MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

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Title: Carp Management Evaluation

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Purpose:
At the September 18, 2024, Citizens Advisory Committee (CAC) Meeting, Minnehaha Creek Watershed District (MCWD or District) staff will provide the CAC with a summary of the Six Mile Creek Halsted Bay Carp Management Program results and an overview on the ongoing evaluation of statewide carp management effectiveness with the University of Minnesota (UMN).

Background:
The Six Mile Creek-Halsted Bay (SMCHB) Subwatershed was identified in 2014 as a focal priority for planning and implementation activities due to its scale, natural resource complexity, planned land use change, and diagnostic assessment findings that identified nutrient and habitat impairments for many of the region's waterbodies. Common carp were identified as one potential driver of these impairments.

SMCHB Habitat Restoration Program

Between 2014 and 2017, MCWD worked with the UMN to complete a comprehensive field assessment of carp population dynamics to understand carp abundance, movement patterns, and spawning areas in the SMCHB Subwatershed. MCWD and its partners used this assessment to develop a data-driven carp management program focusing on three primary management strategies:

1. Remove adult carp
2. Limit carp reproduction by aerating shallow lakes
3. Impede carp migration by constructing barriers

With grant funding from the Lessard-Sams Outdoor Heritage Council (LSOHC), MCWD implemented the management program between 2018 and 2022, successfully limiting carp biomass to at or near the goal of 100 kilograms per hectare across the 14-lake system. However, monitoring suggested that the impacts of carp removal on water quality and aquatic vegetation varied for every lake where carp biomass goals were met. Recognizing the complexities of these ecosystems, MCWD sought to further understand the underlying factors that contribute to carp management effectiveness and determine where targeted implementation of carp management is most effective as a restoration strategy.

Statewide Efforts

Over the past several years, carp management has gained momentum across Minnesota as a strategy to improve vegetation and water quality. Due to the District's regional role and the success of the SMCHB subwatershed management program, MCWD frequently receives requests from various local organizations seeking support for their carp management projects. To address requests in a cohesive way, MCWD connected with state and local agencies to discuss each organization's role in carp management and potential knowledge gaps across the industry. Recognizing a statewide need for greater understanding of when and where carp management is most effective, MCWD, the Minnesota Department of Natural Resources (MNDNR), and the Minnesota Pollution Control Agency (MPCA) have partnered to analyze statewide carp management data and produce a study that will contribute to an industry-wide understanding of the factors that influence the efficacy of carp management on various ecosystem indicators.

To conduct this evaluation, the partners have connected with the UMN, based on their expertise in Aquatic Invasive Species (AIS) research and their experience studying ecological responses to lake management. This analysis will augment MCWD's local data and could provide guidance to water resource managers statewide.

The Carp Management Evaluation by the UMN began in early 2024, and aims to address the following areas of inquiry:

1. The impact of carp management on water quality
2. The effect of carp management on vegetation
3. How lake morphometry (size, deep vs shallow lakes) influences carp management outcomes
4. The influence of hydrology and watershed characteristics (e.g., size, watershed-to-lake area ratio, landcover, waterbody connectivity) on outcomes
5. The effect of pre-removal lake conditions on carp management outcomes

The partners will examine the findings at project milestones to ensure the study addresses the goals of each agency.

MCWD is also working with partners to develop a communications campaign to share the findings from the evaluation with the broader water resource management community. MCWD plans to engage a variety of audiences, including water resource professionals, carp management practitioners, policymakers, and the public, to guide future carp management initiatives.

The final report of the evaluation is expected to be submitted for journal publication in 2025, with additional supporting materials such as factsheets and a project webpage available later this fall.

September 18, 2024, CAC Meeting:

At the September 18, 2024, CAC meeting, staff will ground the CAC in MCWD's learnings from the SMCHB habitat restoration program and share the preliminary findings from the statewide evaluation. Staff will solicit input from the CAC to inform communications regarding carp management effectiveness, and ensure the messaging is clear, impactful, and aligned with the overall goals of carp management initiatives.

CAC members will be asked to consider the following questions:

1. What is your current understanding of carp management as a restoration strategy?
2. What do you think are the most important messages for the public to hear about this study?
3. What would make the findings clearer and more convincing to you or target audiences?
4. How could this information be distributed?