MINNEHAHA CREEK
WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

Meeting: Board of Managers
Meeting date: 11/9/2023
Agenda Item #: 11.2
Request for Board Action

Title:	Authorization to Execute a Memorandum of Understanding (MOU) to Evaluate the Effectiveness of Carp Management as a Watershed Management Strategy in Partnership with the MPCA and DNR
Resolution number:	23-070
Prepared by:	Name: Brian Beck Phone: 952-471-8306 bbeck@minnehahacreek.org
Reviewed by:	Name/Title: Chuck Holtman, MCWD Legal Counsel
Recommended action:	Authorization to Execute Memorandum of Understanding (MOU) with the MPCA and DNR to Study Carp Management Effectiveness

Schedule:	Initiate Project:	Nov-Dec 2023
	Data Analysis:	Jan-Jul 2024
	Report Preparation:	Jul-Nov 2024
	Outreach:	Oct-Dec 2024

Budget considerations: N/A

Past Board action:	Res # 17-036	Title: Authorization to request funding from the Lessard Sams Outdoor Heritage Council

Summary:

Background

In 2014, the Minnehaha Creek Watershed District (MCWD or District) adopted the Six Mile Creek-Halsted Bay (SMCHB) subwatershed as a priority focal geography due to its abundant natural resources, growth and development pressure, and connection to Halsted Bay. Following its adoption, the Board of Managers approved a two-fold analysis to understand the primary system drivers of declining water quality within this geography:

- The SMCHB Diagnostic Study, which analyzed nutrient dynamics across the subwatershed
- The SMCHB Carp Assessment, which, in partnership with the University of Minnesota, identified the population, reproduction dynamics, and age structure of common carp system-wide

In September of 2017, the Lessard Sams Outdoor Heritage Council (LSOHC) recommended the SMCHB Habitat Restoration Project for $567,000 to the Minnesota State Legislature, which approved the appropriation. MCWD utilized the LSOHC grant funds between 2018 and 2022 to implement the three-pronged carp management strategy of prevention of carp reproduction, limiting carp movement, and removal of adult carp from the system. With this work concluding, and many of the management targets for carp population having been met, the District is interested in evaluating the efficacy of this effort, to bring increased focus to where and when it, and other watershed managers, may best apply carp management to improve aquatic vegetation and water quality. MCWD staff are currently summarizing the results in a technical memorandum to document the findings. However, we recognize the value of external perspectives on lake response to carp management.

Partnership with MPCA and DNR

In recent months MCWD staff have engaged with the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Natural Resources (DNR) since they also have a role in carp management. The goal of this potential collaboration is to assess the ecosystem responses to our carp management efforts, delving into aspects such as water quality improvements, vegetation responses, and the various influencing factors on carp management outcomes.

These discussions have highlighted the need to better understand the impact of carp management on vegetation conditions and water quality since no comprehensive assessment has been conducted on the numerous carp management projects that have been implemented throughout the state of Minnesota in the past 10 years. District, DNR, and MPCA staff have discussed each agency's interest in evaluating MCWD's carp management data set, along with other statewide data, to continue to refine their understanding of:

1) The response of water quality to common carp management
2) The response of vegetation to common carp management
3) The influence lake morphometry (size, deep vs shallow lakes) has on carp management outcomes
4) The influence of hydrology and watershed characteristics (size, watershed to lake area ratio, landcover, connectivity) on carp management outcomes
5) The effect of pre-removal water clarity on carp management outcomes

Joint Assessment and Analysis

The MPCA, DNR, and MCWD (partners) see value in memorializing the partnership with a memorandum of understanding that outlines a systematic approach where each agency will bring its unique perspective and data to evaluate MCWD's carp management dataset. The District has allocated $75,000 of its levied funds for 2023 to analyze the outcomes of its carp management program. This collaboration is designed to enhance the capability of each agency to integrate carp management insights into their respective roles effectively.

The District will prepare a comprehensive Scope of Work that will be reviewed by each agency to ensure alignment with the shared goals and individual agency objectives. The partners will retain a technical consultant to conduct a thorough analysis of the impact of carp management on water quality and vegetation in lakes. The partners will examine the findings to ensure the final deliverable addresses the goals of all agencies, allowing for their endorsement.

Timeline and Key Deliverables

The project is slated to be initiated in November-December 2023, with data discovery and compilation, analysis, report preparation, and outreach activities planned sequentially. The DNR, MPCA, or MCWD will present the consultant's findings at relevant conferences, and the District will develop an outreach strategy to local partners to ensure insights and learnings are disseminated to relevant stakeholders.

Conclusions

This collaborative effort marks a significant step towards a data-driven and collaborative approach to 1) identify how effective carp management has been in the Six Mile Creek Halsted Bay Subwatershed and 2) work collaboratively with statewide agencies to understand how to effectively utilize carp management moving forward. The insights gleaned will be instrumental in shaping future strategies, ensuring that they are rooted in empirical data and collaborative insights.

Supporting documents (list attachments):

1. Memorandum of Understanding with the DNR and MPCA

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RESOLUTION

Resolution number: 23-070

Title: Authorization to Execute a Memorandum of Understanding (MOU) to Evaluate the Effectiveness of Carp Management as a Watershed Management Strategy in Partnership with the MPCA and DNR

WHEREAS, The field of water resources has long hypothesized that benthivores, including common carp, negatively impact aquatic vegetation communities in lakes, drive sediment resuspension, and degrade water quality;

WHEREAS, New research in the early 2010's provided a more quantitative relationship between common carp and aquatic vegetation health, establishing strategies for carp management with 100kg/ha as a critical threshold for carp biomass management targets;

WHEREAS, Working in partnership with Dr. Peter Sorenson and other leading University of Minnesota researchers, the District conducted a carp diagnostic study between 2014 and 2017 to quantify carp populations and clarify migratory patterns within the Six Mile Creek-Halsted Bay (SMCHB) Subwatershed – a 27-square mile, 14-lake, focal geography for watershed restoration tributary to Lake Minnetonka;

WHEREAS, Using the diagnostic data and management strategy developed by the University's Minnesota Aquatic Invasive Species Research Center (MAISRC), the District secured $567,000 in legislative funding through the Lessard Sams Outdoor Heritage Council in 2018 to implement a systems-scale carp management program within the SMCHB subwatershed from 2018 to 2023. At the time of implementation, this was one of Minnesota's largest carp management efforts;

WHEREAS, With this work concluding, and many of the management targets for carp population having been met, the District is interested in evaluating the efficacy of this effort, to bring increased focus to where and when it, and other watershed managers, may best apply carp management to improve water quality;

WHEREAS, The DNR also would like to understand ecosystem responses to carp management, in its role of issuing approvals for the management of carp as a regulated invasive species, its broad interest in aquatic vegetation responses to carp management, and its responsibility to weigh both the potential benefits of carp management and its potential impact on native aquatic vegetation. Evaluating the effectiveness of carp management is well aligned with the DNR's strategy of identifying, managing, conserving, restoring, and monitoring to conserve and enhance Minnesota's waters, natural lands, and diverse fish and wildlife habitats;

WHEREAS, The MPCA shares the DNR and District interest in carp management as it relates to lake water quality response. Carp management is often listed as a management strategy within total maximum daily load (TMDL) and Watershed Restoration and Protection Strategy (WRAPS) reports as a means to address internal loading and water quality impairments. The MPCA is interested in better quantifying potential water quality response to common carp, as well as to all watershed and in-lake management actions, with the goal of meeting water quality standards statewide;

WHEREAS, The District collaboration with MPCA and DNR is essential, given the crucial roles of these agencies in identifying common carp as a potential driver of poor conditions and granting permits for carp removal. In 2023, the District has allocated $75,000 of its levied funds to analyze the results of its carp

management program and study the impact of common carp management on water quality and aquatic vegetation conditions. This project, carried out in partnership with MPCA and DNR, is designed to improve each agency's capacity to effectively integrate carp management into its roles; and

WHEREAS, the attached Memorandum of Understanding outlines opportunities to collaboratively study the impact of common carp management on lake ecology to inform how each organization approaches carp management in the future.

NOW, THEREFORE, BE IT RESOLVED that the MCWD Board of Managers hereby authorizes the Administrator to execute the Memorandum of Understanding among MCWD, DNR, and MPCA.

Resolution Number 23-070 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date: 11/9/2023

_____ Date: _____
Secretary

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is established among the Minnesota Department of Natural Resources (DNR), a state agency responsible for managing the state's natural resources, the Minnesota Pollution Control Agency (MPCA), a state agency that monitors environmental quality and enforces environmental regulations, and the Minnehaha Creek Watershed District ("District"), a watershed district and political subdivision operating under Minnesota Statutes Chapters 103B and 103D, tasked with managing and protecting the water resources within the Minnehaha Creek watershed.

A. Background

1. The field of water resources has long hypothesized that benthivores, including common carp, negatively impact aquatic vegetation communities in lakes, drive sediment resuspension, and degrade water quality.

2. New research in the early 2010's provided a more quantitative relationship between common carp and aquatic vegetation health, establishing strategies for carp management with 100kg/ha as a critical threshold for carp biomass management targets.

3. Working in partnership with Dr. Peter Sorenson and other leading University of Minnesota researchers, the District conducted a carp diagnostic study between 2014 and 2017 to quantify carp populations and clarify migratory patterns within the Six Mile Creek-Halsted Bay Subwatershed – a 27-square mile, 14-lake, focal geography for watershed restoration tributary to Lake Minnetonka.

4. Using the diagnostic data and management strategy developed by the University's Minnesota Aquatic Invasive Species Research Center (MAISRC), the District secured $567,000 in legislative funding through the Lessard Sams Outdoor Heritage Council in 2018 to implement a systems-scale carp management program from 2018 to 2023. At the time of implementation, this was one of Minnesota's largest carp management efforts.

5. With this work concluding, and many of the management targets for carp population having been met, the District is interested in evaluating the efficacy of this effort, to bring increased focus to where and when it, and other watershed managers, may best apply carp management to improve water quality.

6. The DNR also would like to understand ecosystem responses to carp management, in its role of issuing approvals for the management of carp as a regulated invasive species, its broad interest in aquatic vegetation responses to carp management, and its responsibility to weigh both the potential benefits of carp management and its potential impact on native aquatic vegetation. Evaluating the effectiveness of carp management is well aligned with the DNR's strategy of identifying, managing, conserving, restoring, and monitoring to conserve and enhance Minnesota's waters, natural lands, and diverse fish and wildlife habitats.

7. The MPCA shares the DNR and District interest in carp management as it relates to lake water quality response. Carp management is often listed as a management strategy within total maximum daily load (TMDL) and Watershed Restoration and Protection Strategy (WRAPS) reports as a means to address internal loading and water quality impairments. The MPCA is interested in better quantifying potential

water quality response to common carp, in addition to all watershed and in-lake management actions, with the goal of meeting water quality standards statewide.

8. District, DNR, and MPCA staff have discussed each agency's interest in evaluating MCWD's carp management data set, along with other statewide data, to continue to refine their understanding of:

A. The response of water quality to common carp management
B. The response of vegetation to common carp management
C. The influence lake morphometry (size, deep vs shallow lakes) has on carp management outcomes
D. The influence of hydrology and watershed characteristics (size, watershed to lake area ratio, landcover, connectivity, and abundance of potential carp spawning habitat) on carp management outcomes
E. The effect of pre-removal water clarity on carp management outcomes

9. The District collaboration with MPCA and DNR is essential, given the crucial roles of these agencies in identifying common carp as a potential driver of poor conditions and granting permits for carp removal. In 2023, the District has allocated $75,000 of its levied funds to analyze the results of its carp management program and study the impact of common carp management on water quality and aquatic vegetation conditions. This project, carried out in partnership with MPCA and DNR, is designed to improve each agency's capacity to effectively integrate carp management into their respective roles.

10. Therefore, the MPCA, the DNR, and the District have agreed to collaborate on this assessment to advance their shared interest in understanding the influence of carp management strategies on water quality and aquatic vegetation, to support their complementary roles in managing the impact of common carp on Minnesota's aquatic ecosystems, and to develop credible analysis for the benefit of watershed managers across the state and elsewhere. The DNR's expertise in managing natural resources, the MPCA's focus on achieving water quality goals, and the District's practical experience and data on carp management form a strong team with goals that are clearly aligned.

B. Partner Roles

1. The District will prepare a Scope of Work ("Scope") to be performed by a retained technical consultant. The DNR and MPCA will review the draft Scope and comment based on their agency's specific goals and needs and the shared goal of sound methodology and rigor. The consultant will assess the effectiveness of common carp management on lakes within the District and across Minnesota where similar programs have been implemented. The District will retain the technical consultant, which it may do by sole source or by other method, in accordance with its judgment of where the expertise for the work lies

2. In preparing the Scope and RFP, the District will consult with the DNR and MPCA to identify relevant data in their possession, including but not limited to:

- For the DNR, carp removal permit documentation, including a list of lakes where carp removals have occurred and removal dates.

- For the MPCA, relevant water quality, lake morphometry, and watershed characteristics data.

The District will supply its aquatic vegetation data, carp biomass and biomass removal data, and water quality data for lakes within its boundaries where carp management has occurred. The Scope will provide also for the consultant, with District support, to obtain carp biomass and aquatic vegetation data from the MAISRC statewide database.

3. The Scope will include a schedule approximately as follows:

Initiate project **November-December 2023**

- The MCWD will select technical consultant.
- The MCWD will develop and execute a contract with the technical consultant.

Data discovery and compilation **January 2024**

- The consultant will compile, characterize, and assess the availability and robustness of carp biomass and biomass removal data and aquatic vegetation data.
- The consultant will present the results of this work to MCWD, DNR and MPCA staff.

Data analysis **January-July 2024**

- The consultant will conduct data analysis as described in the Scope and present findings to MCWD, DNR, and MPCA staff.
- MCWD, DNR, and MPCA staff will review and comment.

Report preparation **July-November 2024**

- The consultant will prepare a draft technical report, executive summary, and appendices.
- MCWD, DNR, and MPCA staff will provide comments.
- The consultant will address comments in a final report.

Outreach **October-December 2024**

- The consultant will present findings at the Minnesota Water Resource Conference and MAISRC Showcase.
- MCWD staff will develop an outreach strategy to local partners that may include web content, updated carp management program print materials, updated Long Lake Roadmap and Six Mile Creek Strategy materials, and sharing of final report and materials with lake associations.

4. The Scope will detail the process for the consultant's execution of the work. In their comments on the draft Scope, the MPCA and DNR will advise as to their desired involvement during the work. This level of involvement will be designed so that the parties are confident that scope, methodology and rigor of the project final report will meet with their approval. The District will stipulate a procedure and schedule in the Scope to accommodate MPCA and DNR involvement as communicated to the District.

5. The District Board will approve the final Scope and method of selecting the technical consultant. Within the framework established by the Board, staff from the District will engage with the DNR and MPCA to define their participation in the process of obtaining the consultant and prepare a recommendation for award to the Board. The Board will award the contract in its discretion.

6. The District will manage and bear the cost of the consultant contract.

7. The District, DNR, and MPCA will jointly review the draft and final reports and provide comments and input in accordance with the Scope. If a party finds that the report is methodologically

sound and conforms to the scope, it will endorse the document by authorizing the placement of its logo on the report to indicate the partnership and the shared commitment to the report's findings and recommendations.

8. The following individuals are the project representatives, and will be responsible for all communications under this MOU. A party may change its representative by notifying the other parties in writing.

DNR

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14. This MOU is effective on execution by both parties, and terminates on December 31, 2024.

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

By: Brian Nerbonne Digitally signed by Brian Nerbonne Date: 2023.11.02 16:04:12 -05'00'
Brian Nerbonne, Regional Fisheries Manager

MINNESOTA POLLUTION CONTROL AGENCY

By: Melissa Lewis
Melissa Lewis, Assistant Division Director

MINNEHAHA CREEK WATERSHED DISTRICT

By: _____
James Wisker, District Administrator