



Bavaria Lake Management Plan

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WATER RESOURCES SUPERVISOR

WMOAC MEETING

SEPTEMBER 24, 2024

Tonight's Presentation

- ▶ Review what a Lake Management Plan is
- ▶ Why we are doing this
- ▶ TMDL vs Lake Management Plan
- ▶ Stakeholder Group Process
- ▶ Plan Layout
- ▶ Focus Areas
- ▶ Timeline

What is a Management Plan

- ▶ Lake Management Plan
 - ▶ Sets realistic goals, objectives, and actions
 - ▶ Encourages partnerships
 - ▶ Identifies concerns that are important to residents
- ▶ Living Document

Why we are doing a Management Plan

- ▶ Land use around Lake Bavaria is changing
- ▶ Historical phosphorous trends
- ▶ Impaired for Fish IBI
- ▶ Priority lake

TMDL vs Management Plan

- ▶ Both are similar
 - ▶ Outline watershed
 - ▶ Summary of data
 - ▶ Modeling pollutants
 - ▶ Stakeholder Process
 - ▶ Implementation plan
- ▶ Very different
 - ▶ TMDL is a federally required document
 - ▶ Has specific goals to reach
 - ▶ Sets required reductions
 - ▶ MS4s and NDPES Permit holders have restrictions
 - ▶ Management Plan is stakeholder driven
 - ▶ Outlines how to protect a lake
 - ▶ All actions are voluntary



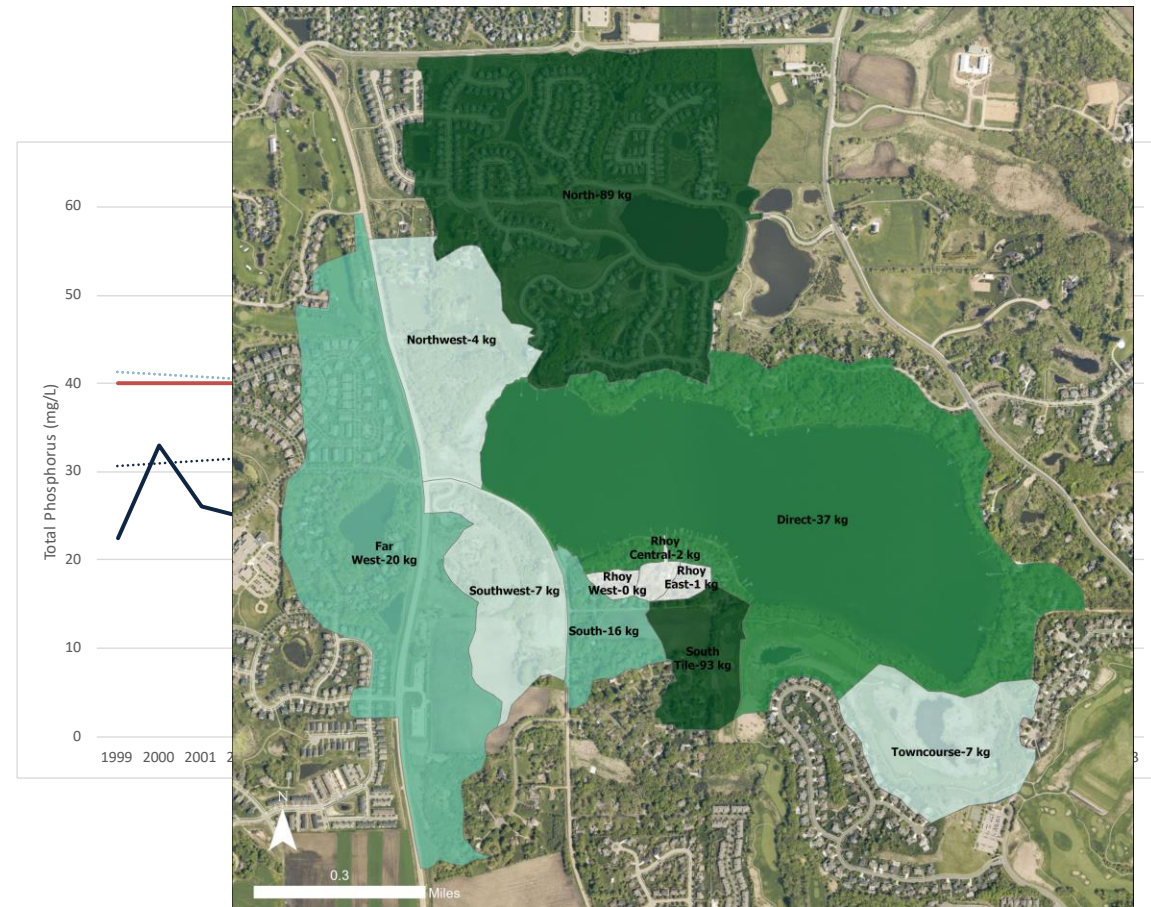
Stakeholder Group Process

- ▶ Convened a stakeholder group
 - ▶ 7 members
- ▶ Tasked with developing an implementation strategy and vision for the lake
 - ▶ Vision
 - ▶ *To preserve and improve Lake Bavaria's water quality and shorelines, creating a healthy, thriving ecosystem for current and future generations through collaborative partnerships, projects, and a commitment to stewardship.*
- ▶ Four meetings over 5 months
- ▶ Helped identify
 - ▶ Concerns
 - ▶ Vision
 - ▶ Goals
 - ▶ Strategies



Plan Layout

- ▶ Background Info
 - ▶ Lake characteristics
 - ▶ Land use
 - ▶ Surveys
 - ▶ Monitoring
 - ▶ Modeling



Plan Layout

- ▶ Implementation Plan
- ▶ Focus Areas, goals, objectives, actions
 - ▶ Goals: General statements (11 Goals)
 - ▶ Objectives: Activities or outputs to track over the long term (31 Objectives)
 - ▶ Actions: Specific tasks and steps (92 Actions)
 - ▶ Water Quality with 38, Fisheries with 8
- ▶ Action Priorities
 - ▶ 4 levels
 - ▶ Occurring now, minimal effort, considerable effort and more than 3 years, end goals

Water Management Plan Connections



Not a stand-alone document



Addresses issues raised by stakeholder groups and Plan Goals

Improving and protecting water quality by addressing concerns about nutrient loads.

Increasing awareness and behavior through education and workshops

Coordinating with stakeholders

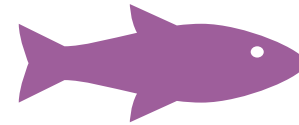
Evaluating effectiveness and progress

Focus Areas



Why

Wide ranging issues
Needed a way to categorize
Easier to find



Areas

AIS
Water Quality
Aquatic Plants
Community Engagement
Fisheries



AIS

- ▶ Aquatic invasive species (AIS) are among the most pressing environmental challenges facing Lake Bavaria, threatening both its natural ecosystems and recreational uses. This management plan places a strong emphasis on preventing new introductions, managing existing infestations, and fostering ongoing education and research to mitigate AIS impacts. The goals for this focus area are centered around preventing new introductions and increasing public awareness and understanding of the impacts of aquatic invasive species.
- ▶ Goals
 - ▶ Prevent new introductions of AIS
 - ▶ AIS Education and Research
- ▶ Example Objectives and Actions
 - ▶ 2nd Generation AIS Plan and engagement of Lake Bavaria stakeholders

Water Quality

- ▶ Residents and lake users have noticed a decline in Lake Bavaria's water quality. This focal area concentrates on continued water quality monitoring on Lake Bavaria and within its watershed. Data will be used to educate staff and residents on current conditions of the lake and it will guide future management actions within the lake and watershed to help improve the water quality of Lake Bavaria.
- ▶ Goals
 - ▶ Education and Research
 - ▶ Native Vegetation Buffers
 - ▶ Decreasing impacts from watershed runoff
- ▶ Example Objectives and Actions
 - ▶ General buffer education initiatives that include shoreline restoration workshops





Aquatic Plants

- ▶ Aquatic plants are essential to the health of Lake Bavaria and key in improving water quality. Recent surveys on Bavaria Lake indicate that the aquatic plant community is healthy and meets state standards as established by the Minnesota Department of Natural Resources (MnDNR). Goals and objectives laid out below are centered around monitoring to track changes, understanding management strategies to reduce impacts to the lake's aquatic plant community, and potential actions to maintain or increase the overall health of the aquatic plant community.
- ▶ Goals
 - ▶ Aquatic Plant Management
 - ▶ Education and Workshops
- ▶ Example Objectives and Actions
 - ▶ Alternative management methods with research on alternative methods.

Community Engagement

- ▶ Community engagement is a key component of the Lake Bavaria Management Plan. Engagement activities will include communications (i.e. newsletters), workshops, annual meetings with stakeholders and the lake association, and more. Activities will be used to increase awareness of water resources, foster stewardship of water resources, and encourage behaviors that will protect and preserve water resources.
- ▶ Goals
 - ▶ Building an active and aware community
 - ▶ Informed and active stakeholder group.
- ▶ Example Objectives and Actions
 - ▶ Lakeshore resident outreach through a Lake Association Annual Meeting



Fisheries



- ▶ Fishing on Bavaria Lake has become one of the top recreational activities and draws a considerable amount of people to the lake. With healthy sunfish, largemouth bass, and northern pike populations, a day fishing on Lake Bavaria can be memorable. However, Lake Bavaria does not meet the state standard for fish index of biological integrity or IBI, meaning the lake lacks more sensitive fish that are normally found in lakes. The following goals outline strategies to track the health of the fish community, increase the awareness of the fisheries to the public, and increase the quality of the fish community.
- ▶ Goals
 - ▶ Understanding the fish ecology of Bavaria Lake
 - ▶ Increase Fish Index of Biological Integrity Score
- ▶ Example Objectives and Actions
 - ▶ Improving habitat with targeted best management projects

Timeline



Staff Request

- ▶ Please review draft implementation plan and offer comments
- ▶ Email any comments to tsundby@carvercountymn.gov

Questions

