

2011

Rosholt Millpond Management Plan



Plan approved by the Rosholt Millpond Management Planning Committee on

Adopted by Village of Rosholt on

Adopted by Portage County on

A special thanks to all those who helped to create the Rosholt Millpond Management Plan and provided the necessary data in the Portage County Lake Study.

Rosholt Millpond Management Planning Committee Members and Resources

Rosholt Millpond Management Planning Committee

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Wisconsin Department of Natural Resources

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Dr. Tim Ginnett – Birds
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Dr. Ron Crunkilton – Fishery and In-lake Habitat
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Mike Hansen – Portage County Planning Assistance
Dr. Erik Wild – Reptiles and Amphibians/Near Shore Habitat
Rori Paloski (Graduate Student) – Reptiles and Amphibians/Near Shore Habitat

Introduction

The Rosholt Millpond is located in the Village of Rosholt in Portage County. It is valued by those who use and enjoy the lake for its natural beauty, peace and tranquility, wildlife viewing, and recreational opportunities including fishing, enjoying scenery, and walking.

The purpose of this management plan is to provide guidance to protect current good conditions, address existing problems, and prevent future problems that may be detrimental to the Rosholt Millpond ecosystem. This management plan was written as part of the second phase of the Portage County Lakes Project. The first phase of the Portage County Lakes Study involved data collection from the Rosholt Millpond and 28 other lakes throughout the county. The study provided information on water quality, shoreline development, amphibian habitat, fisheries, aquatic plants, and other parameters.

The purpose of this plan is to provide guidance to protect current good conditions, address existing problems, and prevent future problems that may be detrimental to the Rosholt Millpond ecosystem.

This plan was developed by a committee of interested citizens, local organizations, and professionals. Prior to the current plan development a citizen survey was conducted to gather information on citizens' values, opinions, and perceived issues with the Rosholt Millpond. A survey was sent to 200 residences within the Rosholt Millpond watersheds and was available online where any interested person could take the survey. Thirty citizen surveys were returned for a response rate of 15%. The members of the Rosholt Millpond management planning committee met monthly over three months to learn about topics related to the pond and to develop this millpond management plan.

Background Information

Information in this section was taken from the Portage County Lakes Study and the citizen surveys. The complete lake study document and summarized survey results can be found at:

<http://www.co.portage.wi.us/planningzoning/PCL/Main%20Page/Main%20Page.shtml>

The background information provided from the Portage County Lakes Study helps to give us a good understanding of the Rosholt Millpond and its ecosystem. A healthy pond ecosystem is comprised of many components that include in-pond habitat and vegetated shorelands that support aquatic plants, fish, wildlife, good water quality and quantity, absence of aquatic invasive species, and more. These components are not only found in the Rosholt Millpond but also extend to where the water meets the land and beyond into the watershed. Rosholt Millpond is a reflection of the health and activities that occur in the pond, near the shore, and in the watershed.

The Rosholt Millpond is a 17.6 acre impoundment on Flume Creek located in the village of Rosholt. The millpond has a maximum depth of seven feet (WDNR 2005). It has the Rosholt K-12 School on its south bank, a village park on its north bank, and a nature conservancy on the west end.

Watershed

A surface watershed is an area of land where water from precipitation drains from higher elevations towards the pond. The Rosholt Millpond's surface watershed is approximately 12,245 acres, encompasses the watershed of Flume Creek, and stretches all the way into Marathon County (Figure 1).

As water moves across the landscape, the quality can either improve or degrade depending upon what it comes in contact with en route to the pond. Land use types and associated management practices can have a significant impact on water quality. **Though land uses may not easily be changed, land management practices can be modified to improve water quality.**

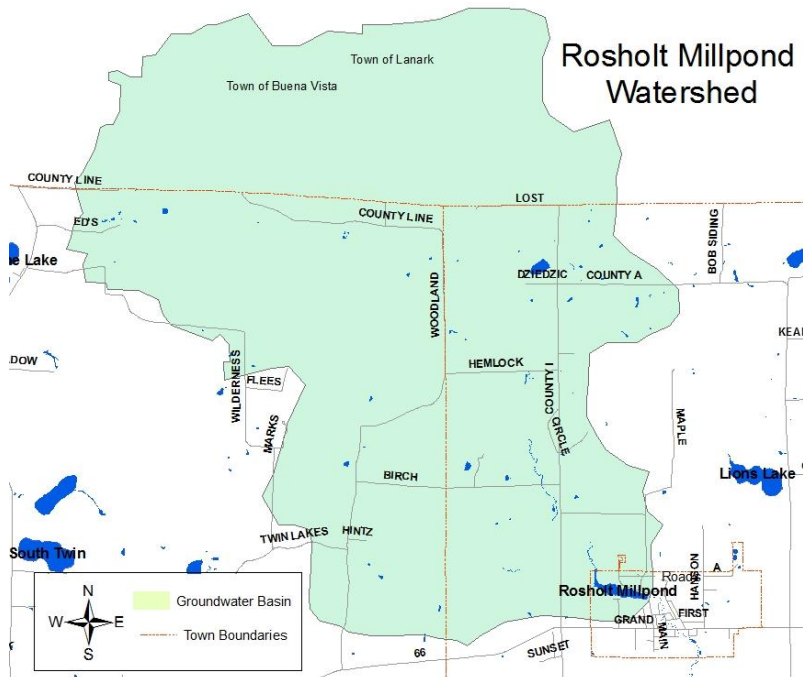


Figure 1. Rosholt Millpond surface watershed.

Land uses within the surface watershed are predominantly forested areas (28%) followed by agriculture (27%). The areas near shore have the most direct impact on habitat and water quality (See Appendix A).

A groundwater watershed is similar to a surface watershed, except that it is an area of land where the groundwater drains to the Rosholt Millpond. Within the groundwater watershed, precipitation soaks into

the ground and recharges the groundwater. The groundwater slowly moves towards the pond, and enters it via springs and seeps. Often surface watersheds and groundwater watersheds do not match each other, which is the case with the Rosholt Millpond. However, the scope of the Rosholt Millpond’s groundwater watershed was outside the scope of the Portage County Lakes Study.

Survey respondents indicated a willingness to change how they manage their land to protect/improve the Rosholt Millpond ecosystem. The top motivators included increasing natural beauty, providing better fish/wildlife habitat, saving money, and increasing property value.

Sensitive Areas

The sensitive areas associated with the Rosholt Millpond are defined by lands adjacent to the pond that are particularly valuable to the pond’s ecosystem or that would be significantly impacted by most disturbances or development. These areas include a large natural area to the west and north of the pond that are comprised of wetlands and forests (See Appendix B). The shoreline along the north bank, in the Village Park is also noted because it is mowed to the edge and is more susceptible to erosion.

The habitats of amphibians and reptiles are of importance because they utilize both aquatic and terrestrial habitats and the shoreline interface between the two. **These areas of habitat are not only important for reptiles and amphibians but also other aquatic and terrestrial species.**

The primary amphibian habitat on the Rosholt Millpond is located on the west end of the pond. Key features of this habitat include protected areas of marsh with submergent, emergent, and floating-leaf vegetation. The good news for amphibian populations in the Rosholt Millpond is that the nature preserve on the northwest side of the pond provides ideal amphibian habitat. However, sections of the pond

shoreline have been altered and are managed in a way resulting in a loss of habitat (See Appendix C).

Shoreline

Portions of the shoreland around the Rosholt Millpond are considered disturbed. Protecting the existing shoreland and restoring the disturbed shoreland would improve near shore habitat along with the water quality in the millpond, growth of algae and aquatic plants, and the fish and other species that currently comprise the pond's ecosystem. Surfaces such as roofs, driveways, roads, patios, and compacted soils increase the amount of runoff moving across the landscape towards Rosholt Millpond, especially where steeper shorelines occur. Runoff that enters the pond can carry a variety of pollutants into the water. Some of the negative impacts in the pond due to additional runoff may include: increased nutrients (such as phosphorus) which can cause algae blooms and excessive plant growth, and increased amounts or changes in the type of sediment. This in turn can lead to cloudy or turbid water, sediment burying critical habitat, and sediment transporting additional contaminants such as bacteria, debris, metals, and pesticides.

According to the citizen survey, only one of the 42 respondents owned shoreline property. Of the survey respondents two indicated that they were aware of Portage County/State Shoreland Ordinances and three respondents indicated that they were unaware. These special rules, the shoreland zoning ordinances, apply to the near shore area of the millpond. These rules were developed to help protect water quality and habitat of lakes and ponds while allowing for access to the waterbody.

Aquatic Plants

Aquatic plants play many important roles in aquatic ecosystems including providing habitat for aquatic and semi-aquatic organisms; food for fish, waterfowl, and other animals; use of nutrients that would

otherwise be used by algae; and modifying/cooling water temperatures on hot days.

According to R. Freckmann (UWSP), there are **31** species of aquatic macrophytes or plants that have been identified in the Rosholt Millpond or on the wet areas of shore. This is below average when compared to other Portage County lakes. The aquatic flora of Rosholt Millpond is very small. The wet portions of the shoreline are generally narrow, crowded by trees and development on the south shore and by the mowed areas on the north shore.

When asked about the abundance of aquatic plants in the Rosholt Millpond, respondents indicated that the plant growth was just right. Respondents also indicated that August was the month with the densest plant growth, which is typical for most Wisconsin lakes.

Water Quality and Land Use

When asked about the Rosholt Millpond's water quality, the majority of survey respondents felt the water quality was good and felt the water quality hadn't changed during the period that they were familiar with it. Survey respondents also indicated the quality of pond water had a major impact both economically and on their personal enjoyment of the pond.

The assessment of water quality in a pond involves a number of measures including temperature, dissolved oxygen, water chemistry, chlorophyll *a*, and algae. Each of these measures plays a part in the ponds overall water quality.

Chloride concentrations, and to a lesser degree sodium and potassium concentrations, are commonly used as indicators of how strongly a pond is being impacted by human activity. In the Rosholt Millpond, chloride and sodium levels measured in 2002/03 were elevated

throughout much of the year. Although these constituents are not detrimental to the aquatic ecosystem, they indicate that sources of contaminants (road salt, fertilizer, and/or animal waste) are entering the pond from either surface runoff or via groundwater.

Atrazine, an agricultural herbicide, was detected in the Rosholt Millpond. Some toxicity studies have indicated that even at low levels reproductive system abnormalities can occur in frogs. The presence of atrazine indicates that other agri-chemicals may also be entering and present in the Rosholt Millpond.

The temperature in the Rosholt Millpond was generally mixed throughout much of the year. During July and September dissolved oxygen was less than 5 mg/L at a depth of one foot. It is unusual to see dissolved oxygen concentrations so low at such shallow depths. This is clearly related to the algae growth during this period.

Water clarity is a measure of how deep light can penetrate the water. It is an aesthetic measure and is related to the depth that rooted aquatic plants can grow. Water clarity can be affected by sediment, algae, and color in water. Clarity measurements in the Rosholt Millpond ranged from five to three and a half feet, with a 2002/2003 average of about four feet. June and August had the best water clarity and July had the poorest. Fluctuations in water clarity throughout the summer are normal as algae and aquatic plant populations and sedimentation increase and decrease; however, changes in water quality are best determined with long-term records. These measurements could be made by trained citizens.

Chlorophyll *a* is a measure of algae in the Rosholt Millpond. Chlorophyll *a* concentrations in the pond ranged from 3.23 to 35.08 mg/L. Any reading over five is considered to be high and is indicative of algae blooms.

The 30 algal genera identified during the sample periods were relatively common. One genera Anabaena can be a potential nuisance and can be toxin forming. This genera was subdominant in four of the five sample periods and third most common in the fifth. The dominance of this genera along with other blue-green algae could be the result of increasing cultural eutrophication in the watershed and should be considered a warning sign. The algal community relative to the chlorophyll *a*, phosphorus, and nitrogen values for the Rosholt Millpond presents a picture of an eutrophic lake (B. Bell).

Nutrients (nitrogen and phosphorus) are important measures of water quality in lakes and ponds because they are used for growth by algae and aquatic plants. In the Rosholt Millpond the phosphorus concentrations are variable throughout the year, with some being high. Nitrogen concentrations were also elevated which can enhance the growth the plants and inorganic nitrogen (nitrate plus ammonium) is high enough to support algae blooms throughout the summer.

Nitrogen concentrations in the Rosholt Millpond were elevated, including nitrate, which is easily used for growth by aquatic plants and algae (Figure 2). Concentrations in 2002/2003 ranged from 0.5 to 3.9 mg/L; therefore, all readings were well above the 0.3 mg/L needed to fuel algae growth.

Phosphorus is an element that is essential to most living organisms including plants. Sources of phosphorus can include naturally occurring phosphorus in soils, wetlands, and small amounts in groundwater. Sources from human influence include soil erosion, agricultural and residential runoff, septic systems, and animal waste.

In the Rosholt Millpond the aquatic plant and algae growth is most responsive to phosphorus due to its relative limited supply with respect to other elements necessary for growth. Increases of small amounts of

phosphorus can result in increased abundance of aquatic plants and algae. Phosphorus concentrations in the Rosholt Millpond are variable throughout the year. Average total phosphorus (TP) concentrations in spring/fall for 2002/2003 were 36.8 ug/L.

The Wisconsin DNR's phosphorus criteria value for an impoundment is 40 ug/L. Average summer concentrations at or above this value would result in noticeably degraded water quality. The average summer total phosphorus concentrations in the Rosholt Millpond was 49.8 ug/L in 2002/03, which is above the criteria. Total phosphorus should be monitored in the Rosholt Millpond to be sure that it does not increase and actions should be taken to reduce the phosphorus concentrations.

Managing phosphorus in the Rosholt Millpond watershed is key to protecting the pond itself. Positive land management practices and land uses can result in good water quality in the pond. Phosphorus inputs to the pond can be controlled through the use of many different Best Management Practices (BMP's) that minimize the movement of runoff, nutrients, and pesticides to the pond. BMPs that should be used near shore and throughout the watershed include the development of water quality-based nutrient management plans for agricultural land, only applying phosphorus and nitrogen from fertilizer or manure based on soil tests for turf or specific crops, providing cover on the landscape and/or appropriate mitigation when open soils are necessary during construction or cropping, use of cover crops, properly storing manure, and manure application only when the ground is not frozen. Some of the near shore land use practices that can decrease the inputs of phosphorus to the pond include leaving native vegetation (trees, bushes, and grasses), eliminating the use of fertilizer, minimizing runoff/increasing infiltration, and minimizing and securing exposed soil. The Portage County Land Conservation Department is a local

organization that can provide assistance to landowners that want to reduce impacts to the Rosholt Millpond from their property.

Future degradation of water quality in the Rosholt Millpond can be minimized with thoughtful land use planning throughout the watershed. This includes locating roads away from the pond, diverting runoff to areas where it can infiltrate rather than runoff to the pond, limiting withdrawal of groundwater, and controlling runoff, nutrient, and chemical inputs from new and existing developments and agriculture.

Recreation

According to respondents of the citizen survey, the **most popular activities at the Rosholt Millpond include enjoying wildlife, fishing, enjoying scenery, solitude, and walking.**

Conflicts between users do not appear to be of concern on the Rosholt Millpond as the majority of respondents indicated that while they saw others on the pond they were not disturbed by them.

Fishing is one of the most popular recreational activities that is enjoyed by many on the pond. The Rosholt Millpond supports a fishery which contains largemouth bass and panfish. There may be some concern over adequate dissolved oxygen levels in the pond during certain months. With dissolved oxygen levels at such levels during portions of the summer they may be difficult to support fisheries.

When survey respondents were asked to rate their fishing experiences on the Rosholt Millpond, the majority of respondents felt the quality of fishing was average. The majority of survey respondents also felt the quality of fishing had stayed the same or declined over time and overfishing and soil erosion were contributing factors.

Goals, Objectives, and Actions

The overall goal for the Rosholt Millpond is to **maintain the status of the Rosholt Millpond as it was in the 2002/2003 lake study.**

The following goals, objectives, and actions were derived from the values and concerns of the members of the Rosholt Millpond Planning Committee including local citizens and are based on the science used to assess the Rosholt Millpond and its ecosystem. Implementing the goals, objectives, and actions of the Rosholt Millpond Management Plan should protect the scenic beauty, peacefulness, recreational opportunities, and water quality for current and future generations. These goals are intended to be met through education, encouragement, actions, and incentives.

Resources that are listed within the plan include primary organizations or individuals that would be able to provide information, suggestions, services and/or support to accomplish an action.

A management plan is a living document that changes over time to meet the current needs, challenges, and desires. **The goals, objectives, and actions listed in this plan will be reviewed and updated with any necessary changes by the Rosholt Millpond planning committee, interested citizens, and representatives from municipalities and agencies in the Spring of 2012 with the assistance of UWSP and Portage County. Updates will be provided to the Village of Rosholt, Portage County, Wisconsin DNR, and any other entity adopting the plan.**

Aquatic Plants and Aquatic Invasive Species

Aquatic plants comprise an essential part of the Rosholt Millpond’s ecosystem; some fish and other aquatic biota and water dependent terrestrial life depend on aquatic plants for habitat, food, and spawning areas. Healthy aquatic plant communities, along with a vigilant watch, will help to limit any aquatic invasive species from becoming established in the Rosholt Millpond. The majority of citizen survey respondents indicated that amount of plant growth in the millpond was just right.

Vision: The Rosholt Millpond planning committee envisions a pond with healthy native vegetation and free of aquatic invasive species.

Goal: The Village and nearby landowners are informed about the importance of native aquatic plants.

Objective: The Village personnel and Board members make informed decisions about any maintenance involving aquatic plants in the Rosholt Millpond.

Actions	Lead person/group	Start/end dates	Resources
Check Village policies to ensure that importance of aquatic plants is identified in other plans and policies.			Village of Rosholt

Objective: Provide information about the quality of native aquatic plants in the Rosholt Millpond.

Actions	Lead person/group	Start/end dates	Resources
Learn about native and invasive aquatic plants in the millpond through plant identification workshops.			Golden Sands RC&D Invasive Species Coordinator
Share information about the importance and maintenance of native aquatic plants in the millpond through methods outlined in communication section.			UWEX Lakes WI DNR Lakes Specialist UWSP

Goal: Prevent aquatic invasive species from becoming established in the Rosholt Millpond.

Objective: Prevent aquatic invasive species from entering Flume Creek and the Rosholt Millpond. If a species is identified in the pond, quickly identify its presence and remove it using proper procedures and techniques.

Actions	Lead person/group	Start/end dates	Resources
Learn to identify native and aquatic invasive species in the Rosholt Millpond.			Golden Sands RC&D Invasive Species Coordinator
Identify citizens willing to routinely monitor for new aquatic invasive species.			Golden Sands RC&D Invasive Species Coordinator UWEX Lakes
Utilize the Aquatic Invasive Species Rapid Response Plan if new invasive species are found.			UWSP
Maintain and annually update the Aquatic Invasive Species Rapid Response Plan.			UWSP
Put a sign at the launch site informing users on the invasive species issues in the county.			Village of Rosholt UWEX Lakes
Post fliers on community message boards letting people know of the nearby lakes with invasive species.			Village of Rosholt UWEX Lakes

Water Quality and Land Use

The Rosholt Millpond is host to a variety of plants, insects, fish, amphibians, and other animals that all depend on good water quality in the pond. Survey respondents indicated that water quality influenced their enjoyment of the pond and impacted their perceived aesthetic value and the Rosholt Millpond could use some improvement. Currently, the millpond has high concentrations of phosphorus during parts of the year and high concentrations of nitrogen that could fuel excess plant and algae growth in the pond.

Vision: The Rosholt Millpond planning committee envisions maintaining the good water quality in the millpond for the health of the pond ecosystem and for those that use the pond.

Goal: Maintain phosphorus concentrations in the Rosholt Millpond at the 2002/2003 average concentration of 36.8 ug/L .

Objective: Monitor the water quality in the Rosholt Millpond to evaluate if we are meeting our goals.

Action	Lead person/group	Start/end dates	Resources
Find a volunteer to test water clarity, phosphorus, and nitrogen. Participate in the WDNR Citizen Lake Monitoring Network for water			UWSP

clarity. Acquire money to cover cost for lab tests for phosphorus and nitrogen or ask wastewater treatment plant if they do these analyses.			
Encourage the high school to get involved in monitoring the water quality in the millpond.			Rosholt High School

Objective: Shoreland and watershed landowners will minimize their impacts to the Rosholt Millpond through good land management practices.

Action	Lead person/group	Start/end dates	Resources
Educate shoreland owners on positive changes they could make on their shoreland.			UWEX Lakes Portage County Land Cons. Dept.
Determine whether the runoff from the school parking lot drains to the millpond or not. If it does, then work with the County to try and correct it.			Portage County Land Cons. Dept. Village of Rosholt Rosholt School
Address agricultural runoff to the pond by installing water quality based best management practices.			Portage County Land Cons Dept
Landowners in Rosholt and the Rosholt Millpond watershed will be informed of the phosphorus ban and will have opportunities to test their soil to determine if fertilizer is necessary.			UWEX Lakes
Encourage citizens to report pollutant discharges to the millpond to the county and DNR.			Portage County Land Cons Dept WDNR

Objective: The Village of Rosholt Board will understand how their decisions impact the water quality of the Rosholt Millpond and will seek to minimize impacts to the pond.

Action	Lead person/group	Start/end dates	Resources
The Village staff and board will be knowledgeable about the impact their decisions have on the pond.			Village of Rosholt
Future decisions about development of infrastructure in Rosholt will be designed to reduce runoff and sediment inputs to Flume Creek and the Rosholt millpond.			Village of Rosholt

Shorelands and Critical Habitat

Shorelines are some of the most important habitat near lakes and ponds for aquatic and terrestrial wildlife, such as turtles, frogs, birds, and many other creatures. Shoreline vegetation helps to slow runoff moving to the pond and filter runoff before it enters the pond. Restoring and protecting shorelines can also help to provide scenery, solitude, and privacy, as well as natural space for pond residents to enjoy nature, which was valued by citizens in the survey.

Critical habitat areas or sensitive areas are important places in and near the Rosholt that are essential to keeping a healthy sustainable ecosystem. These sensitive areas within Flume Creek and the Rosholt Millpond may offer critical or unique fish and wildlife habitat or offer water quality or erosion control benefits to the millpond (See Appendix D).

Vision: The Rosholt Millpond planning committee envisions a pond that has shorelands that support healthy habitats and improves water quality.

Goal: Protect healthy stable shoreland habitats near and around the Rosholt Millpond .

Objective: Shore landowners around Flume Creek and the Rosholt Millpond will understand their roles in protecting this important land and will make informed land management decisions.

Actions	Lead person/group	Start/end dates	Resources
Share information on importance of native vegetation and buffers around the millpond through methods outlined in the communication section.			Portage County Land Cons Dept UWEX Lakes
Support the continued protection of shorelands through the nature conservancy in place on the Rosholt Millpond.			Benn Nature Conservancy Village of Rosholt

Objective: Work to ensure that ordinances are developed and implemented to protect the health of the Rosholt Millpond.

Actions	Lead person/group	Start/end dates	Resources
Review any local ordinances to ensure that they identify ways to minimize street and road runoff and will help maintain the 2011 shoreland conditions near the millpond.			UWSP Center for Land Use Education Portage County Planning and Zoning
Properties along Flume Creek that are outside of the Village will have shorelands that are consistent with the County/State shoreland zoning ordinance.			Portage County Land Cons Dept

Fishing and Recreation

The Village of Rosholt residents enjoy a variety of recreational opportunities on the millpond. Based on survey results, the most popular recreational activities on the Rosholt Millpond included fishing, enjoying scenery, walking, motor boating, and swimming. Healthy pond ecosystems are valuable natural resources for all pond users and are an asset to a Village, offering residents another aspect of a good quality of life. Fishing is one of the top recreational activities on the pond and is valued by pond users so it is important to maintain a good fishery so that anglers and families are able to enjoy the fishery on the Rosholt Millpond.

Vision: Provide recreational opportunities for pond users while providing safe conditions and protecting a healthy pond ecosystem.

Goal: Preserve the water quality and habitat on the Rosholt Millpond while allowing for recreational opportunities.

Objective: Provide recreational opportunities to enjoy the Rosholt Millpond while protecting pond water quality and habitat.

Action	Lead person/group	Start/end dates	Resources
Explore adding a handicapped fishing pier to the millpond.			Portage County Parks
Explore/find out how firework debris/residue affects water quality.			UWSP UWEX Lakes
Consider engaging the HS agricultural class in fish studies and habitat enhancement.			Rosholt High School WDNR
Check in with the DNR fish biologist for updates on the fish in Flume Creek and the millpond.			WDNR
Consider making a brochure showing existing trails around the pond. Mark public access and facilities; also private property. Market bird-watching opportunities in the area.			Village of Rosholt UWSP

Goal: Provide fishery habitat on the Rosholt Millpond that will help to enhance the fishery and will still provide easy access for recreational fishing

Objectives: Provide additional fisheries habitat on the Rosholt Millpond

Actions	Lead person/group	Start/end dates	Resources
Inform individuals about the importance of woody habitat in shallow water near shore areas of the Rosholt Millpond and encourage its placement in appropriate areas.			WDNR/UWSP Portage County Land Cons Dept
Take advantage of the LCD tree planting program.			Portage County Land Cons Dept
Consider asking the county for assistance in vegetating any open shore areas of the pond.			Portage County Land Cons Dept Village of Rosholt

Organization/Communication

Many of the goals outlined in this plan are focused on disseminating information to pond and watershed residents and pond users, ultimately to help them make informed decisions that will result in a healthy ecosystem in the Rosholt Millpond that is enjoyed by many people. There is no single best way to distribute information to those that enjoy and/or affect the Rosholt Millpond so the planning committee has identified a variety of options to communicate with one another and in the community. Working together on common values will help to achieve the goals that have been outlined in this plan.

Goals: Share information about the Rosholt Millpond with lake residents and lake users

Objectives: Utilize varied methods of communication to reach audiences that use the Rosholt Millpond

Action	Lead person/group	Start/end dates	Resources
Place information in the Rosholt Record.			
Put links to the Portage County Lakes page and other pertinent lake sites on the Rosholt Village webpage.			
Explore partnerships with local nonprofits and sportsmen's clubs for projects and lake support.			
Update/review the plan document annually.			Ask UWSP for assistance
Consider making a brochure showing existing trails around the pond. Market bird-watching opportunities in the area.			

Rosholt Millpond Aquatic Invasive Species Rapid Response Plan 2010

Or--

Survey/Monitor

1. Learn to survey/monitor the lake from:

Water Resources Management Specialist

Wisconsin Dept. of Natural Resources
Scott Provost
473 Griffith Ave.
Wisconsin Rapids, WI, 54494
Phone: 715-421-7881
E-Mail: Scott.provost@wisconsin.gov

Portage County Aquatic Invasive Species (AIS) Coordinator

Golden Sands RC&D
1462 Strongs Ave.
Stevens Point, WI 54481
Phone: 715-343-6278
E-Mail: skawinsp@co.portage.wi.us

2. Survey the Lake monthly/seasonally/annually

What to Do When You Find a Suspected Invasive Species

1. Collect Specimens or Take Pictures

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

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

Or--

- Take detailed photos (digital or film) and send them by mail or e-mail.

Regardless of 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.

Note Location

(Provide one or more of the following)

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

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).

Rosholt Millpond Aquatic Invasive Species Rapid Response Plan 2010

2. To Positively I.D. the species send or bring specimen and additional information

- Collection date & 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 (estimate number of plants, area covered)
- Habitat type(s) where found (forest, field, prairie, wetland, open water)

Send or bring specimen to:

Portage County AIS Coordinator

Golden Sands RC& D
1462 Strongs Ave.
Stevens Point, WI 54481
Phone: 715-343-6214
E-Mail : skawinsp@co.portage.wi.us

Wisconsin Dept. Natural Resources

Invasive Plant Education, Early Detection, and Mapping Specialist
Brendon Panke
WI Dept. of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921
Phone: (608) 267-7438
E-Mail: invasiveplants@mailplus.wisc.edu

UW-Stevens Point Herbarium

301 Daniel O. Trainer Natural Resources Building
Stevens Point, WI 54481
Phone: 715-346-4248
E-Mail: ejudziew@uwsp.edu

3. Once the specimen is dropped off or sent for confirmation, make sure to contact:

Portage County AIS Coordinator

Golden Sands RC& D
Contact: Paul Skawinski
Address: 1462 Strongs Ave. Stevens Point, WI 54481
Phone: 715-343-6214
E-Mail : skawinsp@co.portage.wi.us

4. If an invasive species is confirmed, Paul Skawinski will contact the following people along with the contact list of citizens.

Wisconsin Department of Natural Resources

Water Resources Management Specialist
Scott Provost
473 Griffith Ave.
Wisconsin Rapids, WI, 54494
Phone: 715-421-7881
E-Mail: Scott.provost@wisconsin.gov
Who will contact them: Portage County AIS Coordinator

The Village in which the waterbody is situated

Village of: Rosholt
Contact: Larry Kielblock - Village President
Address: 125 Grand Ave. W P.O. Box 245 Rosholt, WI 54473
Phone: 715-677-4510
E-Mail: Rosholt@nc3tv.com
Who will contact them: Portage County AIS Coordinator

University of Wisconsin-Stevens Point – Water Resource Scientist

Contact: Nancy Turyk
Address: 216 TNR 800 Reserve St. Stevens Point, WI 54481
Telephone: 715-346-4155
E-mail: pclakes@uwsp.edu

Rosholt Millpond Aquatic Invasive Species Rapid Response Plan 2010

Who will contact them: Portage County AIS Coordinator

Newspapers

Who will contact them: Friends of Lake Emily

Amherst Our Community Spirit
Portage County Gazette
Stevens Point Journal

Post notice at the access points to the waterbody

Name	Address	Phone	E-mail

Literature Cited

Fassbender, R.L., and L.M. Nelson. 1971. Surface Water Resources of Portage County.
Wisconsin Department of Natural Resources, Madison, Wisconsin.

Turyk, N; R. Bell; R. Cook; T. Ginnett; R. Crunkilton; L. Markham; P. McGinley; B. Shaw; and E. Wild; 2006.
Final report to Portage County and Wisconsin DNR. <http://www.co.portage.wi.us/plzo/lakes.html>

Glossary

Algae:

One-celled (phytoplankton) or multi-cellular plants either suspended in water (Plankton) or attached to rocks and other substrates (periphyton). Their abundance, as measured by the amount of chlorophyll *a* (green pigment) in an open water sample, is commonly used to classify the trophic status of a lake. Numerous species occur. Algae are an essential part of the lake ecosystem and provide the food base for most lake organisms, including fish. Phytoplankton populations vary widely from day to day, as life cycles are short.

Atrazine:

A widely used herbicide.

Blue-Green Algae:

Algae often associated with problem blooms in lakes. Some produce chemicals toxic to other organisms, including humans. They often form floating scum as they die. Many can fix nitrogen (N₂) from the air to provide their own nutrient.

Calcium (Ca⁺⁺):

The most abundant cation found in Wisconsin lakes. Its abundance is related to the presence of calcium-bearing minerals in the lake watershed. Reported as milligrams per liter (mg/l) as calcium carbonate (CaCO₃), or milligrams per liter as calcium ion (Ca⁺⁺).

Chloride (Cl⁻):

Chlorine in the chloride ion (Cl⁻) form has very different properties from chlorine gas (Cl₂), which is used for disinfecting. The chloride ion (Cl⁻) in lake water is commonly considered an

indicator of human activity. Agricultural chemicals, human and animal wastes, and road salt are the major sources of chloride in lake water.

Chlorophyll *a*:

Green pigment present in all plant life and necessary for photosynthesis. The amount present in lake water depends on the amount of algae and is therefore used as a common indicator of algae and water quality.

Clarity:

See "Secchi disc".

Color:

Measured in color units that relate to a standard. A yellow-brown natural color is associated with lakes or rivers receiving wetland drainage. The average color value for Wisconsin lakes is 39 units, with the color of state lakes ranging from zero to 320 units. Color also affects light penetration and therefore the depth at which plants can grow.

Concentration units:

Express the amount of a chemical dissolved in water. The most common ways chemical data is expressed is in milligrams per liter (mg/l) and micrograms per liter (ug/L). One milligram per liter is equal to one part per million (ppm). To convert micrograms per liter (ug/l) to milligrams per liter (mg/l), divide by 1000 (e.g. 30 ug/l = 0.03 mg/l). To convert milligrams per liter (mg/l) to micrograms per liter (ug/l), multiply by 1000 (e.g. 0.5 mg/l = 500 ug/l). Microequivalents per liter (ueq/l) is also sometimes used, especially for alkalinity; it is calculated by dividing the weight of the compound by 1000 and then dividing that number into the milligrams per liter.

Cyanobacteria:

See "Blue-Green Algae".

Dissolved Oxygen:

The amount of oxygen dissolved or carried in the water.

Drainage Basin:

The total land area that drains towards a lake.

Drainage lakes:

Lakes fed primarily by streams and with outlets into streams or rivers. They are more subject to surface runoff problems but generally have shorter residence times than seepage lakes.

Watershed protection is usually needed to manage lake water quality.

Emergent:

A plant rooted in shallow water that has most of its vegetative growth above water.

Eutrophication:

The process by which lakes and streams are enriched by nutrients, and the resulting increase in plants and algae. The extent to which this process has occurred is reflected in a lake's trophic classification: oligotrophic (nutrient poor), mesotrophic (moderately productive), and eutrophic (very productive and fertile).

Groundwater Drainage Lake:

Often referred to as a spring-fed lake, has large amounts of groundwater as its source, and a surface outlet. Areas of high groundwater in-flow may be visible as springs or sand boils.

Groundwater drainage lakes often have intermediate retention times with water quality dependent on groundwater quality.

Hardness:

The quantity of multivalent cations (cations with more than one +), primarily calcium (Ca⁺⁺) and magnesium (Mg⁺⁺), in the water expressed as milligrams per liter of CaCO₃. Amount of hardness relates to the presence of soluble minerals, especially limestone, in the lake watershed.

Intermittent:

Coming and going at intervals, not continuous.

Macrophytes:

See "Rooted aquatic plants."

Marl:

White to gray accumulation on lake bottoms caused by precipitation of calcium carbonate (CaCO₃) in hard-water lakes. Marl may contain many snail and clam shells, which are also calcium carbonate. While it gradually fills in lakes, marl also precipitates phosphorus, resulting in low algae populations and good water clarity. In the past, marl was recovered and used to lime agricultural fields.

Mesotrophic:

A lake with an intermediate level of productivity. Commonly clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients. See also "eutrophication".

Nitrate (NO₃-):

An inorganic form of nitrogen important for plant growth. Nitrate often contaminates groundwater when water originates from manure, fertilized fields, lawns, or septic systems. High levels of nitrate-nitrogen (over 10 mg/L) are dangerous to infants and expectant mothers. A concentration of nitrate-nitrogen (NO₃-N) plus ammonium-nitrogen (NH₄-N) of 0.3 mg/L in spring will support summer algae blooms if enough phosphorus is present.

Oligotrophic:

Lakes with low productivity, the result of low nutrients. Often these lakes have very clear waters with lots of oxygen and little vegetative growth. See also “eutrophication”.

Overturn:

Fall cooling and spring warming of surface water increases density, and gradually makes temperature and density uniform from top to bottom. This allows wind and wave action to mix the entire lake. Mixing allows bottom waters to contact the atmosphere, raising the water's oxygen content. However, warming may occur too rapidly in the spring for mixing to be effective, especially in small, sheltered kettle lakes.

Phosphorus:

Key nutrient influencing plant growth in more than 80% of Wisconsin lakes. Soluble reactive phosphorus is the amount of phosphorus in solution that is available to plants. Total phosphorus includes the amount of phosphorus in solution (reactive) and in particulate form.

Rooted Aquatic Plants: (macrophytes)

Refers to multi-celled plants growing in or near water. Macrophytes are beneficial to lakes because they produce oxygen and provide substrate for fish habitat and aquatic insects. Overabundance of such plants, especially problem species, is related to shallow water depth and high nutrient levels.

Secchi Disc (Secchi Disk):

An 8-inch diameter plate with alternating quadrants painted black and white that is used to measure water clarity (light penetration). The disc is lowered into water until it disappears from view. It is then raised until just visible. An average of the two depths, taken from the shaded side of the boat, is recorded as the Secchi disc reading. For best results, the readings should be taken on sunny, calm days.

Sedimentation:

Materials that are deposited after settling out of the water.

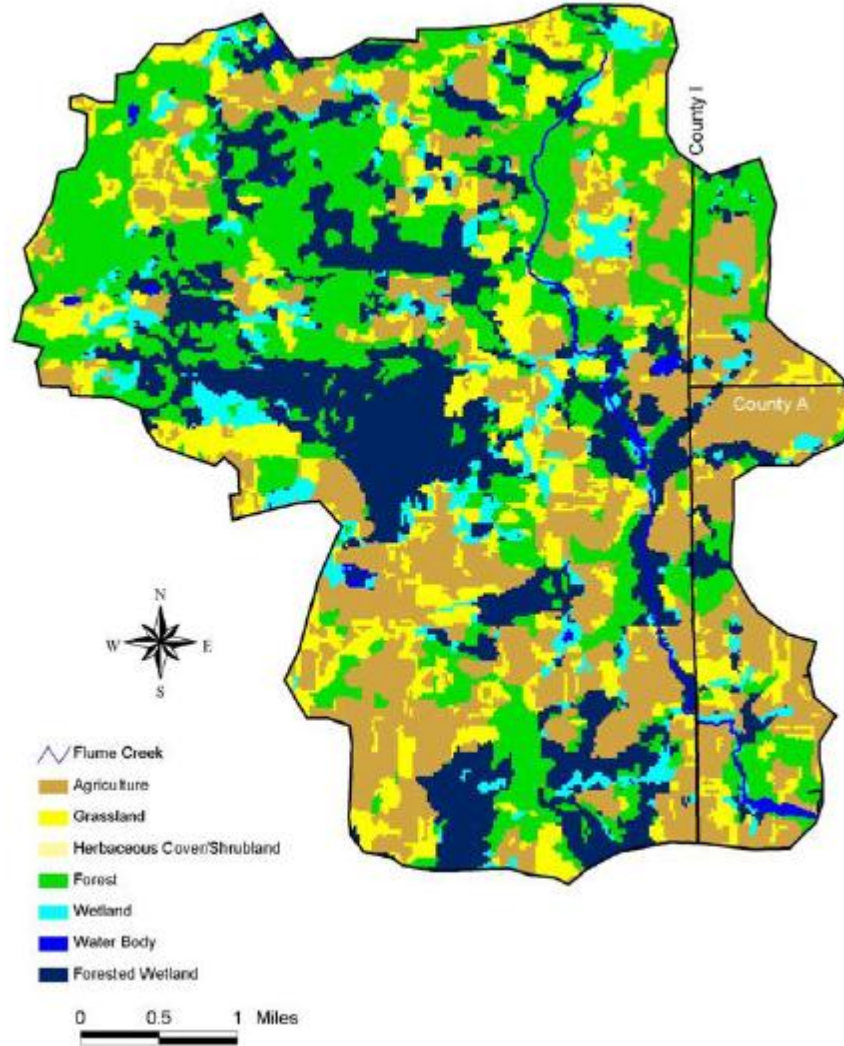
Stratification:

The layering of water due to differences in density. Water's greatest density occurs at 39 Deg.F (4 Deg.C). As water warms during the summer, it remains near the surface while colder water remains near the bottom. Wind mixing determines the thickness of the warm surface water layer (epilimnion), which usually extends to a depth of about 20 ft. The narrow transition zone between the epilimnion and cold bottom water (hypolimnion) is called the metalimnion or thermocline.

Watershed: See “drainage basin”.

Appendix A

Rosholt Millpond Watershed Land Uses

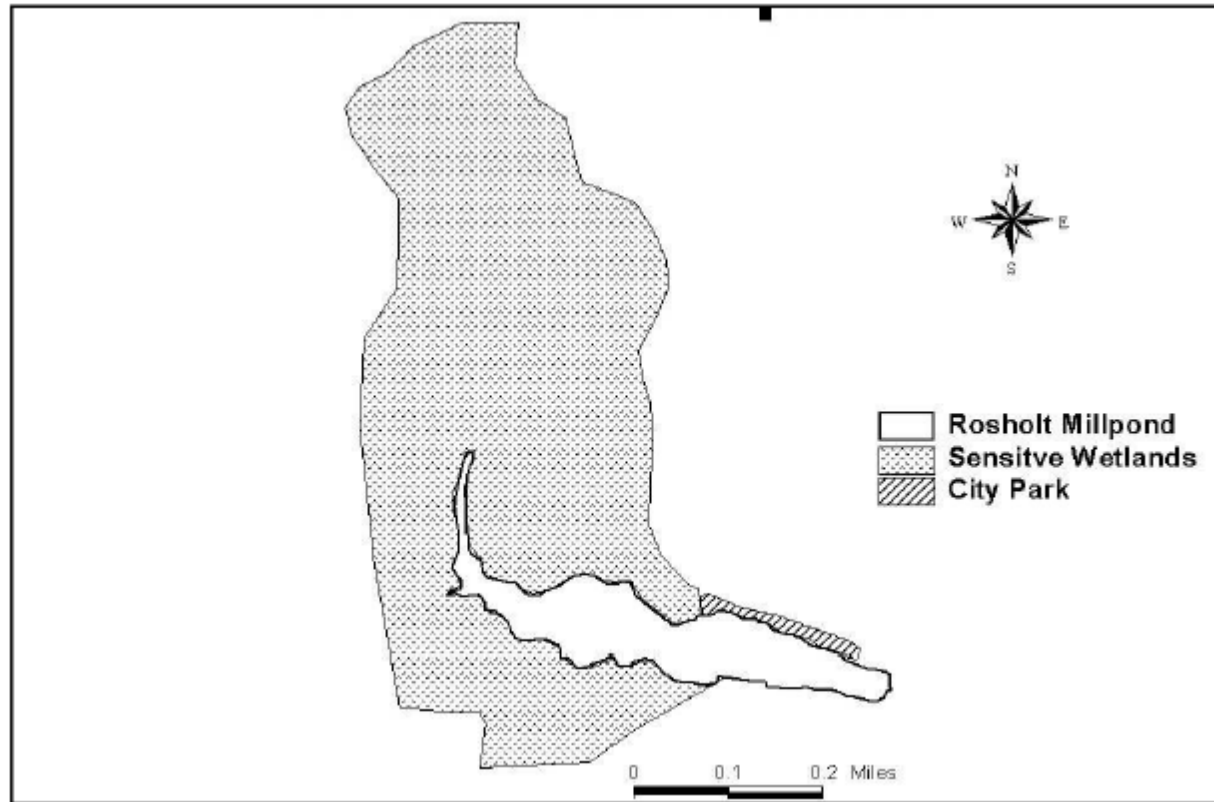


Surface Water Watershed

Groundwater Watershed

Appendix B

Rosholt Millpond Sensitive Areas.



Appendix C

Rosholt Millpond Amphibian Habitat (highlighted in red).

