2015

Irogami 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

Irogami Lake Management Plan

The Irogami Lake Management Plan was developed with input from residents and lake users at a series of four public planning sessions held at the Waushara County Courthouse in Wautoma, Wisconsin and the Coloma Community Center in Coloma, Wisconsin on November 14 and December 12, 2013, and January 23 and February 26, 2014. The inclusive community sessions were designed to learn about and identify key community opportunities, assets, concerns, and priorities. Representatives of state and local agencies, as well as nonprofit organizations, also attended the planning sessions to offer their assistance to the group in developing a strategic lake management plan (LMP).

The plan was adopted by the Irogami Lake Management District on November 22, 2014_____.
Date

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

The plan was adopted by the Town of Mt. Morris on _____.
Date

The plan was adopted by Waushara County on October 7, 2015_____.
Date

The plan was approved by the Wisconsin Department of Natural Resources on September 17, 2015_____.
Date

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

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Waushara County Staff and Citizens

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Overarching Vision for Irogami Lake

Irogami Lake will provide a peaceful setting in which lake users can enjoy a variety of recreational activities with family and friends alongside healthy fish and wildlife. The surrounding area will be clean and quiet and will promote the health and beauty of the lake. Community members who uphold education, collective sustainable efforts, and mutual respect for one another and the lake will protect the lake and its natural areas from future degradation.

Introduction

Irogami Lake is a 290-acre seepage lake located just east of Wautoma, Wisconsin in Waushara County. Land in the towns of Mount Morris, Wautoma, Dakota, and Marion and the city of Wautoma are included in the Irogami Lake watershed. The lake's shallow depth contributes to the presence of beds of emergent vegetation in the center of the lake, an important feature for wildlife and fish. Lake residents have commented on the water birds they have observed in this area and along the more naturally developed shorelands. Those who enjoy Irogami Lake include permanent and seasonal residents and renters, community members, and other lake lovers. Organized lake management has occurred since 1979, when the Irogami Lake Management District (ILMD) was formed. A variety of lake-related activities have taken place since then, including an inventory focused on water quality, land use, habitat, aquatic plants, and the fishery conducted in 1983, and historic lake management plans and feasibility studies developed in 1983 (Wisconsin Department of Natural Resources Office of Inland Lake Renewal) and 1994 (R.A. Smith & Associates, Inc.). ILMD commissioners have undertaken routine summer water quality monitoring to track changes over time, a practice they plan to continue into the foreseeable future.

According to survey responses from community members, the beauty and quiet of the lake, time spent there with family and friends, and the fish and wildlife are highly valued. Dedication to the lake and a desire to protect and improve the lake for future generations inspired community members to partner with local professionals to create a lake management plan. This document provides information about Irogami Lake while laying out a framework for the protection and improvement of lake features identified as important to the community. This framework, or lake management plan, provides the guidance needed for citizens and others involved in lake or land management to achieve the vision of the Irogami Lake community.

The planning process included a series of four public planning sessions held between November 2013 and February 2014 at the Waushara County Courthouse and Coloma Community Center. Public participation in these sessions was achieved via letters mailed to Irogami Lake waterfront property owners and by press releases in local newspapers. In addition, participants were sent emails about upcoming meetings which could be forwarded to others. In order to involve and collect input from as many people as possible, a survey was conducted prior to each planning session which sought

feedback on the upcoming planning session's topic(s). The public was informed about the surveys via postcards (waterfront property owners) and press releases in local newspapers. The surveys could be completed anonymously online or on paper upon request. Survey questions and responses were shared at the planning sessions and can be found in Appendix D.

Guest experts and professionals were invited to attend the planning sessions to assist area residents, ILMD members, lake users, and representatives of local municipalities with the development of the lake management plan. 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. Information provided by the professionals was organized into the same discussion topics as the surveys: 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, participants identified goals, objectives, and actions for the lake management plan that were then recorded by professionals from UW-Stevens Point. Planning session notes and presentations were posted to the Waushara County website.

This lake management plan provides the guidance needed for citizens and others involved in lake or land management to achieve the vision of the Irogami Lake community.

The Irogami Lake Management Planning Committee consisted of ILMD members and community 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 and Development Council, Inc. (RC&D), University of Wisconsin-Extension (UWEX), and the University of Wisconsin-Stevens Point Center for Watershed Science and Education (CWSE).

This lake management plan (LMP) and the process used to create and update it allow the community to guide the health of its lake. It is a dynamic document that identifies goals and action items for the purpose of maintaining, protecting and/or creating desired conditions in the lake over the next 20 years. It will provide guidance for future boards, lake users, and technical experts by identifying which issues have been addressed and how successful previous efforts were. Each plan is unique, dependent upon the conditions of the lake, its watershed, and the interests of the stakeholders involved. The actions identified in a LMP can serve as a gateway for obtaining resources, including grant funding, to help implement activities outlined in the plan. Because many entities are involved in lake and land management, it can be challenging to navigate the roles, partnerships, and the resources that are available. From the beginning of this plan's development, efforts have been made to identify where key assistance exists and identify opportunities for ensuring that the lake's ecological, aesthetic, and recreational opportunities are plentiful into the future.

Who can use the Irogami Lake Management Plan, and how can it be used?

- **Individuals**: Individuals can use this plan to learn about the lake they love and their connections to it. People living near Irogami Lake can have the greatest influence on Irogami Lake by understanding and choosing lake-friendly options to manage their land and the lake.
- **Irogami Lake Management District:** This plan provides the District with a well thought-out plan for the whole lake, and lists options that can easily be prioritized. Annual review of the plan will help the District to realize its accomplishments. Resources and funding opportunities for District 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 Irogami Lake.
- **Neighboring lake groups, sporting and conservation clubs**: Neighboring groups with similar goals for lake stewardship can combine their efforts and provide each other with support, improve competitiveness for funding opportunities, and make efforts more fun.
- **The towns of Marion, Mt. Morris, Wautoma, 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, rivers, and wetlands.
- **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 resource management, including the fishery and invasive species. Lake management plans help the Wisconsin Department of Natural Resources 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 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. Prior to this project, many of the lakes had insufficient data available to help evaluate current water quality, aquatic plant communities, aquatic invasive species, and shorelands, or had data obtained 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 collected and interpreted data for use in the development of lake management plans. Additional data collected by citizens, consultants, and Wisconsin Department of Natural Resources professionals were also incorporated into the planning process, providing a robust set of information to inform decision-making. Sources of information used in the planning process are listed at the end of this document for ease of reference. The results of this project, including this plan, will assist citizens, municipalities, Waushara County, and State staff to efficiently manage water resources and make informed decisions and policies that will affect lakes now and for future generations.

Several reports from the Irogami Lake 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/. Hover over the 'Departments' tab, select 'Zoning and Land Conservation', 'Land Conservation', and finally 'Lake Management Planning'. Unless otherwise noted, the data used in the development of this plan were detailed in the report *Waushara County Lake Study - Irogami Lake 2010-2012*, University of Wisconsin-Stevens Point.

Goals, Objectives and Actions

The following goals, objectives, and associated actions were derived from the values and concerns of citizens and members of the Irogami Lake Management Planning Committee, and the known science about Irogami Lake, its ecosystem and the landscape within its watershed. Implementing and regularly updating the goals and actions in the Irogami Lake Management Plan will ensure that the vision is supported and that changes or new challenges are incorporated into the plan. A management plan is a living document that changes over time to meet the current needs, challenges and desires of the lake and its community. **The goals, objectives and actions listed in this plan should be reviewed annually and updated with any necessary changes.**

Although each lake is different, to ensure a lake management plan considers the many aspects associated with a lake, the Wisconsin Department of Natural Resources requires that a comprehensive lake management plan address, at a minimum, a list of topics that affect the character of a lake, whether each topic has been identified as a priority or as simply something to preserve. These topics comprise the chapters in this plan. For the purposes of this plan, the chapters have been grouped as follows:

Fisheries and In-Lake Habitat

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, Lake District

The following goals have been identified as 'high priority':

Goal 3. Prevent AIS from becoming established in Irogami Lake.

Objective 3.1. Promote community awareness about invasive species.
Objective 3.2. Monitor for aquatic invasive species in Irogami Lake.
Objective 3.3. Be prepared to respond to AIS outbreaks.

Goal 4. Protect sensitive areas near and in Irogami Lake.

Objective 4.1. Protect and make improvements to critical habitat in Irogami Lake, especially the beds in the center of the lake.

Goal 5. Water quality in Irogami Lake will improve, reducing nuisance algal blooms and improving the fishery.

Objective 5.1. Reduce summer median phosphorus concentrations from a summer median total phosphorus concentration of 16.5 ppb by 5% over the next three years. Reduce concentrations of inorganic nitrogen concentrations to 0.3 mg/L over the next 15 years.
Objective 5.2. Prevent oxygen depletion during winter months
Objective 5.3. Continue current water quality monitoring and begin new monitoring programs.

Lead organizations and individuals are identified as resources for the actions in this plan. These resources can provide information, suggestions or services to help accomplish objectives and achieve goals. The following table lists acronyms used in this plan. Contact information for organizations and individuals who support lake management in Waushara County can be found in Appendix A. This list should not be considered all-inclusive – assistance may also be provided by other entities, consultants and organizations.

Table 1. List of organizations and acronyms used in this plan.

Resource	Acronym
US Army Corps of Engineers	ACE
Citizen Lake Monitoring Network	CLMN
UWSP Center for Watershed Science and Education	CWSE
Irogami Lake Management District	ILMD
North Central Conservancy Trust	NCCT
USDA Natural Resources Conservation Service	NRCS
Golden Sands Resource Conservation and Development Council, Inc.	RC&D
Silver Lake Sanitary District	SLSD
UW-Extension	UWEX
University of Wisconsin-Stevens Point	UWSP
Wisconsin Department of Natural Resources	WDNR
Wisconsin Department of Transportation	WDOT
Waushara County Land Conservation Department	WLCD

Fisheries and In-Lake Habitat

Many lake users value Irogami Lake 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 provides shelter and food for a healthy fishery and wildlife community.

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 fallen tree limbs 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 Irogami Lake includes the aquatic plants, branches and tree limbs above and below the water.

The Fish Community

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

People are an important part of a balanced fish community; their actions on the landscape and the numbers and sizes of fish added to or removed from 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. Regulations can also be adjusted as the fish community changes, and can provide for improved fishing.

Managing a lake for a sustainable 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 benefits 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 and provide fishing opportunities without requiring a lot of supplemental effort and associated expense to maintain these conditions.

Excellent emergent vegetative beds exist in Irogami Lake. Bulrush beds provide excellent spawning habitat for northern pike. The Irogami Lake Planning Committee expressed interest in protecting these beds as a means to protect and enhance the fishery. In 2011, an assessment of the fishery in Irogami Lake completed by Wisconsin Department of Natural Resources fisheries biologists indicated a high abundance of largemouth bass with poor size structure, a below average abundance of northern pike with poor size structure, and a low abundance of bluegill with good size structure. During the planning process, the fisheries biologists recommended the protection and restoration of near-shore areas, the improvement/protection of woody habitat near shore, the removal of the 14" size limit for largemouth bass, and a lower bag limit (10) for bluegill.

Irogami Lake is a shallow lake which periodically experiences fish kills during the winter. Some lakes use aeration to reduce winter fish kills. The Irogami Lake Planning Committee discussed the pros and cons of aeration and felt it was not an appropriate option for Irogami Lake.

Guiding Vision for the Fish Community

Irogami Lake will have a balanced fish community with minimal winter fish kills.

Goal 1. Irogami Lake will host a balanced fishery.

Objective 1.1. Reduce the bass populations in Irogami Lake.

Actions	Lead person/group	Resources	Start/end dates
Request that the Wisconsin Department of Natural Resources remove the size limit for largemouth bass by submission of a resolution to Conservation Congress.	ILMD Commissioners	WDNR Fisheries Biologist	Conservation Congress held annually around the 2nd Monday April.
Continue to explore alterations in regulations that would result in reduced largemouth bass populations.	ILMD Commissioners	WDNR Fisheries Biologist	Done in 2nd Quarter 2014, ongoing

Objective 1.2. Increase the abundance of panfish in Irogami Lake.

Actions	Lead person/group	Resources	Start/end dates
Submit a resolution to annual Conservation Congress requesting reduction in bag limit of panfish from 25 to 10.	ILMD Commissioners	WDNR Fisheries Biologist, Waushara County representatives for Conservation Congress	Completed in April 2014
If the Conservation Congress resolution (submitted in 2014) results in a question of support on the 2015 CC ballot, encourage citizens to vote.	ILMD Commissioners	WDNR Fisheries Biologist, Waushara County representatives for Conservation Congress	April 2015
Reduce overfishing and discourage noncompliance with fishing regulations by increasing warden presence during winter months to enforce regulations for ice fishing.	ILMD	WDNR Warden	Ongoing
Explore sediment removal with the intent of increasing lake depth and reducing winter fish kills: $870,000-$4.9 million (Doneux, 1994).	ILMD Commissioners	WDNR Fisheries Biologist Consultants Local fishing clubs	Ongoing

Objective 1.3. Improve fish habitat in Irogami Lake.

Actions	Lead person/group	Resources	Start/end dates
Preserve and enhance existing woody habitat.	WDNR ILMD Commissioners	WDNR Fisheries Biologist UWEX Lakes (Educational materials)	Ongoing
Work with wiling property owners to provide more woody structure, especially near the isthmus.	ILMD Commissioners	WDNR Fisheries Biologist UWEX Lakes (educational materials)	As requested by property owners Ongoing
Protect existing fishery habitat/bulrush beds by education of lake users and property owners.	ILMD Commissioners	WDNR Lake Management Specialist and Fisheries Biologist UWEX Lakes (educational materials)	Ongoing

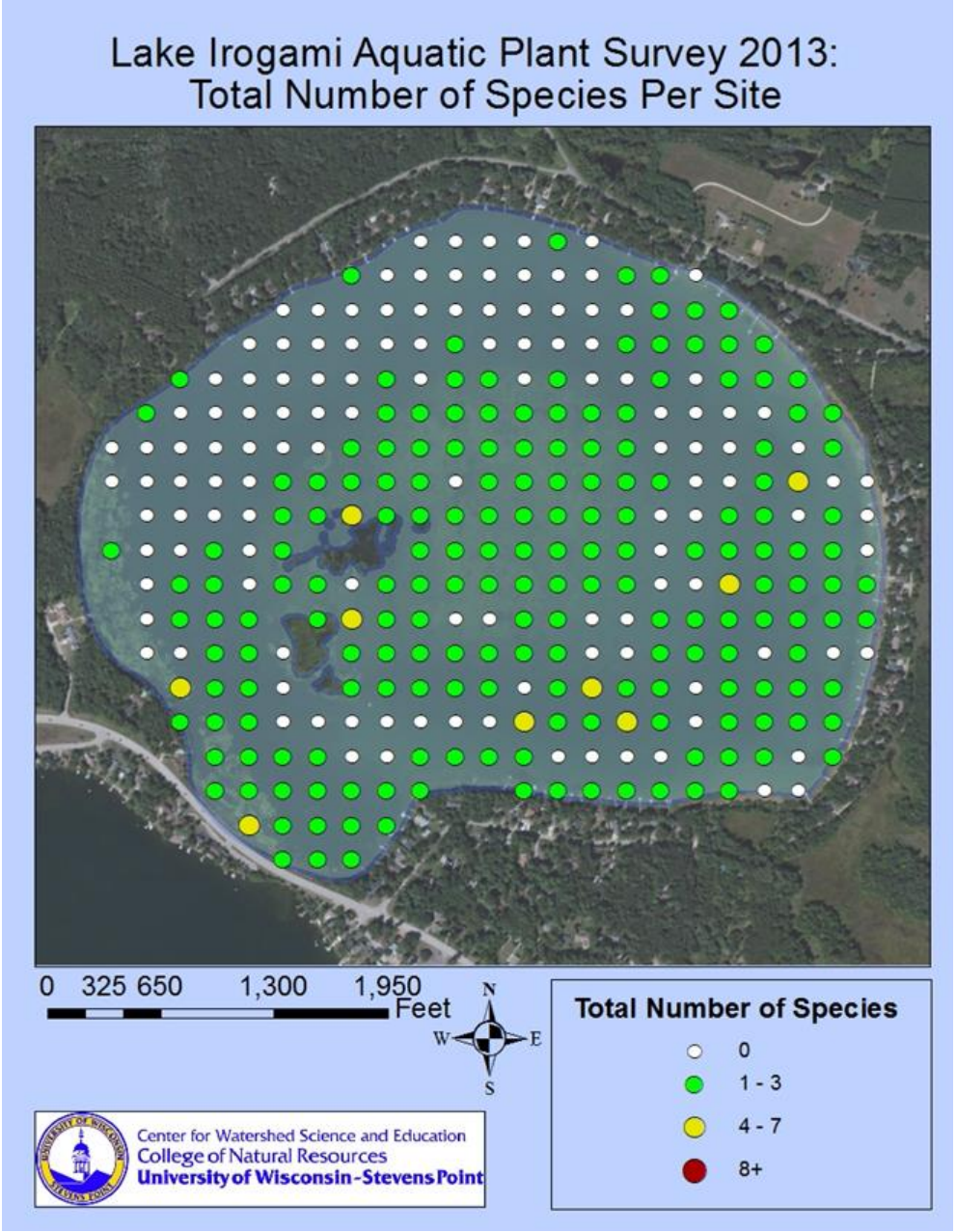
Aquatic Plants

Aquatic plants provide the forested landscape within Irogami Lake. They provide food and habitat for spawning, breeding and survival for a wide range of inhabitants and lake visitors including fish, waterfowl, turtles and 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 create diversity that makes the aquatic plant community more resilient and can help to prevent the establishment of non-native aquatic species.

Aquatic plants near shore and in shallows provide food, shelter and nesting material for shoreland mammals, shorebirds and waterfowl. It is not unusual for otters, beavers, muskrats, weasels and deer to be seen along a shoreline in their search for food, water or nesting material. The aquatic plants that attract the animals to these areas contribute to the beauty of the shoreland and lake.

An aquatic plant survey was conducted in Irogami Lake in August 2013 by Golden Sands Resource Conservation and Development Council, Inc., during which 17 species of aquatic plants were identified in or near Irogami Lake (Appendix E). This number is considered low when compared with the other lakes in the Waushara County Lakes Study. The low diversity can be attributed to the simple shape and fairly uniform depth of Irogami Lake, and lack of bays that would contribute to greater diversity of plant habitat. Aquatic plant growth is abundant due to the lake's shallow depth and the rich sediments delivered from lands near shore and the lake's watershed.

The dominant plant species found in Irogami Lake was muskgrass (*Chara* spp.), followed by Illinois pondweed (*Potamogeton*



illinoensis) and southern naiad (*Nijas guadalupensis*). Muskgrass is a favorite waterfowl food and also offers cover for fish. Several areas in the lake have an abundance of muskgrass, protecting sediments from disturbance, providing protection against the establishment of invasive species and helping to reduce the production of other types of algae. Illinois pondweed produces fruit that can be an important food source for local waterfowl, beaver, muskrat and deer. Southern naiad also provides food for waterfowl, and food and shelter to fish (Borman et al., 2001).

Several high quality aquatic plant species were present in the lake, including water marigold, Fries' pondweed, and white-stem pondweed. Extensive beds of hardstem bulrush exist in Irogami Lake; these beds provide an excellent nursery for many species of fish and tadpoles. Freshwater sponges occurred at 31% of vegetated sites. Sponges are actually animals, not plants, but were recorded during the survey because they are excellent water quality indicators. To have them in such high abundance is a positive sign.

More detailed information can be found in the Irogami Lake Aquatic Plant Report or the Irogami Lake 2010-2012 Lake Study Report.

Guiding Vision for Aquatic Plants in Irogami Lake

Irogami Lake will continue to have a healthy, protected aquatic plant community, including sensitive areas of quality bulrush habitat located in the center of Irogami Lake.

Goal 2. Prevent the establishment of aquatic invasive species through community awareness and sustainable management of aquatic plants.

Objective 2.1. Protect native aquatic plants.

Action	Lead person/group	Resources	Start/end dates
Protect and leave in place as much native aquatic vegetation as possible.	ILMD	UWEX Lakes (educational materials)	Ongoing

Aquatic Invasive Plant Species (AIS)

Aquatic invasive species are non-native aquatic plants and animals that are most often unintentionally introduced to the lake by lake users. In some lakes, aquatic invasive plant species can co-exist as 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 (Golden Sands Resource Conservation and Development Council, Inc., 2014).

Aquatic invasive species were not found in Irogami Lake in 2013; however, the Wisconsin Department of Natural Resources website indicates that Eurasian watermilfoil (EWM) was documented in November 1994 and curly leaf pondweed (CLP) was reported in December 1998. EWM was also found in Irogami Lake and removed using proper hand-removal techniques in summer 2008. This plant can produce viable seed, but it often spreads by fragmentation. Just a small stem fragment is enough to start a new plant, so EWM can spread quickly if plants are located near areas of activity, such as beaches and boat launches. If not watched closely, these and other invasive aquatic species could quickly become established in the lake due to the lack of native plant cover.

If an invasive plant species not previously documented in Irogami Lake is observed by any lake user, the lake user is encouraged to refer to Appendix C for more information on how to report it.

Guiding Vision for Aquatic Invasive Species (AIS)

Proactive responses to aquatic invasive species will prevent it from becoming a detriment to Irogami Lake.

Goal 3. Prevent AIS from becoming established in Irogami Lake.

Objective 3.1. Promote community awareness about invasive species.

Actions	Lead person/group	Resources	Start/end dates
Organize educational AIS identification program.	ILMD Commissioners	RC&D	Early fall 2014
Provide educational materials about AIS at boat launch.	ILMD Commissioners	RC&D UWEX Lakes	Ongoing
Distribute placemats with information about AIS to local churches, businesses and organizations that show interest.	ILMD Commissioners	RC&D	Ongoing
Include information about the threat of AIS in a welcome packet or newsletter and remind lake users to clean plants off trailers, drain motors and live wells, and wash boats before and after entering/leaving the lake.	ILMD Commissioners	RC&D UWEX Lakes	Ongoing
Provide information about AIS to rental properties to	ILMD Commissioners	WDNR Lake Manager	Ongoing

remind lake users to clean plants off trailers, drain motors and live wells, and wash boats before and after entering/leaving the lake.		ILMD RC&D UWEX Lakes	Lake brochure sent out 2014

Objective 3.2. Monitor for aquatic invasive species in Irogami Lake.

Actions	Lead person/group	Resources	Start/end dates
Learn how to identify and monitor for aquatic invasive species (AIS).	ILMD	RC&D	Ongoing
Monitor routinely for early AIS outbreaks.	ILMD	RC&D Consultants	Ongoing
Host a Clean Boats, Clean Waters workshop to organize volunteers to monitor boat launch during busy boating weekends.	ILMD Commissioners	RC&D UWEX Lakes	Ongoing
Monitor the potential spread of Japanese knotweed from across the highway (Silver Lake).	ILMD	RC&D WDNR AIS Specialists	Ongoing
Explore the creation of a response plan for high water conditions that may cause water from Silver Lake to spill into Irogami Lake.	ILMD Commissioners	WDNR WDOT ACE	Ongoing

Objective 3.3. Be prepared to respond to AIS outbreaks.

Actions	Lead person/group	Resources	Start/end dates
Refer to the AIS Rapid Response Plan (Appendix C).	ILMD	WDNR Lake Manager RC&D Consultants	Ongoing
If an aquatic invasive plant outbreak occurs, consider learn how to remove early outbreaks	ILMD	WDNR Lake Manager RC&D Consultants	Ongoing Begin 2015-2016

Critical Habitat

Special areas harbor habitat essential to the health of a lake and its inhabitants. In Wisconsin, critical habitat areas are identified by biologists and other lake professionals from the Wisconsin Department of Natural Resources. Designating areas of the lake as critical habitat enables these areas to be located on maps and information about their importance to aquatic plants, animals and the overall health and integrity of the lake to be shared. Identifying critical habitat areas can help lake groups and landowners plan waterfront projects that will minimize impacts to important habitat and help ensure the long-term health of the lake.

In 2003, Wisconsin Department of Natural Resources lake specialists identified seven critical habitat areas in and near Irogami Lake (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 Irogami Lake's sensitive areas. For more detailed information, see the Irogami Lake Sensitive Area Designation Report (Provost, 2003).

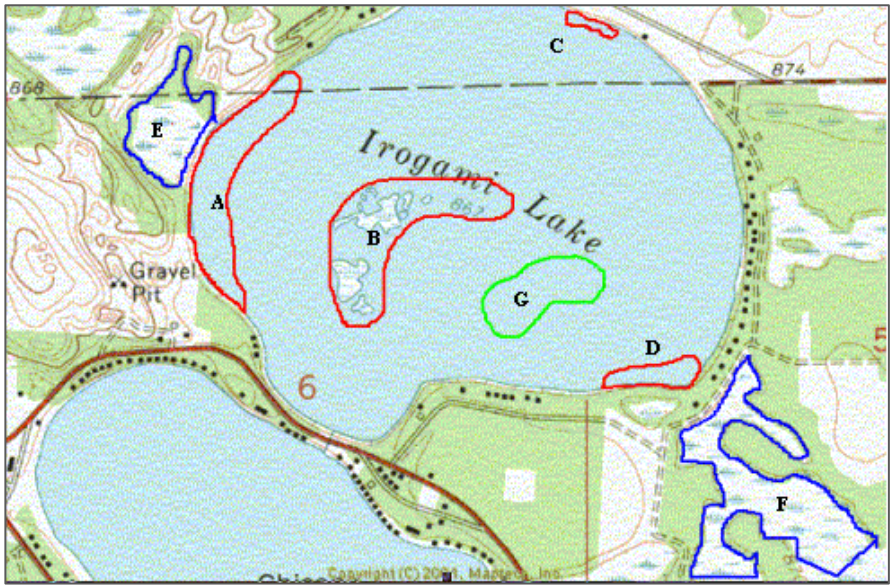


Figure 1. Critical habitat designations in and near Irogami Lake (Provost, 2003).

Guiding Vision for Irogami Lake's Critical Habitat

Irogami Lake's sensitive areas will be enhanced and protected from degradation.

Goal 4. Protect sensitive areas near and in Irogami Lake.

Objective 4.1. Protect and make improvements to critical habitat in Irogami Lake, especially the beds in the center of the lake.

Actions	Lead person/group	Resources	Start/end dates
Inform lake users about these important areas by publishing brochures to distribute to rental properties, include in newcomer packets, and for use at boat landing.	ILMD Commissioners	WLCD WDNR Biologists UWEX Lakes	Done Ongoing
Protect areas surrounding off-lake critical habitat areas by supporting enrollment in conservation programs.	ILMD Commissioners	WLCD NCCT Town Plan Commission	2015
Explore options for making improvements to sensitive habitat by protection, restoration of bulrush beds.	ILMD Commissioners	WDNR Lake Management Specialist WDNR Fisheries Biologist UWEX Lakes (educational materials)	Ongoing

Landscapes and the Lake

Land use and land management practices within a lake's watershed can affect both its water quantity and quality. Forests, grasslands and wetlands allow 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 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, and 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 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 mimic some of the natural processes, and the reduction or elimination of nutrients added to the landscape will help prevent 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 serve the lake by reducing contaminants, providing shelter for fish and wildlife, and decreasing shoreline erosion by providing deep roots that hold soil in place and provide a shoreland barrier from waves and wind.

The water quality in Irogami Lake is the result of many factors, including the following: underlying geology, climate, natural features such as slope and wetlands, near shore management and watershed land management practices. Since we have little control over the climate and cannot change the geology, protection of wetlands and healthy land management practices are the primary actions that can have positive impacts on the lake's water quality. The water quality in Irogami Lake was assessed during the 2010-2012 lake study by measuring a variety of characteristics, including temperature, dissolved oxygen, water clarity, water chemistry and algae. All of these were taken into consideration when decisions were made for this plan.

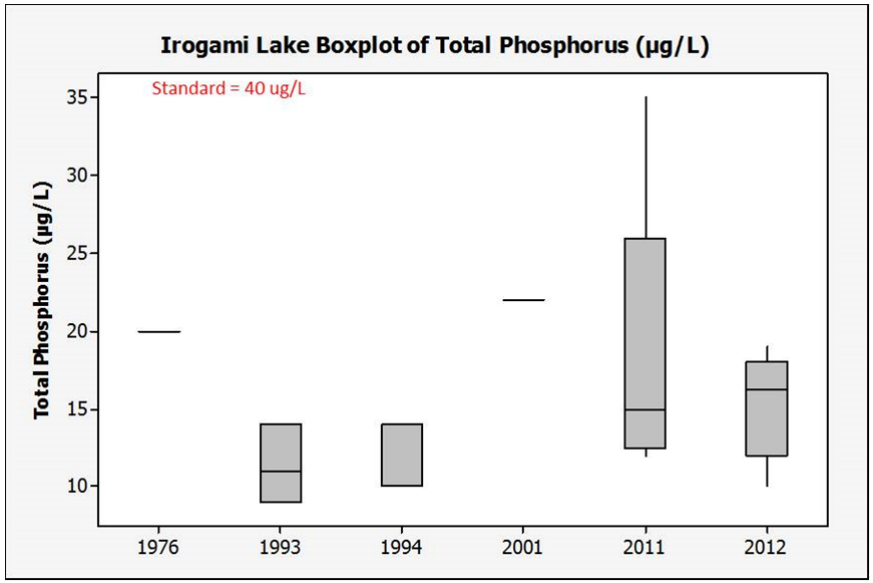
Water Quality

Citizen survey respondents indicated that water quality in Irogami Lake impacts both their personal enjoyment and the economic value of Irogami Lake. A variety of water chemistry measurements were used to characterize the water quality in Irogami Lake during the 2010-2012 lake study. In general, Irogami Lake had good water quality. The watershed had a fair amount of forests (33%) and development (38%); if properly managed, forests help provide good quality water to lakes, both in terms of surface runoff and groundwater. The amount of impact that development has on the lake's water quality depends on how the land is managed. When vegetation is left intact, fertilizer is eliminated or minimized, runoff is controlled, and impervious surfaces are limited, water quality impacts from developed land can be minimal.

Nutrients (phosphorus and nitrogen) are important measures of water quality because they are used for growth by algae and aquatic plants. 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, 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 the most 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 can result in significant increases in aquatic plants and algae.

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

Total phosphorus concentrations for Irogami Lake ranged from 10 ug/L to 35 ug/L. The average summer total phosphorus concentration in Irogami Lake was 17 ug/L, below the state standard of 40ug/L for shallow seepage lakes, but are above the proposed flag value of 15 ug/L.



Irogami Lake is considered a hard water lake due to inputs of calcium and magnesium from groundwater. The hardness of the water in Irogami Lake helps to reduce the availability of phosphorus for use by algae and aquatic plants. It is possible for a lake to receive more phosphorus than the hardness can control. Once this threshold is exceeded, phosphorus may become available for algal blooms and increased growth of aquatic plants. Therefore, measures should be put in place that will ensure that impacts to Irogami Lake from future land use changes in the watershed will be minimized.

Chloride and nitrate were elevated in spring 2011 lake water samples. The concentrations of chloride measured in Irogami Lake are not harmful to aquatic biota, but indicated that human activities were influencing the water quality in the lake. Inorganic nitrogen, a combination of nitrate (NO2+NO3-N) plus ammonium (NH4-N), was elevated in May 2011 with a nitrate concentration of 2.4 mg/L, which is very high for lake water. In spring, nitrate concentrations of 0.3 mg/L are sufficient to fuel algal blooms for the balance of the summer. Typically, chloride and nitrate move to the lake via groundwater. The concentrations observed in 2011 indicated that groundwater used for drinking may exceed the federal drinking water standard, so it is advisable for private well owners to have their water tested. Sources of these contaminants include animal waste, fertilizers and septic systems. Road salt is an additional source of chloride.

Dissolved oxygen is an important measure in Irogami Lake 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. The temperature in Irogami Lake was generally mixed from top to bottom, although it weakly stratified in July and August. Dissolved oxygen concentrations fell below 5 mg/L in much of the water column in some of the winter samples taken in Irogami Lake. Dissolved oxygen concentrations below 5 mg/L can stress some species of cold water fish and over time can reduce the amount of available habitat for sensitive cold water species of fish and other aquatic organisms.

Atrazine was detected in the lake water (0.13 ppb and 0.06 ppb). Some toxicity studies have indicated that reproductive system abnormalities can occur in frogs at these levels (Hayes et al., 2001 and Hayes et al., 2003). The presence of this chemical indicated that surrounding agricultural activity is impacting Irogami Lake's water quality.

Managing nitrogen, phosphorus, and soil erosion throughout the Irogami Lake watershed is one of the keys to protecting the lake itself. Over-application of chemicals and nutrients should be avoided to prevent leaching of excess chemicals and nutrients to groundwater. Near-shore activities that may increase the input of phosphorus to the lake include applying fertilizer, removing native vegetation (trees, bushes and grasses), mowing vegetation, increasing the amount of exposed soil, and increasing runoff. Nitrogen inputs to Irogami Lake can be controlled by using lake-friendly land management decisions, such as the elimination/reduction of fertilizers, proper management of animal waste, and the use of water quality-based management practices. Irogami Lake and the surrounding lakes are served by a sewer system in the Silver Lake Sanitary District, so current septic systems are not likely a contributor to nutrients entering the lake; however, the effects of past septic systems may still play a role.

Guiding Vision for Water Quality in Irogami Lake

Irogami Lake will have clear, clean water with minimal contamination and sufficient oxygen for the fish populations in the lake.

Goal 5. Water quality in Irogami Lake will improve, reducing nuisance algal blooms and improving the fishery.

Objective 5.1. Reduce summer median phosphorus concentrations from a summer median total phosphorus concentration of 16.5 ppb by 5% over the next three years. Reduce concentrations of inorganic nitrogen concentrations to 0.3 mg/L over the next 15 years.

Actions	Lead person/group	Resources	Start/end dates
Decrease/eliminate the use of fertilizers on lawns around the lake to reduce inputs of nitrogen and phosphorus.	ILMD	Waushara County UWEX (educational materials)	Ongoing
Explore the use of lake water as fertilizer.	ILMD	WDNR Lake Management	Ongoing

		Specialist	
Improve shoreland vegetation to reduce phosphorus loading to lake (See shoreland section).	ILMD	Property owners WLCD Consultants	Ongoing
Encourage farm operators to implement water-quality based nutrient strategies for their farms and fields to reduce excess nitrogen and chemical exports.	ILMD	WLCD Waushara County UWEX Ag Agent NRCS	Ongoing

Objective 5.2. Prevent oxygen depletion during winter months

Actions	Lead person/group	Resources	Start/end dates
Explore plowing the ice to allow more light entry for plant growth beneath the ice and evaluate the effectiveness of this strategy.	ILMD Commissioners	WDNR Lake Management Specialist	2015-2016

Objective 5.3. Continue current water quality monitoring and begin new monitoring programs.

Action	Lead person/group	Resources	Start/end dates
Continue water chemistry (phosphorus, nitrogen) and temperature monitoring twice a year during spring and fall overturn.	ILMD Commissioners	UWSP Water and Environmental Analysis Lab (Package B)	Ongoing
Begin Ice on/Ice off monitoring.	Water Monitor appointed position within ILMD Commissioners	CLMN Coordinator for Waushara Co.	Begin 2015-2016, Ongoing
Purchase a dissolved oxygen meter and begin sampling during water quality sampling activities and routinely throughout winter months.	ILMD Commissioners	CLMN Coordinator for Waushara Co. WDNR Fisheries Biologist WLCD	Ongoing: summer months—during water quality monitoring. Winter months—at least once every 7-14 days during ice-on.
Encourage property owners to test their well water for	ILMD Commissioners	Waushara Co UWEX	Ongoing

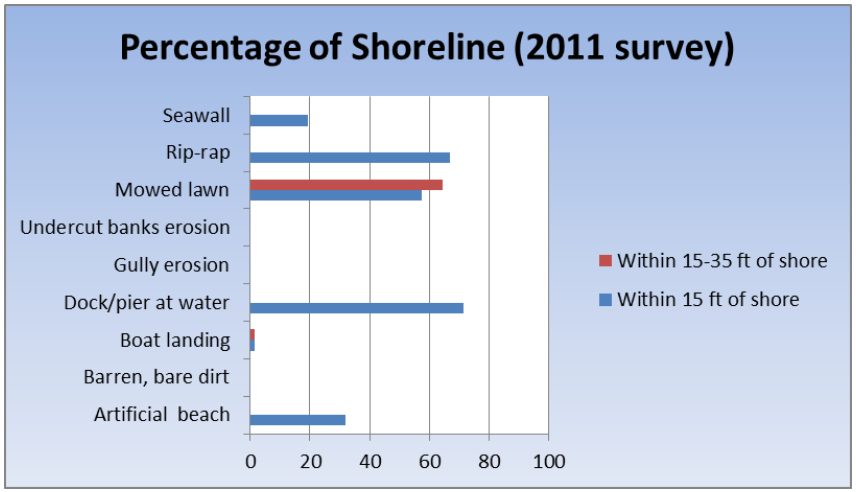
nitrate.		Certified Labs	

Shorelands

Shoreland vegetation is critical to a healthy lake's ecosystem. It provides habitat for many aquatic and terrestrial animals including birds, frogs, turtles, and many 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 tall grasses/flowers, shrubs and trees which extend 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, seawalls, 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 problems 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 Irogami Lake is displayed on the map in the Appendix B. Several stretches of Irogami Lake's shorelands were in good shape, but much of the shoreland had challenges that should be addressed. A few short segments of Irogami Lake shoreland ranked as poor. Shoreland ordinances were enacted to improve water quality and habitat, and to protect our lakes. County and state (NR115) 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 108 lakefront lots, 3,240 feet (24%) of disturbed shoreland is permitted. Based on the 2011 shoreland inventory, 64% (8,822 feet) of Irogami's shoreland was mowed lawn. Although some properties were grandfathered in when the ordinance was adopted in 1966, compliance will benefit the health of the lake and its inhabitants. Shoreland vegetation was insufficient at many locations. The disturbances identified in Irogami Lake's shorelands included seawalls, rip-rap, artificial beaches, structures, and docks. Seawalls, rip-rap (rocked shoreline), and artificial beach result in habitat loss. Unmanaged runoff from rooftops of structures contribute runoff



to the lake, often resulting in delivery of more sediment to the lake. Docks result in altered in-lake habitat. Denuded lakebeds adjacent to docks provide opportunities for invasive species to become established and reduce habitat that is important to fish and other lake inhabitants.

Guiding Vision for Irogami Lake's Shorelands

Irogami Lake will have sections of shoreline protected from development and properties with landowners invested in restored and healthy shoreland habitat and reduced runoff to the lake.

Goal 6. Preserve and restore healthy shorelines around Irogami Lake. The shorelines designated as having "poor" shoreland health (orange or yellow on the 2011 map) will be reduced by 60% (approximately 3,349 feet) within the next 5 years (2019).

Objective 6.1. Inform shoreland property owners about protecting existing shoreland habitat.

Actions	Lead person/group	Resources	Start/end dates
Contact landowners on undeveloped west side of lake and encourage placement of land into a conservation program.	ILMD	NCCT, Wisconsin Stewardship Fund, Knowles-Nelson Fund, WDNR Lake Protection Grant Program	2015

Objective 6.2. Provide an atmosphere and support to result in restored shorelands.

Actions	Lead person/group	Resources	Start/end dates
Use 2011 shoreline survey results as a guideline for focusing shoreland restoration.	ILMD Commissioners	WLCD	Ongoing until shoreline survey is updated
Create incentives by exploring fund raising/local businesses regarding prizes for best restoration(s). Consider working with area lakes to combine resources and interests.	ILMD Commissioners	WLCD Waushara County Watershed Lakes Council	Prior to/during contest
Distribute information about shoreline restoration, advertise contest at annual meeting (newsletter, mailing, postings in local businesses and public buildings).	ILMD Commissioners	WLCD UWEX Lakes (educational materials)	Annual meeting
Explore partnering with SLSD to help support or provide funding for the restoration initiative (for Irogami Lake or all lakes in SLSD).	ILMD Commissioners	SLSD	

Organize boating parties/events to view shorelines.	ILMD Commissioners	WLCD WDNR Lake Management Specialist	Ongoing
Explore options to increase rental property participation: by disseminating brochures, pamphlets.	ILMD Commissioners	UWEX Lakes – educational materials	Complete, ongoing
Complete a second shoreline survey to track improvements.	ILMD Commissioners	WLCD	1-3 years from plan creation in 2014

Objective 6.3. Reduce the effects of impervious surfaces on properties surrounding the lake.

Actions	Lead person/group	Resources	Start/end dates
Encourage installation of rain gardens and native vegetation around the lake. Provide information about rain gardens and shoreline restoration; direct those interested to contact WLCD.	ILMD Commissioners	WLCD	Ongoing

Watershed Land Use

It is important to understand where Irogami Lake'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 Irogami Lake; 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 help reduce impacts on our lakes. Some practices are designed to reduce runoff. These include protecting/restoring wetlands; installing rain gardens, swales and/or rain barrels; and, routing drainage from pavement and roofs away from the lake. Other practices help reduce nutrients moving across the landscape towards the lake. Examples for Irogami Lake include manure management practices, eliminating/reducing the use of fertilizers, protecting/restoring wetlands and native vegetation in the shoreland, and using erosion control practices.

The surface watershed for Irogami Lake is approximately 3,560 acres (Figure 2). The dominant types of land use in the watershed are developed land (38%), forests (33%) and agriculture (21%). The land closest to the lake often has the greatest impact on water quality and

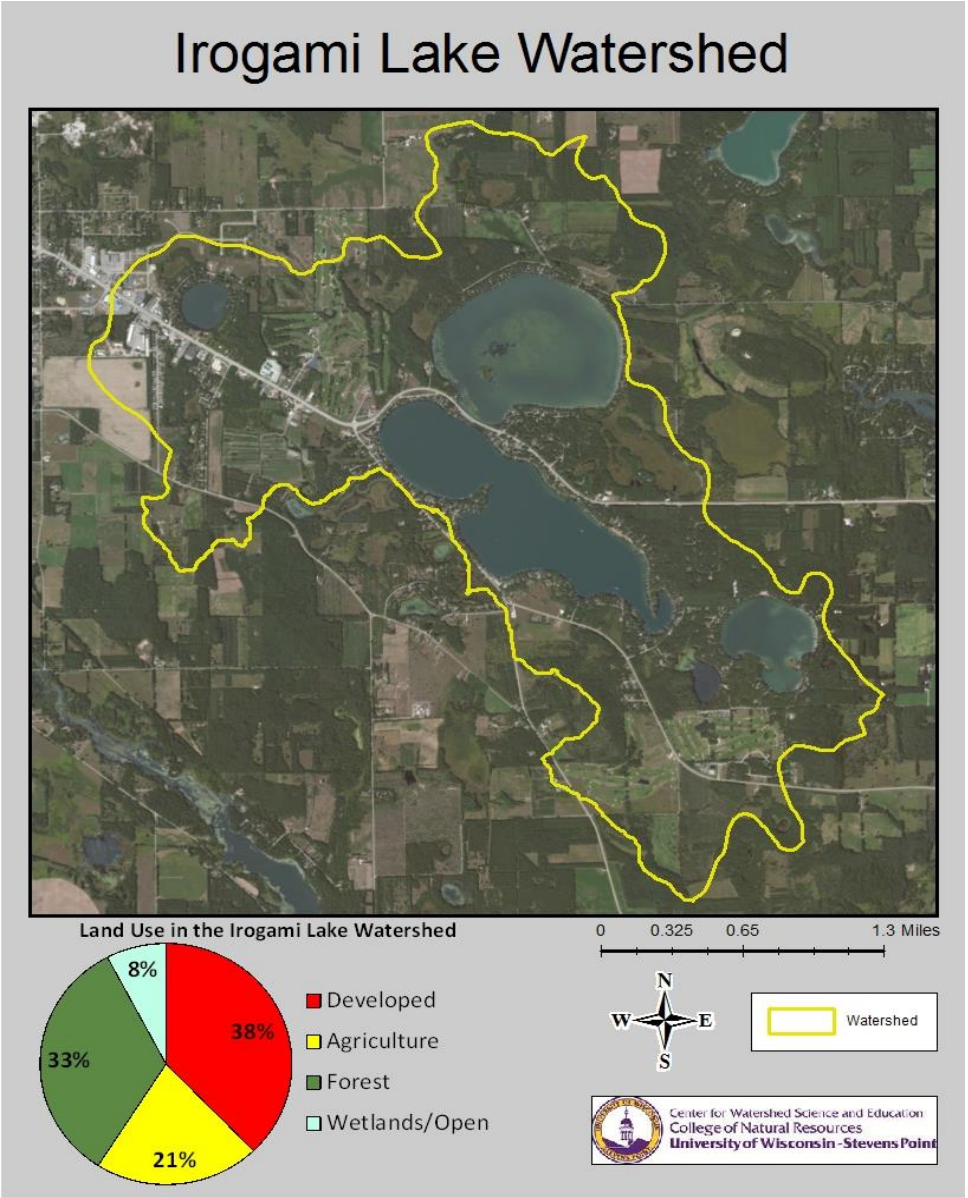
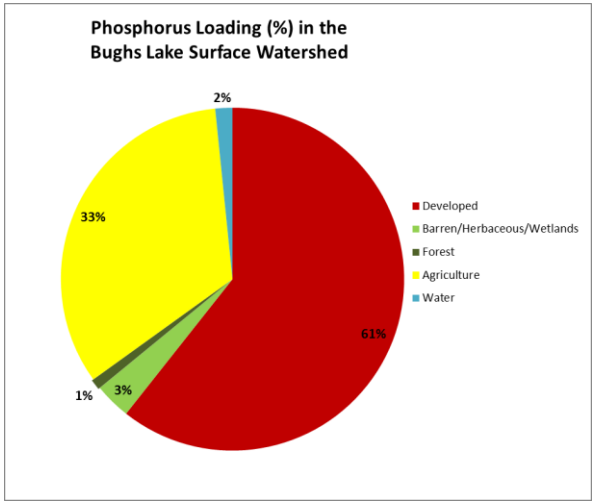


Figure 2. Irogami Lake surface watershed boundary and land use within the watershed.



habitat; Irogami Lake is surrounded primarily by development, wetlands and forests.

Identifying and taking steps to maintain or improve water quality in Irogami Lake depends upon understanding the sources of nutrients to the lake and identifying those that are manageable. 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 Irogami Lake. The phosphorus contributions by land use category, called phosphorus export coefficients, are shown in the Appendix. The phosphorus export coefficients have been obtained from studies throughout Wisconsin (Panuska and Lillie, 1995).

Guiding Vision for Irogami Lake's Watershed

Irogami Lake will receive minimal negative impacts from lands within its watershed. It will be surrounded by a balance of developed and protected, undeveloped land.

Goal 7. Protect quality habitat and natural areas within the watershed from future degradation to enhance water quality, aesthetics, and the wildlife community.

Objective 7.1. Encourage watershed landowners to restore and/or enter land into conservation programs.

Actions	Lead person/group	Resources	Start/end dates
Identify quality natural land and shoreland within the watershed and encourage landowner entry into conservation programs (Purchase of Development Rights, Conservation Easement, etc.).	ILMD	NCCT, Knowles-Nelson Stewardship Fund, WDNR Lake Protection Grant Program	Ongoing
Explore funding options for land purchase within the watershed for conservation, preservation, or restoration purposes.	ILMD Commissioners	Wisconsin Stewardship Fund, Knowles-Nelson Stewardship Fund, WDNR Lake Protection Grant Program, Waushara County	Ongoing

Goal 8. Property owners in the watershed will understand their relationship to Irogami Lake and will manage their lands in ways that minimize impacts to Irogami Lake.

Objective 8.1. Future land use changes will put measures into place to minimize their impacts on Irogami Lake.

Actions	Lead person/group	Resources	Start/end dates
Subdivisions and other developments will manage stormwater on site and consider septic system impacts to Irogami Lake.	Townships	Waushara County UWEX (educational materials)	Ongoing
Large water withdrawal projects will not impact the already shallow water levels in Irogami Lake.	WDNR		Ongoing
Wetlands will be protected to maintain the water budget of Irogami Lake. Any altered wetlands will be mitigated within the lake's watershed.	WDNR	ACE, consultants	Ongoing
Road and construction projects will be designed in a way that will minimize impacts to Irogami Lake.	ILMD	Townships, Waushara County Highway Dept., Waushara County Zoning	Ongoing

People and the Lake

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

Boating hours, regulations, proper hygiene of boats/trailers before entering and when leaving the lake, and fishing guidelines 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

Irogami Lake is enjoyed by residents, renters, local users and tourists for the variety of recreational activities that it offers. According to survey respondents, the most popular activities at Irogami Lake included enjoying the scenery, walking, swimming, fishing, appreciating Irogami Lake as a place of solitude, and enjoying wildlife. Recreational boating on Irogami Lake included motor boating, canoeing/kayaking, water skiing, sailing, and jet skiing. This variety of quiet and motorized uses can conflict with one another. As a means to provide for different uses, a 'slow no-wake' period is in place on Irogami Lake between 8:30 p.m. and 6 a.m. Ten of fourteen survey respondents indicated that they were satisfied with this wake period. One-half (seven of fourteen) of the survey respondents indicated that they liked the current speed limit of 50 mph, while the other one-half were unhappy with this limit. Seven of ten would like to see the speed limit lowered, and eight of nine did not support the complete removal of a speed limit. Another consideration related to motor boating is the concern for boating impacts to the bulrush beds in the middle of the lake that provide essential spawning habitat. Detailed survey responses can be found in Appendix D.

Guiding Vision for Recreation

There will be minimal recreational conflicts among those enjoying Irogami Lake.

Goal 8. Increase compliance of boating rules and special considerations.

Objective 8.1. Inform lake users about recreational rules and considerations.

Action	Lead person/group	Resources	Start/end dates
Update and maintain boat launch signs and include information about sensitive/no wake areas of the lake.	Town of Mt. Morris, Town of Marion	Townships Waushara County Parks	Beginning 2014
Create brochures about recreational and sensitive areas,	ILMD Commissioners	UWSP Courses – Dr. Kristin	Completed – update as

hours, regulations to distribute to landowners and renters.		Floress Consultants	needed

Communication and Organization

Many of the goals outlined in this plan focus on disseminating information to lake and watershed residents and lake users in order to help them make informed decisions that will result in a healthy lake ecosystem enjoyed by many people. Working together on common values will help to achieve the goals that are outlined in this plan and help to build a sense of community around Irogami Lake.

Guiding Vision for Communication

Lake stewardship efforts in and around Irogami Lake will be supported by informed and engaged residents and lake users.

Goal 9. The community will be involved in lake management actions.

Objective 9.1. Communicate with Lake District members.

Actions	Lead person/group	Resources	Start/end dates
Annual meeting	ILMD Commissioners	Newspapers: Argus/Resorter	Ongoing
Email listserv, newsletters, other	ILMD Commissioners	ILMD	Ongoing
Host informational programs and distribute important lake information at annual meeting.	ILMD Commissioners	RC&D WLCD	Ongoing, August annual meeting
Continue distribution of welcome packets to new landowners and rental homes.	ILMD Commissioners	WLCD	Ongoing
Consider distribution of a district newsletter with lake information, sensitive areas, invasive species updates, announcements for events and meetings, etc.	ILMD Commissioners	WLCD UWEX Lakes UWSP	Ongoing

Objective 9.2. Open a dialogue with and get information to absentee renters and homeowners.

Actions	Lead person/group	Resources	Start/end dates

Leave brochures, informational materials, maps at hotels, marinas, churches, and other public buildings.	ILMD Commissioners	UWEX Lakes, UWSP, RC&D	2015-2016
Maintain signage at boat landings and around the lake.	Town of Marion, Town of Mt. Morris	Waushara County Parks Dept., WDNR	

Objective 9.3. Communicate with other lake groups in Waushara County and around the state.

Actions	Lead person/group	Resources	Start/end dates
Participate in Waushara County Watershed Lakes Council.	ILMD Commissioners		Ongoing, 4 times per year
Coordinate with other lake groups working on similar efforts to reduce time and cost. Explore ways that lake groups can work together.	ILMD Commissioners	Silver Lake, Lake Alpine WDNR Lake protection grant	Ongoing
Attend Wisconsin Lakes Convention.	ILMD Commissioners		Ongoing

Updates and Revisions

A management plan is a living document that should evolve over time to meet the current needs, challenges and desires of the lake and its community. The goals, objectives and actions listed in this plan should be reviewed annually and updated with any necessary changes.

Guiding Vision for Updates and Revisions

The Irogami Lake Management Plan will be an up to date, evolving document that changes dependent upon the current needs of the lake and future visions of the lake community.

Goal 10. Update the lake management plan annually or as needed.

Objective 10.1. Communicate updates with community members and members of the District.

Action	Lead person/group	Resources	Completion Status
Include plan update as a regular agenda item at the District annual meeting.	ILMD Commissioners		Annually
Notify Lake District members of any potential changes in the management plan.	ILMD Commissioners		Annually, Ongoing

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 Resource Conservation and Development Council, Inc., 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 be 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, David. 2014. The Fishery in Pleasant and Irogami Lakes. Presentation. Unpublished data. Given December 12, 2013 at the Coloma Community Center.

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.

Doneux, M.J. 1994. *Irogami Lake Management Plan*. R.A. Smith & Associates, Inc. Project No.: 93760-0-342-342. 9 December 1994.

Hayes, T., K. Haston, M. Tsui, A. Hoang, C. Haeffele and A. Vonk. 2003. *Atrazine-Induced Hermaphroditism at 0.1 PPB in American Leopard Frogs (Rana pipiens): Laboratory and Field Evidence*. Environmental Health Perspectives 111: 568-575.

Irogami Lake 2010-2012 Study Report. Center for Watershed Science and Education. UW-Stevens Point.

Irogami Lake 2010-2012 Study Mini-Report. Center for Watershed Science and Education. UW-Stevens Point.

Irogami Lake Waushara Co. Feasibility Study Results; Management Alternatives. 1983. Inland Lake Renewal Section. Bureau of Water Resources Management. Wisconsin Department of Natural Resources.

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.

Provost, Scott, 2003. Irogami Lake WIBIC #103900 Sensitive Area Designation Report. Wisconsin Department of Natural Resources. Date of survey 17 July 2003.

Rupp, Danielle. 2014. Land Conservation, Conservation Programs, and Best Management Practices. Unpublished information. Presentation given January 23, 2014 at the Waushara County Courthouse.

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

Skawinski, Paul. 2014. Aquatic Plants of Irogami Lake. Presentation. Given February 26, 2014 at the Coloma Community Center.

Stushek, Kaycie. 2014. Aquatic Invasive Species in Pleasant and Irogami Lakes. Presentation. Given February 26, 2014 at the Coloma Community Center.

Turyk, Nancy. 2014. Water Quality in Pleasant Lake and Irogami Lake. Presentation. Given January 23, 2014 at the Waushara County Courthouse.

UW-Stevens Point Center for Watershed Science and Education, 2014. Waushara County Lake Study - Irogami Lake 2010-2012. Final Report to Waushara County and Wisconsin Department of Natural Resources.

UW-Stevens Point Center for Watershed Science and Education, 2013. Waushara County Lake Study - Irogami Lake 2010-2012 Mini-Report. 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 Lakes 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/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/zoning.htm

Boat Landings, Signage, Permissions (County)

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

Boat Landings (State)

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

Boat Landings (Town)

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

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/

Conservation Easements (cont'd)

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/org/water/wm/dsfm/dams/

Fertilizers/Soil 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/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/fish/

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/Aid/Grants.html#tabx8

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

Groundwater Quality

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

Groundwater Levels/Quantity

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

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
Website:
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/uwexlakes/organizations/

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

Lake Groups (cont'd)

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

Land Use Plans and Zoning Ordinances (cont'd)

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

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

Parks (County)

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

Purchase of Development Rights

Contact: North Central Conservancy Trust
PO Box 124, Stevens Point, WI 54481
Phone: 715-341-7741
E-mail: info@ncctwi.org
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 Barrels – Order

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

Rain Gardens and Stormwater Runoff

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

Septic Systems/Onsite Waste

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

Shoreland Management

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

Shoreland Vegetation

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

Shoreland Zoning Ordinances

See: Land Use Plans and Zoning Ordinances

Soil Fertility Testing

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

Water Quality Monitoring

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

Contact: UWSP Wisconsin Environmental Analysis Laboratory
TNR 200, 800 Reserve St., Stevens Point, WI 54481
Stevens Point, WI 54481
Phone: 715-346-3209
E-mail: weal@uwsp.edu
Website: http://www.uwsp.edu/cnr-ap/weal/Pages/default.aspx

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: Keith Patrick
Wisconsin Department of Natural Resources
5301 Rib Mountain Drive, Wausau, WI 54401
Phone: 715-241-7502
E-mail: keith.patrick@wisconsin.gov
Website: http://dnr.wi.gov/wetlands/

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

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

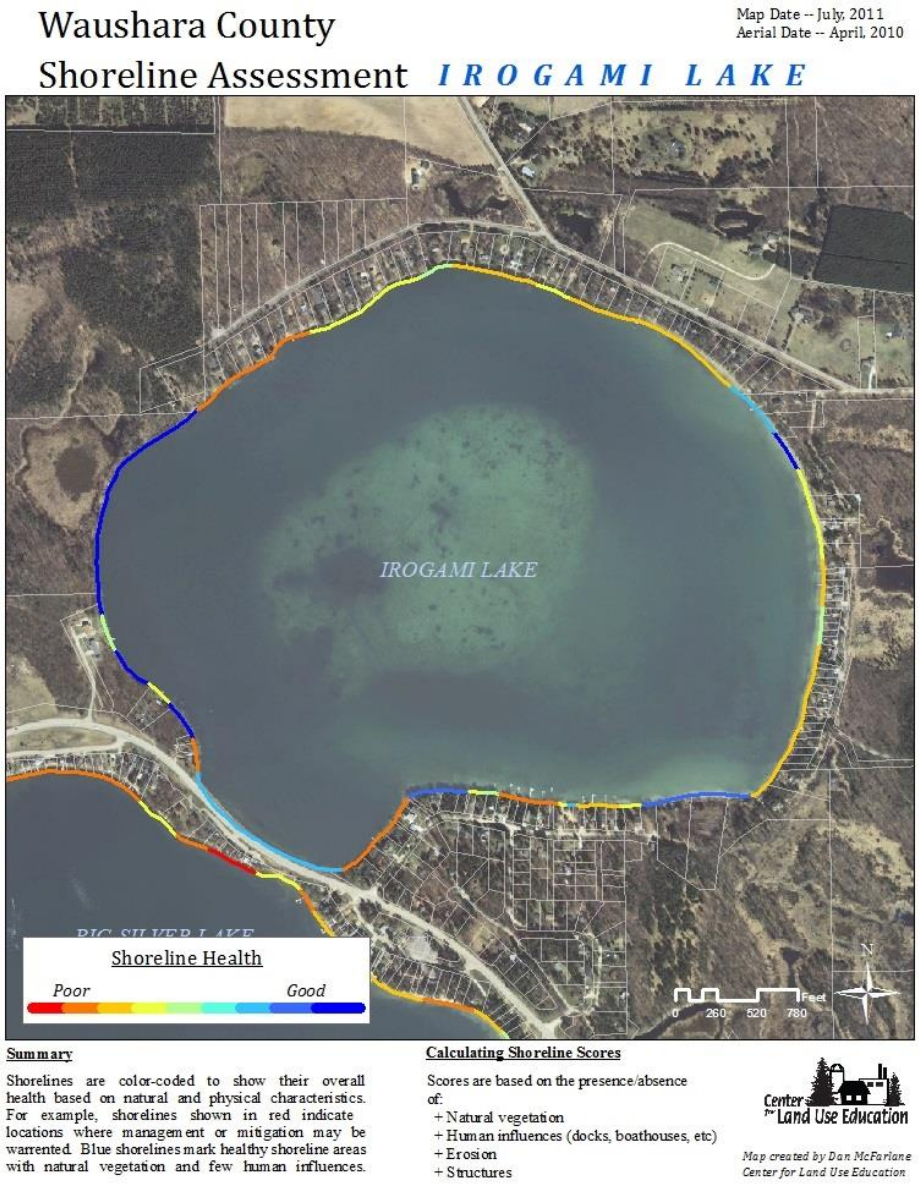
Contact: Dave Bartz
Wisconsin Department of Natural Resources
Phone: 608-635-4989
Address: Hwy 22N Box 430, Montello, WI 53949
E-mail: David.Bartz@wisconsin.gov

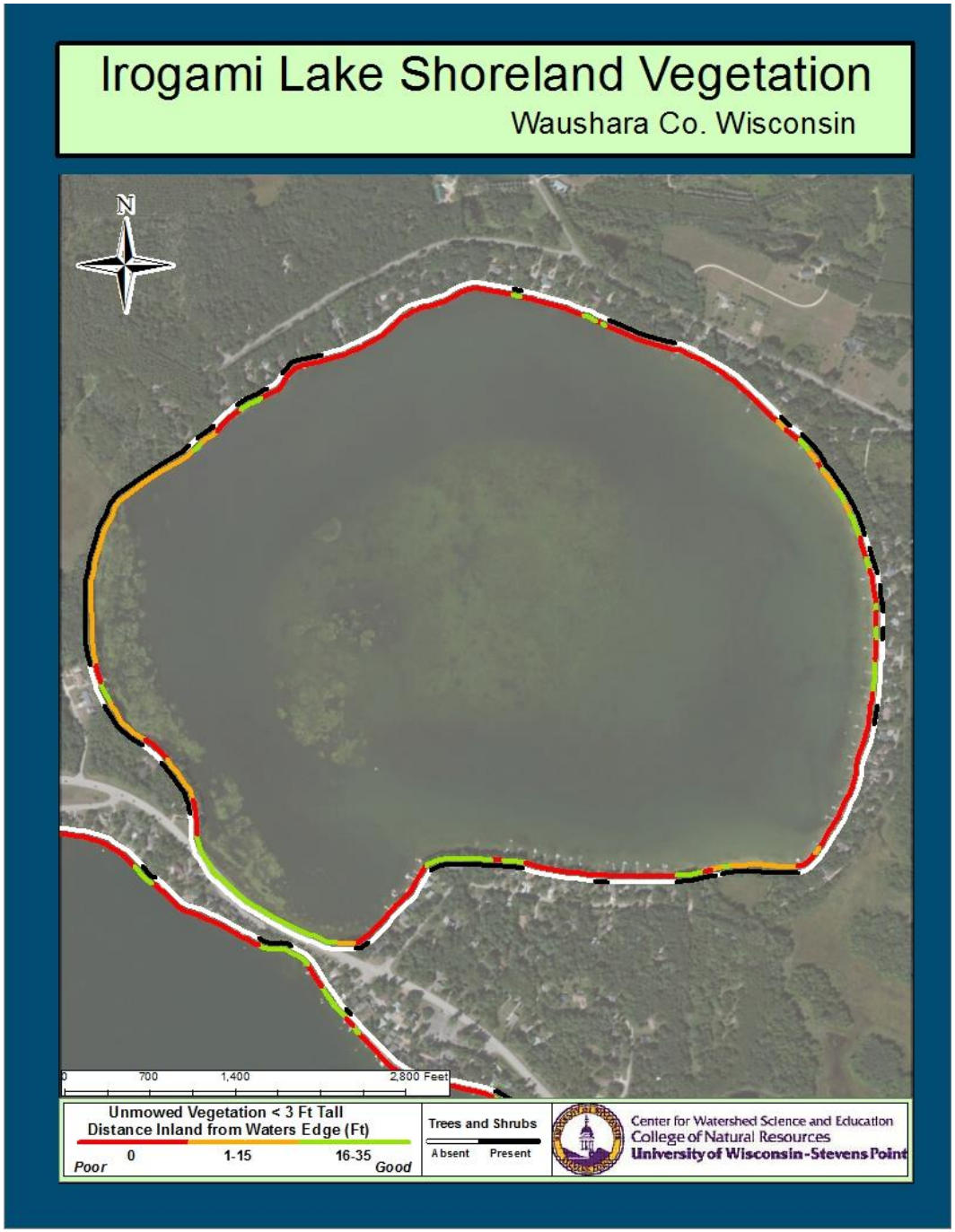
If you are looking for any information that is not listed in this directory, please contact:
Ryan Haney (wclakes@uwsp.edu)
UWSP Center for Watershed Science and Education
TNR 224, 800 Reserve St., Stevens Point, WI 54481
Phone: 715-346-2497

Appendix B: 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. Larger 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 Irogami Lake is displayed to the right. 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 human disturbances. Red shorelands indicate locations where changes in management or mitigation may be warranted. Several stretches of Irogami Lake's shorelands were in good shape, but much of the shoreland had challenges that should be addressed. A few short segments of Irogami Lake shoreland ranked as poor.




Irogami Lake Shoreland Vegetation
Waushara Co. Wisconsin
N
0
700
1,400
2,800 Feet
Unmowed Vegetation < 3 Ft Tall
Distance Inland from Waters Edge (Ft)
Poor
0
1-15
16-35
Good
Trees and Shrubs
Absent
Present
Center for Watershed Science and Education
College of Natural Resources
University of Wisconsin-Stevens Point

Appendix C: Rapid Response Plan 2014

SURVEY/MONITOR

1. Learn how to survey/monitor the lake.	**Contacts:** **Water Resources Management Specialist** Ted Johnson Wisconsin Department of Natural Resources Phone: 920-787-3048 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: 715-343-6215 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. of Natural Resources** 427 E. Tower Dr., 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: 715-343-6215 E-Mail: info@goldensandsrcd.org **UW-Stevens Point Herbarium** TNR 301, 800 Reserve St. Stevens Point, WI 54481 Phone: 715-346-4248 E-Mail: ejudziew@uwsp.edu **Wisconsin Invasive Plants Reporting & Prevention Project** UW-Madison Herbarium 430 Lincoln Dr. 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: 715-343-6215 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 Dr., Suite 100
  Wautoma, WI 54982
  Phone: 920-787-4686

  The town board(s) in which the water body is located:

  Town of Marion

  Town of Mt. Morris

- **The Lake District** in which the waterbody is located:

  Contact: Tom Schuster
  Phone: 920-647-0184

- **University of Wisconsin-Stevens Point**
  Water Resources Scientist
  Nancy Turyk
  TNR 216, 800 Reserve St.
  Stevens Point, WI 54481
  Telephone: 715-346-4155
  E-mail: nturyk@uwsp.edu

- **Local Residents**

- **Irogami Lake Management District**

If an invasive species is confirmed, the secretary of the Irogami Lake District Commission will make the following public information contacts:

- **Newspapers**: The Argus, The Resorter

Contact the Wisconsin Department of Natural Resources to post notice(s) at the access point(s) to the water body.

Appendix D: Lake User Survey Results