FOX WATERWAY AGENCY

WATERSHED

Chain O' Lakes

CHAIN O' LAKES WATERSHED-BASED PLAN EXECUTIVE SUMMARY

February 2024

Chain O'Lakes

Watershed-Based Plan Executive Summary

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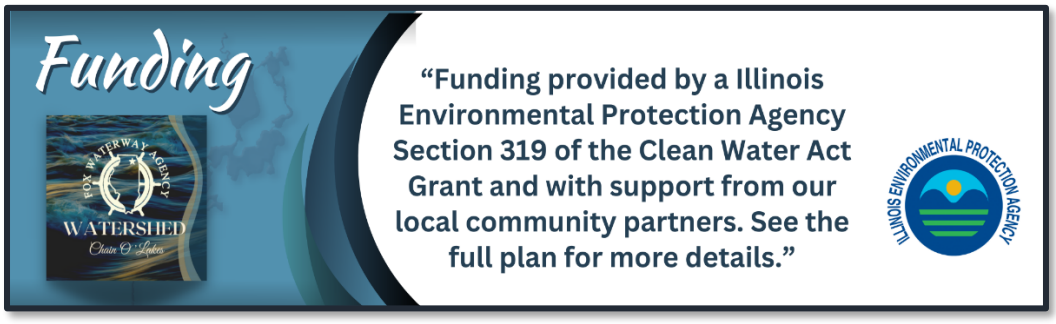
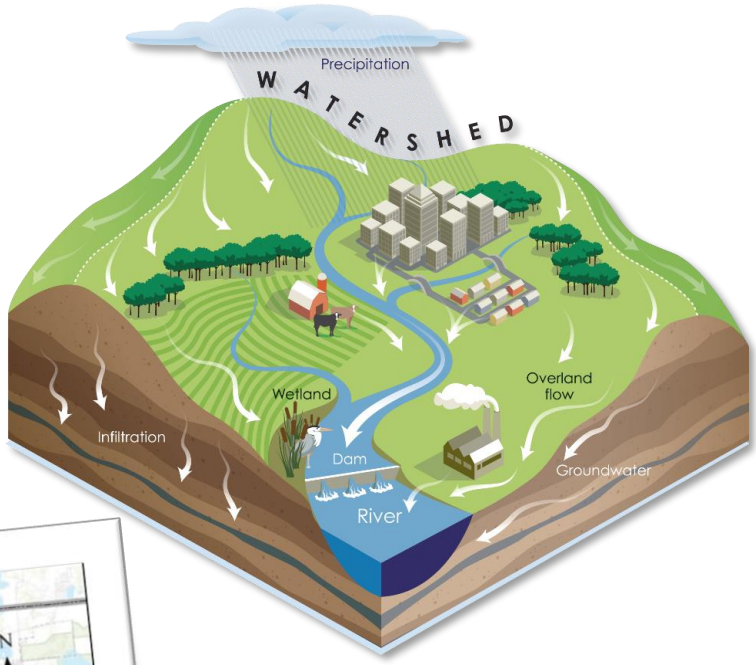


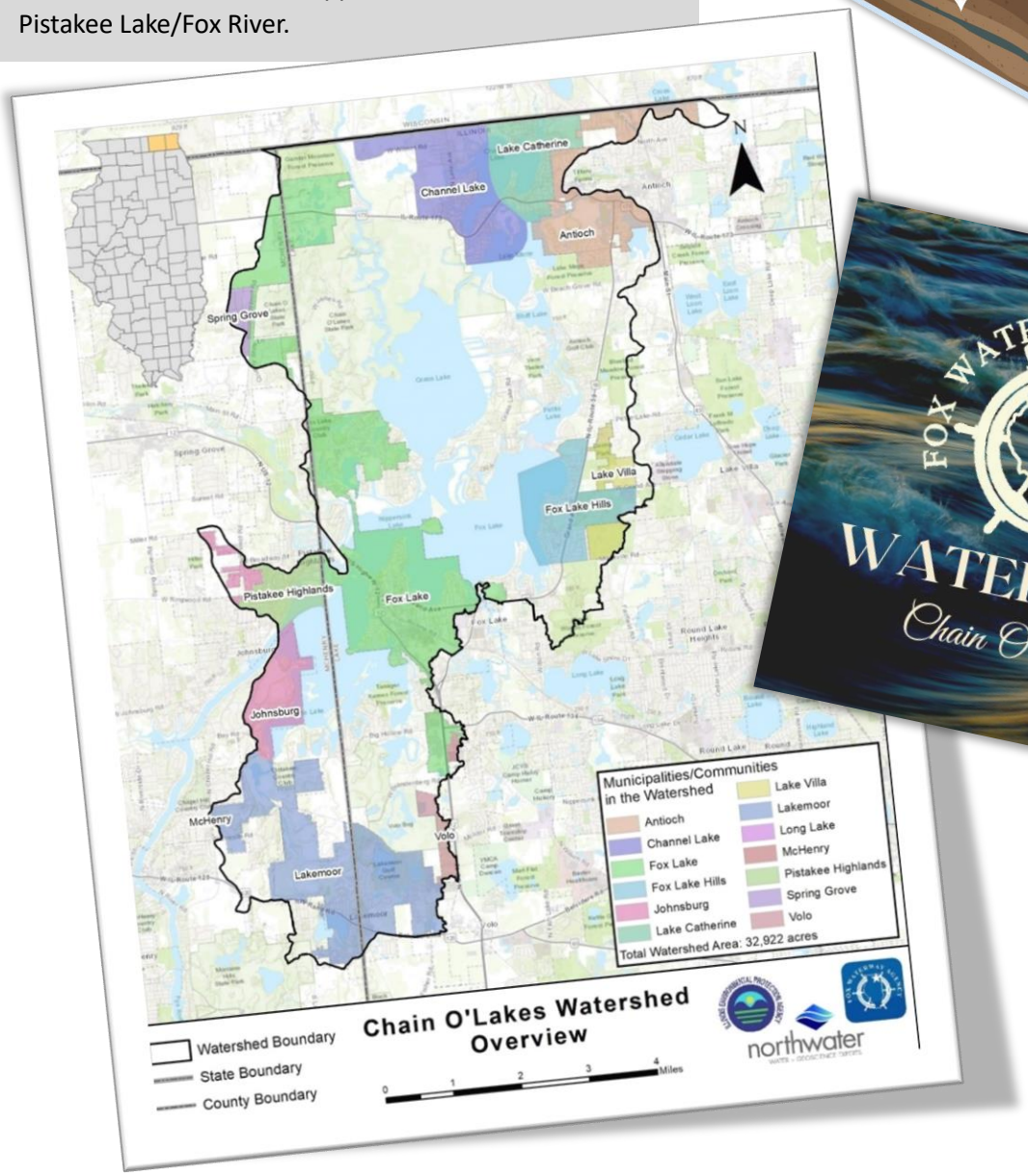
The findings and recommendations contained in this report are not necessarily those of the funding agencies.

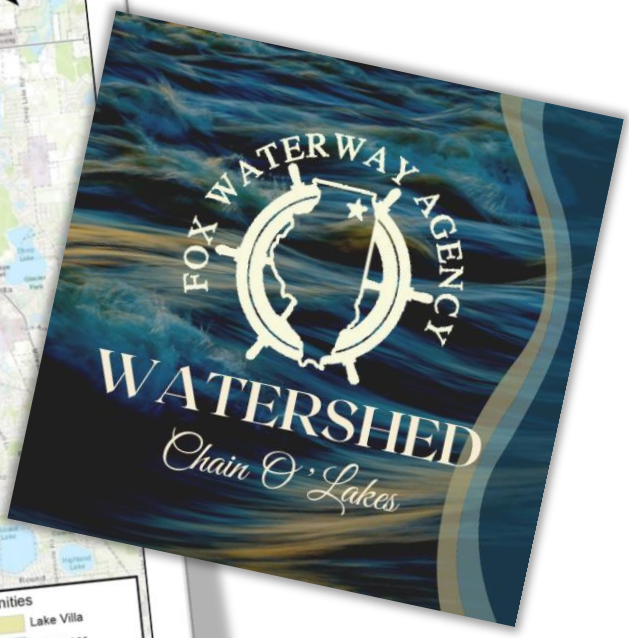
What is a Watershed?

A watershed is the area of land naturally drained by a river, stream, or other body of water. If rain or snowmelt is not intercepted by vegetation or does not infiltrate into the soil, it flows over the land eventually ending up in a body of water or a wetland.

An entire watershed encompasses were the water first starts flowing until it reaches a final body of water. Our Fox River is a part of the Mississippi watershed that drains into the Gulf of Mexico. Locally, watersheds are divided into smaller pieces identified by a Hydrologic Unit Code (HUC). There are over 90,000 HUCs in the US. Our planning area includes four HUCs: Channel Lake, Bassett Creek/Fox River, Nippersink Lake/Fox River and Pistakee Lake/Fox River.







Our Plan Area

Our watershed planning area is unique in that more than 50% of the area is natural and 25% of the area is open water. Another unique feature is the Stratton Dam in McHenry. The dam prevents the water level in the summer from going below navigable levels for the entire boating season and allows for a winter release to minimize spring flooding. The lakes make the region a destination for people interested in being on the water. Today it is one of the most popular inland boating areas in the United States.

In the early development of the region there were many summer homes. Over time the communities around the lakes have grown and the number of permanent residents has significantly increased, but the important role the lakes play in the community has stayed the same. Because of how the communities grew, there is significant variation in the infrastructure. The area has a wide use of septic systems and many places where runoff goes directly into the lakes instead of being retained and filtered before it enters the lakes. With more summer rain events more flooding occurs since the river above the dam limits the discharge of water from the lakes. Flooding leads to a surge in nutrient loading.

Being a water recreational destination makes it important to have good water quality. Today the water quality is generally acceptable, yet there are times when the conditions are less desirable because of algae growth, and even times when it is unacceptable. This is why acting on the watershed plan is so important to the community and why we need everyone in the community getting behind the implementation of the plan.

Our Plan Area by the Numbers

The Water

18 miles of river and streams

13 major interconnected lakes and others totaling over 8,000 acres

51 square miles in Lake and McHenry Counties in Illinois

Part of the much larger Fox River watershed, which covers 2,658 square miles in Wisconsin and Illinois and is part of the Illinois and Mississippi River Basins

Inflow to the Chain O' Lakes from the Fox River, Sequoit Creek, Manitou Creek, and Nippersink Creek

Outflow to the Fox River

The Land

52% natural forest, grasslands, wetlands, and open space

25% open water – 200 miles of major lake shoreline

6% residential

5% impervious areas (roads, driveways, parking lots)

4% agriculture

8% other

High nutrient loading from urban and agricultural areas and from within the lakes themselves

The People

47,000 approximate population in 2020

8 municipalities/villages

9 unincorporated areas

7 townships

Planning Area Vision Statement

The Chain O'Lakes

Vision

Our Vision is that our water quality contributes to the Chain of Lakes being an appealing destination and that the water leaving our system does not negatively impact our neighbors both near and far.

Objective

Goals

Focuses

1. COMMUNITY ENGAGEMENT
2. COMMUNITY & INDIVIDUAL PROJECTS
3. WATER QUALITY MONITORING
4. POLICIES & PRACTICES

Why this Watershed-Based Plan?

Chain O'Lakes Watershed Plan

Water is essential to our lives. Plants and animals, including humans and our communities, food systems, energy sources, and products we consume every day are dependent on water. In the Chain O' Lakes, water is also a recreational resource and a regional economic driver. Despite this, water is often taken for granted until it negatively affects us, usually due to short supply, inundation, or pollution.

Watershed plans are developed to identify actions that can be taken at a local level to address non-point pollution. One reason for a local plan is to bring people together to work on improving water quality. Water flows across boundaries between individual properties and also between boundaries defined by community governments and agencies. The watershed plan identifies how people and communities can work together to improve water quality that impacts everyone.

Another reason for a local plan is that each area is unique in multiple ways. The watershed plan characterizes this uniqueness by completing field surveys, researching historical land use and water quality data, and by gathering input from the community while conducting education on water quality and what impacts it.

Watershed plans characterize areas in three ways; by land use, by the system's current health and by characterizing the inflow into the system from the local area.

The current health of the system is characterized as impaired for aesthetic quality and, to a lesser extent, fecal coliform. High nutrient levels of phosphorus, which support plant and algae growth, and high levels of suspended solids contribute to the impairment. Fecal impairment come from animals including humans. Our area has a significant number of septic systems close to the water which, if not performing properly, could leach bacteria into the watershed.

The current condition of the local drainage into the system is high in nutrients and suspended solids. This is characterized as the Total Maximum Daily Load. Think of this as the watershed's diet. Our watershed would benefit from a significant reduction in the inflow of phosphorous and suspended solids.

Your Actions Help to:

1. Increase awareness of watershed issues and opportunities
2. Address existing impairments
3. Prevent future impairments
4. Secure our waterway as a resource for our community

Our Findings

A System Under Stress

Eighteen lakes in the planning area are impaired by nutrients (phosphorus), sediment, bacteria, and other forms of pollution. One stream, the Fox River, is impaired by bacteria and other causes. Pollution enters water bodies through stormwater runoff from urban and agricultural lands, from erosion of upland soils, lake shorelines, and to a lesser extent, streambanks. There are also external sources from the Fox River in Wisconsin and other major streams that enter the planning area which this plan does not address.

Lakes have high levels of nutrients, which can result in algae blooms and the growth of other nuisance vegetation. These algae blooms can produce harmful effects to people and aquatic life, limit recreational activities, and reduce the aesthetic quality of lakes.

A significant stressor in the Chain is excessive sedimentation from runoff within the plan are and high rates of lake shoreline erosion, in addition to external sources. The lakes act as a sediment "trap" and deposited materials are rich in nutrients, released under certain conditions and made available for plant and algal growth. These sediments clog navigation channels, impact recreational access and cause management challenges for the Fox Waterway Agency (FWA), the entity responsible for maintaining the Chain.

Stressors

Specific Impairment Causes

Runoff from urban landscaping and agricultural fields contributing to nutrient loading

Lack of filtration due to unimpeded flows of nutrient-rich runoff to streams and lakes

Poor performing septic systems leaching nutrients and bacteria

Shoreline erosion contributing to sediment and nutrients

Re-suspension and internal release from nutrient-rich sediment to the lakes

Challenges to Implementation

Resourcing the Implementation of the Plan

The plan was developed primarily with contracted services from water quality experts and with input from a small group made up of Fox Waterway Agency staff and volunteers. As we transition into implementation the challenge will be getting the right level of resources committed to supporting the implementation of the plan. Within the agency there is currently not funding or capacity to fill this role, so additional funding for resources to support implementation is necessary.

Developing a program to remove sediment rich in nutrients

The plan identified internal loading from sediment rich in nutrients as key contributor to the impairment of the lakes. The Fox Waterway Agency has sediment removal capacity, but that capacity is focused on maintaining navigable waters and there is a backlog of work. Developing additional capacity that would be focused on removal of nutrient rich sediment from other areas in the lake is required.

Funding Projects

The development of the plan was funded by a grant that provided 60% of the funding and the community funded the remaining 40%. The plan has identified many significant projects so our ability to acquire and manage grants with matching funds will impact our ability to execute the plan.

Engaging the Community

Today the Fox Waterway Agency, its board and the advisory committee, along with a few lake groups, are the primary groups focused on improving water quality. The plan is recommending the watershed plan be broadly adopted by the entire community and that opportunities for more volunteering be developed to support the plan.

Specific Challenges

- Coordinating projects and activities across multiple groups of people, organizations and governments.
- Changing policies that don't currently support nutrient, sediment and bacteria reductions.
- Gathering and using water quality data to support project selection and measuring results.
- Building awareness that enables acceptance of change.
- Gaining sponsors for large-scale and expensive projects that require grants and funding.
- Ensuring a large number of individuals to do small-scale projects that will have a cumulative impact.

Watershed Stakeholders

Watershed stakeholders that contributed to the planning process include municipalities, townships, state and county agencies, and the broader community of homeowner associations, businesses, non-profit organizations, institutions, and residents living, working, or with an interest in the planning area

Take Action!

15 in 10

Actions for Stakeholders to Take in the Next Ten Years

HOMEOWNERS

1. Learn about five practices you can do on your property to improve water quality, pick one, and try it.
2. If you have a septic system, learn the signs of trouble, and have routine inspections completed.
3. Volunteer by supporting and participating in education events or conducting water quality monitoring and lake cleanups
4. Advocate for community projects.

SHORELINE OWNERS

1. Identify where shoreline stabilization is needed focusing on critical areas in the plan.
2. Develop and implement plans to stabilize shorelines.

COMMUNITY LEADERS

1. Adopt the watershed-based plan and implement critical priority actions and/or projects.
2. Review stormwater plans for opportunity to slow and filter runoff and budget for water quality improvement projects.
3. Expand the areas served by sanitary sewer systems.

LAKE COMMUNITIES

1. Identify areas susceptible to internal nutrient release and re-suspension of deposited sediments.
2. Develop and implement plans for the prevention of nutrient release or removal of nutrient-rich sediment.

FOX WATERWAY AGENCY AND WATERSHED PLANNING COMMITTEE

1. Coordinate activities to support plan implementation and improvement of water quality.
2. Identify and engage key stakeholders, both within and outside of the planning area.
3. Identify and engage volunteers to assist with education, outreach and monitoring.
4. Lead the expansion of the sediment removal program while partnering with major stakeholders.