target and non-target species should be documented and shared with the WDNR lake manager. If chemical treatments lack effectiveness, test EWM plant samples to determine if HWM is present. If it is, conduct a *challenge test* to identify the appropriate combination of chemicals for the hybrid.

Follow guidelines to inform lake users of the use of chemicals in the lake and provide documentation about the chemical to all property owners around the lake. Work with WDNR Lakes Specialist for specifics.

Mechanical Harvesting (NATIVE PLANTS or CLP)

Mechanical harvesting is a nontoxic management technique that can provide short-term navigation benefits. In addition, harvesting also removes plant material from the pond, lessening the amount of nutrients released to the water by decaying plant tissue. EWM, however, spreads primarily through fragmentation. Because extensive chopping and fragmentation of plant material occurs during mechanical harvesting, this is not a recommended approach where EWM is present. If harvesting in West Branch Mill Pond is desired, harvesting should only occur 1) in depths greater than 3 feet of water, and 2) where EWM is not present. A harvesting map should be developed and a permit is required.

Preventing Introduction of new AIS and Spread of AIS from West Branch Mill Pond

Informing shoreland property owners of ways to avoid the introduction of new AIS and the spread of existing AIS should be done routinely. Coordinating volunteers or hiring someone to inform boaters about the spread of aquatic invasive species at boat launches raises awareness of AIS and can help prevent the introduction of aquatic invasive plants to the lake. In addition to informing visitors, developing a program to monitor for AIS within the lake is an important way to identify and report new outbreaks before AIS become established.

Action: Work with RC&D to learn how to identify aquatic invasive species and coordinate volunteers or paid individuals to conduct boat launch inspections through the Clean Boats, Clean Waters (CBCW) program. If AIS are found, refer to Appendix C. Rapid Response Plan.

Guiding Vision for Aquatic Invasive Species

West Branch Mill Pond will be minimally affected by aquatic invasive species.

Goal 3. Prevent new AIS from becoming established and EWM and CLP will be controlled (<1%) or eliminated from West Branch Mill Pond.

Objective 3.1. Take steps to reduce or eliminate populations of EWM and CLP in the West Branch Mill Pond. Assess and develop a strategy each year.

Actions	Lead person/group	Resources	Timeline
Inform property owners about refraining from removing native aquatic vegetation to reduce AIS colonization.	WRLPRD	WCWLC UWEX Lakes (educational material)	Ongoing
Develop a contingent of trained volunteers who will monitor and properly remove EWM. Monitor routinely throughout the summer.	WRLPRD	RC&D	Ongoing spring-fall
Evaluate the aquatic plant community annually to determine the next steps (or no action) in EWM & CLP management. If chemical treatments are not being employed, use PI surveys at least every 5 years, and visual surveys in between.	WRLPRD	Consultant RC&D Trained Volunteers WDNR Lake Manager	Annually in summer
Discuss survey results and observations and develop the strategy for the upcoming year.	WRLPRD	Consultant RC&D WDNR Lake Manager	Every year in fall or winter
Work with area lakes to apply jointly for a grant to hire divers to hand-pull EWM in deep areas of the pond or where it is difficult to hand-pull.	WRLPRD	WDNR Lake Specialist RC&D WDNR AIS grant	As needed
Explore the use of milfoil weevils to combat EWM, particularly at the western end of the west lobe.	WRLPRD	RC&D	

Objective 3.2. Prevent the establishment of new species of AIS.

Actions	Lead person/group	Resources	Timeline
Use signs, newsletters, and other methods to educate lake visitors about the presence of AIS and removing aquatic hitchhikers.	WRLPRD	Town of Deerfield WCWLC	Ongoing
Shoreland property owners will minimize the removal of native aquatic vegetation to diminish the possibility of AIS colonization.	Shoreland property owners	WRLPRD	Ongoing
Learn to identify AIS and routinely look for it. If new AIS are suspected, follow the guidance in the Appendix C. Rapid Response Plan.	Volunteers Shoreland property owners	RC&D	Ongoing
Reestablish a CBCW program on busy lake days or holiday weekends.	WRLPRD	RC&D WDNR AIS grant	Memorial-Labor Day

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 WDNR 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.

In 2003, biologists and lake specialists with the WDNR identified eight critical habitat areas in the West Branch Mill Pond (Figure 1). These areas support wildlife and fish habitat, provide mechanisms that protect water quality in the lake, harbor quality plant communities, and preserve places of serenity and aesthetic beauty for the enjoyment of lake residents and visitors. A special designation of sensitive areas within a lake provides a means to protect sites most important to preserving the very character and qualities of the lake and its ecosystem that initially attracted development to the lake. Also included in the Sensitive Area Designation Report were a recommended "water trail" and an interpretive guided "tour" of West Branch Mill Pond's sensitive areas. For more detailed information, see the Upper White River Mill Pond Sensitive Area Designation Report (Provost et al., 2003).

Guiding Vision for West Branch Mill Pond's Critical Habitat

West Branch Mill Pond's sensitive areas will be enhanced and protected from degradation.

Goal 4. Protect sensitive areas in and around West Branch Mill Pond.

Objective 4.1. Inform others about the critical habitat areas in West Branch Mill Pond and how they can protect them.

Actions	Lead person/group	Resources	Timeline
Inform lake users about these important areas by publishing a brochure to distribute to shoreland properties, include in newcomer packets, and for use at the boat landing.	WRLPRD	WDNR Biologists WCLCD UWSP Natural Resource students	As needed
Protect areas surrounding off-lake critical habitat areas by supporting enrollment in conservation programs.	Interested shoreland property owners	WCLCD NCCT Town Plan Commission Knowles-Nelson Stewardship grant WDNR Lake Protection grant	As needed

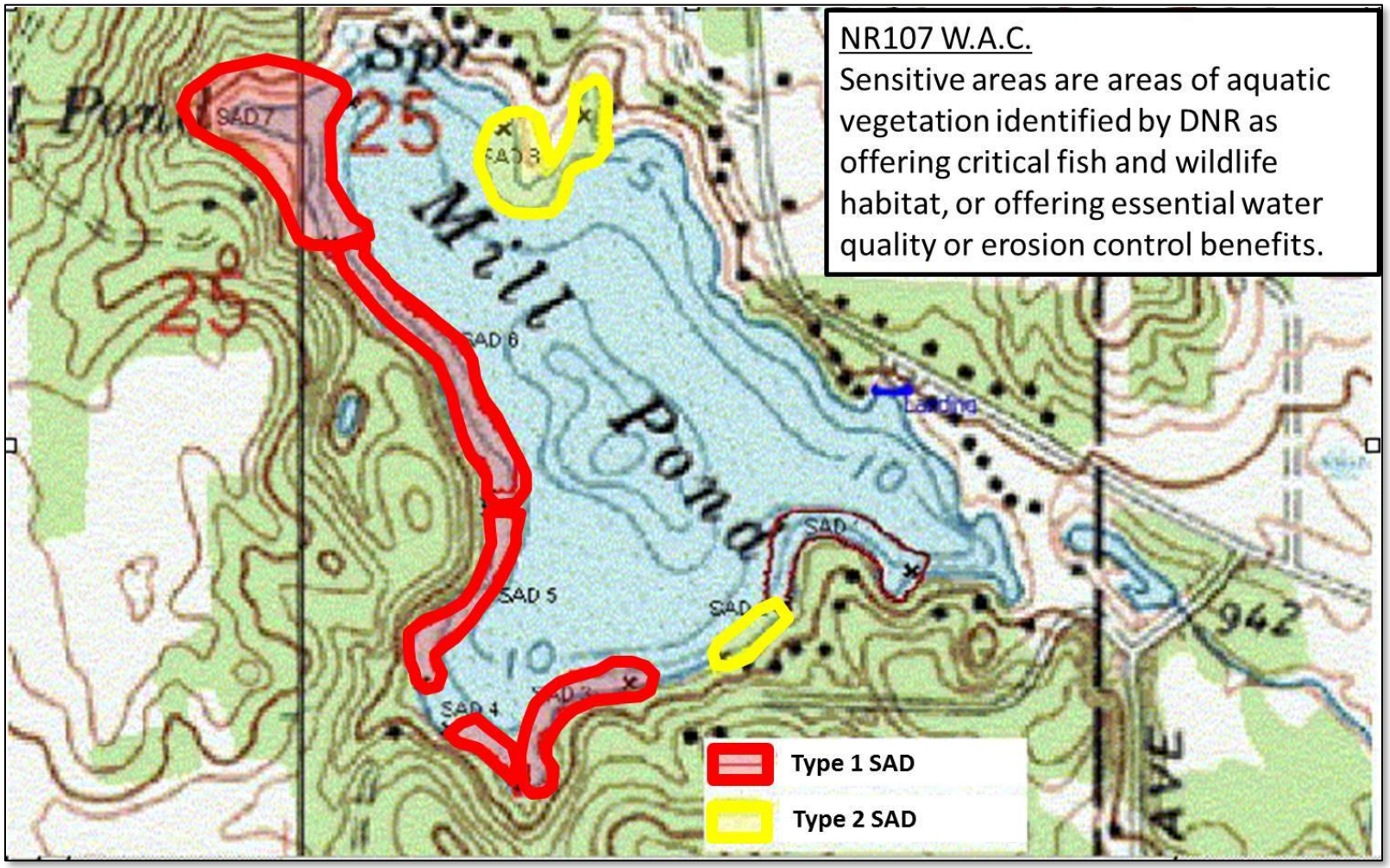


Figure 1. Designated critical habitat areas around West Branch Mill Pond.

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 West Branch Mill Pond 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 West Branch Mill Pond 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 respondents to the survey indicated water quality in West Branch Mill Pond had an impact on their personal enjoyment value and the economic value of the lake. Eight-six percent felt the water quality had stayed the same during their time visiting the lake and 14% felt it had declined, with fertilizers and herbicides as the primary culprits.

A variety of water chemistry measurements were used to characterize the water quality in West Branch Mill Pond. Water quality was assessed during the 2010-2012 lake study and included 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 West Branch Mill Pond's water quality.

Dissolved oxygen is an important measure in West Branch Mill Pond because a majority of organisms in the water depend on oxygen to survive. Oxygen is dissolved into the water from contact with air, which is increased by wind and wave action. Algae and aquatic plants also produce oxygen when sunlight enters the water, but the decomposition of dead plants and algae reduces oxygen in the lake. Dissolved oxygen profiles collected in West Branch Mill Pond were well above 5 mg/L for most of the year, even at depth, except for late winter 2011 when concentrations dropped to 2 mg/L by 3 feet. This suggests fishkills are unlikely in this lake.

The water clarity measured in West Branch Mill Pond during the study was considered fair. Water clarity ranged from 5.5 feet to 18.5 feet over the monitoring period. Water clarity in West Branch Mill Pond is typically poorer during the summer months, with the shallowest depths recorded in late summer. A search for other water clarity data was made, but none had been recorded in the WDNR's Surface Water Integrated Monitoring System (SWIMS) database.

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 West Branch Mill Pond had slightly elevated chloride, potassium, and sodium concentrations over the monitoring period. Although these elements are not detrimental to the aquatic ecosystem, they indicated 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.

During the study, inorganic nitrogen concentrations ranged from 0.80 to 1.14 mg/L which is high enough to enhance algal blooms throughout the summer (Shaw et al., 2000). Sources of inorganic nitrogen include fertilizers, septic systems, and animal waste. These forms of nitrogen are likely moving to the lake in groundwater.

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 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 West Branch Mill Pond ranged from a high of 38 ug/L in May 2012 to a low of 10 ug/L in August 2012, with an average concentration of 19.5 ug/L over the two year monitoring period. The summer median total phosphorus was 24 ug/L and 13 ug/L in 2011 and 2012, respectively. This is below Wisconsin's phosphorus standard of 40 ug/L for shallow drainage lakes.

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

Managing nitrogen, phosphorus and soil erosion throughout the West Branch Mill Pond watershed is one of the keys to protecting the lake itself. Near shore activities that may increase the input of nitrogen and 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 West Branch Mill Pond 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.

Guiding Vision for Water Quality in West Branch Mill Pond

West Branch will have good water quality that maintains a balanced aquatic plant community and a healthy fishery.

Goal 5. Minimize nutrient and sediment loading to the lake by improving land management practices near the lake 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 (summer median <12 ug/L). A stable trend in total phosphorus and nitrate concentrations will be attained over the next 10 years.

Actions	Lead person/group	Resources	Timeline
Refrain from the use of fertilizers on shoreland properties (see Shorelands section). Inform others by distributing informational materials around the lake.	Shoreland property owners WRLPRD	UWEX Lakes (educational materials)	2016, 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.	WRLPRD	UWEX Lakes (educational materials)	2016, Ongoing
Encourage the restoration of unmowed vegetation along the shore to slow and absorb runoff and pollutants (see Shorelands section).	WRLPRD	UWEX Lakes (educational materials)	2016, Ongoing

Objective 5.2. Develop and maintain a monitoring program for early identification of problems.

Actions	Lead person/group	Resources	Timeline
Establish a water quality monitoring program to include regular water clarity measurements and analysis of phosphorus and chlorophyll *a* to evaluate changes over time.	WRLPRD	CLMN Coordinator	2016
Monitor water clarity during periods of open water.	Volunteer	CLMN Coordinator	Annually 5 times between May & Sept
Monitor inorganic nitrogen during spring and fall.	Volunteer	WEAL Other state certified lab.	Annually spring and fall
Monitor phosphorus and chlorophyll *a* during the summer.	Volunteer	CLMN Coordinator	Annually
Monitor dates of ice-on/ice-off.	Volunteer	WDNR	
Submit all monitoring data to the WDNR SWIMS database for storage and use.	Volunteer monitors	CLMN Coordinator	At least annually

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.

The summary of scores for shorelands around West Branch Mill Pond is displayed on the map in Appendix D. Shoreland Survey – 2011. Large stretches of West Branch Mill Pond's shorelands are in good shape, but some portions have challenges that should be addressed. None of West Branch Mill Pond 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 viewing corridor for each shoreland lot. With a total of 42 lakefront lots, 1,260 feet (13%) of disturbed shoreland is permitted. Based on the 2011 shoreland inventory, 28% (2,782 feet) of West Branch'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.

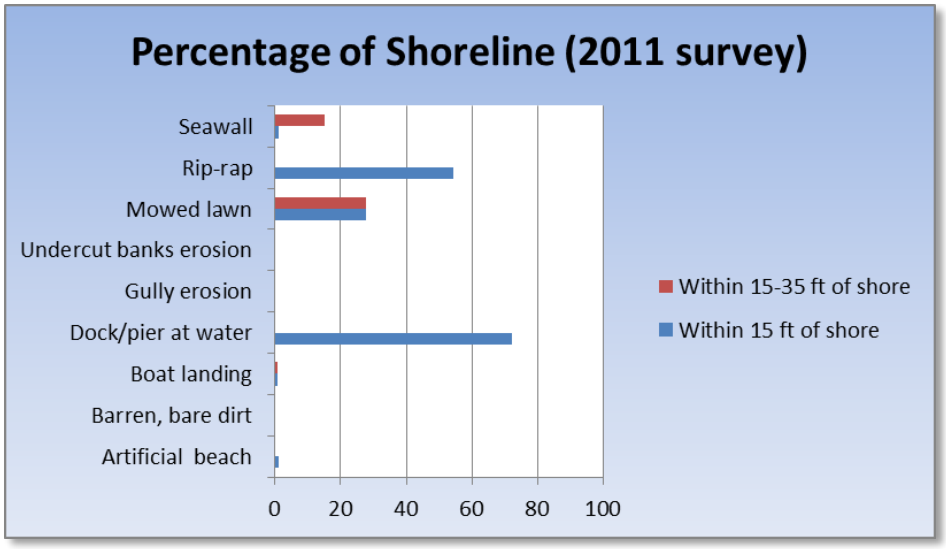


Figure 2. Land management practices by percentage of shoreline, 2011.

Guiding Vision for West Branch Mill Pond's Shorelands

West Branch Mill Pond will have a shoreland that provides aesthetic beauty, water quality benefits and wildlife habitat.

Goal 6. Shoreland property owners will work to preserve and restore healthy shorelands. Restore approximately 10% (152 feet) of this length over the next 5 years.

Objective 6.1. Inform lake residents of the importance of shoreland vegetation.

Actions	Lead person/group	Resources	Timeline
Encourage and support shoreland owners interested in shoreland restoration.	WRLPRD	WCLCD Consultants	Ongoing
Provide informational materials to all lake residents about basic lake stewardship including healthy shorelands and their composition (wildflowers, shrubs, trees, etc.).	WRLPRD	UWEX Lakes (info materials) WCLWC	As needed
Consider restoring and showcasing a "demonstration site" with a sign at the water's edge about shoreland restoration and/or hosting a "shoreland tour".	WRLPRD	WCLCD Consultant	
Consider hosting a speaker/demonstration: "How to restore your shoreline."	WRLPRD	UWEX Lakes Shoreland Specialist Consultant WCLCD	
Encourage those interested in shoreland restorations to contact the Waushara County Land Conservation Department for available resources.	WRLPRD	WCLCD WDNR Healthy Lakes grants Waushara County Board	As needed

Watershed Land Use

It is important to understand where West Branch Mill Pond'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. Groundwater also feeds West Branch Mill Pond; 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.

The surface watershed for West Branch Mill Pond is 1,972 acres. Primary land uses are relatively equally distributed between developed land (33%), agriculture (31%) and forest (31%) (Figure 3). The lake's shoreland is surrounded primarily by forested residential. In general, the land

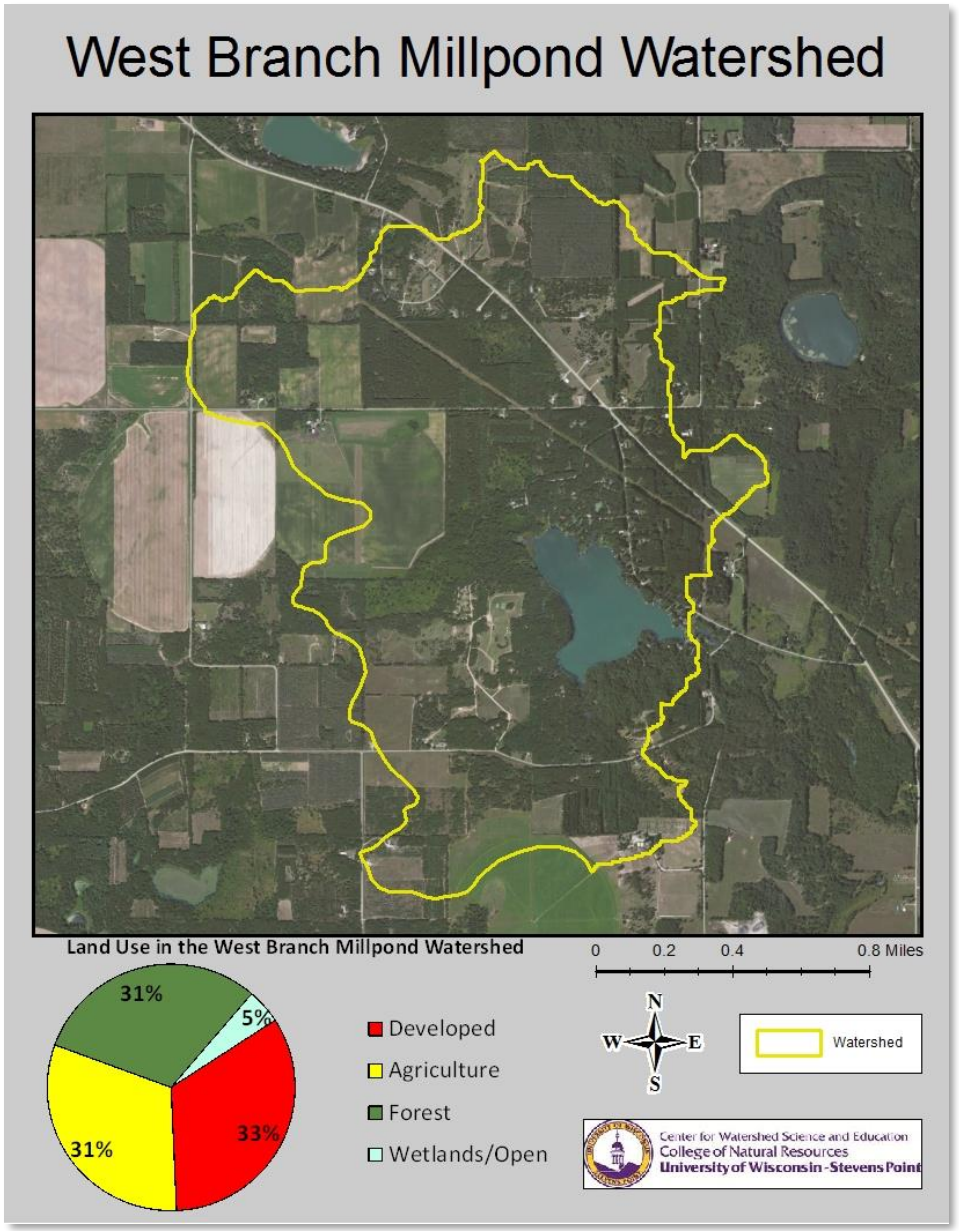


Figure 3. Surface watershed of West Branch Mill Pond.

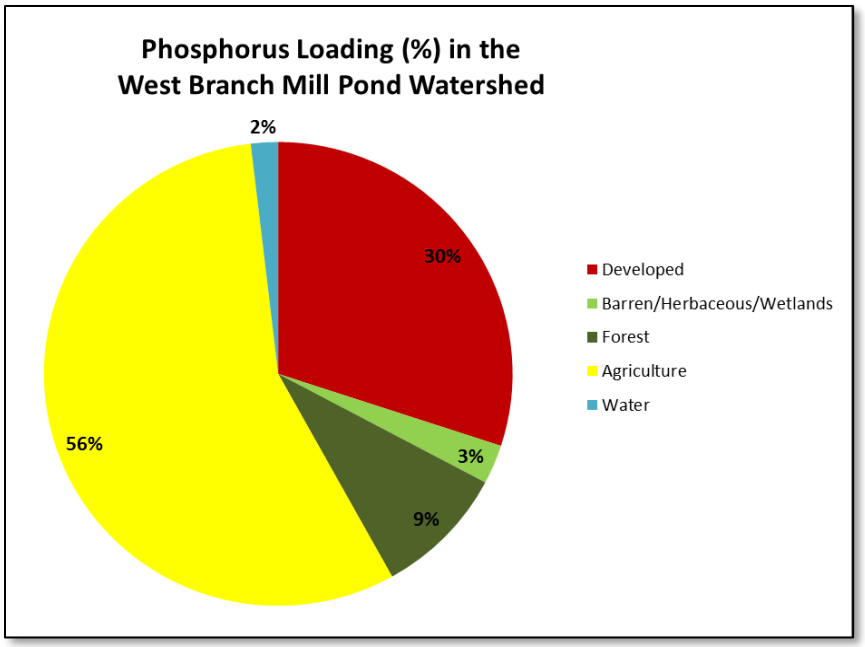


Figure 4. Estimated phosphorus loads from land uses in the West Branch Mill Pond watershed.

closest to the lake has the greatest immediate impact on water quality. Large portions of West Branch Mill Pond's shorelands are in good shape, but a few segments have challenges that should be addressed, particularly along the eastern shore.

Estimates of phosphorus from the landscape can help to understand the phosphorus sources to West Branch Mill Pond. 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, developed land and agriculture had the greatest percentages of phosphorus contributions from the watershed to West Branch Mill Pond (Figure 4).

Guiding Vision for West Branch Mill Pond's Watershed

Land within the West Branch Mill Pond watershed will be managed in a way that supports a healthy lake.

Goal 7. Watershed property owners will be knowledgeable about and choose healthy land management practices.

Objective 7.1. Support healthy land management activities around West Branch Mill Pond.

Actions	Lead person/group	Resources	Timeline
Waushara County will support property owners who wish to use water quality-based Best Management Practices (BMPs) within the watershed.	WCLCD	NRCS DATCP and other grants	Ongoing
Continue to use Waushara Co. Land Conservation as a resource for land management activities.	Watershed property owners	WCLCD	Ongoing
Encourage soil tests on lawns and land where fertilizer is applied. Provide information to landowners on how and where to sample.	WRLPRD	WC UWEX WCLCD	Ongoing
Support landowners interested in the protection of their land via a land conservation program (i.e. Conservation Easement, Purchase of Development Rights, or sale of land for protection).	Lake stewards	NCCT NRCS WDNR Lake Protection Grants	As needed
Explore funding options for land purchase within the watershed for conservation, preservation, or restoration purposes.	Interested property owners	WDNR Lake Protection Grants Knowles-Nelson Stewardship Funds	As needed
Encourage subdivisions and other new developments to manage storm water on site and consider strategies to reduce impacts from septic system to West Branch Mill Pond.	Property owners WRLPRD	WC Planning and Zoning Town of Deerfield	As needed
Encourage design of road and construction projects that will minimize impacts to West Branch Mill Pond.	Developers WC Highway Dept. Town of Deerfield WDOT	WCLCD NRCS	As needed
Encourage and support the implementation of runoff reduction practices during new construction and replacement of infrastructure throughout the watershed.	WCLCD	WCLCD	As needed

People and the Pond

The people who interact with the pond are a key component of the pond 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 WRLPRD, the community, and suite of lake users are essential to maximize the effects of plan implementation.

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

Recreation

The West Branch Mill Pond is a 60-acre impoundment. A public boat launch, owned by the Town of Deerfield, is located on the eastern side of the pond. Boating is no-wake only. All of the survey respondents prefer the no-wake status, with some suggesting an electric motor only regulation. The people of the lake enjoy the quiet nature of the lake including swimming in clear water, freely using kayaks, canoes, and paddleboards without fear of speed boats. The beauty of the lake and its surroundings are appreciated for their quiet nature, beautiful sunsets, sounds of songbirds, and the happy sounds of children enjoying the camp.

Guiding Vision for Recreation

Users of the West Branch Mill Pond will enjoy and appreciate the pond and recreate responsibly. The peaceful nature of the pond will be preserved for enjoyment of fishing, listening to and viewing birds and other wildlife, campfires, non-motorized or slow boats, and the joyful sounds of children experiencing the lake and camp.

Goal 8. Pond users will be knowledgeable about the rules associated with invasive species, fishing, and recreating on the pond.

Objective 8.1. Provide information and rules necessary to make responsible decisions while recreating on the pond.

Actions	Lead person/group	Resources	Timeline
Maintain signage at boat landings and around the lake with important lake, recreation, and habitat information.	Town of Deerfield WRLPRD	WDNR, Town of Deerfield Volunteers	Ongoing
Continue the no-wake designation on West Branch Mill Pond.	Town of Deerfield	WRLPRD	Ongoing
Support enforcement of current fishing regulations (i.e. valid fishing license, bag limits, ice fishing regulations re: fish shanties, bag limit, tip-ups, etc.).	WRLPRD	WDNR Warden Town of Deerfield	Ongoing

Communication and Organization

Working together on common values will help to achieve the goals that are outlined in this plan. This involves communication between the partners identified in this plan, community members, and other lake stewards. 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 West Branch Mill Pond enjoyed by many people; therefore, the strategies to reach them is essential.

Guiding Vision for Communication

The West Branch Mill Pond community will be connected and informed on lake stewardship and management activities.

Goal 9. Maintain open communication between waterfront property owners, pond users, the Town and others named in this plan.

Objective 9.1. Distribute important lake information to residents and lake visitors.

Actions	Lead person/group	Resources	Timeline
Distribute a welcome packet to all new and current residents of West Branch Mill Pond via the WCWLC.	Waushara County	WCWLC	As needed
Announce lake happenings and management activities, events, at the annual meeting.	WRLPRD		Annually
Begin annual newsletter distribution; post this information on the town website and town hall.	WRLPRD	Town of Deerfield	
Manage and keep the District website current. http://www.whiterivermillpond.com/	WRLPRD		Ongoing

Objective 9.2. Stay informed about lake stewardship and network/learn from others.

Action	Lead person/group	Resources	Timeline
Send a WRLPRD representative to the WCWLC. Ask them to report back to the group.	WRLPRD	WCWLC WC UWEX	Ongoing
Encourage waterfront property owners and stewards to obtain "Lake Tides", a quarterly newsletter about Wisconsin lakes.	WRLPRD	UWEX Lakes	Ongoing
Encourage waterfront property owners and stewards to attend the Wisconsin Lakes Convention (typically held in Stevens Point).	WRLPRD	UWEX Lakes	Annually in spring
Encourage waterfront property owners to participate in Lake Leaders Institute.	WRLPRD	UWEX Lakes	Even calendar years - fall

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.

Goal 10. Review plan annually and update every 5 years or as needed.

Objective 10.1. Work with partners to evaluate tasks, successes, and impediments to carrying out this plan.

Actions	Lead person/group	Resources	Timeline
Review plan at annual meeting and discuss accomplishments and next year's plans.	WRLPRD	Partners in this plan.	Annually
Update this plan every 5 years if aquatic plant management requiring a permit is being done.	WRLPRD	Partners Consultant	Every 5 years

Governance

Written by Patrick Nehring, Community Agent, UW-Extension Waushara County.

Lake Management Plan Approval

The draft lake management plan will be completed by the lake association/district board, a committee, or a committee of the whole. The final draft of the lake management plan will be approved through a vote of the lake association/district membership or 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 association/district. The completed plan that has been approved by the lake association/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 adopted 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) adopt the recommendations to the comprehensive plan by ordinance, (b) adopt 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 adopted by the County Board.

The County Board will consider the recommendations from the Planning & Zoning Committee. The County Board may (a) adopt the amendment to the comprehensive plan by ordinance, (b) adopt 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 will 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.

References

Bartz, Dave, 2014. *Fisheries of Marl Lake and West Branch Mill Pond*. Presentation given at Deerfield Town Hall, December 17, 2014.

Boat Ed, 2013. The Handbook of Wisconsin Boating Laws and Responsibilities. Approved by Wisconsin Department of Natural Resources. 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.

Golden Sands Resource Conservation & Development Council, Inc., 2014. Aquatic Macrophyte Survey of West Branch Millpond, Waushara County, Wisconsin.

Haney, Ryan, 2014. Water Quality in Marl Lake and West Branch Mill Pond. Presentation given at Deerfield Town Hall, November 17, 2014.

Panuska and Lillie, 1995. Phosphorus Loadings from Wisconsin Watershed: Recommended Phosphorus Export Coefficients for Agricultural and Forested Watersheds. Bulletin Number 38, Bureau of Research, Wisconsin Department of Natural Resources.

Primsing, M., M. Folgert, J. Staehle, T. Thompson, E. Engle. 1986. White River Fishery System Area, Waushara County, Master Plan. WDNR http://dnr.wi.gov/topic/lands/MasterPlanning/documents/MP-FA-WhiteRiverSystem(Waushara)_1986.pdf

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

Stushek, Kaycie, 2015. *Aquatic Invasive Species in Marl Lake and West Branch Mill Pond*. Presentation given at Deerfield Town Hall, January 12, 2015.

Turyk, Nancy, 2014. *Land Management Practices to Improve Water Quality*. Presentation given at Deerfield Town Hall, November 17, 2014.

UW-Stevens Point Center for Watershed Science and Education, 2014. Waushara County Lakes Study - West Branch Mill Pond. Final Report to Waushara County and Wisconsin Department of Natural Resources.

UW-Stevens Point Center for Watershed Science and Education, 2013. Waushara County Lakes Study - West Branch Mill Pond Summary. Report to Waushara County and Wisconsin Department of Natural Resources. Planning Meeting Presentations

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
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://dnr.wi.gov/topic/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
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

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

Contact: Ted Johnson
Wisconsin Department of Natural Resources
Phone: 920-424-2104
E-mail: 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
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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13591&catid=636

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=12724&catid=636

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
Website: http://dnr.wi.gov/topic/lands/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

Conservation Easements

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

Contact: Ted Johnson
Wisconsin Department of Natural Resources
Phone: 920-424-2104
E-mail: 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

Contact: North Central Conservancy Trust
PO Box 124, Stevens Point, WI 54481
Phone: 715-344-1910
E-mail: 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
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
Website: http://dnr.wi.gov/topic/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
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
Website: http://dnr.wi.gov/topic/fishing/

Frog Monitoring—Citizen Based

Contact: Andrew Badje
Wisconsin Department of Natural Resources
Phone: 608-266-3336
E-mail: Andrew.badje@wisconsin.gov
E-mail: WFTS@wisconsin.gov

Grants

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

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13591&catid=636

Groundwater Quality

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

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

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

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
http://prodoasext.dnr.wi.gov/inter1/hicap$.startup

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

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

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

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

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

Lake Levels

See: Groundwater

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

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

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13592&catid=636

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

Nutrient Management Plans

Contact: 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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13591&catid=636

Nutrient Management Plans (cont'd)

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=12724&catid=636

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
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
Website: http://dnr.wi.gov/topic/stewardship/

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13591&catid=636

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13592&catid=636

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
Website:
http://www.co.waushara.wi.us/pView.aspx?id=13591&catid=636

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
Website: http://waushara.uwex.edu/

Water Quality Monitoring

Contact: Ted Johnson
Wisconsin Department of Natural Resources
Phone: 920-424-2104
E-mail: 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

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

Wetlands

Contact: Scott Koehnke
Wisconsin Department of Natural Resources 647 Lakeland Road, Shawano, WI 54166 Phone: 715-526-4232
E-mail: scott.koehnke@wisconsin.gov
Website: http://dnr.wi.gov/topic/wetlands/

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

Wetland Inventory

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

Woody Habitat

Contact: 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

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

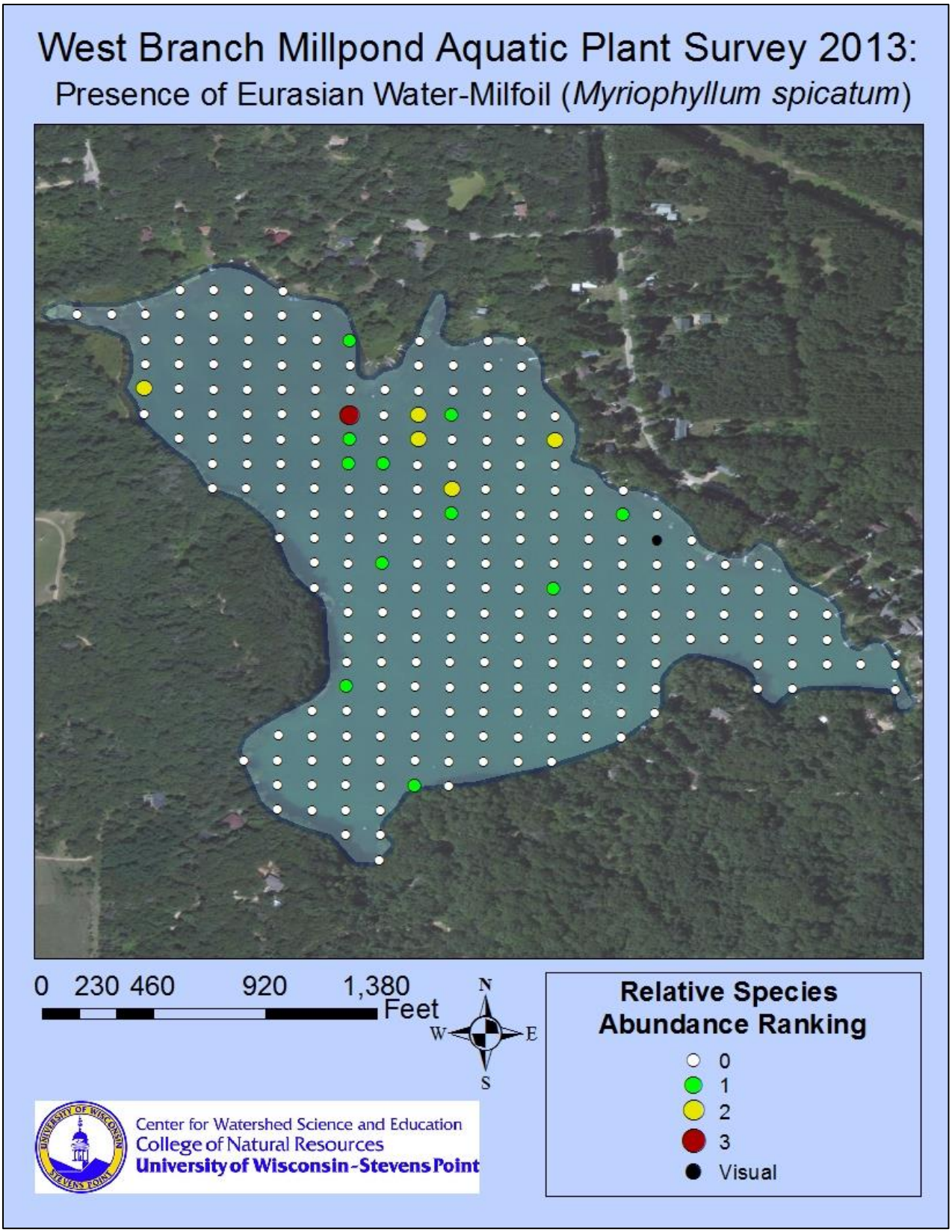
Appendix B. Aquatic Plants

West Branch Mill Pond aquatic plant survey summary, 2013.

	Lake Average	Statewide Average	North Central Hardwood Forests Ecoregion Average
Littoral Frequency of Occurrence (%)	91.8	74.3	76
Maximum Depth of Plant Growth (ft)	31	15.3	15.9
Species Richness (Including visuals)	18	16.8	16.2
Floristic Quality Index (FQI)	25.22	24.1	23.3

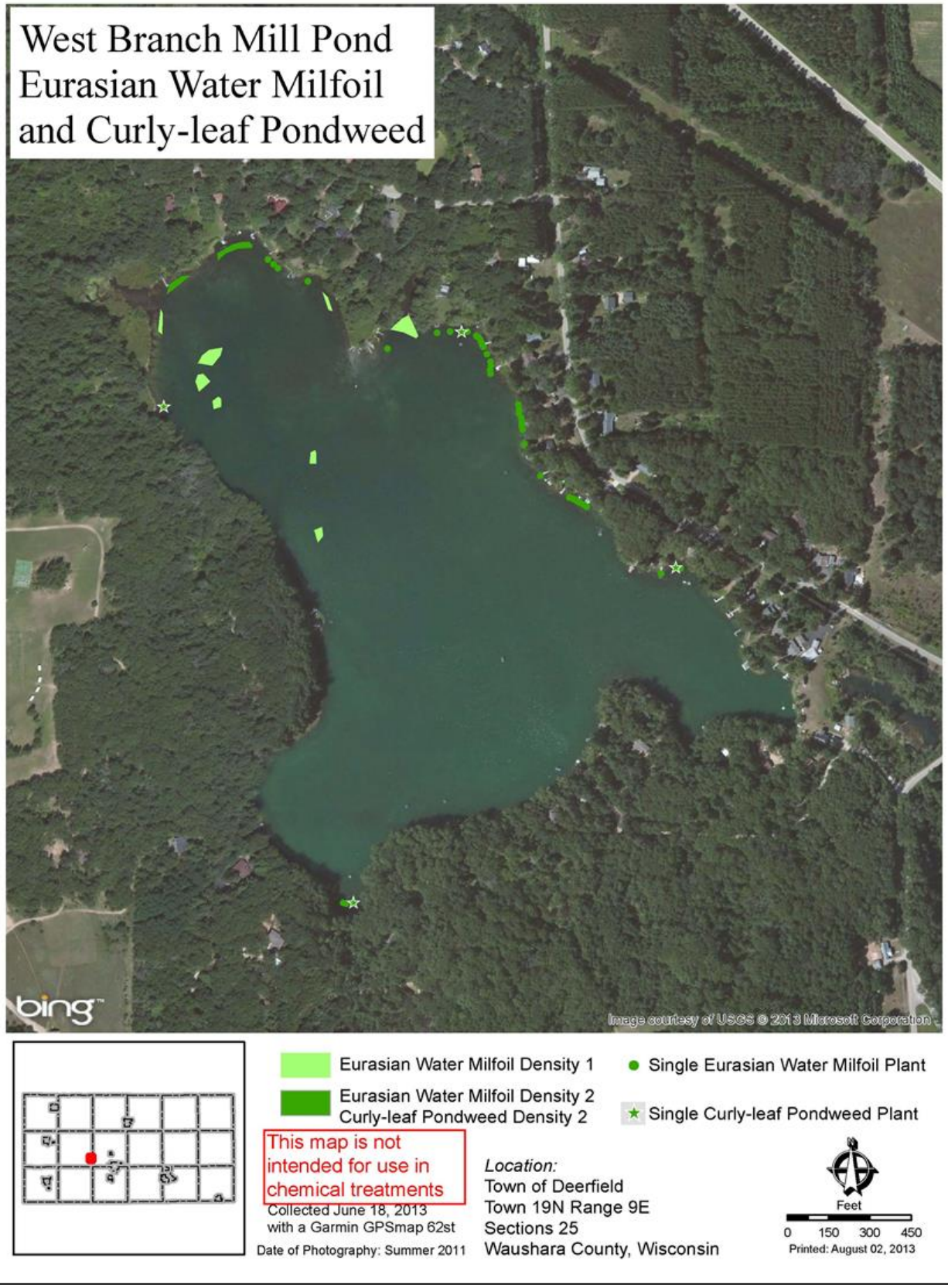
Frequency of occurrence of aquatic plant species observed in West Branch Mill Pond, 2013.

Scientific Name	Common Name	Coefficient of Conservatism Value (C Value)	2013 % Frequency of Occurrence
Floating-leaf Species			
Nymphaea odorata	White water lily	6	0.45
Emergent Species			
Heteranthera dubia	Water star-grass	6	1.79
Submergent Species			
Chara	Muskgrasses	7	60.71
Najas guadalupensis	Southern naiad	8	33.04
Potamogeton friesii	Fries' pondweed	8	27.68
Vallisneria americana	Wild celery	6	26.34
Myriophyllum sibiricum	Northern water-milfoil	6	25.89
Stuckenia pectinata	Sago pondweed	3	15.18
Najas flexilis	Slender naiad	6	9.82
Utricularia vulgaris	Common bladderwort	7	8.93
Myriophyllum spicatum	Eurasian water-milfoil	0	7.59
Ceratophyllum demersum	Coontail	3	4.46
Potamogeton zosteriformis	Flat-stem pondweed	6	4.46
Ranunculus aquatilis	White water crowfoot	8	4.02
Elodea canadensis	Common waterweed	3	3.13
Potamogeton illinoensis	Illinois pondweed	6	3.13
Potamogeton praelongus	White-stem pondweed	8	3.13
Nitella	Nitella	7	2.23



Occurrences of Eurasian watermilfoil in West Branch Mill Pond, 2013.

Chemical spot treatment areas, Stantec, June 2014.


West Branch Mill Pond
Eurasian Water Milfoil
and Curly-leaf Pondweed
bing
Image courtesy of USGS © 2013 Microsoft Corporation
Eurasian Water Milfoil Density 1
Eurasian Water Milfoil Density 2
Curly-leaf Pondweed Density 2
Single Eurasian Water Milfoil Plant
Single Curly-leaf Pondweed Plant
This map is not intended for use in chemical treatments
Collected June 18, 2013
with a Garmin GPSmap 62st
Date of Photography: Summer 2011
Location:
Town of Deerfield
Town 19N Range 9E
Sections 25
Waushara County, Wisconsin
Feet
0 150 300 450
Printed: August 02, 2013

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) discussed during planning meetings:

No Action (option)

ADVANTAGES	LIMITATIONS
∗ No associated cost. ∗ Least disruptive to lake ecosystem.	∗ May not be effective in achieving aquatic plant management objectives.

Hand Pulling (option with proper training)

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

Hand Pulling Using Suction (option for EWM)

ADVANTAGES	LIMITATIONS
∗ 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.	∗ 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 (option for native species)

ADVANTAGES	LIMITATIONS
∗ Removes plant material and nutrients. ∗ Can target specific locations. ∗ Used to manage larger areas for recreational access or fishery management.	∗ 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 (option)

ADVANTAGES	LIMITATIONS
∗ Controls aquatic plants in shallower, near-shore areas. ∗ Can be low cost.	∗ Requires a controlling structure on the lake. ∗ May cause undesired stress on ecosystem. ∗ Cannot be used frequently.

Milfoil Weevils (option)

ADVANTAGES	LIMITATIONS
∗ Natural, native maintenance of native and exotic milfoils. ∗ Prefers the aquatic invasive Eurasian Watermilfoil. ∗ Some lakes may already have a native populations; need a professional stem count and assessment of shoreland health, structure of fishery, etc. ∗ Doesn't harm lake ecosystem.	∗ 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 (option for EWM)

ADVANTAGES	LIMITATIONS
May be less destructive to lake ecosystem than lake-wide treatment.	∗ 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.

Chemical Treatment: Lake-wide (insufficient retention time)

ADVANTAGES	LIMITATIONS
∗ May reduce aquatic invasives for a time. ∗ Treatment not needed as frequently.	∗ Only considered in lakes with aquatic invasive plants. ∗ Usually not fully effective in eradicating target species. ∗ Contaminants may remain in sediment. ∗ 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. ∗ Negatively affects native vegetation. ∗ Effects on lake ecosystem not fully understood. ∗ Opens up space once taken up by natives for invasive species to colonize once again. ∗ ~$4000 per 5 acres.

Appendix C. Rapid Response Plan

SURVEY/MONITOR

1. Learn how to survey/monitor the lake.	**Contacts:** **Water Resource Management Specialist** Wisconsin Department of Natural Resources Phone: 920-424-2104 E-Mail: TedM.Johnson@wisconsin.gov **Regional Aquatic Invasive Species (AIS) Coordinator** Golden Sands RC&D 1100 Main St., Suite #150 Stevens Point, WI 54481 Phone: 715-343-6278 E-Mail: info@goldensandsrcd.org
2. Survey/monitor the lake monthly/seasonally/annually.	If you find a suspected invasive species, report it as soon as possible using the procedure below.

REPORTING A SUSPECTED INVASIVE SPECIES

1. Collect specimens or take photos. Regardless of the method used, provide as much information as possible. Try to include flowers, seeds or fruit, buds, full leaves, stems, roots and other distinctive features. In photos, place a coin, pencil or ruler for scale. Deliver or send specimen ASAP.	Collect, press and dry a complete sample. This method is best because a plant expert can then examine the specimen. **-OR-** Collect a fresh sample. Enclose in a plastic bag with a moist paper towel and refrigerate. **-OR-** Take detailed photos (digital or film).
2. Note the location where the specimen was found. If possible, give the exact geographic location using a GPS (global positioning system) unit, topographic map, or the Wisconsin Gazetteer map book. If using a map, include a photocopy with a dot showing the plant's location. You can use TopoZone.com to find the precise location on a digital topographic map. Click the cursor on the exact collection site and note the coordinates (choose UTM or Latitude/Longitude).	Provide one or more of the following: • Latitude & Longitude • UTM (Universal Transverse Mercator) coordinates • County, Township, Range, Section, Part-section • Precise written site description, noting nearest city & road names, landmarks, local topography

3. Gather information to aid in positive species identification.	• Collection date and county • Your name, address, phone, email • Exact location (Latitude/Longitude or UTM preferred, or Township/Range/Section) • Plant name (common or scientific) • Land ownership (if known) • Population description (estimated number of plants and area covered) • Habitat type(s) where found (forest, field, prairie, wetland, open water)
4. Mail or bring specimens and information to any of the following locations: Digital photos may be emailed.	**Wisconsin Dept. Natural Resources** 427 E. Tower Drive, Suite 100 Wautoma, WI 54982 Phone: (920) 787-4686 **Regional AIS Coordinator** Golden Sands RC&D 1100 Main St., Suite #150 Stevens Point, WI 54481 Phone: 715-343-6214 E-Mail : info@goldensandsrcd.org **UW-Stevens Point Herbarium** 301 Trainer Natural Resources Building 800 Reserve Street Stevens Point, WI 54481 Phone: 715-346-4248 E-Mail: ejudziew@uwsp.edu **Wisconsin Invasive Plants Reporting & Prevention Project** Herbarium-UW-Madison 430 Lincoln Drive Madison, WI 53706 Phone: (608) 267-7612 E-Mail: invasiveplants@mailplus.wisc.edu
5. Once the specimen is dropped off or sent for positive identification, be sure to contact:	**Regional AIS Coordinator** Golden Sands RC&D 1100 Main St., Suite #150 Stevens Point, WI 54481 Phone: 715-343-6214 E-Mail : info@goldensandsrcd.org

If an invasive species is confirmed, the Regional AIS Coordinator will make the following public information contacts:

- **Wisconsin Department of Natural Resources**
  427 E. Tower Drive, Suite 100
  Wautoma, WI 54982
  Phone: (920) 787-4686

- **The town** in which the water body is located.
  Town of: Deerfield
  Contact: Town Clerk
  Phone: 608-764-2608

- **University of Wisconsin-Stevens Point**
  Water Resource Scientist
  Nancy Turyk
  Trainer Natural Resources Building
  800 Reserve Street
  Stevens Point, WI 54481Telephone: 715-346-4155
  E-mail: nturyk@uwsp.edu

- **Local Residents**

- **Lake Association/District**

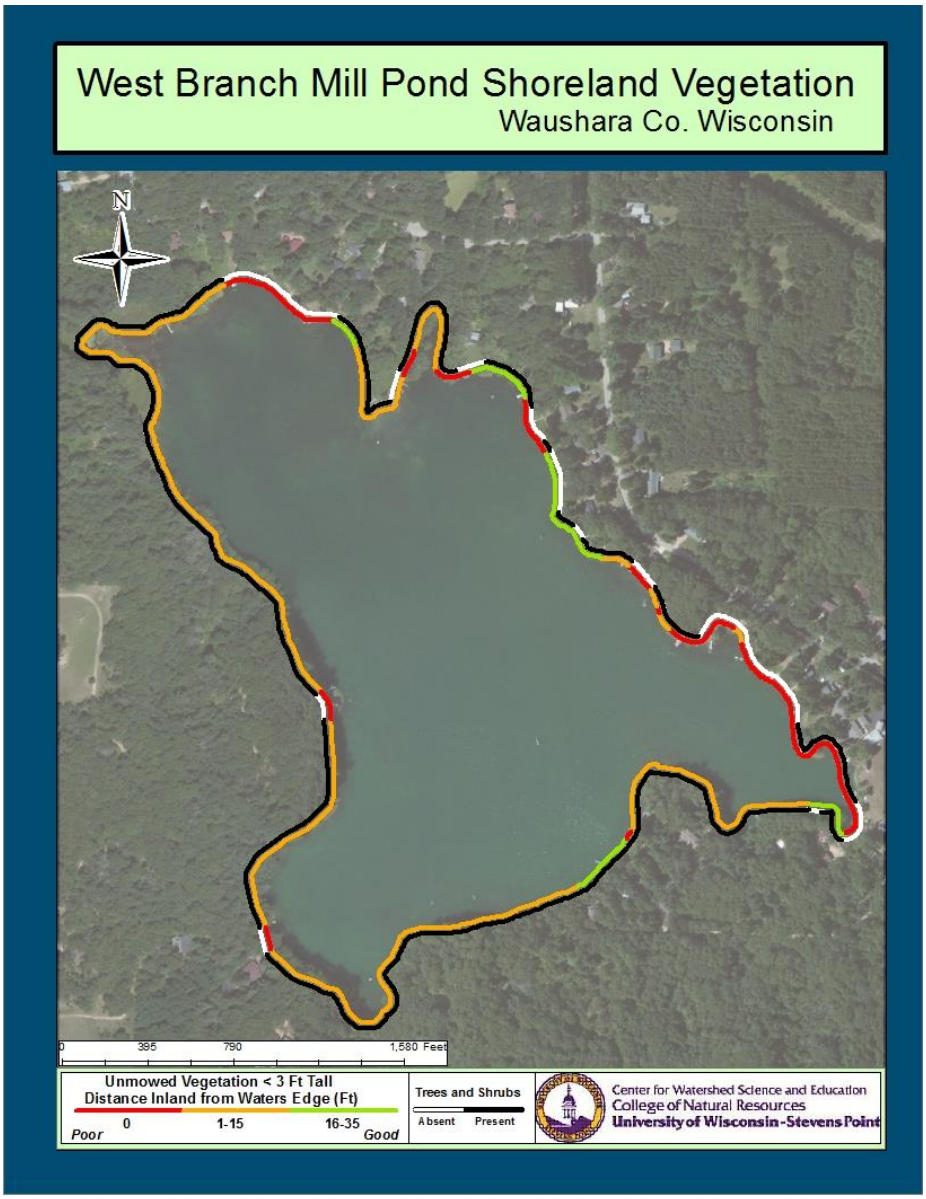
If an invasive species is confirmed, the Secretary of the White River Lake Protection & Rehabilitation District will make the following public information contacts:

- **Newspapers**: Argus, Resorter

Contact the WDNR to post notice(s) at the access point(s) to the water body.

Appendix D. Shoreland Survey – 2011

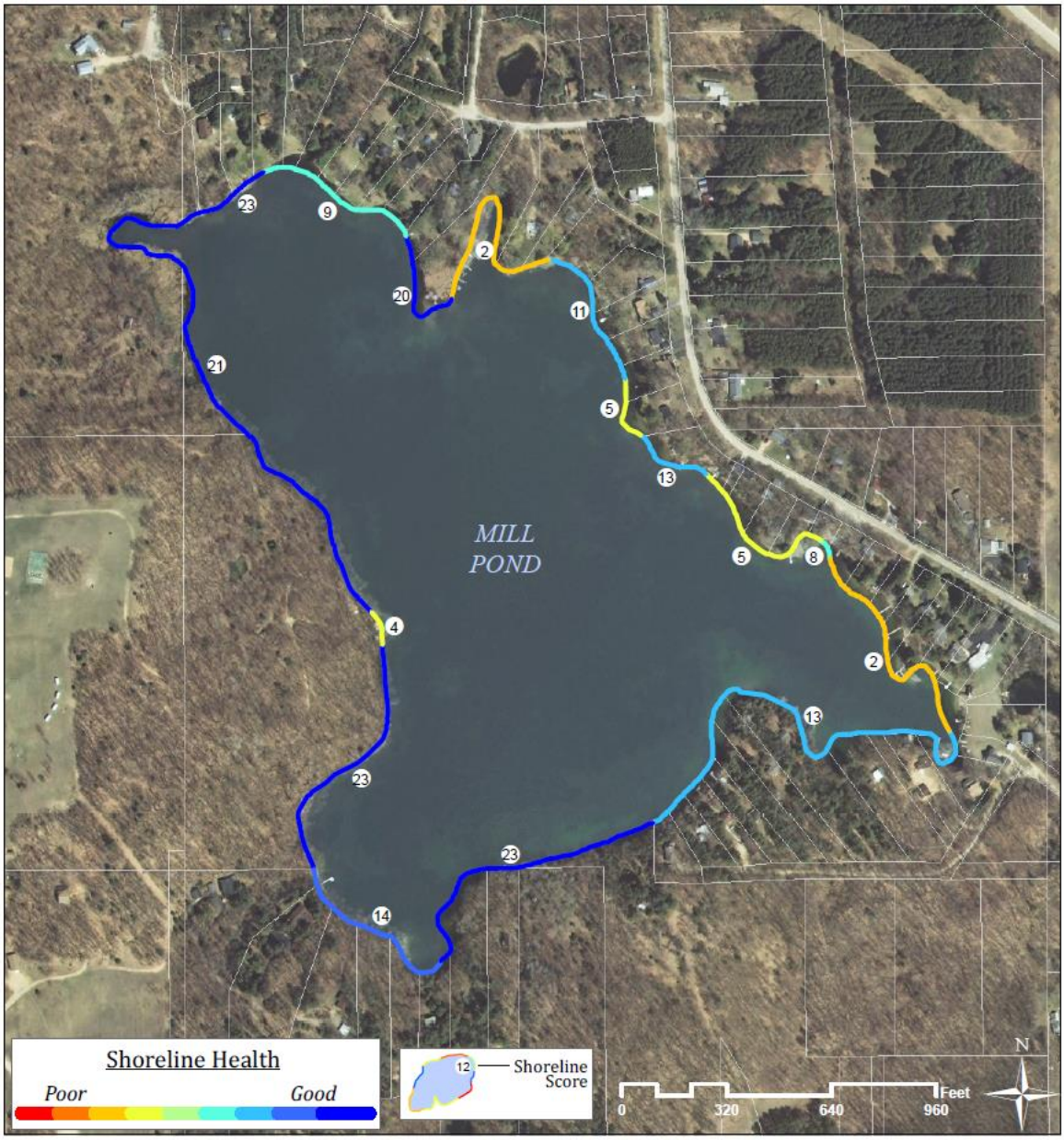
A scoring system was developed for the collected data to provide a more holistic assessment. Areas that are healthy will need strategies to keep them healthy, and areas with potential problem areas and where management and conservation may be warranted may need a different set of strategies for improvement. 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 West Branch Mill Pond are displayed on the following 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 West Branch Mill Pond's shorelands are in good shape, but some portions have challenges that should be addressed. None of West Branch Mill Pond 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/.

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

Waushara County Shoreline Assessment *MILL POND*



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 warrented. 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

Center for Land Use Education

Map created by Dan McFarlane
Center for Land Use Education

Appendix E. Lake User Survey Results

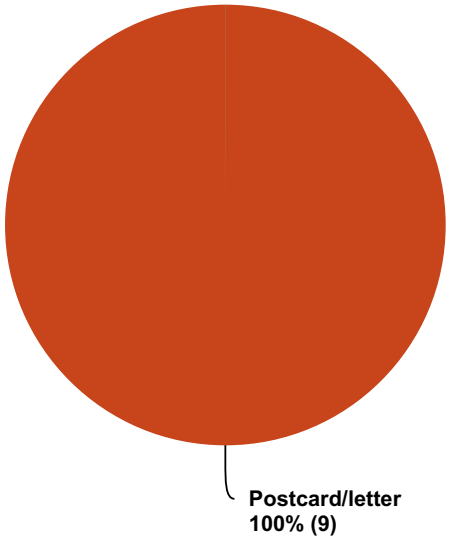
Q1 What is your Waushara County Lakes Survey ID?

Answered: 13 Skipped: 0

#	Responses	Date
1	[redacted]	10/30/2014 3:45 PM
2	[redacted]	10/30/2014 3:45 PM
3	[redacted]	10/29/2014 11:01 AM
4	[redacted]	10/28/2014 10:51 PM
5	[redacted]	10/28/2014 12:54 PM
6	[redacted]	10/25/2014 10:21 AM
7	[redacted]	10/25/2014 10:21 AM
8	[redacted]	10/25/2014 10:02 AM
9	[redacted]	10/25/2014 6:17 AM
10	[redacted]	10/24/2014 10:29 PM
11	[redacted]	10/21/2014 9:28 PM
12	[redacted]	10/20/2014 8:30 PM
13	[redacted]	10/19/2014 8:17 PM

Q2 How did you hear about this survey?

Answered: 9 Skipped: 4

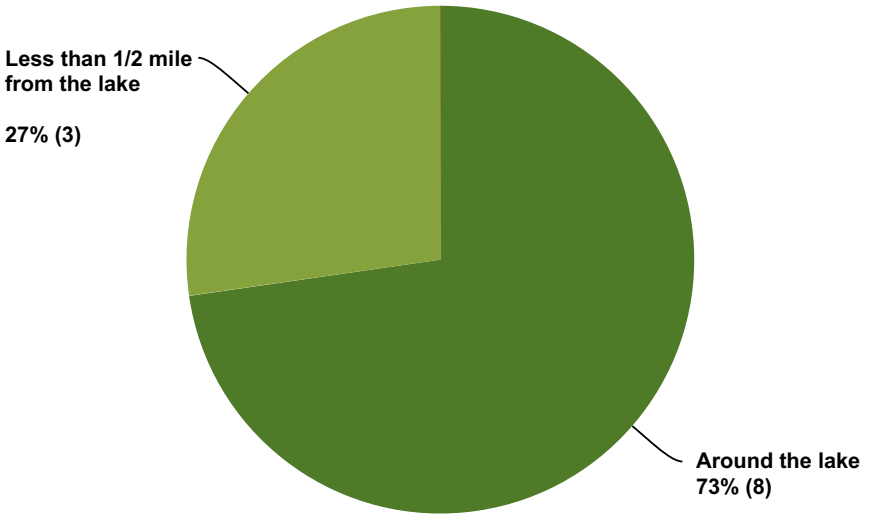


Answer Choices	Responses	
E-mail	0%	0
Newspaper	0%	0
Postcard/letter	100%	9
Facebook	0%	0
Radio	0%	0
Total		9

#	Other (please specify)	Date
1	Another owner	10/25/2014 6:19 AM

Q3 Do you own or rent property...

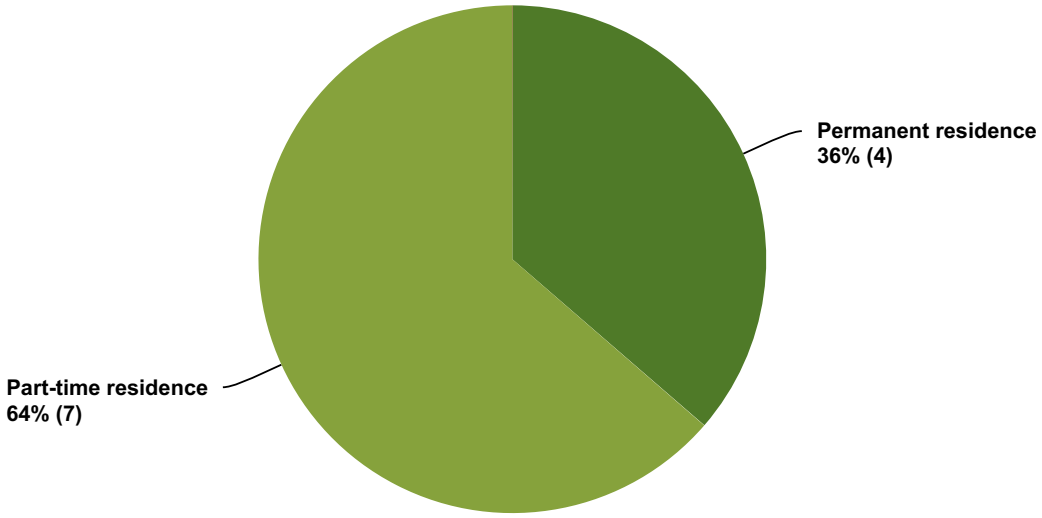
Answered: 11 Skipped: 2



Answer Choices	Responses	
Around the lake	73%	8
Less than 1/2 mile from the lake	27%	3
1/2 mile to 1 mile of the lake	0%	0
More than 1 mile from the lake	0%	0
I do not own or rent property near the lake	0%	0
Total		11

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: 11 Skipped: 2

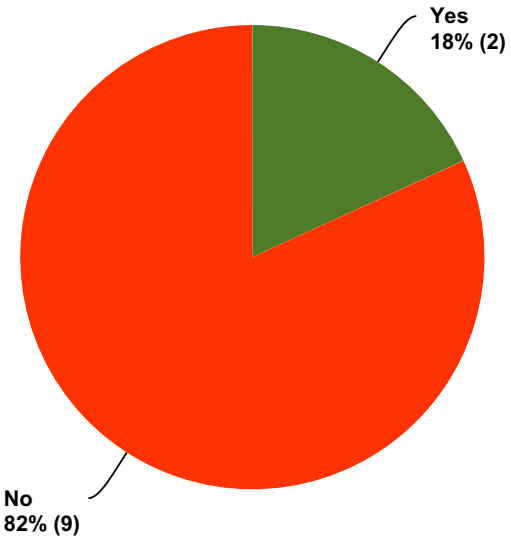


Answer Choices	Responses	
Permanent residence	36%	4
Part-time residence	64%	7
I do not own or rent property near the lake	0%	0
Total		11

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

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

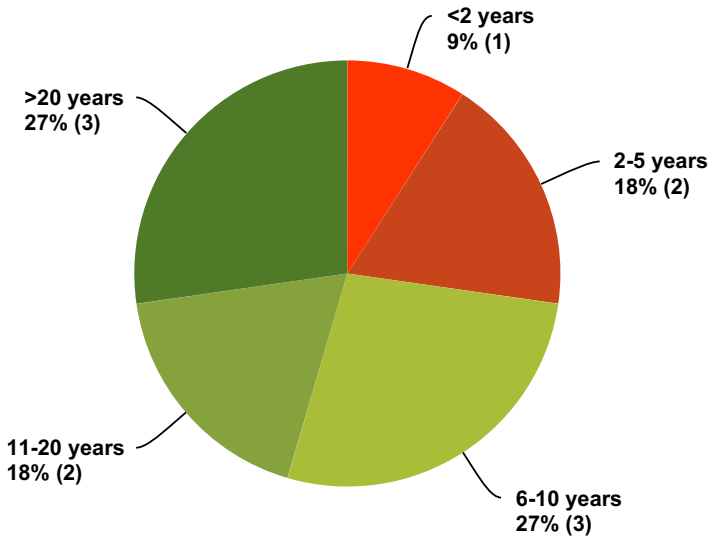
Answered: 11 Skipped: 2



Answer Choices	Responses	
Yes	18%	2
No	82%	9
Total		11

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

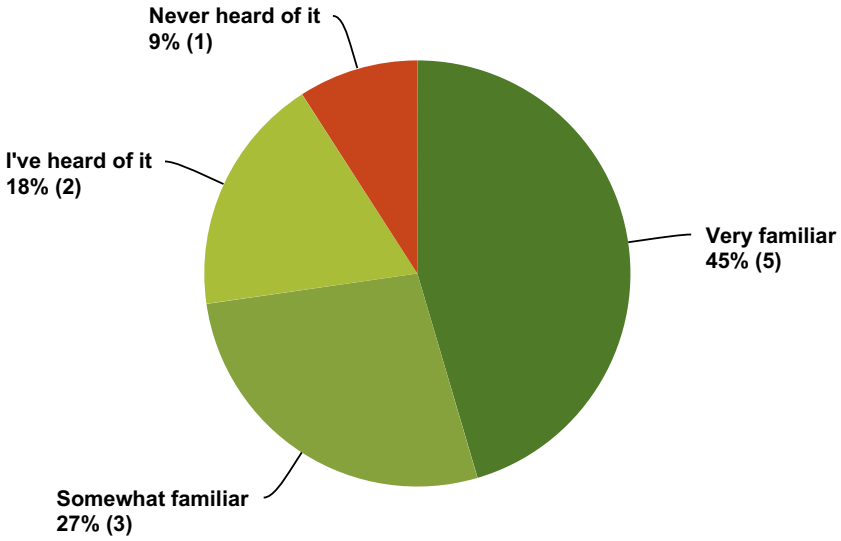
Answered: 11 Skipped: 2



Answer Choices	Responses	
<2 years	9%	1
2-5 years	18%	2
6-10 years	27%	3
11-20 years	18%	2
>20 years	27%	3
Total		11

Q7 Are you familiar with the White River Lake Protection and Rehabilitation District?

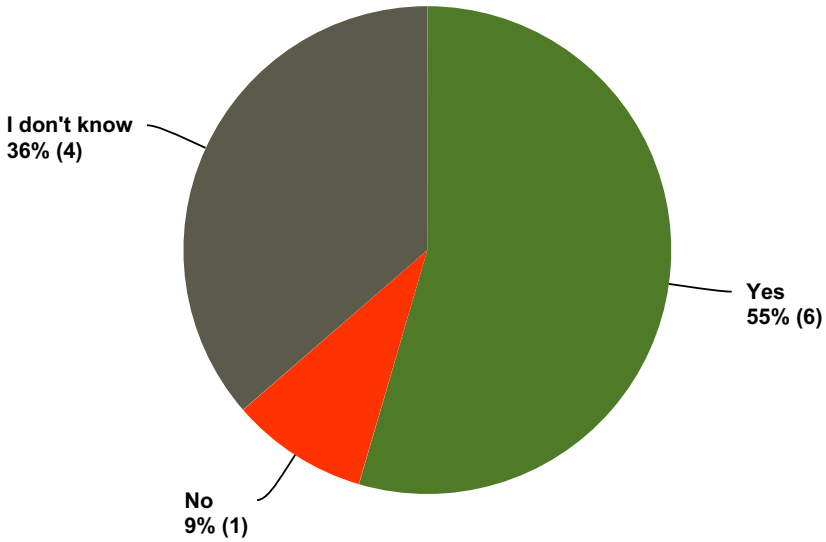
Answered: 11 Skipped: 2



Answer Choices	Responses	
Very familiar	45%	5
Somewhat familiar	27%	3
I've heard of it	18%	2
Never heard of it	9%	1
Total		11

Q8 Are you a member of the White River Lake Protection and Rehabilitation District?

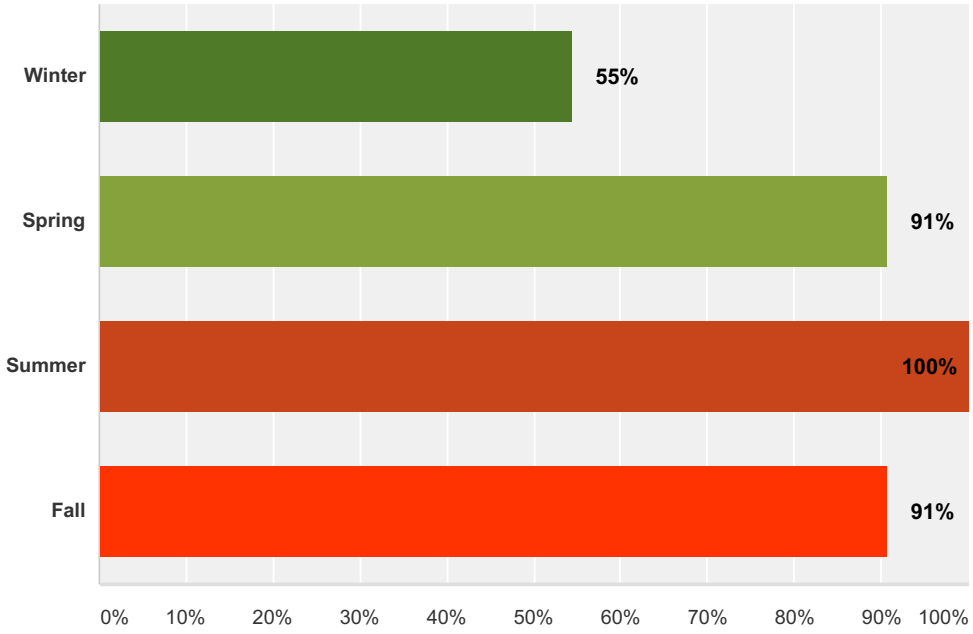
Answered: 11 Skipped: 2



Answer Choices	Responses	
Yes	55%	6
No	9%	1
I don't know	36%	4
Total		11

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

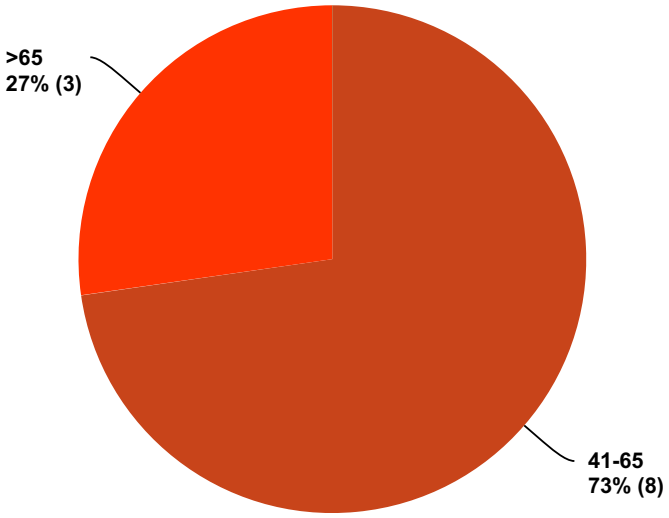
Answered: 11 Skipped: 2



Answer Choices	Responses	
Winter	55%	6
Spring	91%	10
Summer	100%	11
Fall	91%	10
Total Respondents: 11		

Q10 Which category below includes your age?

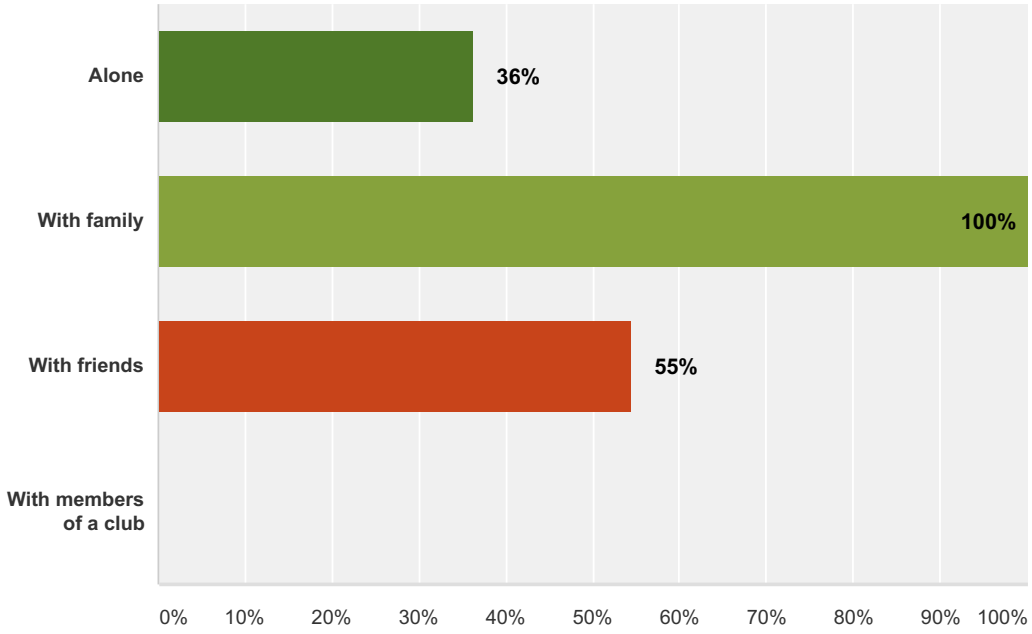
Answered: 11 Skipped: 2



Answer Choices	Responses	
Under 18	0%	0
18-40	0%	0
41-65	73%	8
>65	27%	3
Total		11

Q11 When you visit White Branch Mill Pond, are you typically...(check all that apply)

Answered: 11 Skipped: 2

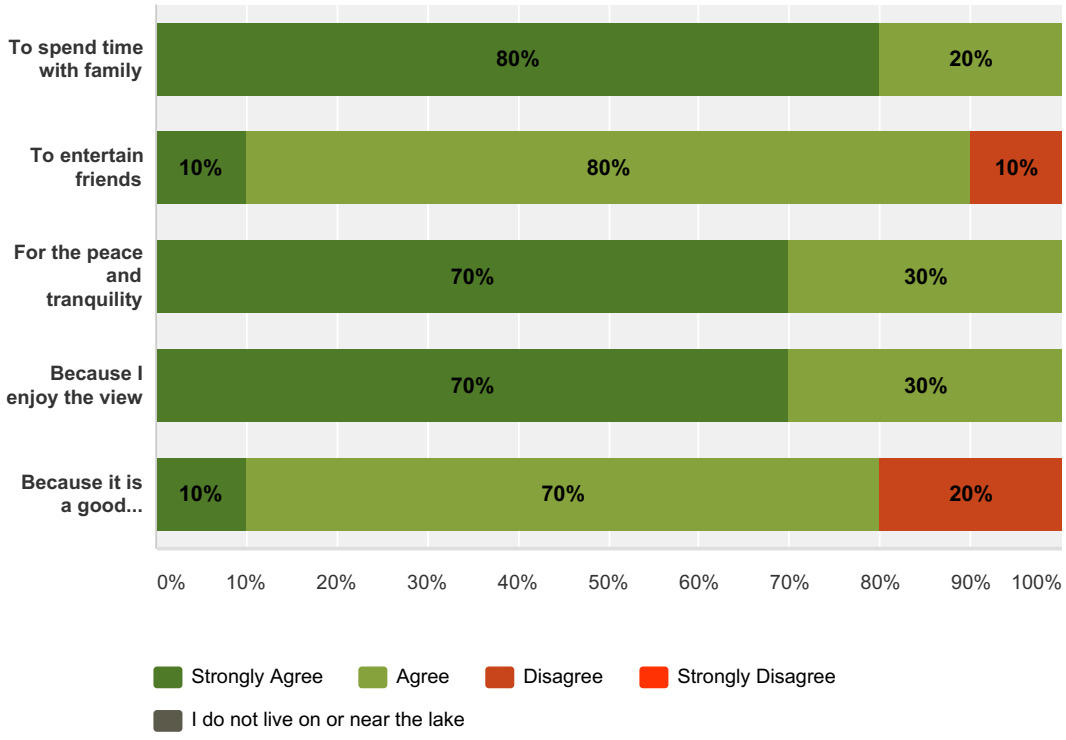


Answer Choices	Responses	
Alone	36%	4
With family	100%	11
With friends	55%	6
With members of a club	0%	0
Total Respondents: 11		

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

Q12 I live on or near the lake...

Answered: 10 Skipped: 3



	Strongly Agree	Agree	Disagree	Strongly Disagree	I do not live on or near the lake	Total
To spend time with family	**80%** 8	**20%** 2	**0%** 0	**0%** 0	**0%** 0	10
To entertain friends	**10%** 1	**80%** 8	**10%** 1	**0%** 0	**0%** 0	10
For the peace and tranquility	**70%** 7	**30%** 3	**0%** 0	**0%** 0	**0%** 0	10
Because I enjoy the view	**70%** 7	**30%** 3	**0%** 0	**0%** 0	**0%** 0	10
Because it is a good investment	**10%** 1	**70%** 7	**20%** 2	**0%** 0	**0%** 0	10

Q13 What do you value most about the West Branch Mill Pond?

Answered: 10 Skipped: 3

#	Responses	Date
1	Small and quiet lake	10/30/2014 3:48 PM
2	value of our lake	10/29/2014 11:07 AM
3	No water skiing , quiet and good wild life habitat and the great water of the lake. Before I purchased this property I new the water quality and drainage aspect of every lake in Waushara county and found this to be the best.	10/28/2014 11:02 PM
4	Serenity	10/28/2014 12:56 PM
5	Water quality; the no-wake rule; fishing; annual boat parade; pleasant neighbors	10/25/2014 10:29 AM
6	Fishing and clean swimming	10/25/2014 6:19 AM
7	That it is a no wake, peaceful lake; & a clean lake.	10/24/2014 10:35 PM
8	beautiful views and crystal clear water	10/21/2014 9:33 PM
9	High quality of the water resource - good fishing, good water quality/clarity, limited development (bible camp is a big asset), no-wake speed helps to stabilize nutrients.	10/20/2014 8:43 PM
10	clean water	10/19/2014 8:23 PM

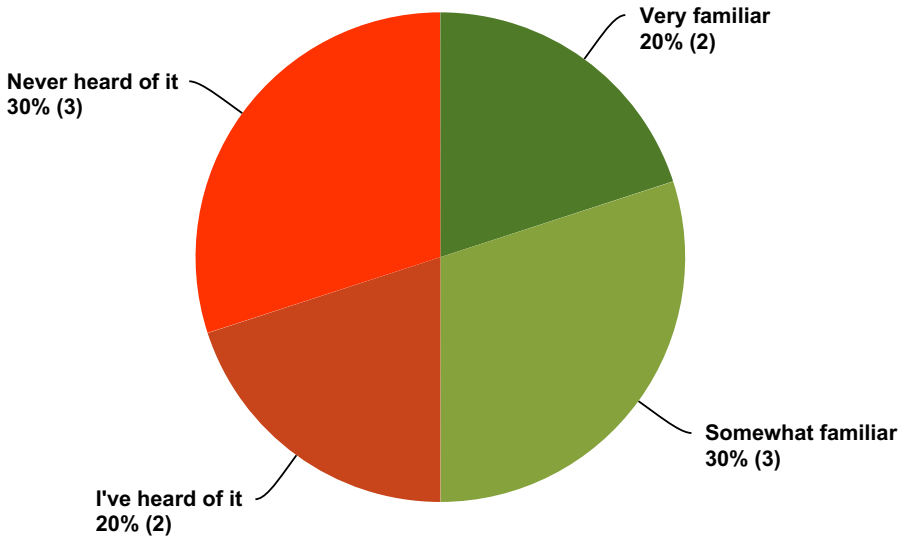
Q14 In your opinion, what should be done to restore, maintain, or improve the West Branch Mill Pond?

Answered: 9 Skipped: 4

#	Responses	Date
1	Continue to improve lake week harvesting and try to reduce number of Canadian geese.	10/30/2014 3:48 PM
2	already active in maintaining & improving lake . Do water samples twice a year & check yearly on EWM & Curly Leaf pond weed & do what needs to be done to control problem	10/29/2014 11:07 AM
3	1) A landing entrance fee like the Chain of Lakes 2) A regular stocking program that is guided by the DNR or some type of smart lake person 3) Educate every person on the lake of exactly how to identify invasive species. What is the best way to protect the shore line from, erosion. 4) Best horticultural practices for fertilizing plants in the high water mark. This education on zero phosphorous leaching into lake. 5)Last of all it is all property owners to be willing to protect the most valuable part of their real estate investment.. The Lake!	10/28/2014 11:02 PM
4	Do all that can be done to preserve the quality of the lake.	10/25/2014 10:29 AM
5	Keep the weeds trimmed	10/25/2014 6:19 AM
6	Encourage those who live on the water to not use harmful fertilizers on their lawn. And, I don't think it is being done anymore, but if it is, discourage people from putting out feed bins for the geese.	10/24/2014 10:35 PM
7	continue to protect and restore it from invasive species	10/21/2014 9:33 PM
8	Maintain no-wake speed, maintain no development in bible camp area, continue to monitor submergent aquatics for species type and abundance.	10/20/2014 8:43 PM
9	remove invasive plants, stock fish, remove size limit on northern pike.	10/19/2014 8:23 PM

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

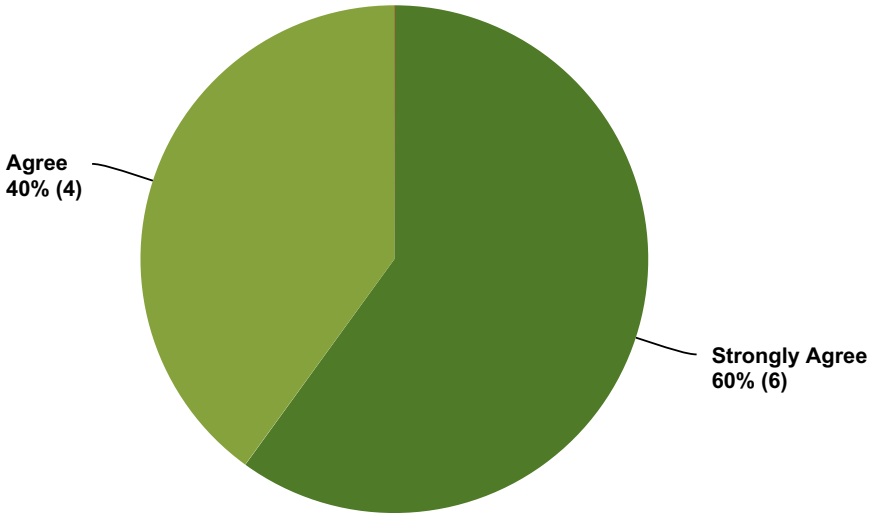
Answered: 10 Skipped: 3



Answer Choices	Responses	
Very familiar	20%	2
Somewhat familiar	30%	3
I've heard of it	20%	2
Never heard of it	30%	3
Total		10

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

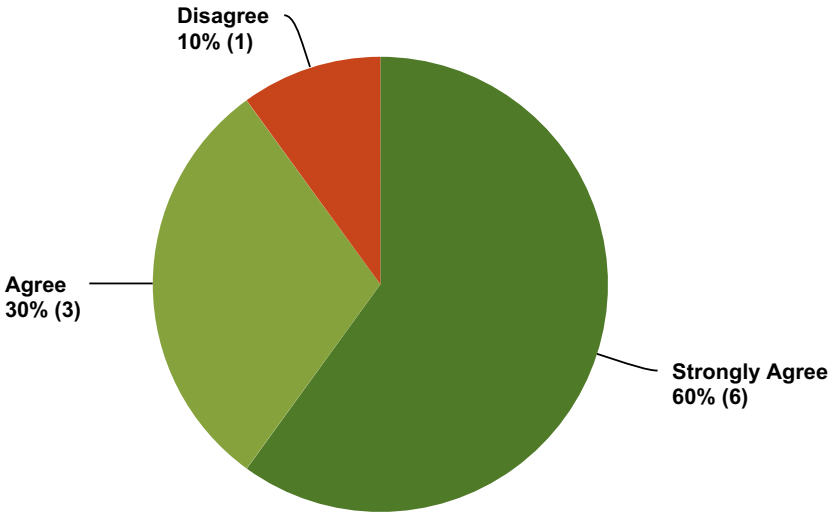
Answered: 10 Skipped: 3



Answer Choices	Responses	
Strongly Agree	60%	6
Agree	40%	4
Disagree	0%	0
Strongly Disagree	0%	0
Total		10

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

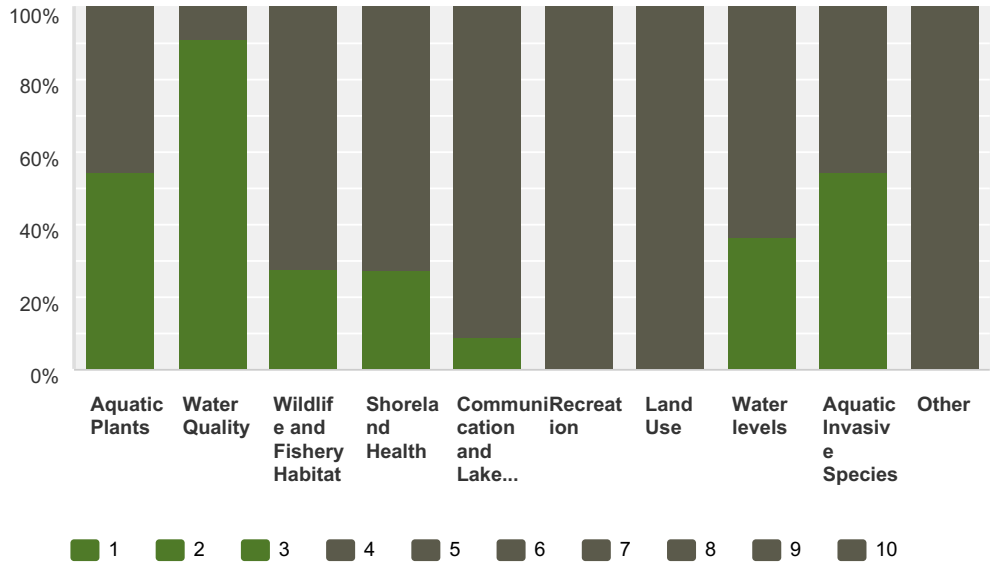
Answered: 10 Skipped: 3



Answer Choices	Responses	
Strongly Agree	60%	6
Agree	30%	3
Disagree	10%	1
Strongly Disagree	0%	0
Total		10

Q18 Which of the following meeting topics, in your opinion, are the most important to talk about regarding the West Branch Mill Pond? (Please rank at least your top three.)

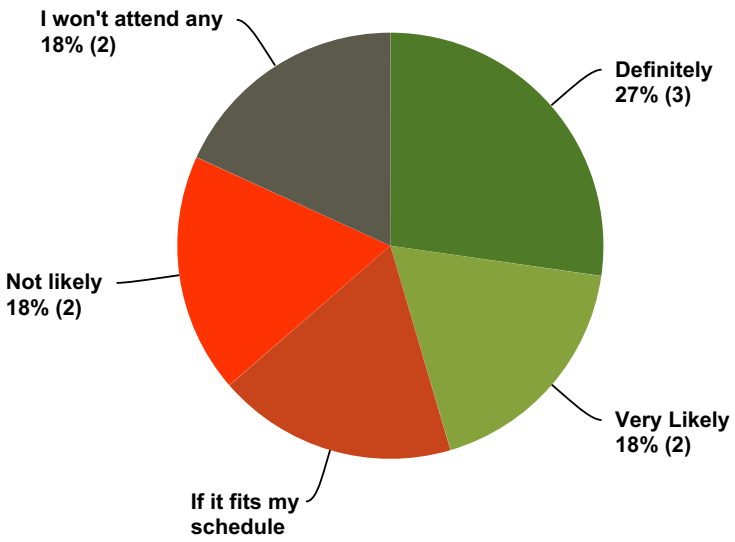
Answered: 11 Skipped: 2



	1	2	3	4	5	6	7	8	9	10	Total	Average Ranking
Aquatic Plants	0% 0	27% 3	27% 3	18% 2	0% 0	9% 1	18% 2	0% 0	0% 0	0% 0	11	7.09
Water Quality	55% 6	27% 3	9% 1	9% 1	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	11	9.27
Wildlife and Fishery Habitat	0% 0	9% 1	18% 2	27% 3	45% 5	0% 0	0% 0	0% 0	0% 0	0% 0	11	6.91
Shoreland Health	9% 1	9% 1	9% 1	0% 0	36% 4	36% 4	0% 0	0% 0	0% 0	0% 0	11	6.45
Communication and Lake Group Support	9% 1	0% 0	0% 0	0% 0	9% 1	36% 4	18% 2	9% 1	18% 2	0% 0	11	4.64
Recreation	0% 0	0% 0	0% 0	18% 2	0% 0	9% 1	27% 3	36% 4	9% 1	0% 0	11	4.09
Land Use	0% 0	0% 0	0% 0	9% 1	0% 0	0% 0	27% 3	45% 5	18% 2	0% 0	11	3.45
Water levels	9% 1	9% 1	18% 2	0% 0	9% 1	9% 1	9% 1	9% 1	27% 3	0% 0	11	5.36
Aquatic Invasive Species	18% 2	18% 2	18% 2	18% 2	0% 0	0% 0	0% 0	0% 0	27% 3	0% 0	11	6.73
Other	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	0% 0	100% 11	11	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. How likely is it that you will attend one or more of the planning sessions?

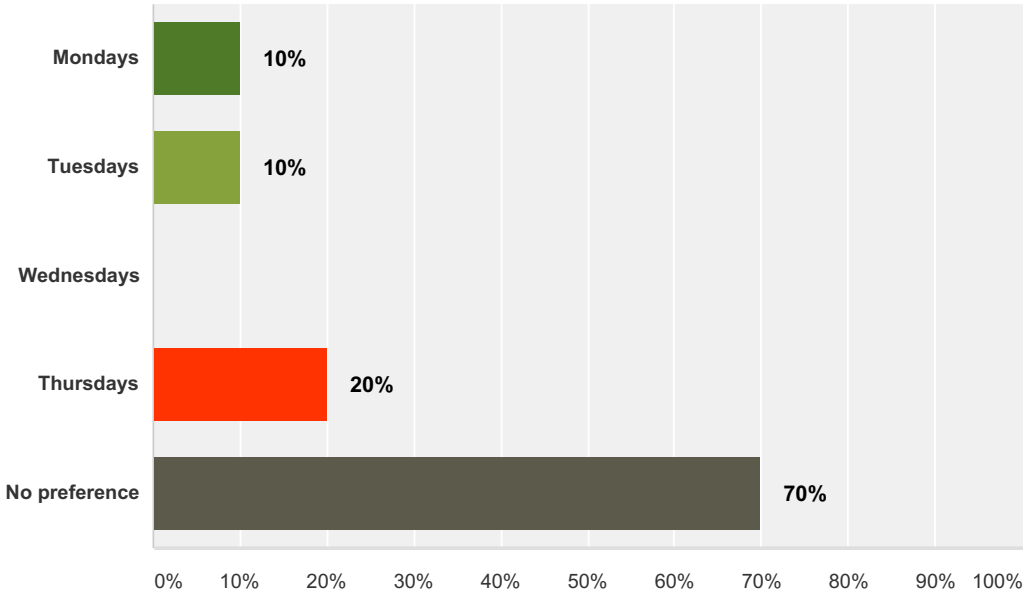
Answered: 11 Skipped: 2



Answer Choices	Responses	
Definitely	27%	3
Very Likely	18%	2
If it fits my schedule	18%	2
Not likely	18%	2
I won't attend any	18%	2
Total		11

Q20 Previous experience has shown that weekday evenings work best for most people. If you will attend the planning sessions, which weeknights do you prefer?

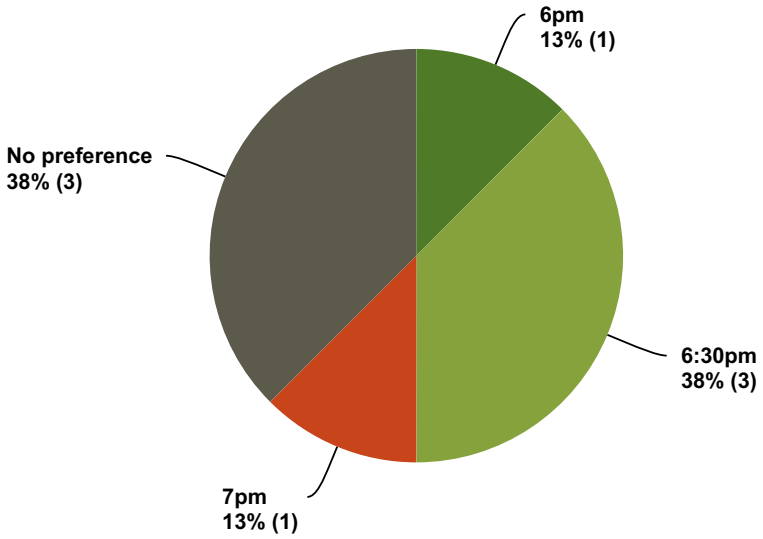
Answered: 10 Skipped: 3



Answer Choices	Responses	
Mondays	10%	1
Tuesdays	10%	1
Wednesdays	0%	0
Thursdays	20%	2
No preference	70%	7
Total Respondents: 10		

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

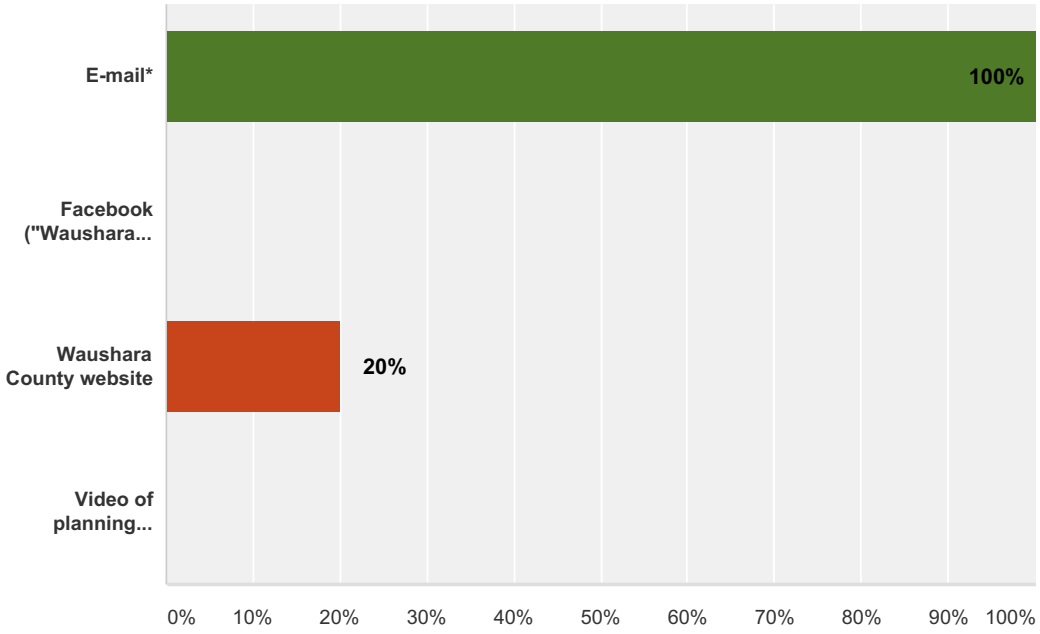
Answered: 8 Skipped: 5



Answer Choices	Responses	
6pm	13%	1
6:30pm	38%	3
7pm	13%	1
7:30pm	0%	0
No preference	38%	3
Total		8

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

Answered: 10 Skipped: 3



Answer Choices	Responses	
E-mail*	**100%**	10
Facebook ("Waushara County Lakes Project")	**0%**	0
Waushara County website	**20%**	2
Video of planning meeting posted on the web	**0%**	0
Total Respondents: 10		

#	Other (please specify)	Date
1	Skype, FaceTime, etc.	10/20/2014 8:49 PM

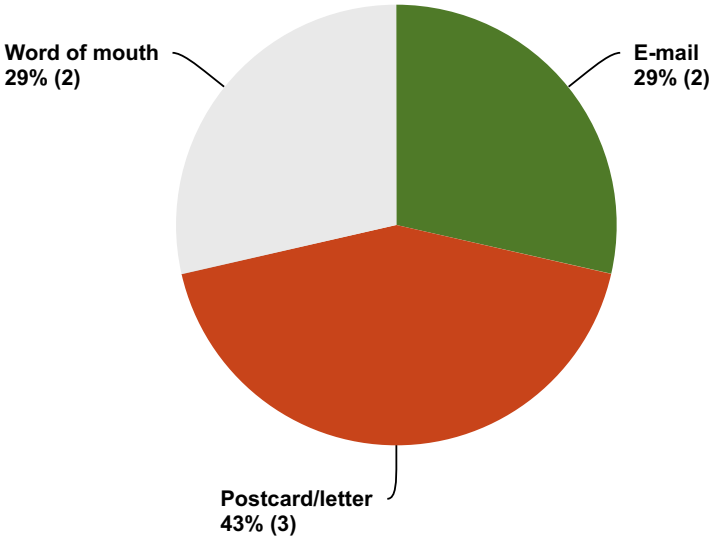
Q1 What is your Waushara County Lakes Study ID?

Answered: 7 Skipped: 0

#	Responses	Date
1	[redacted]	11/15/2014 2:18 PM
2	[redacted]	11/15/2014 12:59 PM
3	[redacted]	11/14/2014 6:27 PM
4	[redacted]	11/14/2014 6:18 PM
5	[redacted]	11/14/2014 11:12 AM
6	[redacted]	11/14/2014 5:40 AM
7	[redacted]	11/12/2014 9:36 AM

Q2 How did you hear about this survey?

Answered: 7 Skipped: 0

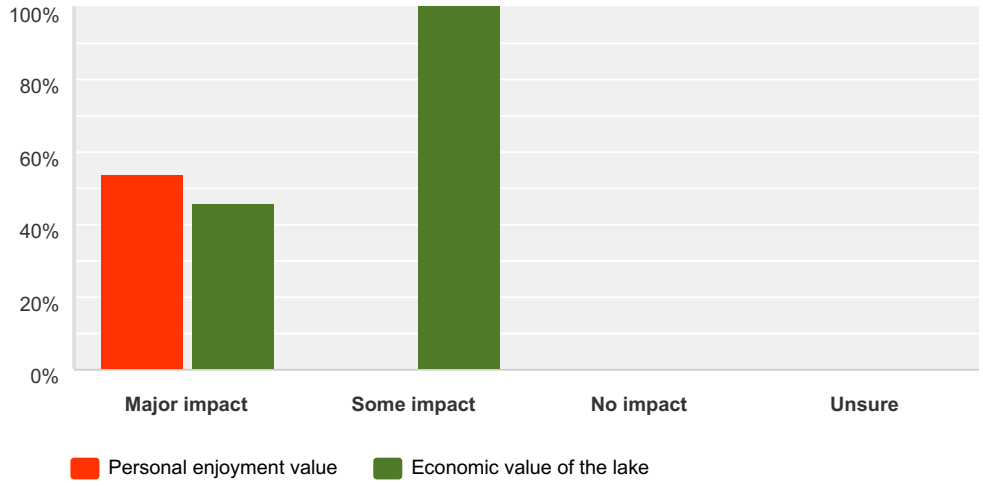


Answer Choices	Responses	
E-mail	29%	2
Newspaper	0%	0
Postcard/letter	43%	3
Facebook	0%	0
Radio	0%	0
Word of mouth	29%	2
Total		7

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

Q3 How much impact does the water quality of West Branch have on the following?

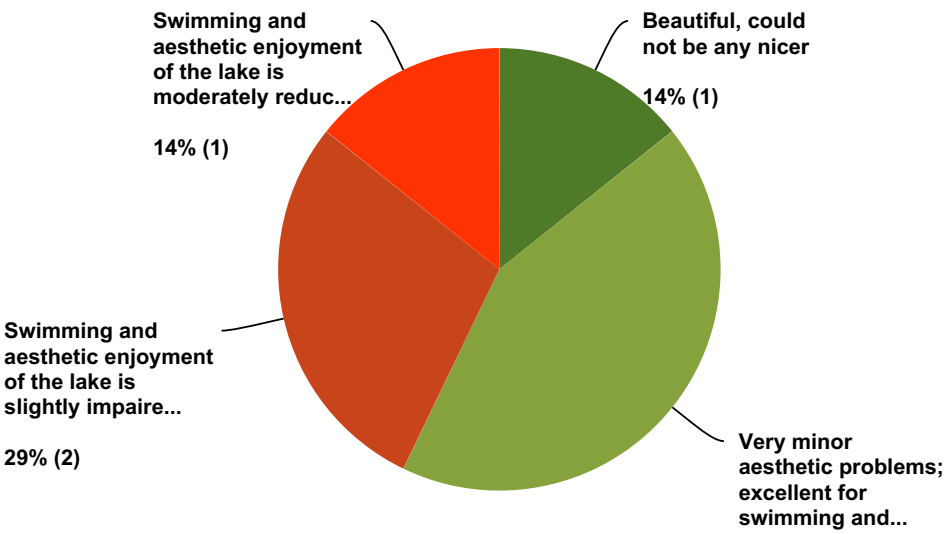
Answered: 7 Skipped: 0



	Personal enjoyment value	Economic value of the lake	Total
Major impact	**54%** 7	**46%** 6	13
Some impact	**0%** 0	**100%** 1	1
No impact	**0%** 0	**0%** 0	0
Unsure	**0%** 0	**0%** 0	0

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

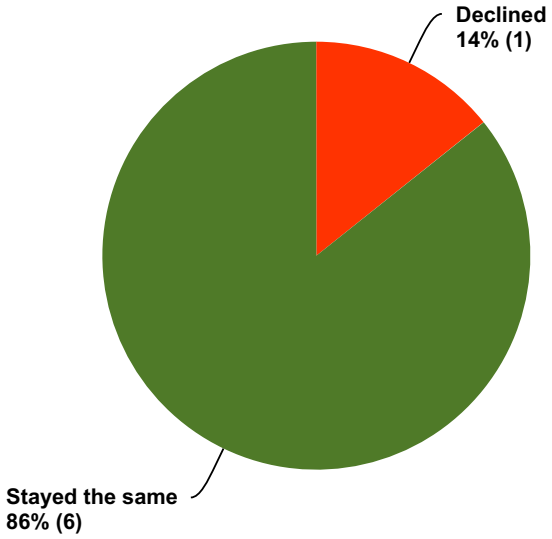
Answered: 7 Skipped: 0



Answer Choices	Responses	
Beautiful, could not be any nicer	14%	1
Very minor aesthetic problems; excellent for swimming and boating enjoyment	43%	3
Swimming and aesthetic enjoyment of the lake is slightly impaired because of algae	29%	2
Swimming and aesthetic enjoyment of the lake is moderately reduced because of algae	14%	1
Swimming and aesthetic enjoyment of the lake is substantially reduced because of algae	0%	0
None of the above	0%	0
Unsure	0%	0
Total		7

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

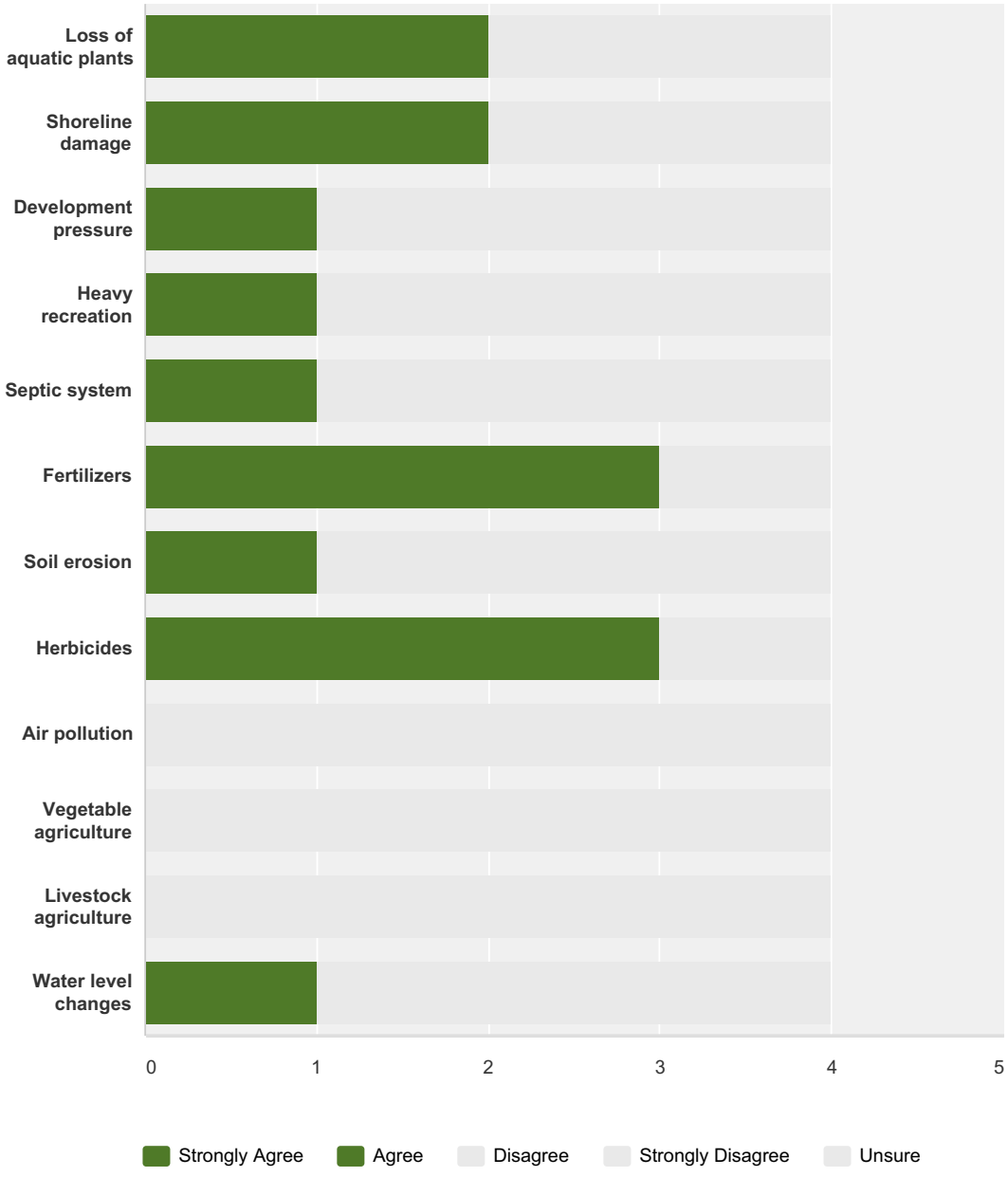
Answered: 7 Skipped: 0



Answer Choices	Responses	
Improved	0%	0
Declined	14%	1
Stayed the same	86%	6
Unsure	0%	0
Total		7

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

Answered: 4 Skipped: 3

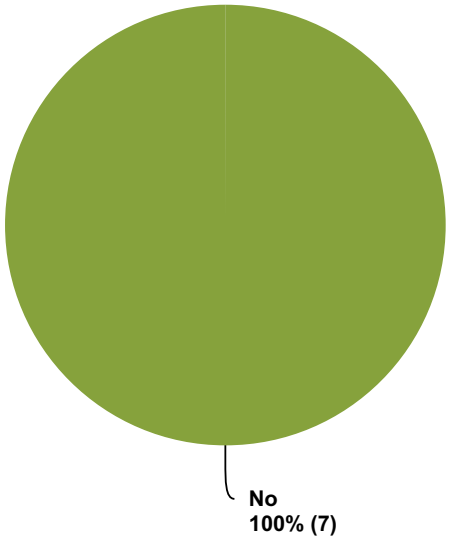


	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure	Total Respondents
Loss of aquatic plants	25% 1	25% 1	25% 1	0% 0	25% 1	4
Shoreline damage	0% 0	50% 2	25% 1	0% 0	25% 1	4
Development pressure	0% 0	25% 1	25% 1	25% 1	25% 1	4
Heavy recreation	0% 0	25% 1	75% 3	0% 0	0% 0	4

Septic system	**0%** 0	**25%** 1	**50%** 2	**0%** 0	**25%** 1	4
Fertilizers	**0%** 0	**75%** 3	**0%** 0	**0%** 0	**25%** 1	4
Soil erosion	**0%** 0	**25%** 1	**50%** 2	**0%** 0	**25%** 1	4
Herbicides	**0%** 0	**75%** 3	**0%** 0	**0%** 0	**25%** 1	4
Air pollution	**0%** 0	**0%** 0	**50%** 2	**25%** 1	**25%** 1	4
Vegetable agriculture	**0%** 0	**0%** 0	**75%** 3	**0%** 0	**25%** 1	4
Livestock agriculture	**0%** 0	**0%** 0	**100%** 4	**0%** 0	**0%** 0	4
Water level changes	**0%** 0	**25%** 1	**25%** 1	**25%** 1	**25%** 1	4

Q7 Do you use herbicides or pesticides (i.e. "weed and feed") on your land? If selecting No, please skip to Question 11.

Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	0%	0
No	100%	7
Total		7

Q8 Where do you apply herbicides and/or pesticides?

Answered: 0 Skipped: 7

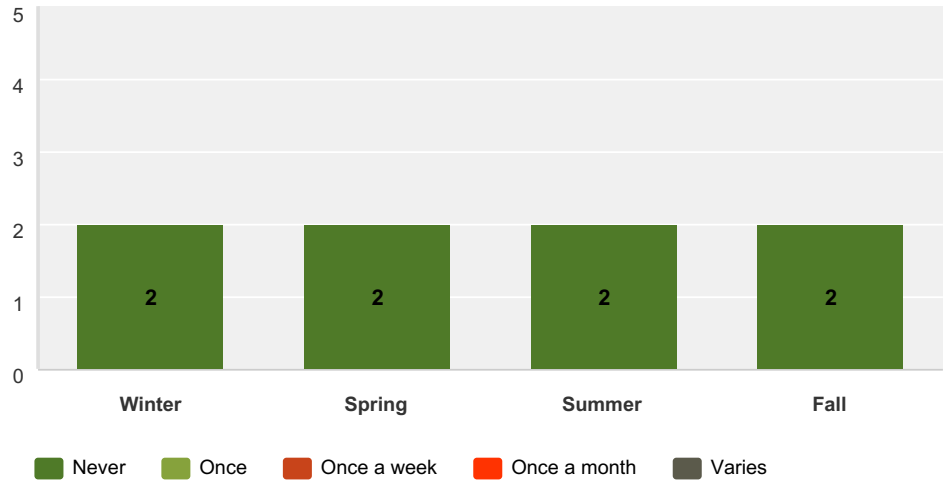
! No matching responses.

Answer Choices	Responses	
Agricultural fields	**0%**	0
Garden	**0%**	0
Lawn	**0%**	0
Total		**0**

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

Q9 In a typical year, how often do you apply herbicides and/or pesticides?

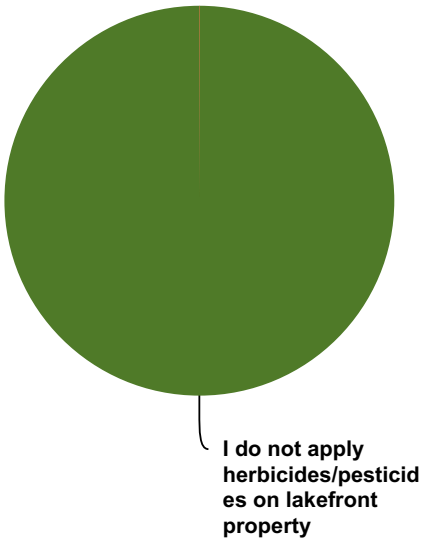
Answered: 2 Skipped: 5



	Never	Once	Once a week	Once a month	Varies	Total Respondents
Winter	100% 2	0% 0	0% 0	0% 0	0% 0	2
Spring	100% 2	0% 0	0% 0	0% 0	0% 0	2
Summer	100% 2	0% 0	0% 0	0% 0	0% 0	2
Fall	100% 2	0% 0	0% 0	0% 0	0% 0	2

Q10 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)?

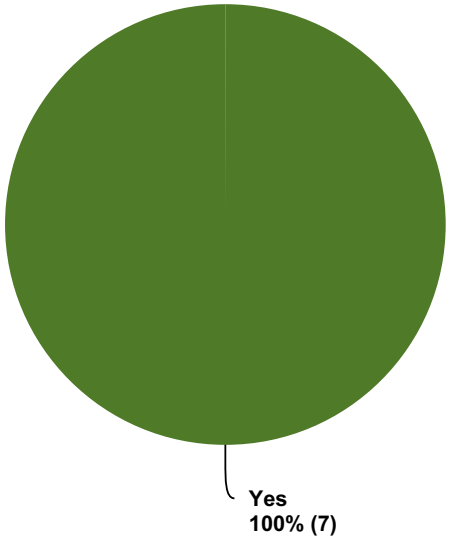
Answered: 1 Skipped: 6



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

Q11 Do you have your septic tank pumped at least every 3 years?

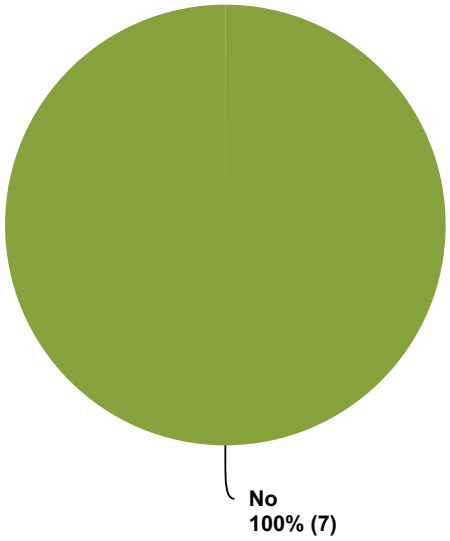
Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	100%	7
No	0%	0
I don't have a septic tank	0%	0
Total		7

Q12 Do you use fertilizer on your land?

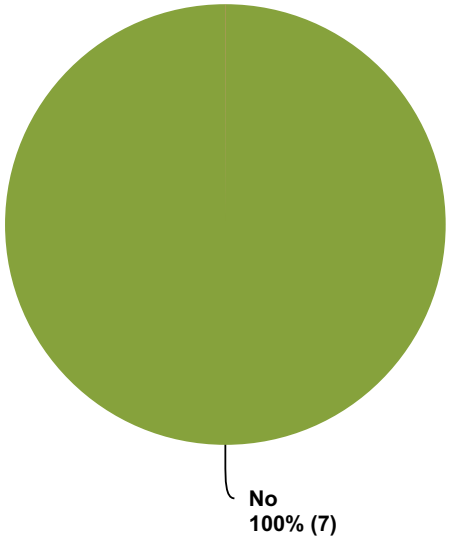
Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	0%	0
No	100%	7
Total		7

Q13 Do you use fertilizer which contains phosphorus?

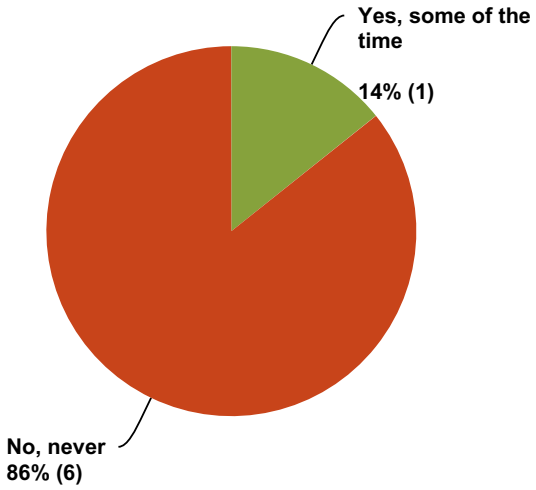
Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	0%	0
No	100%	7
I don't know	0%	0
Total		7

Q14 Do you have your soil tested before applying fertilizer?

Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes, all of the time	0%	0
Yes, some of the time	14%	1
No, never	86%	6
Total		7

Q15 Where do you apply fertilizer?

Answered: 0 Skipped: 7

! No matching responses.

Answer Choices	Responses	
Agricultural fields	**0%**	0
Garden	**0%**	0
Lawn	**0%**	0
Total		**0**

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

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

Answered: 0 Skipped: 7

! No matching responses.

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

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

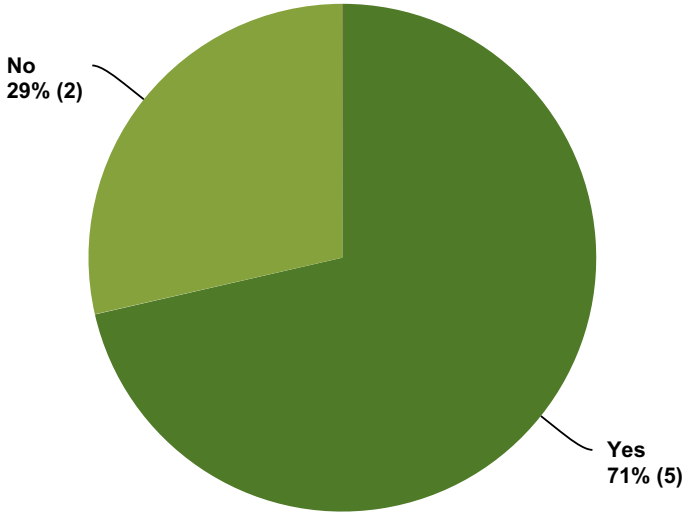
Answered: 0 Skipped: 7

! No matching responses.

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	**0%**	0
Farther than 35 feet from the lake.	**0%**	0
Total		**0**

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

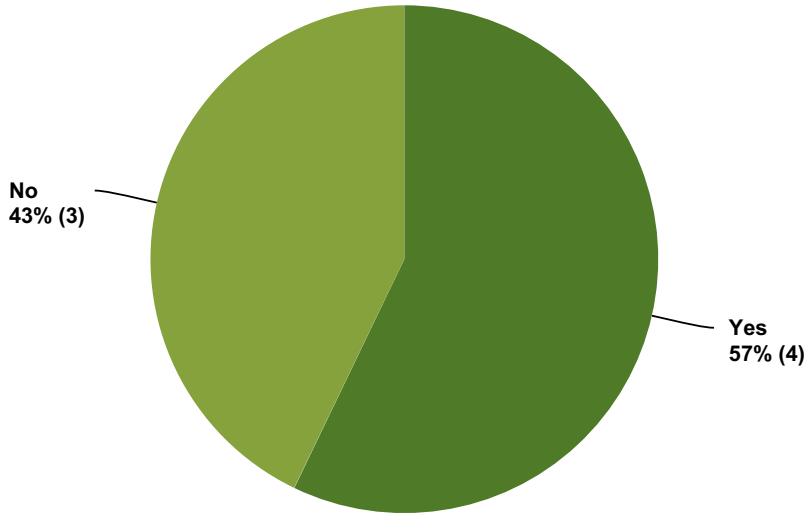
Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	71%	5
No	29%	2
Unsure	0%	0
Total		7

Q19 Do you own shoreland property? If selecting No, please skip to the last page.

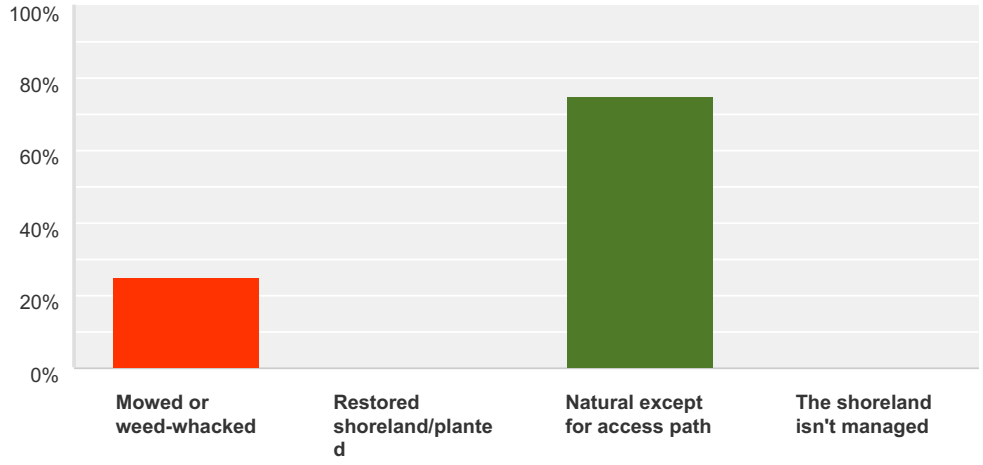
Answered: 7 Skipped: 0



Answer Choices	Responses	
Yes	57%	4
No	43%	3
Total		7

Q20 How do you currently manage the majority of your property within 35 feet of the lake? Check all that apply.

Answered: 4 Skipped: 3

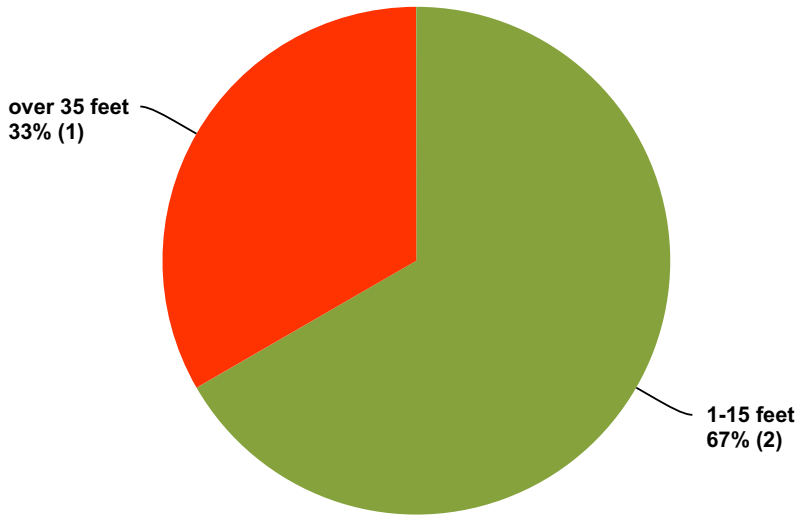


Answer Choices	Responses	
Mowed or weed-whacked	**25%**	1
Restored shoreland/planted	**0%**	0
Natural except for access path	**75%**	3
The shoreland isn't managed	**0%**	0
Total Respondents: 4		

#	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?

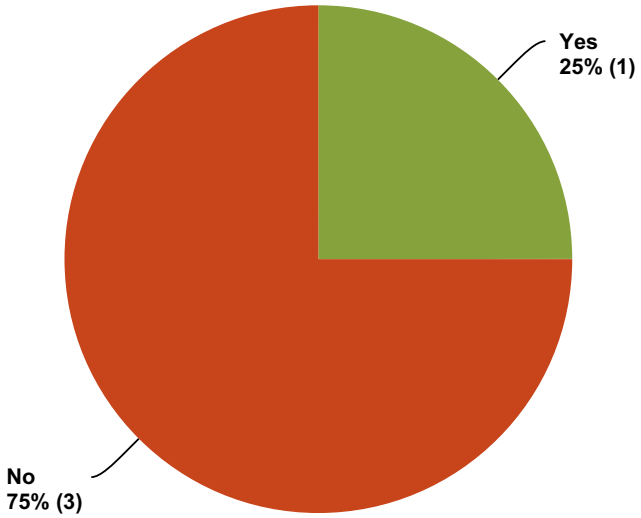
Answered: 3 Skipped: 4



Answer Choices	Responses	
I do not have unmowed shoreland vegetation	0%	0
1-15 feet	67%	2
16-35 feet	0%	0
over 35 feet	33%	1
Total		3

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

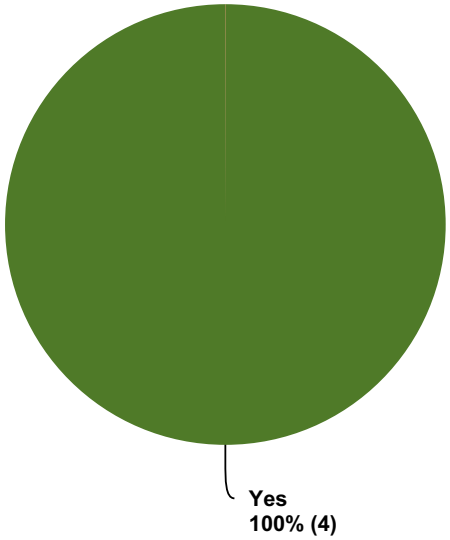
Answered: 4 Skipped: 3



Answer Choices	Responses	
I have no path	0%	0
Yes	25%	1
No	75%	3
Unsure	0%	0
Total		4

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

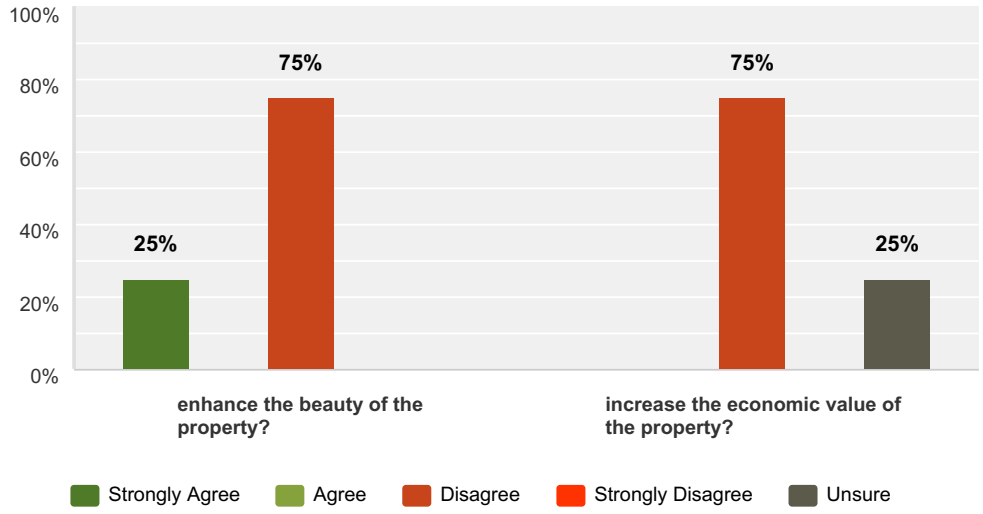
Answered: 4 Skipped: 3



Answer Choices	Responses	
Yes	100%	4
No	0%	0
Unsure	0%	0
Total		4

Q24 In your opinion, does shoreland vegetation...

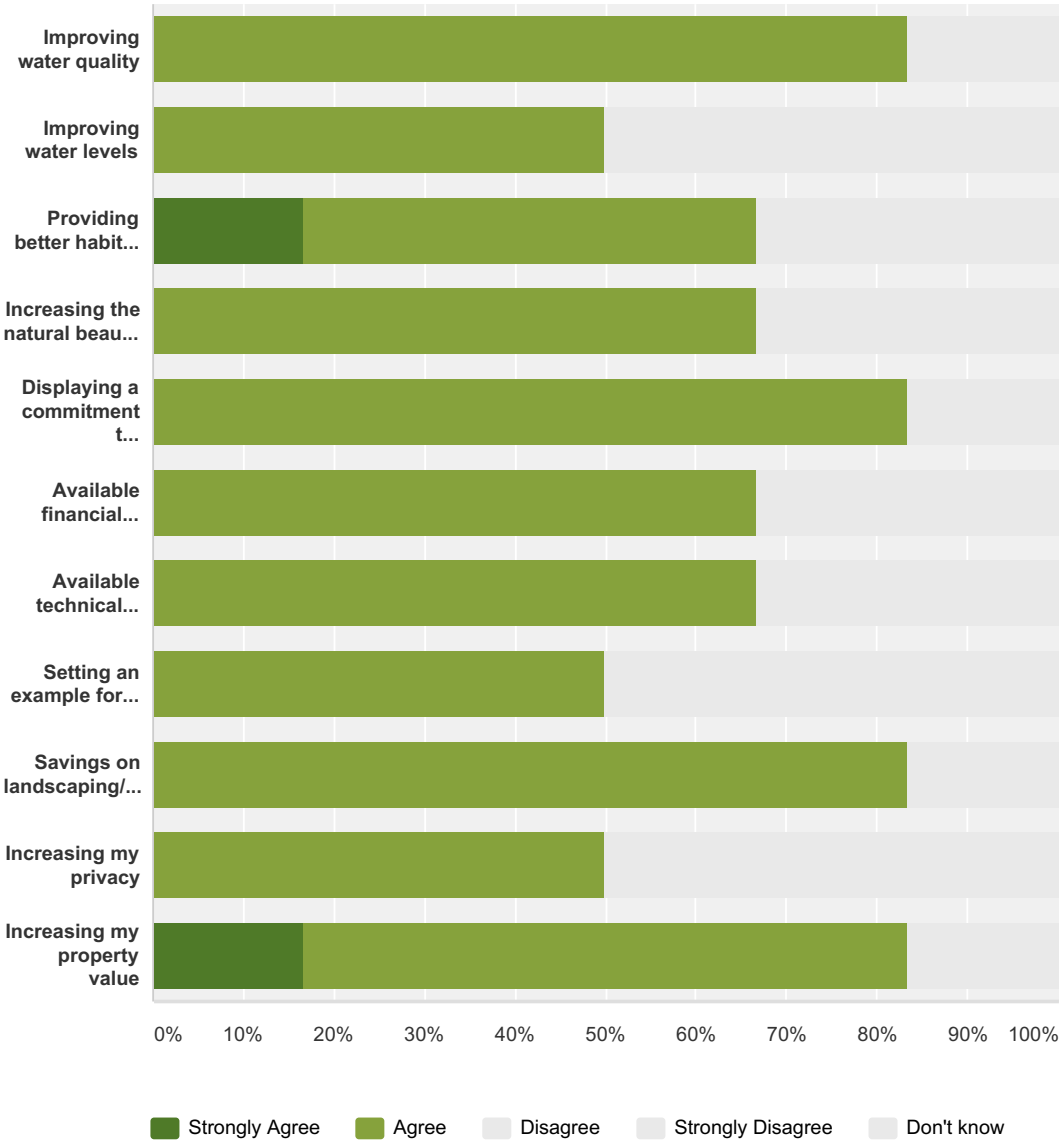
Answered: 4 Skipped: 3



	Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure	Total
enhance the beauty of the property?	**25%** 1	**0%** 0	**75%** 3	**0%** 0	**0%** 0	4
increase the economic value of the property?	**0%** 0	**0%** 0	**75%** 3	**0%** 0	**25%** 1	4

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

Answered: 6 Skipped: 1



	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know	Total
Improving water quality	0% 0	83% 5	0% 0	0% 0	17% 1	6
Improving water levels	0% 0	50% 3	33% 2	0% 0	17% 1	6
Providing better habitat for fish and wildlife	17% 1	50% 3	17% 1	0% 0	17% 1	6
Increasing the natural beauty of my property	0% 0	67% 4	33% 2	0% 0	0% 0	6
Displaying a commitment to the environment	0% 0	83% 5	17% 1	0% 0	0% 0	6

Available financial assistance	**0%** 0	**67%** 4	**17%** 1	**0%** 0	**17%** 1	6
Available technical assistance	**0%** 0	**67%** 4	**17%** 1	**0%** 0	**17%** 1	6
Setting an example for community members	**0%** 0	**50%** 3	**17%** 1	**0%** 0	**33%** 2	6
Savings on landscaping/maintenance costs	**0%** 0	**83%** 5	**17%** 1	**0%** 0	**0%** 0	6
Increasing my privacy	**0%** 0	**50%** 3	**33%** 2	**0%** 0	**17%** 1	6
Increasing my property value	**17%** 1	**67%** 4	**17%** 1	**0%** 0	**0%** 0	6

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

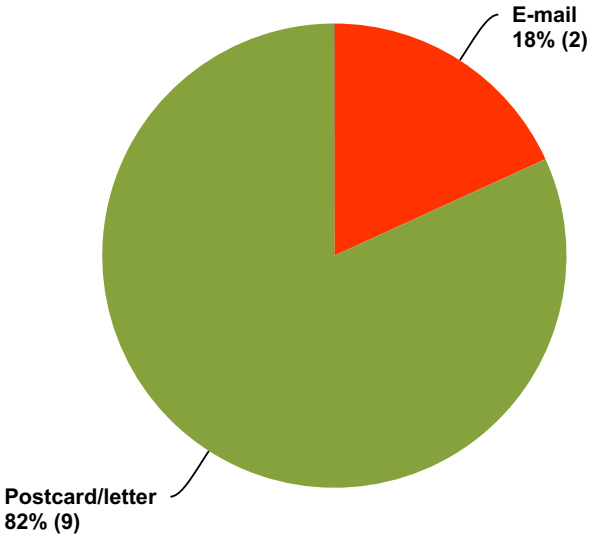
Q1 Enter your Waushara County Lakes Survey ID. Your survey cannot be processed without this information. If you've forgotten your ID or haven't created one yet, follow the instructions below.

Answered: 11 Skipped: 0

#	Responses	Date
1	[redacted]	12/16/2014 8:30 AM
2	[redacted]	12/15/2014 6:24 PM
3	[redacted]	12/15/2014 8:25 AM
4	[redacted]	12/11/2014 2:42 PM
5	[redacted]	12/8/2014 5:00 PM
6	[redacted]	12/8/2014 10:58 AM
7	[redacted]	12/5/2014 12:31 PM
8	[redacted]	12/4/2014 6:03 PM
9	[redacted]	12/4/2014 4:37 PM
10	[redacted]	12/4/2014 11:17 AM
11	[redacted]	12/3/2014 5:10 PM

Q2 How did you hear about this survey?

Answered: 11 Skipped: 0

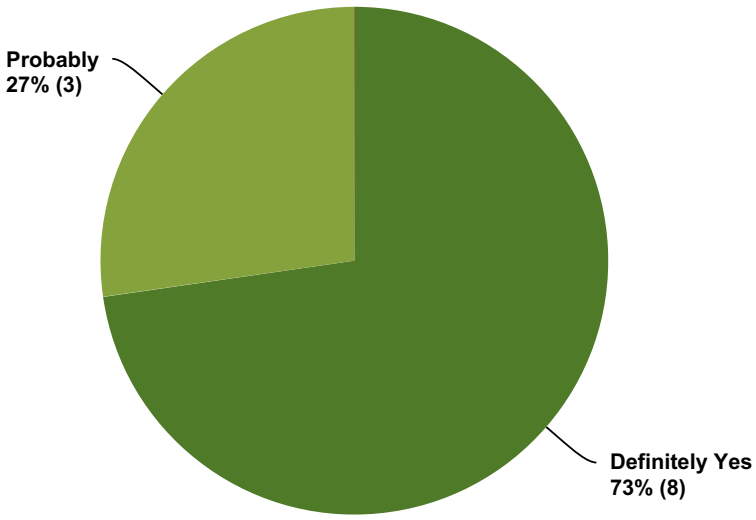


Answer Choices	Responses	
E-mail	18%	2
Newspaper	0%	0
Postcard/letter	82%	9
Facebook	0%	0
Radio	0%	0
Total		11

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

Q3 Does a desire to provide better habitat for fish and wildlife motivate you to support (morally) efforts to improve West Branch?

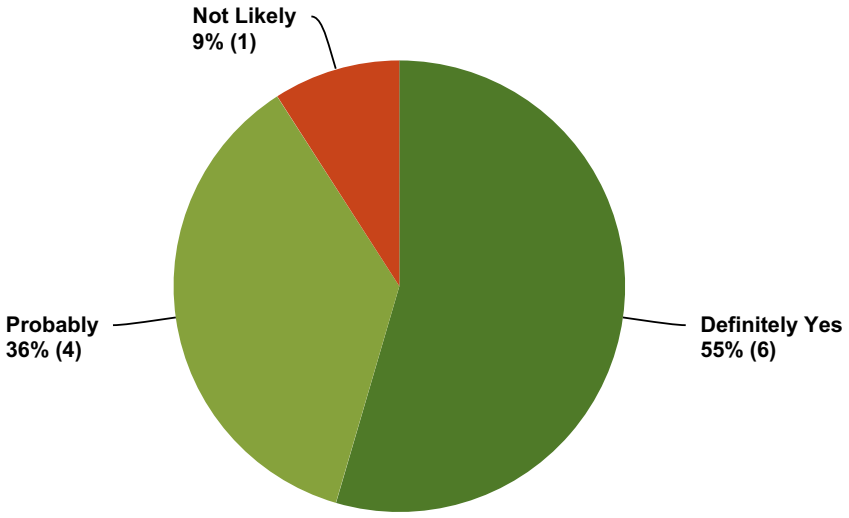
Answered: 11 Skipped: 0



Answer Choices	Responses	
Definitely Yes	73%	8
Probably	27%	3
Not Likely	0%	0
Definitely No	0%	0
Unsure	0%	0
Total		11

Q4 Does a desire to provide better habitat for fish and wildlife motivate you to support (by direct action) efforts to improve West Branch?

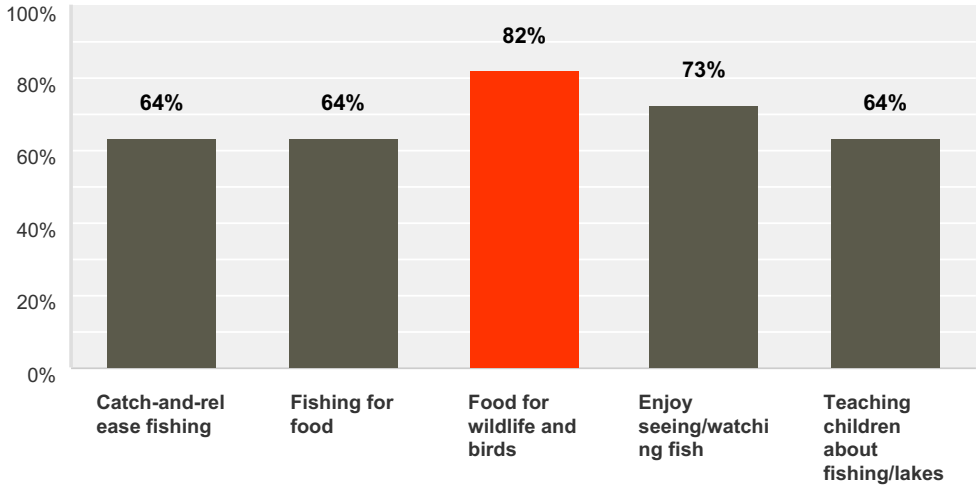
Answered: 11 Skipped: 0



Answer Choices	Responses	
Definitely Yes	55%	6
Probably	36%	4
Not Likely	9%	1
Definitely No	0%	0
Unsure	0%	0
Total		11

Q5 For what purposes do you value the fishery in West Branch? (Check all that apply.)

Answered: 11 Skipped: 0

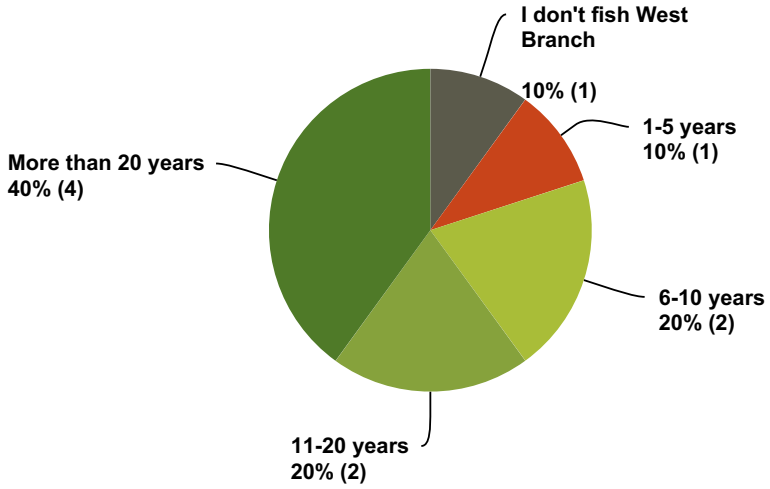


Answer Choices	Responses	
Catch-and-release fishing	64%	7
Fishing for food	64%	7
Food for wildlife and birds	82%	9
Enjoy seeing/watching fish	73%	8
Teaching children about fishing/lakes	64%	7
Total Respondents: 11		

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

Q6 How many years of fishing experience do you have on West Branch Mill Pond? If you don't fish West Branch, skip to Question 14.

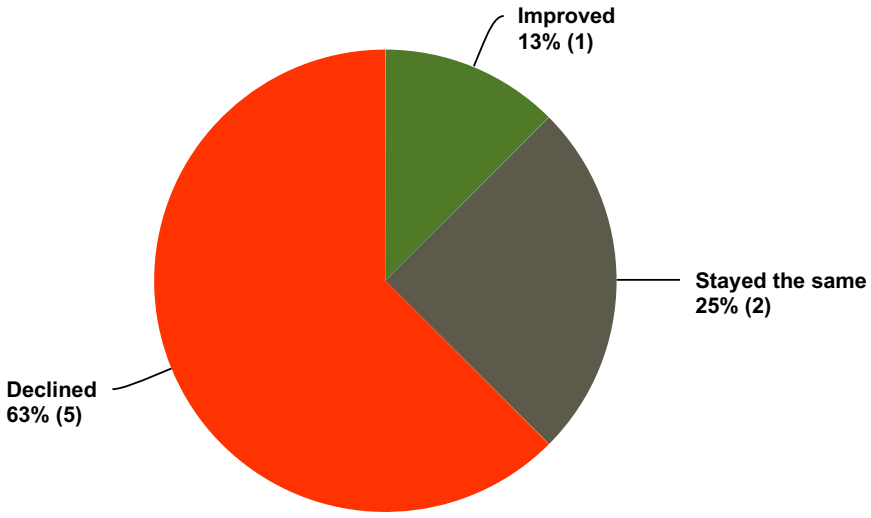
Answered: 10 Skipped: 1



Answer Choices	Responses	
I don't fish West Branch	10%	1
1-5 years	10%	1
6-10 years	20%	2
11-20 years	20%	2
More than 20 years	40%	4
Total		10

Q7 In the years you have been fishing West Branch, would you say the quality of fishing has... (If answering 'Stayed the same' or 'Not sure', skip to Question 9).

Answered: 8 Skipped: 3



Answer Choices	Responses	
Improved	13%	1
Stayed the same	25%	2
Declined	63%	5
Not sure	0%	0
Total		8

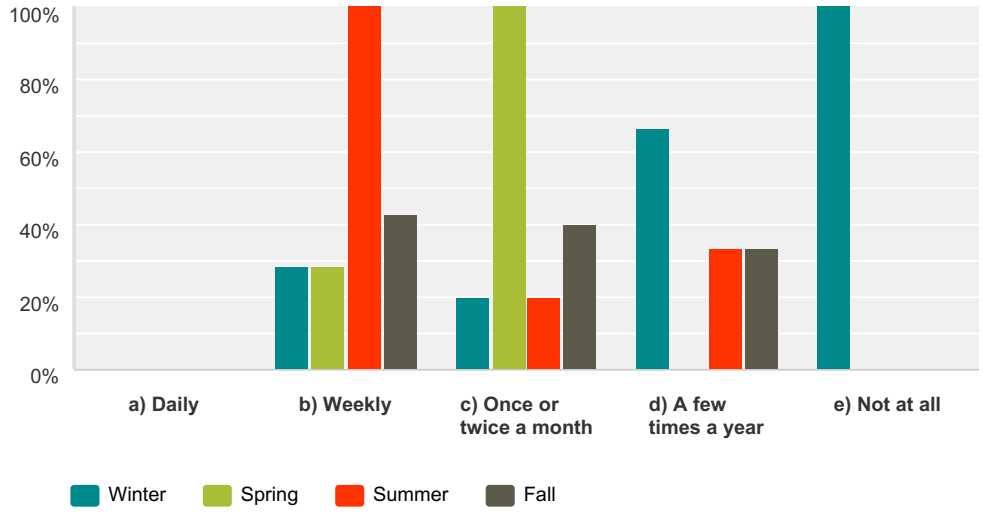
Q8 What factors do you feel have contributed to the change in fishing?

Answered: 4 Skipped: 7

#	Responses	Date
1	More boat traffic, increase of nonresidential fishing.	12/15/2014 8:35 AM
2	over fished and small fish were kept not released	12/11/2014 2:44 PM
3	Overfishing. The current size limits allow people fishing for panfish (which seems to attract the most "harvest" fisherman) to catch game fish - predominantly bass leading to overharvest of "just legal" bass. The lake gets high pressure for its 65 acres.	12/8/2014 5:11 PM
4	People are keeping fish that are way too small	12/4/2014 11:21 AM

Q9 When and how often do you typically fish West Branch?(Please answer a-e)

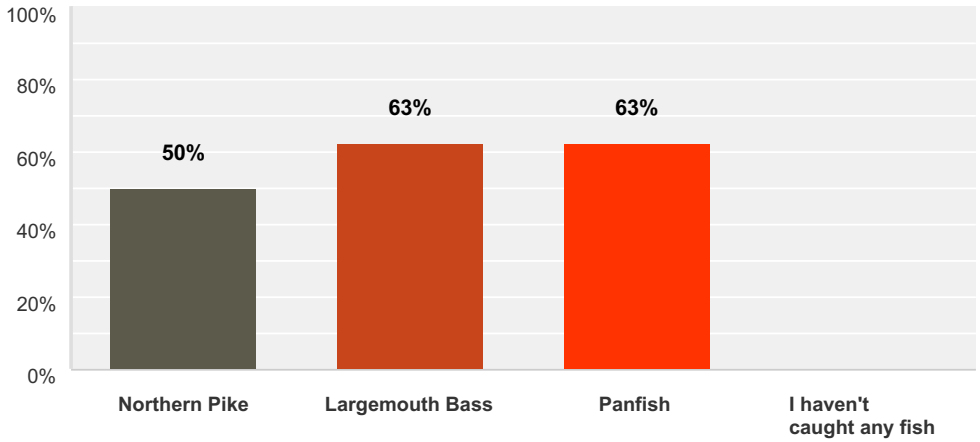
Answered: 9 Skipped: 2



	Winter	Spring	Summer	Fall	Total Respondents
a) Daily	**0%** 0	**0%** 0	**0%** 0	**0%** 0	0
b) Weekly	**29%** 2	**29%** 2	**100%** 7	**43%** 3	7
c) Once or twice a month	**20%** 1	**100%** 5	**20%** 1	**40%** 2	5
d) A few times a year	**67%** 2	**0%** 0	**33%** 1	**33%** 1	3
e) Not at all	**100%** 2	**0%** 0	**0%** 0	**0%** 0	2

Q10 What fish do you typically catch at West Branch? Check all that apply.

Answered: 8 Skipped: 3

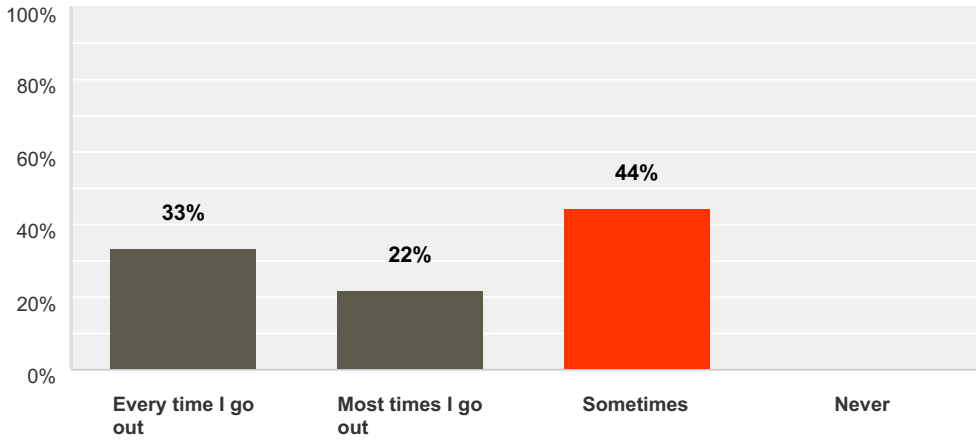


Answer Choices	Responses	
Northern Pike	50%	4
Largemouth Bass	63%	5
Panfish	63%	5
I haven't caught any fish	0%	0
Total Respondents: 8		

#	Other (please specify)	Date
1	Bluegill	12/4/2014 11:21 AM
2	crappie	12/3/2014 5:16 PM

Q11 In general, how often do you catch fish on West Branch?

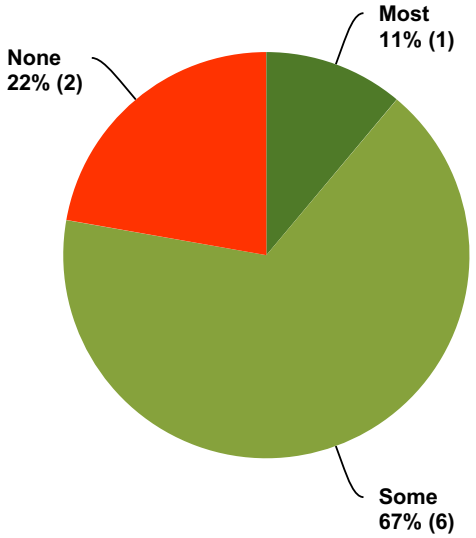
Answered: 9 Skipped: 2



Answer Choices	Responses	
Every time I go out	33%	3
Most times I go out	22%	2
Sometimes	44%	4
Never	0%	0
Total Respondents: 9		

Q12 In general, how many of the fish you catch are big enough to keep?

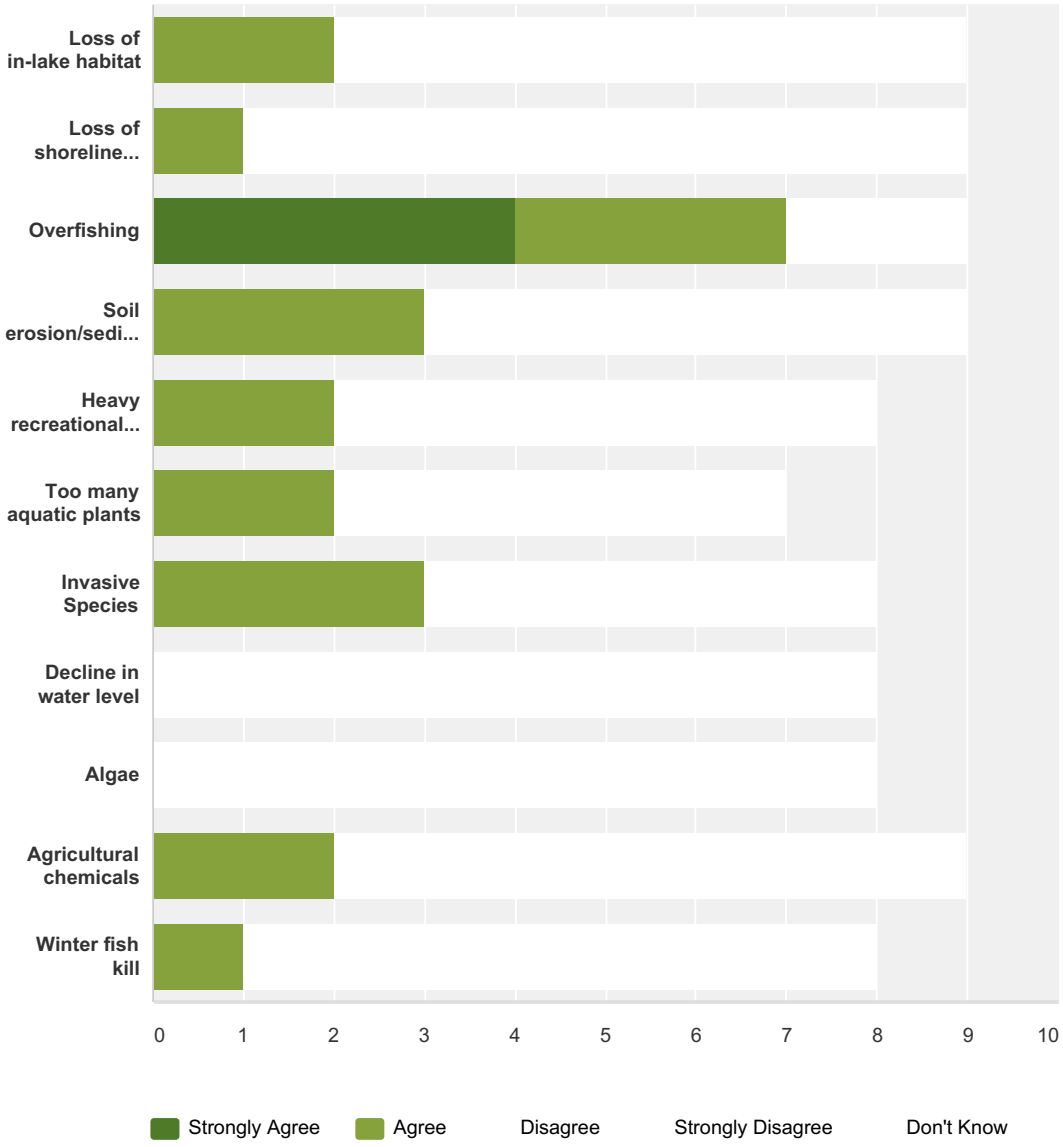
Answered: 9 Skipped: 2



Answer Choices	Responses	
All	0%	0
Most	11%	1
Some	67%	6
None	22%	2
Total		9

Q13 What do you believe is the greatest threat to the fishery in West Branch Mill Pond in the next 10 years?

Answered: 9 Skipped: 2



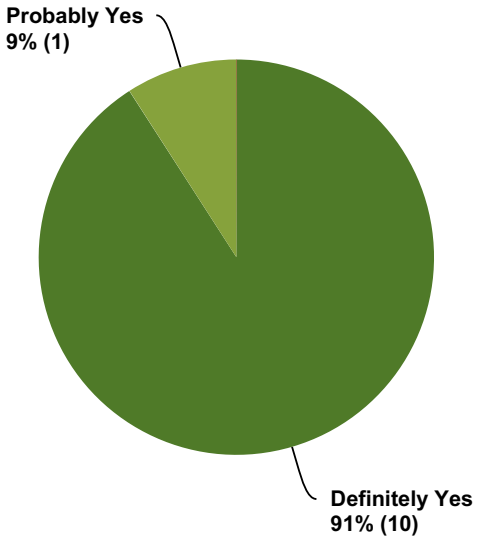
	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know	Total Respondents
Loss of in-lake habitat	0% 0	22% 2	44% 4	0% 0	33% 3	9
Loss of shoreline habitat	0% 0	11% 1	67% 6	11% 1	11% 1	9
Overfishing	44% 4	33% 3	0% 0	0% 0	22% 2	9
Soil erosion/sedimentation	0% 0	33% 3	56% 5	0% 0	11% 1	9

Heavy recreational use	**0%** 0	**25%** 2	**63%** 5	**0%** 0	**13%** 1	8
Too many aquatic plants	**0%** 0	**29%** 2	**29%** 2	**14%** 1	**29%** 2	7
Invasive Species	**0%** 0	**38%** 3	**38%** 3	**0%** 0	**25%** 2	8
Decline in water level	**0%** 0	**0%** 0	**75%** 6	**25%** 2	**0%** 0	8
Algae	**0%** 0	**0%** 0	**50%** 4	**0%** 0	**50%** 4	8
Agricultural chemicals	**0%** 0	**22%** 2	**33%** 3	**11%** 1	**33%** 3	9
Winter fish kill	**0%** 0	**13%** 1	**25%** 2	**38%** 3	**25%** 2	8

#	Other (please specify)	Date
1	Stunting of panfish due to too few sizable predators	12/8/2014 5:11 PM
2	too many small pikes	12/4/2014 4:39 PM

Q14 Do you believe fish from West Branch are safe to eat?

Answered: 11 Skipped: 0



Answer Choices	Responses	
Definitely Yes	**91%**	10
Probably Yes	**9%**	1
Probably No	**0%**	0
Definitely No	**0%**	0
Unsure	**0%**	0
Total		**11**

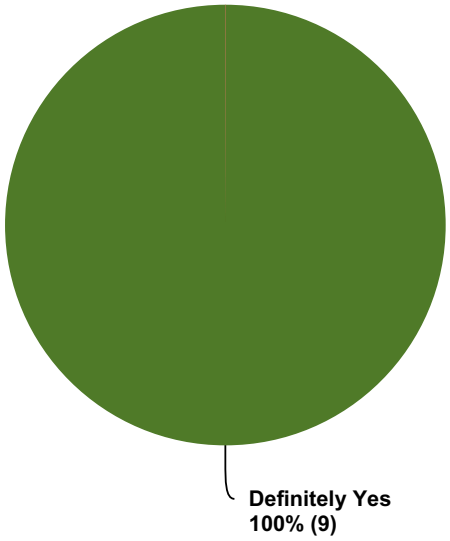
Q15 Do you have any additional comments regarding the fishery in West Branch Mill Pond?

Answered: 2 Skipped: 9

#	Responses	Date
1	I would like to see us manage the lake for trophy bass of 18 inches and over by increasing the size limit and limiting the take to one fish per day	12/8/2014 5:11 PM
2	There seems to be an abundance of northern pike in the lake, which is good if you're a northern fisher (person), but it would be nice to see more/larger largemouth bass. It would also be nice to get an estimate of what a good balance of species is for the lake - given its substrate, trophic and nutrient level.	12/4/2014 6:17 PM

Q16 Currently, No Wake is allowed on West Branch Mill Pond. Do you like the rules as they are?

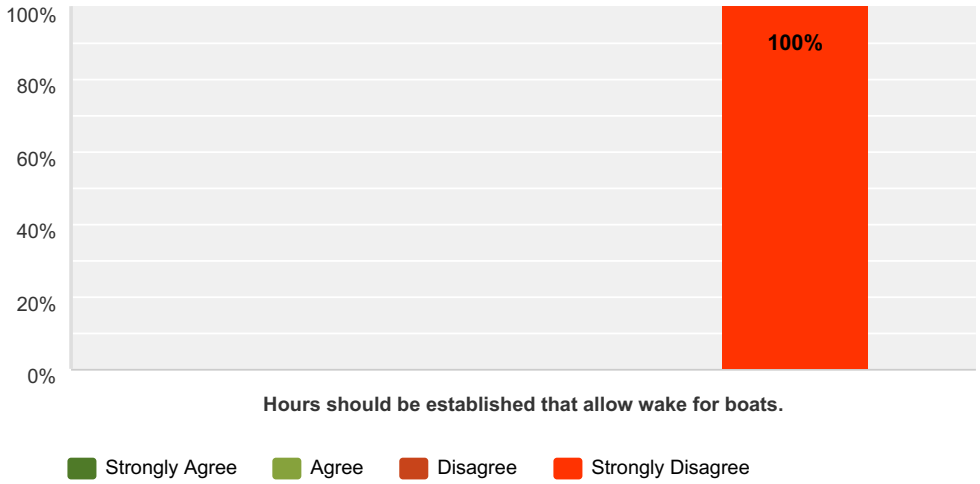
Answered: 9 Skipped: 2



Answer Choices	Responses	
Definitely Yes	**100%**	9
Probably Yes	**0%**	0
Probably No	**0%**	0
Definitely No	**0%**	0
Unsure	**0%**	0
Total		**9**

Q17 If you think the boating regulations should be adjusted...in what way?

Answered: 11 Skipped: 0



	Strongly Agree	Agree	Disagree	Strongly Disagree	Total Respondents
Hours should be established that allow wake for boats.	**0%** 0	**0%** 0	**0%** 0	**100%** 11	11

#	Other (please specify)	Date
1	NO wakes...we already have shoreline erosion without wakes	12/8/2014 5:13 PM

Q18 What could be done to improve your recreation experience on West Branch Mill Pond?

Answered: 5 Skipped: 6

#	Responses	Date
1	Fish are too small to keep and are abundant	12/16/2014 8:31 AM
2	Electric motors only would be the only improvement necessary, but is good as it is.	12/11/2014 2:46 PM
3	Better manage the fragile biomass of fish on a lake that gets the highest fishing pressure per acre of any lake in Waushara County	12/8/2014 5:13 PM
4	Definitely maintain the no-wake status - it is one of the reasons we chose the property that we did. Allowing higher speeds on a lake of that size (small) would definitely diminish the enjoyment of the lake and likely degrade the lake quality by churning up weeds and nutrients that would increase turbidity and promote more plant growth - leading to the need to do more weed harvesting.	12/4/2014 6:23 PM
5	remove size limits of pikes	12/4/2014 4:41 PM

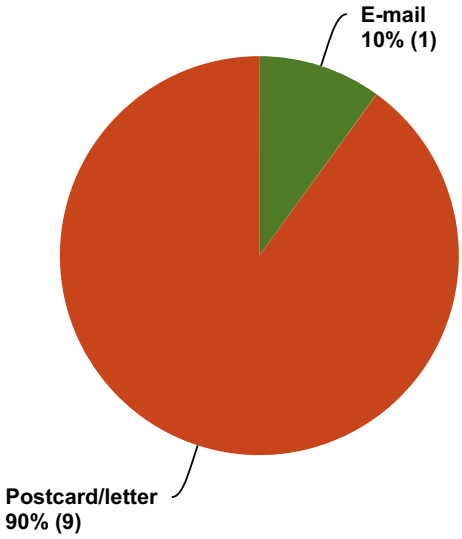
Q1 Enter your Waushara County Lakes Survey ID. If you've forgotten your ID or haven't created one yet, follow the instructions below.

Answered: 10 Skipped: 0

#	Responses	Date
1	[redacted]	1/8/2015 12:47 PM
2	[redacted]	1/8/2015 12:12 PM
3	[redacted]	1/8/2015 12:09 PM
4	[redacted]	1/5/2015 2:49 PM
5	[redacted]	1/5/2015 2:48 PM
6	[redacted]	1/5/2015 2:47 PM
7	[redacted]	12/30/2014 1:30 PM
8	[redacted]	12/29/2014 9:33 AM
9	[redacted]	12/29/2014 6:55 AM
10	[redacted]	12/25/2014 7:16 PM

Q2 How did you hear about this survey?

Answered: 10 Skipped: 0

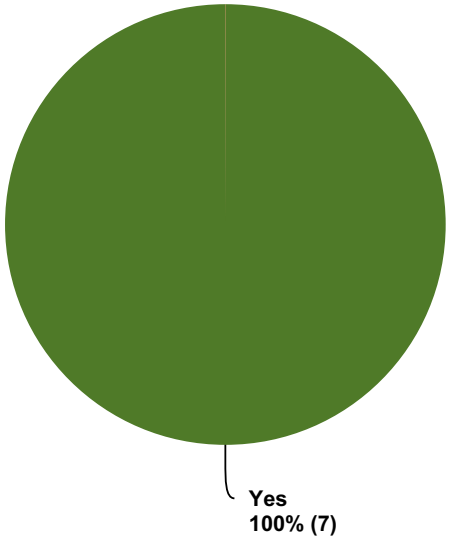


Answer Choices	Responses	
E-mail	10%	1
Newspaper	0%	0
Postcard/letter	90%	9
Facebook	0%	0
Radio	0%	0
Total		10

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

Q3 Were you aware of the importance of aquatic plants?

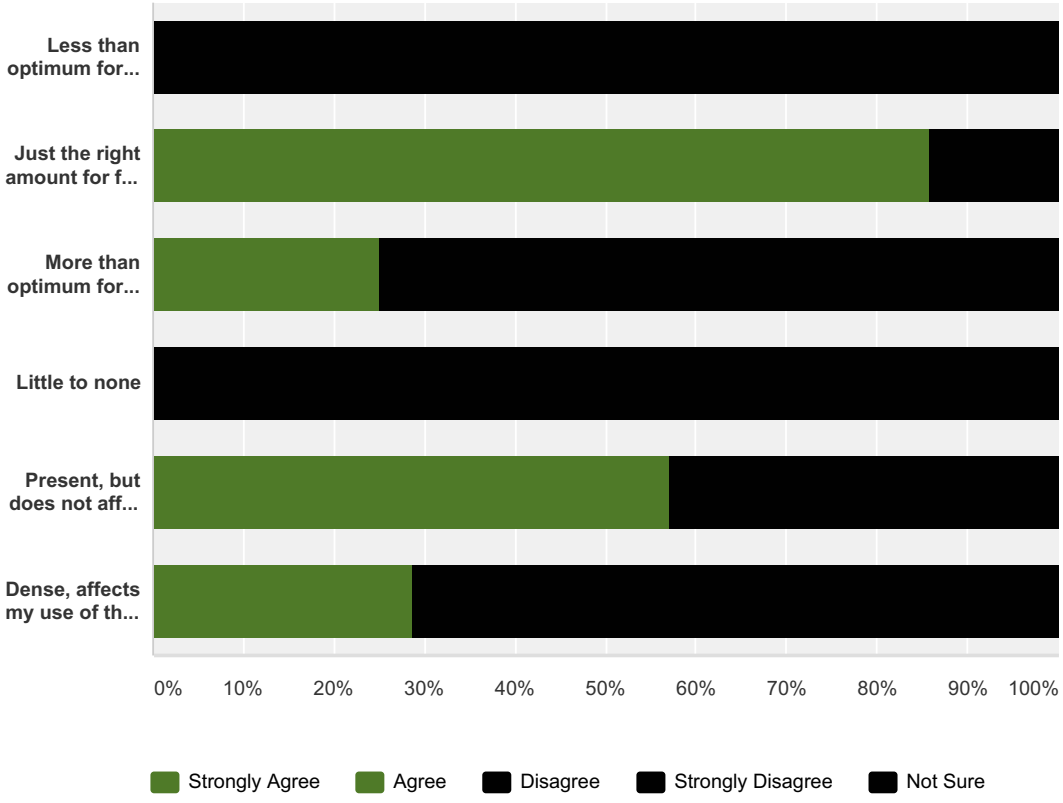
Answered: 7 Skipped: 3



Answer Choices	Responses	
Yes	100%	7
No	0%	0
Unsure	0%	0
Total		7

Q4 In your opinion, which statement best describes the amount of aquatic plant growth in West Branch Mill Pond?

Answered: 8 Skipped: 2



	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)	Not Sure (5)	Total
Less than optimum for fish and wildlife	**0%** 0	**0%** 0	**71%** 5	**14%** 1	**14%** 1	7
Just the right amount for fish and wildlife	**14%** 1	**71%** 5	**0%** 0	**0%** 0	**14%** 1	7
More than optimum for fish and wildlife	**13%** 1	**13%** 1	**38%** 3	**0%** 0	**38%** 3	8
Little to none	**0%** 0	**0%** 0	**43%** 3	**57%** 4	**0%** 0	7
Present, but does not affect my use of the lake	**0%** 0	**57%** 4	**43%** 3	**0%** 0	**0%** 0	7
Dense, affects my use of the lake	**0%** 0	**29%** 2	**57%** 4	**14%** 1	**0%** 0	7

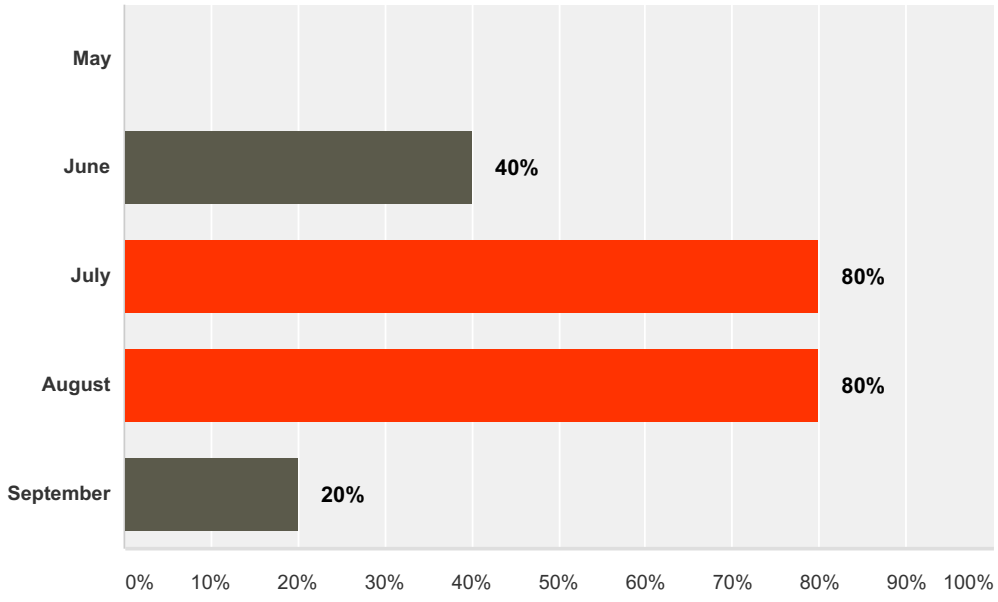
Basic Statistics

	Minimum	Maximum	Median	Mean	Standard Deviation
Less than optimum for fish and wildlife	3.00	5.00	3.00	3.43	0.73

Just the right amount for fish and wildlife	1.00	5.00	2.00	2.29	1.16
More than optimum for fish and wildlife	1.00	5.00	3.00	3.38	1.41
Little to none	3.00	4.00	4.00	3.57	0.49
Present, but does not affect my use of the lake	2.00	3.00	2.00	2.43	0.49
Dense, affects my use of the lake	2.00	4.00	3.00	2.86	0.64

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

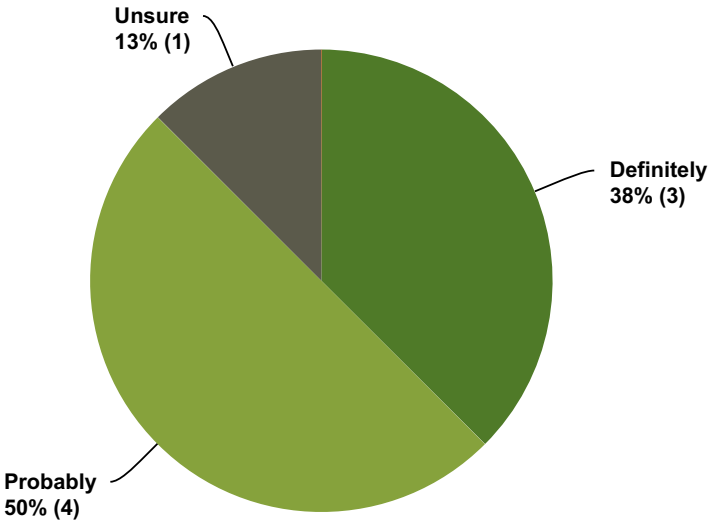
Answered: 5 Skipped: 5



Answer Choices	Responses	
May	0%	0
June	40%	2
July	80%	4
August	80%	4
September	20%	1
Total Respondents: 5		

Q6 Do you believe aquatic plant control is needed on West Branch?

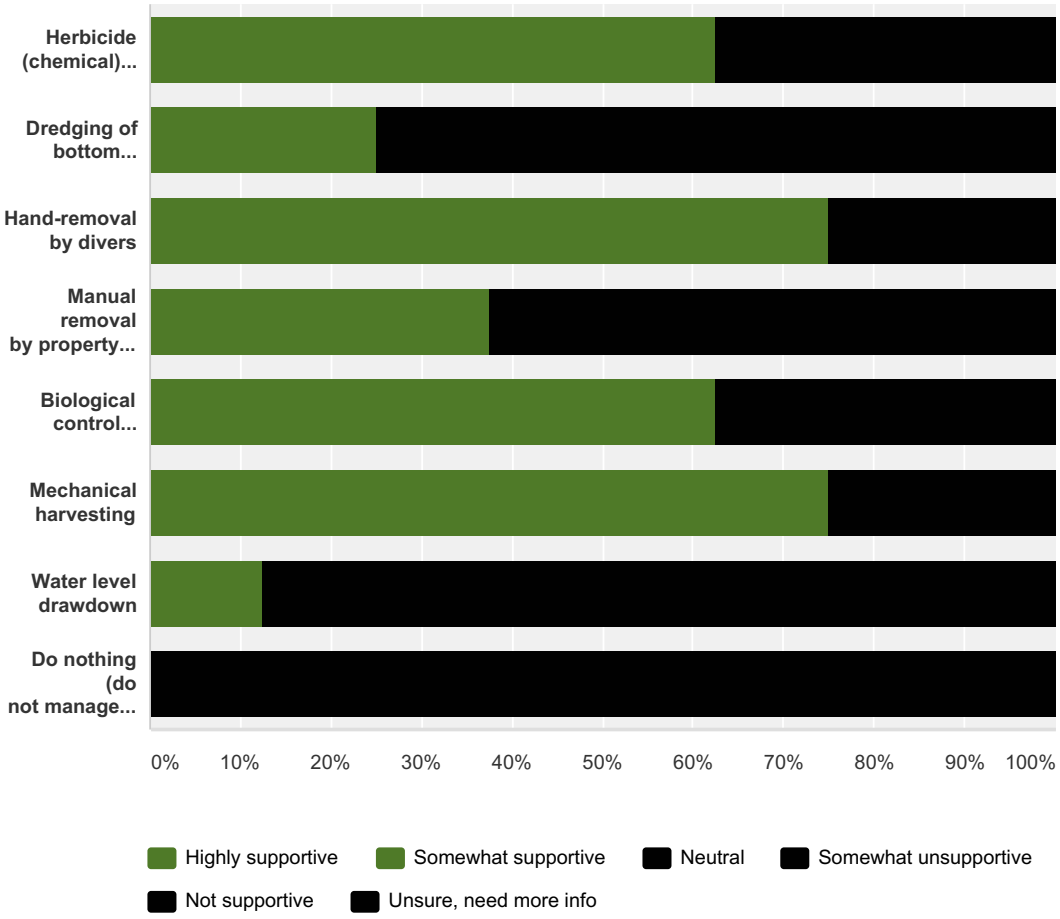
Answered: 8 Skipped: 2



Answer Choices	Responses	
Definitely	38%	3
Probably	50%	4
Unsure	13%	1
Probably not	0%	0
Definitely not	0%	0
Total		8

Q7 What is your level of support for the responsible use of the following techniques TO MANAGE AQUATIC PLANTS on West Branch?

Answered: 8 Skipped: 2

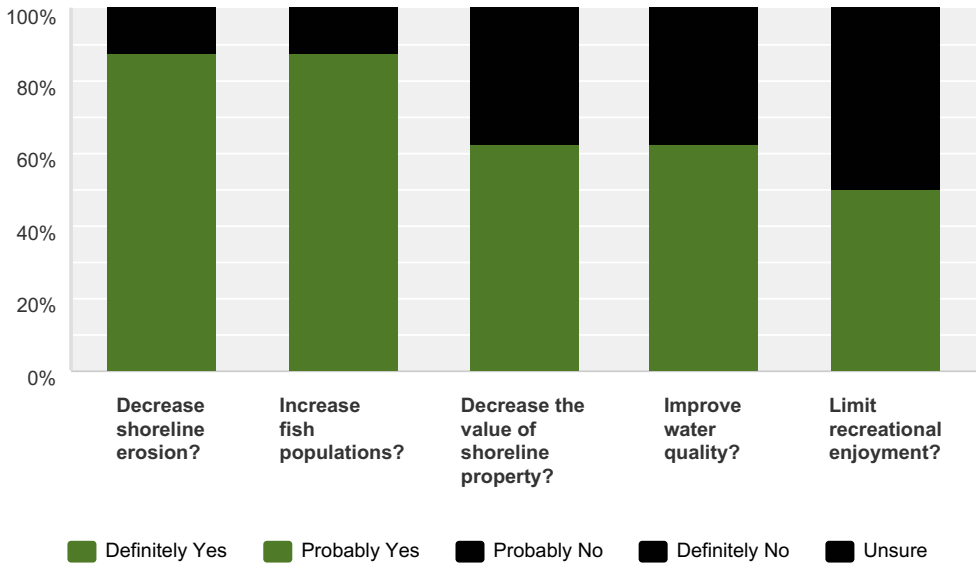


	Highly supportive	Somewhat supportive	Neutral	Somewhat unsupportive	Not supportive	Unsure, need more info	Total	Weighted Average
Herbicide (chemical) control	38% 3	25% 2	0% 0	13% 1	0% 0	25% 2	8	1.38
Dredging of bottom sediments	25% 2	0% 0	13% 1	25% 2	25% 2	13% 1	8	2.88
Hand-removal by divers	38% 3	38% 3	0% 0	0% 0	0% 0	25% 2	8	1.13
Manual removal by property owners	25% 2	13% 1	13% 1	13% 1	25% 2	13% 1	8	2.63
Biological control (milfoil weevil, loosestrife beetle, etc.)	25% 2	38% 3	13% 1	0% 0	0% 0	25% 2	8	1.38
Mechanical harvesting	50% 4	25% 2	0% 0	0% 0	13% 1	13% 1	8	1.63

Water level drawdown	**0%** 0	**13%** 1	**0%** 0	**13%** 1	**38%** 3	**38%** 3	8	2.63
Do nothing (do not manage plants)	**0%** 0	**0%** 0	**0%** 0	**13%** 1	**88%** 7	**0%** 0	8	4.88

Q8 In your opinion, does establishing or maintaining native vegetation IN THE WATER in the near-shore area…

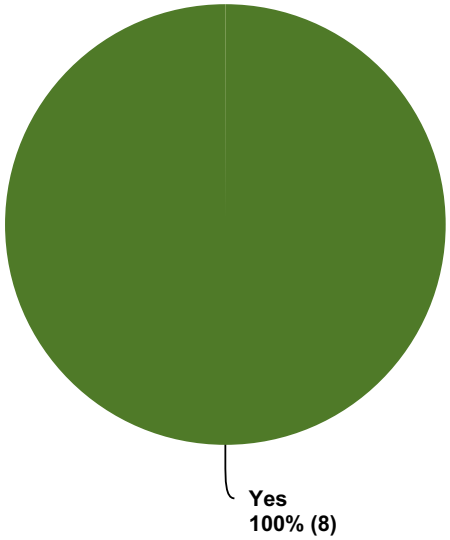
Answered: 8 Skipped: 2



	Definitely Yes	Probably Yes	Probably No	Definitely No	Unsure	Total
Decrease shoreline erosion?	**38%** 3	**50%** 4	**0%** 0	**0%** 0	**13%** 1	8
Increase fish populations?	**38%** 3	**50%** 4	**0%** 0	**0%** 0	**13%** 1	8
Decrease the value of shoreline property?	**25%** 2	**38%** 3	**25%** 2	**0%** 0	**13%** 1	8
Improve water quality?	**25%** 2	**38%** 3	**0%** 0	**13%** 1	**25%** 2	8
Limit recreational enjoyment?	**13%** 1	**38%** 3	**38%** 3	**0%** 0	**13%** 1	8

Q9 Have you ever heard of aquatic invasive species?

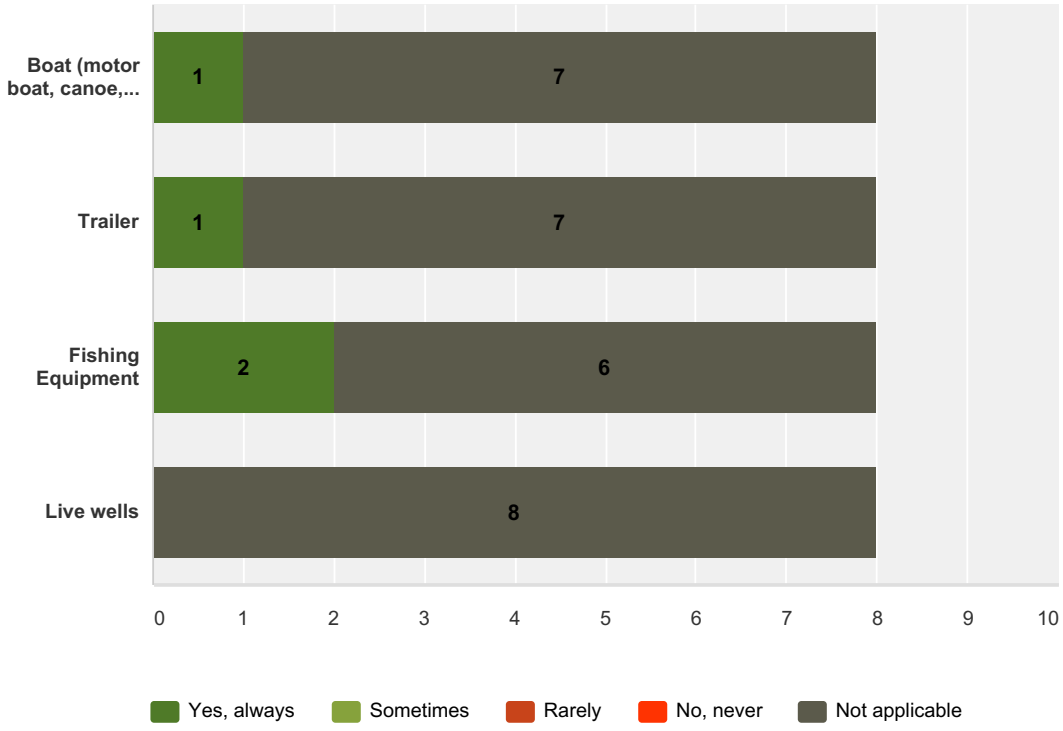
Answered: 8 Skipped: 2



Answer Choices	Responses	
Yes	100%	8
No	0%	0
Total		8

Q10 After you have been to another lake, do you clean your ... before bringing it back to West Branch Mill Pond?

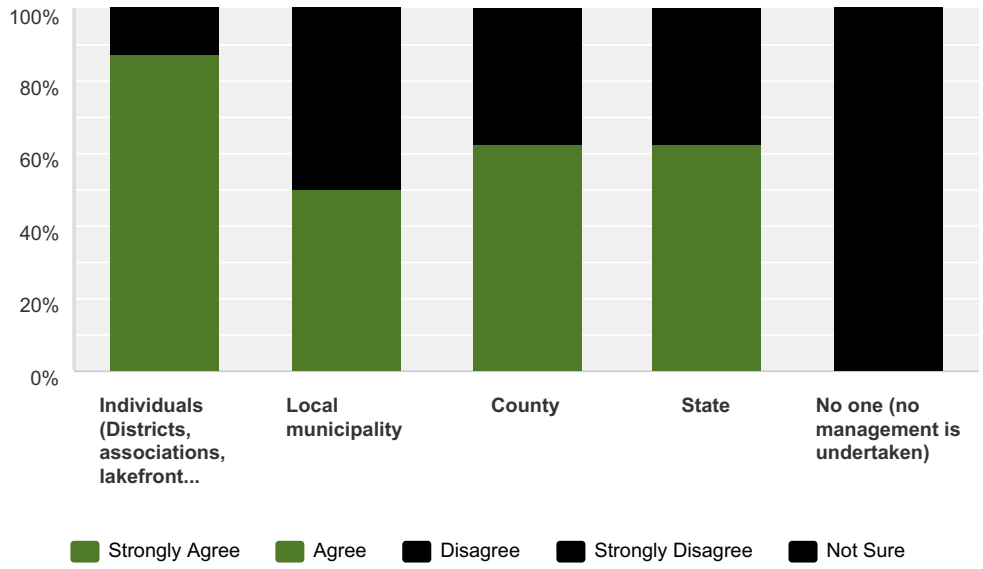
Answered: 8 Skipped: 2



	Yes, always	Sometimes	Rarely	No, never	Not applicable	Total Respondents
Boat (motor boat, canoe, kayak, etc.)	**13%** 1	**0%** 0	**0%** 0	**0%** 0	**88%** 7	8
Trailer	**13%** 1	**0%** 0	**0%** 0	**0%** 0	**88%** 7	8
Fishing Equipment	**25%** 2	**0%** 0	**0%** 0	**0%** 0	**75%** 6	8
Live wells	**0%** 0	**0%** 0	**0%** 0	**0%** 0	**100%** 8	8

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

Answered: 8 Skipped: 2

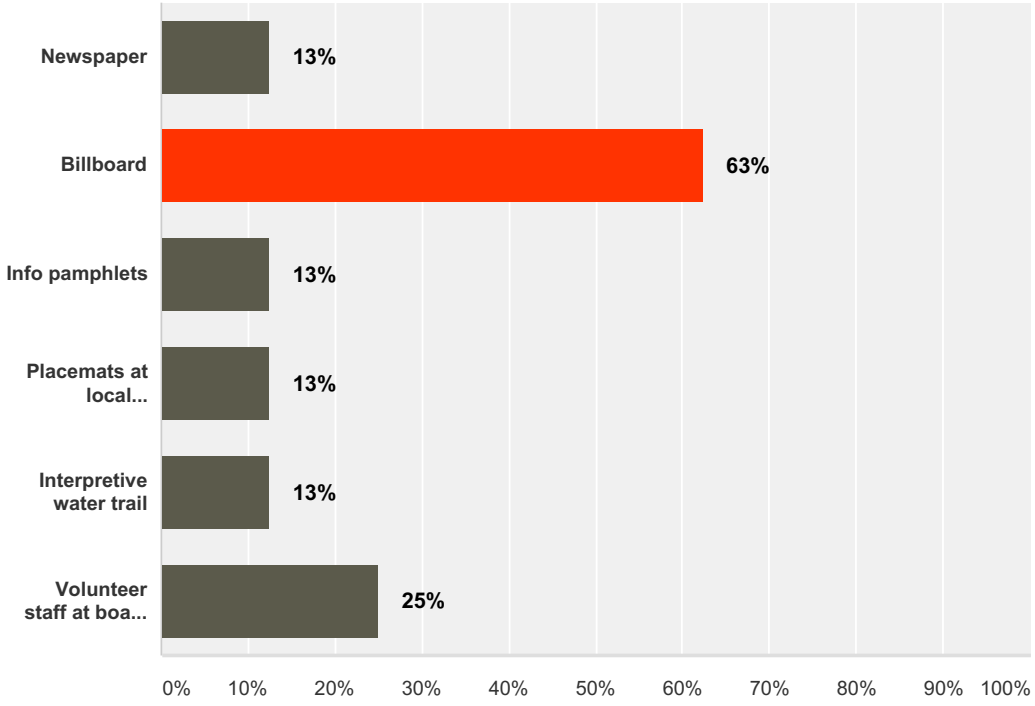


	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure	Total
Individuals (Districts, associations, lakefront property owners)	**25%** 2	**63%** 5	**13%** 1	**0%** 0	**0%** 0	8
Local municipality	**13%** 1	**38%** 3	**13%** 1	**13%** 1	**25%** 2	8
County	**25%** 2	**38%** 3	**0%** 0	**0%** 0	**38%** 3	8
State	**25%** 2	**38%** 3	**0%** 0	**0%** 0	**38%** 3	8
No one (no management is undertaken)	**0%** 0	**0%** 0	**0%** 0	**100%** 4	**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: 8 Skipped: 2

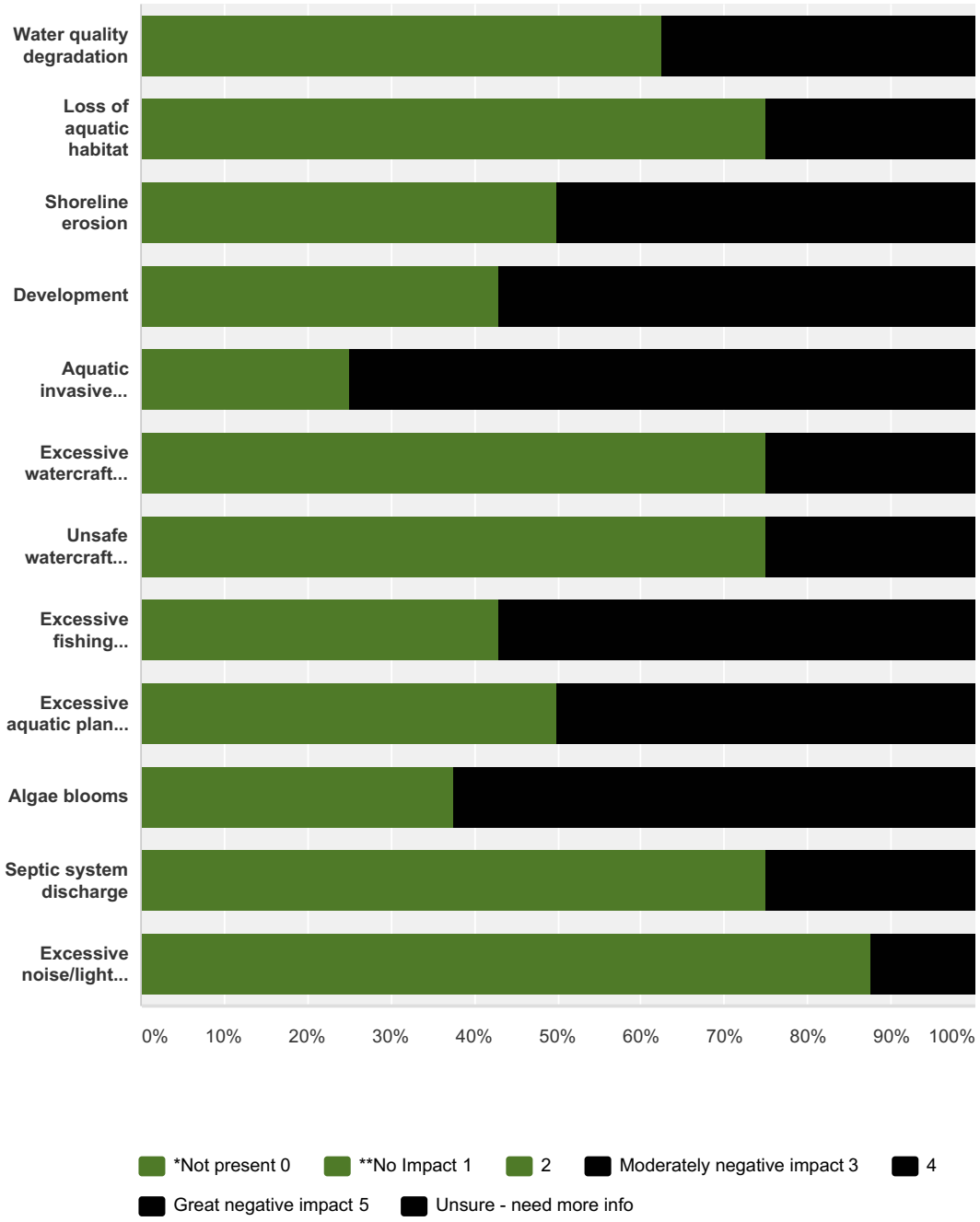


Answer Choices	Responses	
Newspaper	13%	1
Billboard	63%	5
Info pamphlets	13%	1
Placemats at local restaurants	13%	1
Interpretive water trail	13%	1
Volunteer staff at boat launch	25%	2
Total Respondents: 8		

#	Other (please specify)	Date
1	Websites, targeted magazines (e.g. Wisconsin Trails, Cottage Living, etc.)	12/29/2014 7:08 AM

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 West Branch Mill Pond? (Please rate 0 - 5)* Not Present means that you believe the issue does not exist on West Branch.**No Impact means that the issue may exist on West Branch but it is not negatively impacting the lake.

Answered: 8 Skipped: 2



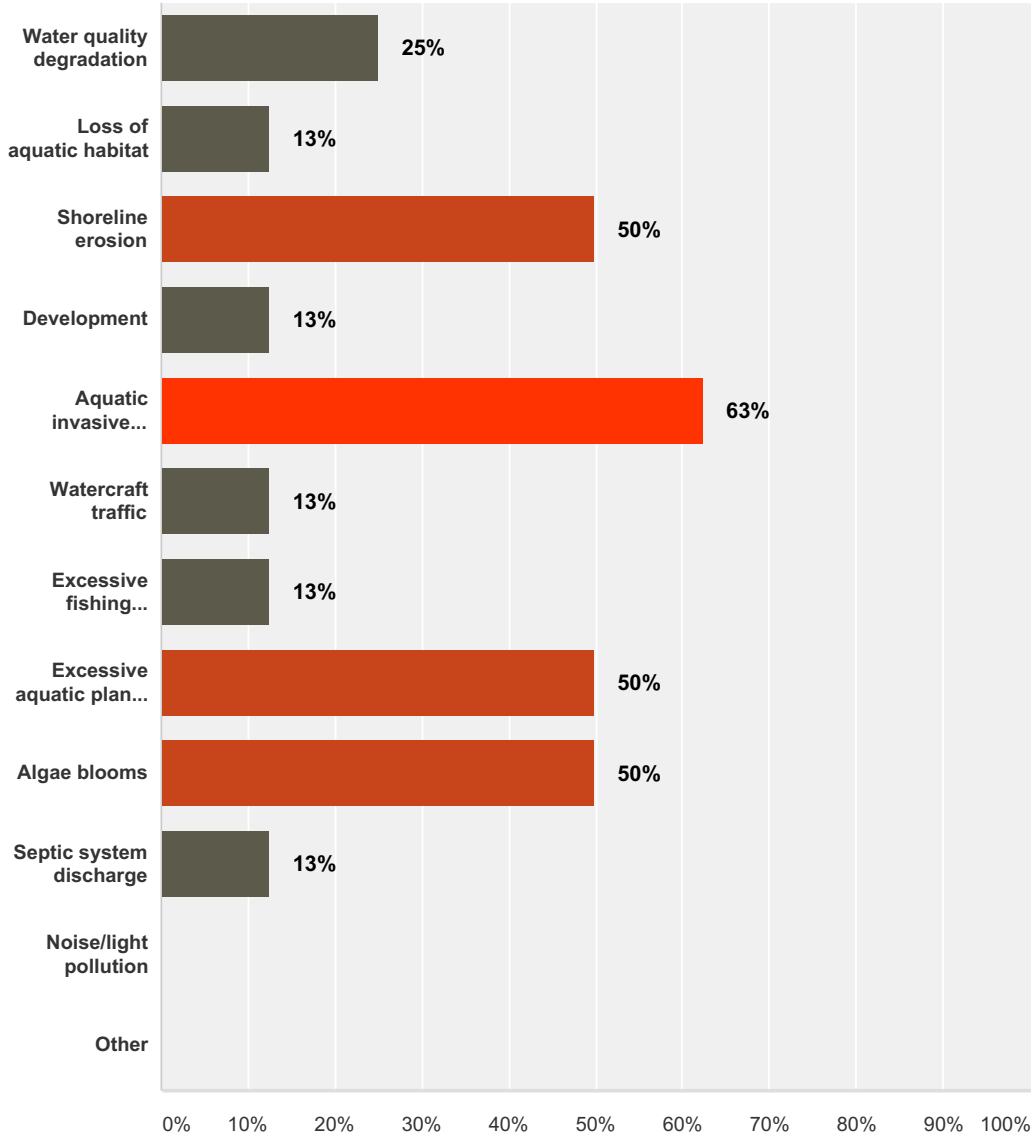
	*Not present 0	**No Impact 1	2	Moderately negative impact 3	4	Great negative impact 5	Unsure - need more info	Total	Weighted Average
Water quality degradation	0% 0	63% 5	0% 0	25% 2	0% 0	0% 0	13% 1	8	1.38
Loss of aquatic habitat	13% 1	50% 4	13% 1	13% 1	0% 0	0% 0	13% 1	8	1.13
Shoreline erosion	0% 0	25% 2	25% 2	25% 2	0% 0	25% 2	0% 0	8	2.75
Development	0% 0	14% 1	29% 2	29% 2	0% 0	29% 2	0% 0	7	3.00

Aquatic invasive species introduction	**0%** 0	**0%** 0	**25%** 2	**13%** 1	**25%** 2	**25%** 2	**13%** 1	8	3.13
Excessive watercraft traffic	**13%** 1	**25%** 2	**38%** 3	**13%** 1	**0%** 0	**13%** 1	**0%** 0	8	2.00
Unsafe watercraft practices	**13%** 1	**25%** 2	**38%** 3	**13%** 1	**13%** 1	**0%** 0	**0%** 0	8	1.88
Excessive fishing pressure	**0%** 0	**14%** 1	**29%** 2	**0%** 0	**43%** 3	**0%** 0	**14%** 1	7	2.43
Excessive aquatic plant growth (excluding algae)	**0%** 0	**0%** 0	**50%** 4	**0%** 0	**13%** 1	**25%** 2	**13%** 1	8	2.75
Algae blooms	**0%** 0	**25%** 2	**13%** 1	**0%** 0	**0%** 0	**38%** 3	**25%** 2	8	2.38
Septic system discharge	**25%** 2	**13%** 1	**38%** 3	**13%** 1	**0%** 0	**0%** 0	**13%** 1	8	1.25
Excessive noise/light pollution	**38%** 3	**38%** 3	**13%** 1	**0%** 0	**0%** 0	**0%** 0	**13%** 1	8	0.63

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

Q14 From the list below, please mark your top three concerns regarding West Branch Mill Pond.

Answered: 8 Skipped: 2



Answer Choices	Responses	
Water quality degradation	25%	2
Loss of aquatic habitat	13%	1
Shoreline erosion	50%	4
Development	13%	1
Aquatic invasive species introduction	63%	5
Watercraft traffic	13%	1

Excessive fishing pressure	**13%**	1
Excessive aquatic plant growth (excluding algae)	**50%**	4
Algae blooms	**50%**	4
Septic system discharge	**13%**	1
Noise/light pollution	**0%**	0
Other	**0%**	0
Total Respondents: 8		