2010

Collins Lake Management Plan

Collins Lake Management Planning Committee

10/18/2010

Plan approved by the Collins Lake Management Planning Committee on

Adopted by Town of Sharon on

Adopted by Town of Alban on

Adopted by Portage County on

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

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Collins Lake Management Planning Committee

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Introduction

Collins Lake is located in the Towns of Alban and Sharon in Portage County. It is valued by those who use and enjoy the lake for its natural beauty, peace and tranquility, wildlife viewing, and many recreational opportunities including fishing, swimming, canoeing/kayaking 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 Collins Lake 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 Collins Lake 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 Collins Lake ecosystem.

This plan was developed by a committee of interested citizens, local organizations, and professionals. Prior to the current lake plan development a citizen survey was conducted to gather information on citizens' values, opinions, and perceived issues with Collins Lake. The survey was sent to 61 residences within the Collins Lake watersheds, was available online where any interested person could take the survey, and was available at the Collins Lake County Park for park users to take the survey. Twenty-two citizen surveys were returned for a response rate of 36%. The members of the Collins Lake management planning committee met monthly over five months to learn about topics related the lake and develop this lake 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 Collins Lake and its ecosystem. A healthy lake ecosystem is comprised of many components that include in-lake 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 Collins Lake but also extend to where the water meets the land and beyond into the watershed. Collins Lake is a reflection of the health and activities that occur in the lake, near the shore, and in the watershed.

Collins Lake is a 41 acre soft-water seepage lake located southwest of Rosholt in the towns of Alban and Sharon. The lake has a maximum depth of 56 feet (WDNR 2005). The lake bottom material is diverse and consists of marl, sand, gravel, muck, rubble, and some boulders. There is a large County park that borders the northern shore of Collins Lake with a beach, campground, picnic area, and a boat launch. The County also has land on the steep slopes on the south side.

Watershed

A surface watershed is an area of land where water from precipitation drains from higher elevations towards the lake. Collins Lake's surface watershed is approximately 1,015 acres (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 lake. 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.**

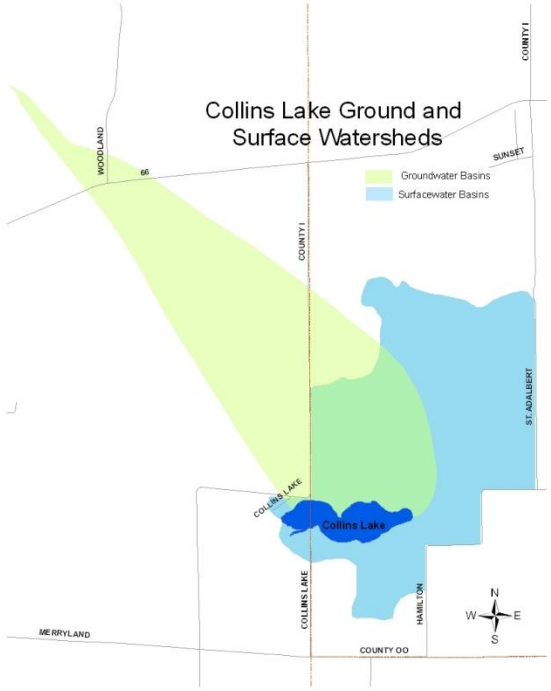


Figure 1. Collinst Lake groundwater and surface watersheds.

Land uses within the surface watershed are predominantly forested (37%) and irrigated agriculture (32%). Between 1968 the predominant land uses were non-irrigated culture and forests. However, sometime between 1968 and 1990 over half of the non-rrigated cropland within the watershed was converted to irrigated cropland. The areas near shore have the most direct impact on habitat and water quality in a lake. On Collins Lake this area is currently comprised of forested areas and residential land uses (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 Collins Lake. Within the groundwater watershed, precipitation soaks into the ground and recharges the groundwater. The groundwater slowly moves towards the lake, and enters it via springs and seeps. During dry periods, this provides the majority of water in Collins Lake. Often surface watersheds and groundwater watersheds do not match each other, which is the case with Collins Lake. Collins Lake's groundwater watershed is approximately 758 acres (Figure 1). The land cover within the groundwater watershed is primarily comprised of forest (50%), non-irrigated cropland (22%), and shrub cover (19%) (See Appendix A).

Survey respondents indicated a willingness to change how they manage their land to protect/improve the Collins Lake ecosystem. The top motivators included providing better fish and wildlife habitat, improving water quality, improving water quantity, and increasing natural beauty.

Sensitive Areas

The sensitive areas associated with Collins Lake are defined by lands adjacent to the lake that are particularly valuable to the lake's ecosystem or that would be significantly impacted by most disturbances or development. These areas include steep shorelines on the south shores of the lake. The steep shore areas are particularly prone to erosion and could contribute to sedimentation and associated water quality problems in Collins Lake. Care should be taken if these areas are disturbed. The sensitive areas also include extensive stretches of sensitive wetlands to the north and west of Collins Lake, some of which is primary habitat for amphibians and reptiles (See Appendix B).

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 Collins Lake is located on the southwest side of the lake. Key features of this habitat include areas of marsh with large amounts of submergent, emergent, and floating-leaf vegetation. The good news about the amphibian populations on Collins Lake is that several frog species are present and large sections of undisturbed natural shoreline exist. However, several sections of shoreline are disturbed by development (See Appendix C).

Shoreline

Approximately 52% of the shoreline around Collins Lake was considered disturbed; 32% was considered moderately disturbed and 19.8% was highly disturbed. Areas of moderate disturbance may contain a mowed lawn with intact overstory vegetation. Areas of high disturbance of vegetation are defined as a beach, rip rap, lawn mowed to the water line, or a boat access. The Collins Lake shoreline is comprised of 11% black spruce/tamarack wetlands, 34% dense vegetation such as tall grasses and shrubs, and 2.8% narrow wetlands that extend less than five meters onto shore.

Protecting the existing shoreland and restoring the disturbed shoreland would improve near shore habitat along with the water quality in the lake, growth of algae and aquatic plants, and the fish and other species that currently comprise the lake's ecosystem. Surfaces such as roofs, driveways, roads, patios, and compacted soils increase the amount of runoff moving across the landscape towards Collins Lake, especially where steep shorelines occur. Runoff that enters the lake can carry a variety of pollutants into the water. Some of the negative impacts in the lake 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 fish spawning areas and other critical habitat, and sediment transporting additional contaminants such as bacteria, debris, metals, and pesticides.

According to the citizen survey, 11 of the 22 respondents owned shoreline property. Eight of those respondents who owned shoreline property indicated their shorelines were undeveloped or natural. Respondents indicated the depth of their shoreline buffers around Collins Lake varied greatly. However, 5 respondents indicated their buffers were less than 35 feet, which is required by the county/state shoreline zoning ordinances. These special rules, the shoreland zoning ordinances, apply to the near shore area of the lake. These rules were developed to help protect water quality and habitat of lakes while allowing for access to a lake.

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 **93** species of aquatic macrophytes or plants that have been identified in Collins Lake or on the wet areas of shore. Collins Lake holds the largest flora of aquatic and wetland species recorded for Portage County. It is also one of the most thoroughly studies lakes in central Wisconsin, with herbarium records dating from 1964 and notes on aquatic flora beginning in 1968. Eurasian watermilfoil was first discovered in Collins Lake in the summer of 2009. The small patch was hand-removed to try and eradicate the species from Collins Lake. However, when the lake was again surveyed

repeatedly during the summer of 2010 it was found every time. Every time Eurasian watermilfoil was found it was hand-removed.

When asked about the abundance of aquatic plants in Collins Lake, the majority of respondents indicated that the growth was dense. Respondents also indicated July and August were the months with the densest plant growth, which is typical for most Wisconsin lakes.

Water Quality and Land Use

When asked about Collins Lake's water quality, the majority of survey respondents felt the water quality was good or fair but did feel that the water quality had declined during the period that they were familiar with it. Survey respondents also indicated the quality of lake water had major impact both economically and on their personal enjoyment of the lake.

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

Chloride concentrations, and to a lesser degree sodium and potassium concentrations, are commonly used as indicators of how strongly a lake is being impacted by human activity. In Collins Lake potassium and sodium levels measured in 2002/03 were low, and chloride concentrations were slightly elevated.

Atrazine, an agricultural herbicide, was detected in Collins Lake. 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 Collins Lake.

The temperature in Collins Lake was generally mixed during the fall and spring of the year. During the summer and winter months the temperatures stratify in the lake. Profiles of dissolved oxygen show that during much of the summer in water deeper than 9 feet the dissolved oxygen is below the 5 mg/L needed to support most aquatic biota. This is of significant concern because much of the cool deeper water in the lake is not available for use during the warm summer months.

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 Collins Lake ranged from six to 9 feet. August had the best water clarity and September had the poorest. The natural brown stained water was responsible for a relatively high measure of color in the water which reduces light penetration; however, chlorophyll a measures were also high in Collins Lake. 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 Collins Lake. As previously stated, Chlorophyll *a* concentrations in Collins Lake were relatively high and ranged from 0.01 to 17 mg/L, with an average of 8.6 mg/L. Any chlorophyll *a* measure over 5 mg/L is considered to be high.

The 56 algal genera identified during the sample periods were relatively common and none of those that reached numerical dominance in the sample counts were associated with toxins or health issues. The algal community relative to the chlorophyll *a*, phosphorus, and nitrogen values for Collins Lake presents a picture of a mesotrophic lake (B. Bell).

Nutrients (nitrogen and phosphorus) are important measures of water quality in lakes because they are used for growth by algae and aquatic plants. In Collins Lake both the phosphorus and nitrogen concentrations fluctuated throughout the year, but generally had high enough concentrations to fuel excess plant and algae growth.

Nitrogen concentrations in Collins Lake were high, including nitrate, which is easily used for growth by aquatic plants and algae (Figure 2). Concentrations were above the 0.3 mg/L needed to fuel algae growth in spring and winter(Figure 2).

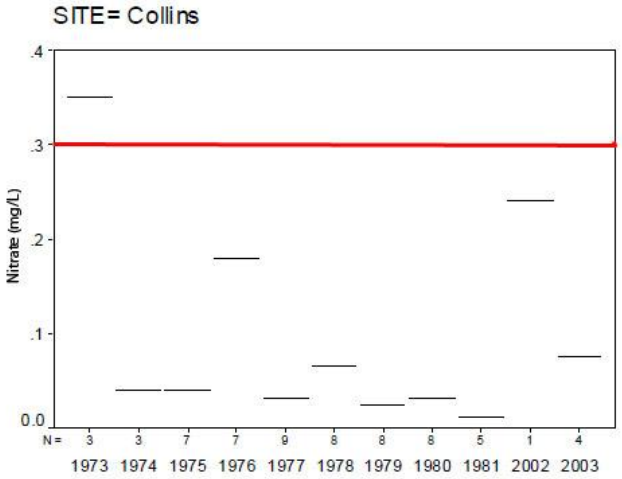


Figure 2. Median Nitrate-N concentrations (mg/L) in Collins Lake, 1973-2003. Red line indicates nitrate level needed to fuel algae growth.

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 Collins Lake 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 Collins Lake are variable throughout the year. Median total phosphorus (TP) concentrations in spring/fall for 2002/2003 were 30 ug/L (Figure 3).

The Wisconsin DNR's phosphorus criteria value for deep groundwater seepage lakes is 30ug/L. Average summer concentrations at or above this value would result in noticeably degraded water quality. The average summer total phosphorus concentrations in Collins Lake was 27.5ug/L in 2002/03. Total phosphorus should be monitored in Collins Lake to be sure that any changes are observed and addressed prior to noticeable changes in algal and aquatic plant communities.

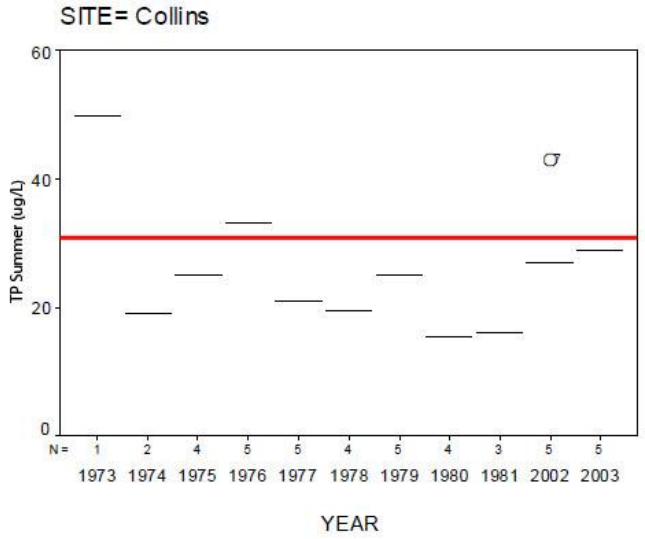


Figure 3. Median total phosphorus concentrations (ug/L) in Collins Lake in samples collected in summer, 1973-2003. Red line is WDNR criteria value for phosphorus for deep groundwater seepage lakes.

Managing phosphorus in the Collins Lake watershed is key to protecting the lake itself. Positive land management practices and land uses can result in good water quality in Collins Lake. Phosphorus inputs to the lake 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 lake. 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 Collins Lake include leaving native vegetation (trees, bushes, and grasses), eliminating the use of fertilizer, minimizing runoff/increasing infiltration, minimizing and securing exposed soil, and increasing the setback of septic drain fields. The Portage County Land Conservation Department is a local organization that can provide assistance to landowners that want to reduce impacts to Collins Lake from their property.

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

A "build out" of the current zoning in the watersheds (Town of Sharon and Alban) was conducted as a predictive tool to estimate the phosphorus and algal response in Collins Lake if complete allowable development occurs. Additional scenarios included connecting more of the landscape to the lake through water diversion such as culverts and roads (Figure 4). The development of a lake model allowed us to estimate phosphorus and algal changes within the lake based on various land use scenarios (figure 4). Points displayed include (in order from left to right) undeveloped, current land use with 25% of the landscape using BMPs, current land use, built out watershed, and built out with additional level of connectedness

The goal for this plan is to reduce phosphorus levels below 30 ug/L.

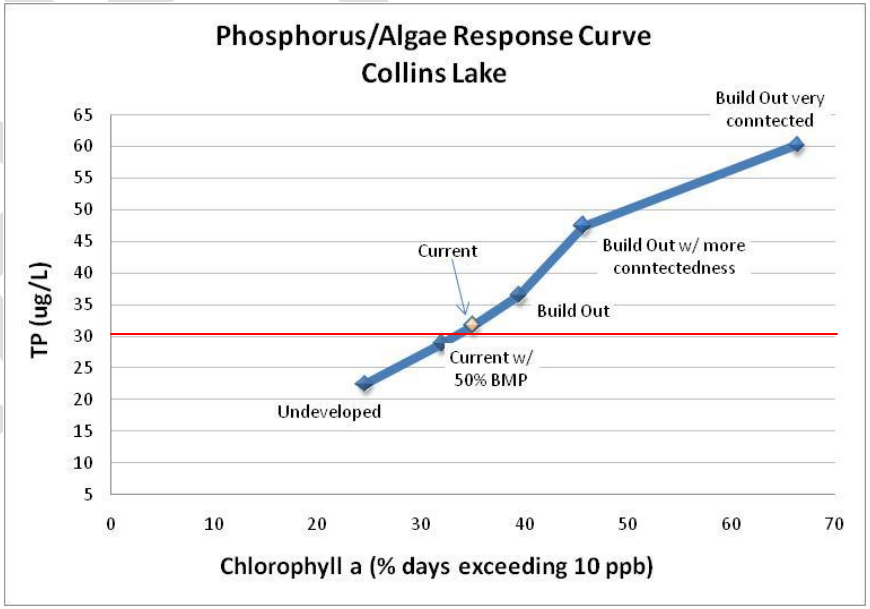


Figure 4. Phosphorus and related algae response to land use scenarios in the watershed.

In recent years, water quantity has been a topic of concern for Collins and other local lakes. Although lake levels have fluctuated over time,

current research suggests that the measured fluctuation is greater than what would be anticipated with the current amount of precipitation and is presumed to be a result of excess groundwater extraction.

Recreation

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

Conflicts between users do not appear to be of concern on Collins Lake as 72% of respondents indicated that while they saw others they were not bothered by them.

Fishing is a recreational activity that is enjoyed by many on Collins Lake. Collins Lake supports a warm water fishery that is dominated by bluegill, bass, and crappie. When survey respondents were asked to rate their fishing experiences on Collins Lake, 35% indicated fishing was average, 29% indicated fishing was fair, and 29% indicated fishing was poor. The majority of survey respondents (63%) felt the quality of fishing had declined over time and that fertilizer use and livestock agriculture were contributing factors.

Goals, Objectives, and Actions

The following goals, objectives, and actions were derived from the values and concerns of the members of the Collins Lake Planning Committee including local citizens and are based on the science used to assess Collins Lake and its ecosystem. Implementing the goals, objectives, and actions of the Collins Lake 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 Collins Lake planning committee, interested citizens, and representatives from municipalities and agencies with the assistance of UWSP and Portage County. Updates will be provided to the Towns of Sharon and Alban, Portage County, the Wisconsin DNR, and any other entity adopting the plan.**

Water Quality and Land Management

Collins Lake is host to a wide variety of plants, insects, fish, amphibians, and a variety of other animals that all depend on good water quality in the lake. Survey respondents clearly value good water quality by indicating that water quality strongly influenced their enjoyment of the lake and impacted their perceived economic value of Collins Lake. The majority of survey respondents felt that the water quality in Collins Lake was good. Citizens who were familiar with the lake felt that overall the water quality in Collins Lake had declined over time.

Vision: Water quality in Collins Lake will support a healthy lake ecosystem that is safe to recreate in, while groundwater will be healthy to drink.

Goal 1: Water quality in Collins Lake will have average summer TP concentrations of 30 ug/L and Nitrogen levels drop below 0.3 mg/L. We will know that we are achieving this when monitoring indicates that median summer (5 samples/summer) total phosphorus remain 30 ug/L and nitrogen remain below 0.3 mg/L.

Objective 1.1: Monitor the water quality in Collins Lake to evaluate if we are meeting our goals.

Action	Lead person/group	Start/end dates	Resources
Establish a citizen water quality monitoring program for Collins Lake			UWEX Lakes

Objective 1.2: Riparian and watershed landowners will minimize their impacts to Collins Lake through land management practices.

Action	Lead person/group	Start/end dates	Resources
Share information about water quality based best management practices with riparian landowners through the informational packet			Portage County Land Cons. Dept.
Provide information to landowners about addition (tertiary) treatment for septic systems in informational packets.			Portage County Land Cons. Dept.
Work with the County Park to make sure that any changes within the park will not negatively impact Collins Lake Water Quality			Portage County Parks Dept.

Monitor and provide input about the amount of development around Collins Lake and within the watershed.			Portage County Planning and Zoning Town of Alban Town of Sharon
Host a soil testing workshop for watershed landowners. Have someone come in to explain the results of soil tests			Portage County Land Cons. Dept. WDNR UWEX
Request financial assistance to help riparian and watershed landowners install manure storage systems and develop water quality based nutrient management plans.			Portage County Land Cons. Dept. WDNR
Provide information/workshops on "green" household and cleaning products			UWEX Lakes
Provide information on dumping leaves in the lake			UWEX Lakes
Monitor the County Parks septic system effluent			Portage County Parks Dept.
Encourage the County to consider replacing the outhouses in the County Park with composting toilets or other technologies			Portage County Parks Dept. UWEX Lakes

Objective 1.3: Create a better understanding of how land use practices within the Collins Lake watershed impact the water quality in Collins Lake

Action	**Lead person/group**	**Start/end dates**	**Resources**
Research and request WDNR to provide an explanation of what fly ash is, how/when it is applied, and how it is monitored for compliance – Explore bringing someone in to provide an explanation			Portage County Land Cons. Dept. WDNR
As for the results of the soil tests on fields where nutrients and/or materials are being applied			Portage County Land Cons. Dept. WDNR
Provide information to riparian landowners about who to contact if compliance is not taking place for different management practices			Portage County Land Cons. Dept. WDNR

Aquatic Plants and Aquatic Invasive Species

Fish and other aquatic biota and water dependent terrestrial life depend on aquatic plants for habitat, food, and spawning areas. Aquatic plants also help to baffle waves thus reducing shoreline erosion and some species of plants (water lilies) help to keep the water cool in the summer. Healthy aquatic plant communities, along with a vigilant watch, will help to limit any new aquatic invasive species from becoming established in Collins Lake.

Vision: The unique and divers community f native aquatic plants will be sustained and aquatic invasive species will not be present.

Goal 2: The quality of the native aquatic plant community in Collins Lake will be healthy and diverse.

Objective 2.1: Ensure the native aquatic plants are kept intact.

Actions	Lead person/group	Start/end dates	Resources
Share information about the importance and maintenance of native aquatic plants in Collins Lake through an informational packet			UWEX Lakes WI DNR Lakes Specialist UWSP
Learn about native and invasive aquatic plants in Collins Lake through plant identification workshops. Work with Lake Helen Lake District on some trainings			Golden Sands RC&D Invasive Species Coordinator
Request a survey of aquatic plants every 3 years or more frequently if invasive species are present			UWSP WI DNR Lakes Specialist
Provide information about the importance of wetlands and bogs to the health of the lake ecosystem			UWEX Lakes WI DNR
Explore protecting bogs/wetlands/critical habitat areas			UWEX Lakes UWSP

Goal 3: Collins Lake will not have aquatic invasive plant species present

Objective3.1: Prevent new aquatic invasive species from entering Collins Lake. If new species do get into the lake, quickly identify their presence and remove using proper procedures and techniques.

Actions	Lead person/group	Start/end dates	Resources
Learn to identify native and invasive species in Collins Lake through workshops			Golden Sands RC&D Invasive Species Coordinator
Form a group of citizens to routinely monitor for new aquatic invasive species.			Golden Sands RC&D Invasive Species Coordinator UWEX Lakes
Submit an informational article about invasive species in the local papers (Portage County Gazette, Rosholt, Record, Community Spirit)			Golden Sands RC&D Invasive Species Coordinator UWEX Lakes
Post information about aquatic invasive species in local lakes on Portage County Website			Golden Sands RC&D Invasive Species Coordinator
Post a listing of lakes with aquatic invasive species at local boat landing			Golden Sands RC&D Invasive Species Coordinator
Send information about aquatic invasive species out in Town mailings			Golden Sands RC&D Invasive Species Coordinator UWEX Lakes
Work with Lake Helen District on information about aquatic invasive species and on monitoring/identification/removal			Lake Helen Lake Rehabilitation and Protection District
Utilize the Aquatic Invasive Species Rapid Response Plan if new invasive species are found in Collins lake (see Appendix).			UWSP
Ask County to hire part time person for boat inspections during holidays/opening fishing weekend			Portage County
Ask the manager at the Collins Lake County Park to monitor the boats that are parked at the campground for invasives			Portage County Parks Dept.
Ask Portage County Parks Dept. to post a sign on invasives at the park entry and at washrooms			Portage County Parks Dept.
Provide information on AIS (Cards with prevention steps) to park users and riparian landowners			Portage County Parks Dept. UWEX Lakes

Objective 3.2: Eliminate Eurasian watermilfoil from Collins Lake

Actions	Lead person/group	Start/end dates	Resources
Provide lake users and riparian landowners with information on what Eurasian watermilfoil is and how to identify it			Golden Sands RC&D Invasive Species Coordinator WI DNR Lakes Specialist
Monitor EWM infestation in Collins Lake periodically from spring until fall			Golden Sands RC&D Invasive Species Coordinator UWSP WI DNR Lakes Specialist
Using appropriate techniques, continue to hand pull EWM plants present in Collins Lake with the assistance of the Portage County Invasive Species Coordinator			Golden Sands RC&D Invasive Species Coordinator WI DNR Lakes Specialist
Determine what the plan for elimination of EWM is for upcoming summer in late winter early spring			Golden Sands RC&D Invasive Species Coordinator WI DNR Lakes Specialist UWSP

Shorelands

Shorelands are some of the most important habitat for terrestrial and aquatic wildlife, including birds, near lakes. Intact vegetative shorelines also help to slow runoff moving to the lake and filter runoff before it enters the lake. Protecting and restoring shorelines help to provide scenery, solitude, and privacy, as well as natural space for lake residents to enjoy nature. In 2003, 52% percent of the shoreline has various levels of disturbance including a public boat landing. Shorelands also include any fallen trees and branches that rest in the water. This woody material provides habitat for young fish, frogs, turtles, birds, and other creatures.

Vision: Collin Lake shoreland vegetation will provide healthy habitat for birds, frogs, fish, and other animals and will help to ensure that water quality is good.

Goal 4: Protect and/or restore shorelands around Collins Lake to protect water quality and healthy habitats

Objective 4.1: Shore landowners around Collins Lake 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 around Collins Lake through informational packet			Portage County Land Cons Dept UWEX Lakes
In steeper sloped areas around Collins Lake, encourage the design of access points to the water that minimize erosion and slow water runoff.			Portage County Land Cons Dept
Encourage the County Park to continue leaving shoreland habitat intact for much of the park property on Collins Lake			Portage County Parks Dept
Post sign in park about why County is not mowing the shorelines.			Portage County Parks Dept
Support the use of conservation easements for willing shoreland owners, including the County Park, around Collins Lake.			North East Conservancy Trust North Central Conservancy Trust NRCS Portage County Parks Dept

Work with the Portage County Park s Dept. to ensure that that the county can continue to protect the land where the park is.			Portage County Parks Dept

Objective 4.2: Work to ensure that zoning ordinances in Town of Alban and the Town of Sharon protect the health of Collins Lake

Explore different zoning for properties touching the lake in the Town of Alban			Town of Alban Center for Land Use Education
Participate when the Town of Sharon and Town of Alban update their land use plans, specifically when zoning rules concerning Collins Lake are updated			Town of Alban Town of Sharon Center for Land Use Education
Have representatives from UWSP/County work with the Towns of Alban and Sharon to present build-out scenarios for Collins Lake			Town of Alban Town of Sharon Center for Land Use Education Portage County Land Cons. Dept.

Objective 4.3: Shorelands around Collins Lake will all meet state/county shoreland zoning ordinances

Actions	**Lead person/group**	**Start/end dates**	**Resources**
Provide information about the benefits of native shoreline buffers to shoreline owners through informational packet			Portage County Land Cons Dept UWEX Lakes
Become familiar with Portage County shoreland zoning ordinances and their purposes for protecting water quality, habitat, etc.			UWSP Center for Land Use Education Portage County Planning and Zoning
Work to restore all shorelands to meet the County/State shoreland zoning ordinance (or better).			Portage County Land Cons. Dept. Portage County Planning and Zoning WDNR

Work to limit growth and development around Collins Lake for the health of the lake			Portage County Land Cons. Dept. Portage County Planning and Zoning
Participate in any county shoreland zoning updates			Portage County Planning and Zoning

Fisheries and Recreation

Collins Lake residents and lake users enjoy many different recreational opportunities on Collins Lake. Based on survey results, the most popular recreational activities on Collins Lake included enjoying wildlife, fishing, walking, enjoying scenery, and solitude. Conflicts with these activities could easily occur; recreational needs and uses on the lake will likely continue to increase as populations and development in the area increases.

Healthy lake ecosystems are valuable natural resources for all lake users. It is important to maintain a good fishery so that anglers and families are able enjoy the fishery on Collins Lake, as fishing is one of the top two recreational activities on the lake and is valued by lake users. Survey respondents felt that the quality of fishing in Collins Lake was average and perceived that fishing had declined in recent years.

Vision: Collins Lake will have a healthy sustainable fishery that supports a positive fishing experience

Goal 5: Habitat in Collins Lake will be suitable to sustain a healthy fishery.

Objective 5.1: Ensure the in lake habitat is provided to support a healthy, reproducing fishery.

Actions	Lead person/group	Start/end dates	Resources
Inform individuals about the importance of woody habitat in shallow water near shore areas of Collins Lake and encourage its' placement in appropriate areas.			WDNR/UWSP Portage County Land Cons Dept
Explore using tree drops and/or fish cribs as habitat in deeper areas of Collins Lake			WDNR

Goal 6: **Fisherpersons on Collins Lake will have realistic expectations of the fishery on Collins Lake and will have access to fishing opportunities.**

Objective 6.1: Fisherpersons will have realistic expectations for the fishery and will have current information about the Collins Lake fishery

Actions	Lead person/group	Start/end dates	Resources
Provide information on what are realistic fisheries expectations for Collins Lake			WDNR
Participate in the discussions regarding the new fishery regulations recommended by the WDNR and Consider supporting the new Northern Pike regulations recommended by the WDNR.			WDNR
Work with the DNR to have local fisherman keep records of their length and weight of catches that can be submitted to the DNR as fisheries data			WDNR
Ask the DNR/UWSP to conduct a survey of the fisheries population on Collins Lake			WDNR UWSP Fisheries

Objective 6.2: Provide access for fishing on Collins Lake

Actions	Lead person/group	Start/end dates	Resources
Work with the Portage County Parks to add a fishing pier to Collins Lake			Portage County Parks Dept. WDNR

Vision: Recreation opportunities on Collins Lake will be in balance with the health of the lake.

Goal 7: Preserve the quiet nature and health of Collins Lake uwhile allowing for recreational opportunities.

Objective 7.1: Provide recreational opportunities to enjoy Collins Lake while minimizing conflicts between users and protecting lake water quality and habitat.

Action	Lead person/group	Start/end dates	Resources
Re-evaluate the signs at the boat landing to make sure that they are providing the information needed.			Portage County Parks Dept.
Ensure that a slow-no-wake sign is posted and visible			Portage County Parks Dept.
Explore providing showers for campers using Collins Lake Park			Portage County Parks Dept.
Encourage the park to have reduced rates for non-profit groups using the park facilities			Portage County Parks Dept.

Communication

Vision: Collins Lake will have a dedicated group of lake stewards who communicate with each other.

Goal 8: Collins Lake stewards will be knowledgeable about lake issues and will make the most of available lake program opportunities.

Objective 8.1: Provide riparian landowners and Collins Lake users with lake related information

Action	Lead person/group	Start/end dates	Resources
Provide information in informational packet to citizen on how they can be involved in county committees that make decisions (IE Parks)			UWSP Portage County
Provide lake specific information (survey results, fish survey results, lake study results) in informational packet			UWSP WDNR
Place informational packets at park office for lake users			Portage County Parks Dept
Provide information on lake topics/lake group through the naturalist programs at the parks			Portage County Parks Dept

Objective 8.2: Establish a Friends of Collins Lake

Action	Lead person/group	Start/end dates	Resources
Host a social event for riparian landowners to explore a possibility of a lake group			UWEX Lakes
Explore forming a lake group that includes the county park. Park users, and any interested citizens			UWEX Lakes Portage County Parks Dept.
Obtain mailing lists and e-mails list servs to contact interested individuals			UWSP Portage County Land Cons Dept
Utilize funds from the Portage County Land Cons. To provide mailing materials			Portage County Land Cons Dept
Work to have the towns of Sharon and Alban represented on the lake group and/or ask to give a short presentation a the town meeting			Town of Sharon Town of Alban
When lake group is formed provide the lake group info in informational packets			

Collins Lake Aquatic Invasive Species Rapid Response Plan 2010

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.

   Or --

   - 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).

Collins Lake 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 town in which the waterbody is situated
Town of: Sharon
Contact: Chairperson – Patrick Wanserski
Address: 7315 State Hwy. 66 Custer, WI54423
Phone: 715-592-5085
Who will contact them: Portage County AIS Coordinator

The town in which the waterbody is situated
Town of: Alban
Contact: Chairperson – Michael Zdroik
Address: 10250 State Hwy 66 Rosholt, WI 54473
Phone: 715-677-3873
Who will contact them: Portage County AIS Coordinator

Collins Lake Aquatic Invasive Species Rapid Response Plan 2010

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
Who will contact them: Portage County AIS Coordinator

Newspapers
Who will contact them: Portage County AIS Coordinator
Rosholt Record
Portage County Gazette
Stevens Point Journal

Post notice at the access points to the waterbody

First	Address	City	Zip	Phone	E-mail
Joe & Linda Burant	2571 S Collins Lake	Rosholt	54473	715-677-6727	jlburant@wi-net.com
Jerry Lazarski	1960 Teal Ct.			715-344-2579	
Gary Speckman	1903 Co Hwy Y	Stevens Point		715-346-1435	Speckmang@co.portage.wi.us
Stan Kaminski	905F Cty OO	Rosholt	54473		stank@execpc.com
Ray Biadase	8978 Cty OO	Rosholt	54473	715-677-4857	rbiadase@wi-net.com
Gene Gagas	9115 Sunset Dr	Rosholt	54473	715-677-3544	
Gary Wachowiak	329 McDill Ave	Stevens Point	54481	715-344-6744	
Thomas Wierzba	2589 S. Collins Lake Ln	Rosholt	54473	715-677-3029	
Joe Kaminski	2548 N. Hamilton Rd	Rosholt	54473	715-5270854	
Deb Lazarski	8732 Collins Lake Ln	Rosholt	54473	715-677-3893	
Carol Wilhelm	8740 N. Collins Lake Ln	Rosholt	54473	715-677-4916	
Kaay Kryshak	9452 Krogwold Rd	Amherst Jct.	54407	715-677-4067	
Jerry Lazarski	8732 Collins Lake Ln	Rosholt	54473	715-630-7562	lazarskijerry@hotmail.com
Jim Wilhelm	8740 Collins Lake Ln	Rosholt	54473	715-677-4916	
Char Wierzba	8720 Collins Lake Ln	Rosholt	54473	715-677-3127	
Ken Kraase	1594 Sheboygan St	Oshkosh	54904	920-233-1778	
Diane Kuklinski	2716 Cty T	Amherst Jct.	54407		kuk-pep@hotmail.com
Star Ann Lemar	2712 Cty I	Rosholt	54473	608-567-1048	starannlemar@yahoo.com
Angie Lemar	440 Bukolt Ave.	Stevens Point	54481	715-295-0644	angielemar@rocketmail.com
Joseph & Donna Cramer	32937 High Dr.	Burlington	53105	262-534-3293	raeosunshine17@yahoo.com

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. McGinle; 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 (N_2) 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 ($CaCO_3$), 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.

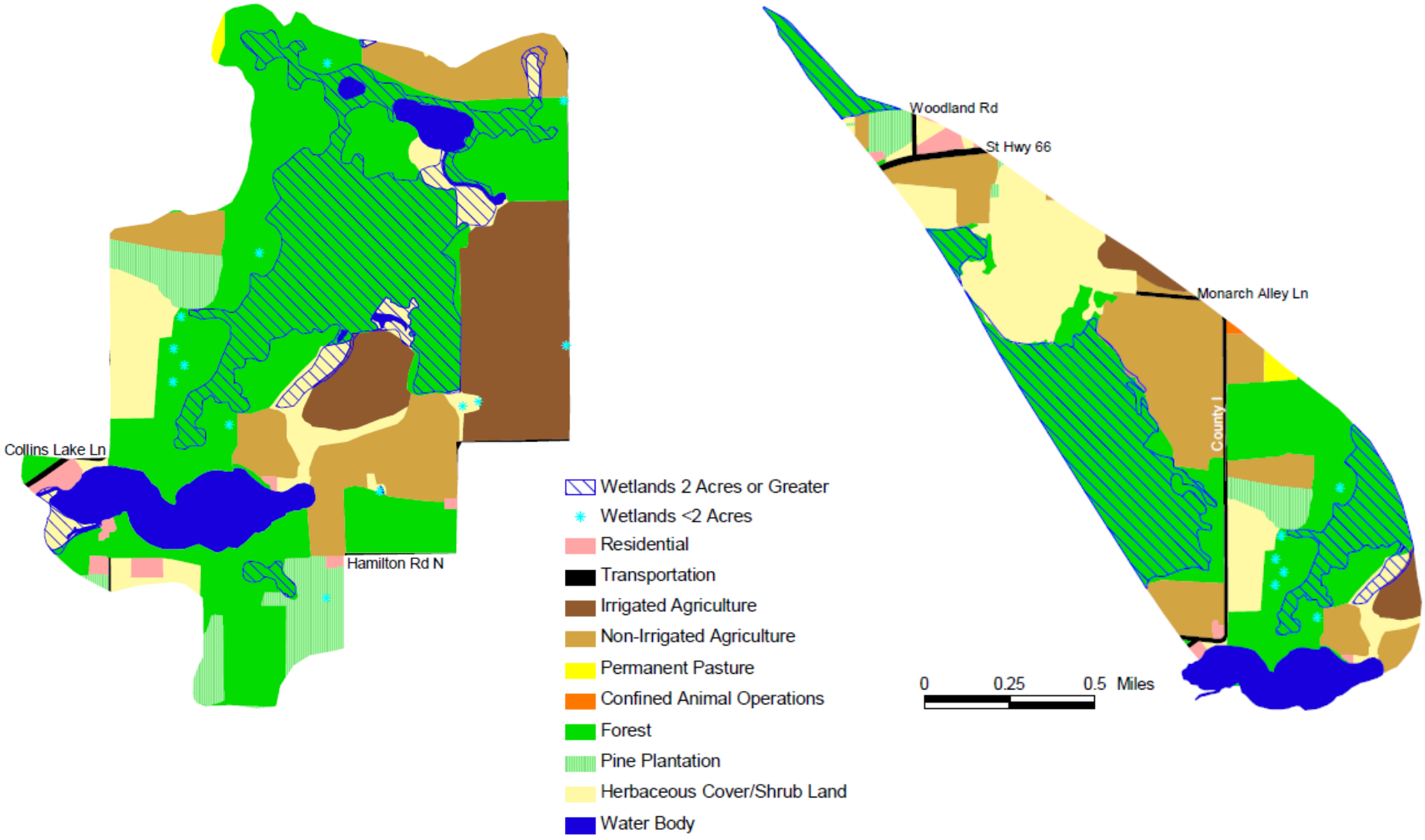
Stratification:

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

Collins Lake Watershed Land Uses

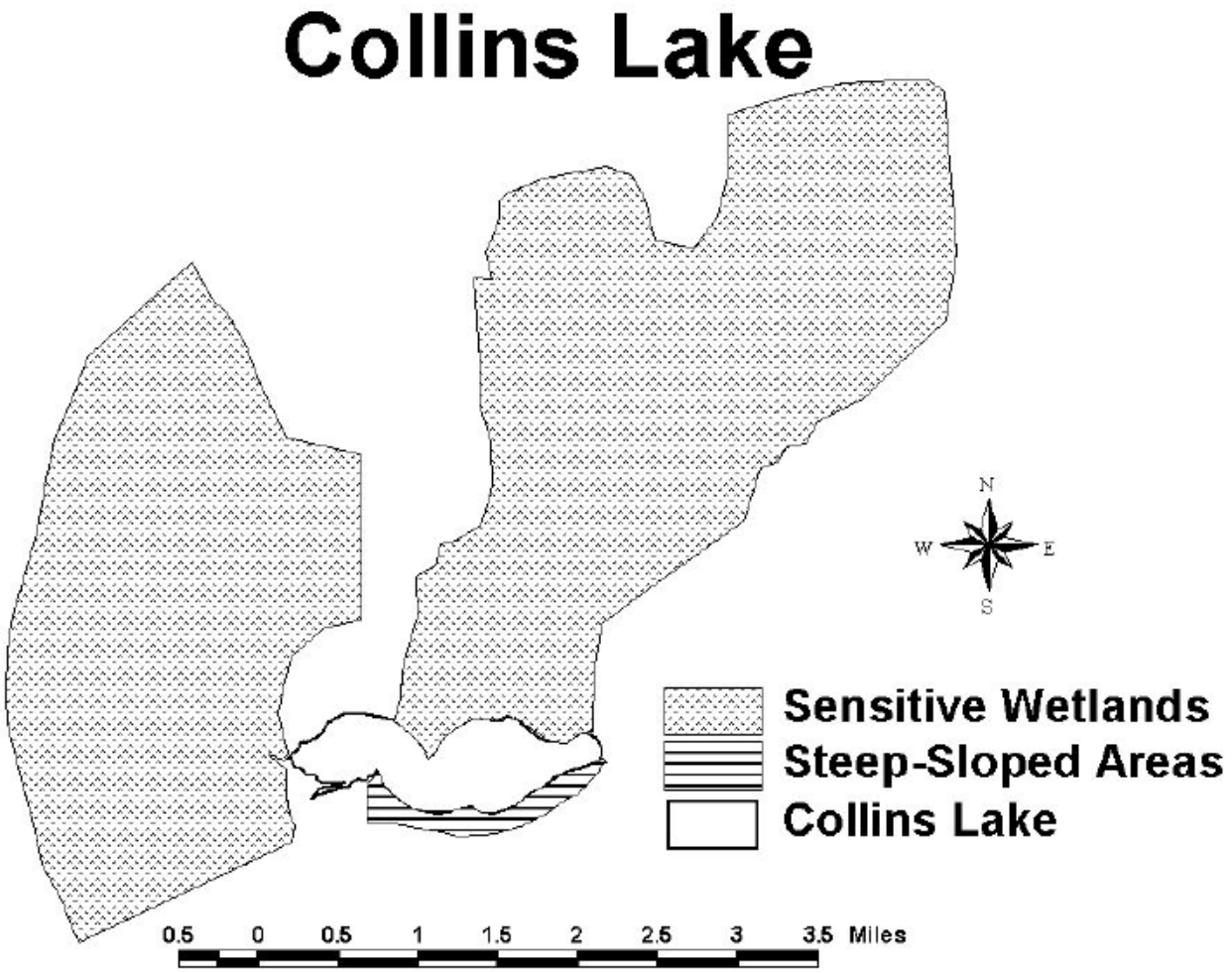


Surface Water Watershed

Groundwater Watershed

Appendix B

Collins Lake Sensitive Areas.



Appendix C

Collins Lake Amphibian Habitat (highlighted in red).