



Lakes Advisory Committee Meeting

Cravath Lakefront room 2nd floor 312 West
Whitewater Str, Whitewater, WI, 53190 *In Person
and Virtual

Wednesday, April 29, 2026 - 4:00 PM

Citizens are welcome (and encouraged) to join our webinar via computer, smart phone, or telephone.
Citizen participation is welcome during topic discussion periods.

<https://teams.microsoft.com/meet/216973048170222?p=fJRSrpQreMogIm3pSH>

Please note that although every effort will be made to provide for virtual participation, unforeseen technical difficulties may prevent this, in which case the meeting may still proceed as long as there is a quorum.

AGENDA

CALL TO ORDER

ROLL CALL

APPROVAL OF AGENDA

A committee member can choose to remove an item from the agenda or rearrange its order; however, introducing new items to the agenda is not allowed. Any proposed changes require a motion, a second, and approval from the Committee to be implemented. The agenda shall be approved at each meeting even if no changes are being made at that meeting.

CONSENT AGENDA

Items on the Consent Agenda will be approved together unless any committee member requests that an item be removed for individual consideration.

1. Lakes Advisory Committee February 25, 2026 Meeting Minutes

HEARING OF CITIZEN COMMENTS

No formal Committee action will be taken during this meeting although issues raised may become a part of a future agenda. Participants are allotted a three minute speaking period. Specific items listed on the agenda may not be discussed at this time; however, citizens are invited to speak to those specific issues at the time the Committee discusses that particular item.

To make a comment during this period, or during any agenda item: On a computer or handheld device, locate the controls on your computer to raise your hand. You may need to move your mouse to see these controls. On a traditional telephone, dial *6 to unmute your phone and dial *9 to raise your hand.

STAFF REPORT

2. Staff Report

CONSIDERATIONS / DISCUSSIONS / REPORTS

- [3.](#) Discussion and possible action of appointment of Mark Dorn to the Lakes Advisory Committee
4. Selection of Chair, Vice Chair
- [5.](#) Discussion and possible action on Lakes Advisory Committee Role
- [6.](#) Discussion and possible action on immediate plan for maintaining and improving water quality and carp impact.
- [7.](#) Discussion and possible action of 2024 Goals Review and Future Goal Setting

FUTURE AGENDA ITEMS**ADJOURNMENT**

A quorum of the Common Council may be present. This notice is given to inform the public that no formal action will be taken at this meeting.

Anyone requiring special arrangements is asked to call the Office of the City Manager / City Clerk (262-473-0102) at least 72 hours prior to the meeting.



**Lakes Advisory Committee Meeting Minutes
Wednesday, February 25, 2025 – 4:00 pm
Cravath Lakefront Room
312 W. Whitewater Street
Whitewater, WI 53190
Hybrid Meeting**

1. Call to Order and Roll Call

Present: Kurt Zip, Orin Smith, Gayle Stettler, Carol McCormick, and Ginny Coburn
Absent: Geoff Hale
Staff: Kevin Boehm and Michelle Dujardin
Guests: Mark Dorn

2. Approval of Agenda

Kurt Zipp requested the delay of Consideration number five until April Meeting: Discussion and possible action of appointment of Mark Dorn to the Lakes Advisory Committee.

Carol McCormick moved to approve agenda with noted changes seconded by Orin Smith: Ayes: Kurt Zip, Orin Smith, Gayle Stettler, Carol McCormick, and Ginny Coburn . Absent: Geoff Hale

3. Approval of Consent Agenda

Carol McCormick moved to approve consent agenda; Resignation of Elvira Kau from Lakes Advisory Committee, Lakes Advisory Committee Minutes November 17, 2025, Execution of Previously Approved Budgeted items: Purchase of Cravath & Trippe Lakes Piers and Spring Fish Stocking, seconded by Orin Smith: Ayes: Kurt Zip, Orin Smith, Gayle Stettler, Carol McCormick, and Ginny Coburn . Absent: Geoff Hale

4. Hearing of Citizen Comments

No Citizens Comments

5. Staff Report

Dujardin reported on fun things happening with the lakes: Lots of ice fishing, Spring fish stocking order placed, aquatic plant management permit for harvesting lanes for submerged aquatic plants in the works. All season piers purchased from Summerset Piers. Cravath fountain and Trippe lake kiosk projects moving forward in planning. Future projects; cattail pulling

competition, free fishing weekend, SEWRPC to return this summer, and clay street nature park receiving one of the old piers.

6. Considerations/Discussions/Reports

- a. Discussion and possible action for application of dredge permit based on the defined shoreline prior to the draw down.**

Kurt Zipp presented item requested asking staff to research the ability to use previous plan to apply for dredge permit to utilize the swamp devil to remove material along the shoreline of both lakes.

- b. Discussion and possible action on cattail pulling competition.**

Dujardin introduced the event. Suggestions given by the board includes; reach out to fraternities, sponsorship for waiters, use canoes to put material in and haul, and contact UWW Student Activity Involvement to see if participating in this event could earn points for Homecoming.

7. Future Agenda Items

- a. Cravath Lake Fountain**
b. In House Kayak Rental Possibility

8. Adjournment

- a. Motioned by Zipp to adjourn. Unanimous voice vote. Adjournment at 4:58 pm.**

Respectfully Submitted,

Michelle Dujardin

Fun Things Happening

- Attended Lakes & Rivers Conference
- Larger presence on social media on lakes
- Swans are out early on Cravath Lake
- Fish Stocking Permits are In, Stocking Dates TBD



Cattail's

Item 2.



- Walton removed cattails that went downstream near the skatepark

Cattail Clean Up

Item 2.



Fun Things Happening on the Lakes- Drone Pictures Taken March 22nd (Cravath Lake)

Item 2.



Fun Things Happening on the Lakes- Drone Pictures Taken April 13th (Trippe Lake)

Item 2.



Photo's From April 17th Heavy Rain

Item 2.



Cravath Fountain- Lake & Pond Solutions

Item 2.



Fountain Price:
\$15,445.49

Airmax Color-Changing
LED Lighting
\$5,084.99

Installation: \$400.00

7 Removal, Clean & Storage:
\$450.00

***PLEASE NOTE:** Cable lengths were measured by a previous City of Whitewater employee. Custom cables cannot be returned so it is important to verify the lengths before ordering.

These are serviceable units in which an oil/seal change is recommended every 2 years after the initial warranty runs out. The oil/seal change runs \$475/unit on the 5HP motors. Bearings can also be replaced as needed, which is done at the Aquamaster facility in Wisconsin and may run approximately \$1,200.

FOUNTAIN INSTALLATION/REMOVAL (IF NEEDED)

We charge a \$65 Basic Service Fee for each visit to the property in addition to the charges below.

Installation	\$400.00 per unit, per occurrence
Removal	\$450.00 per unit, per occurrence (includes cleaning and storage)

Installation: Your electrician will have to provide a suitable structure to mount the control panels and hard-wire them with appropriate power. They should also bury suitable conduit coming from the bottom of the panel to the pond edge for fountain cables (size depends on which unit). We can work directly with your preferred electrician to ensure all power requirements are met. Lake and Pond Solutions, LLC will then assemble and install the fountains using ballast block anchor lines, set timers and perform function checks.

Cattail Pulling Competition Locations



- Permit Application in Process
- Planning Details will be based on upcoming growth
- Event is paired with Food Truck Fest



Where do we go from here.

- Harvesting Permit Approved

State of Wisconsin DNR
Department of Natural Resources
Water Permit Central Intake – attn. APM Mechanical Aquatic Plant Control Permit
PO Box 7185
Madison, WI 53707-7185

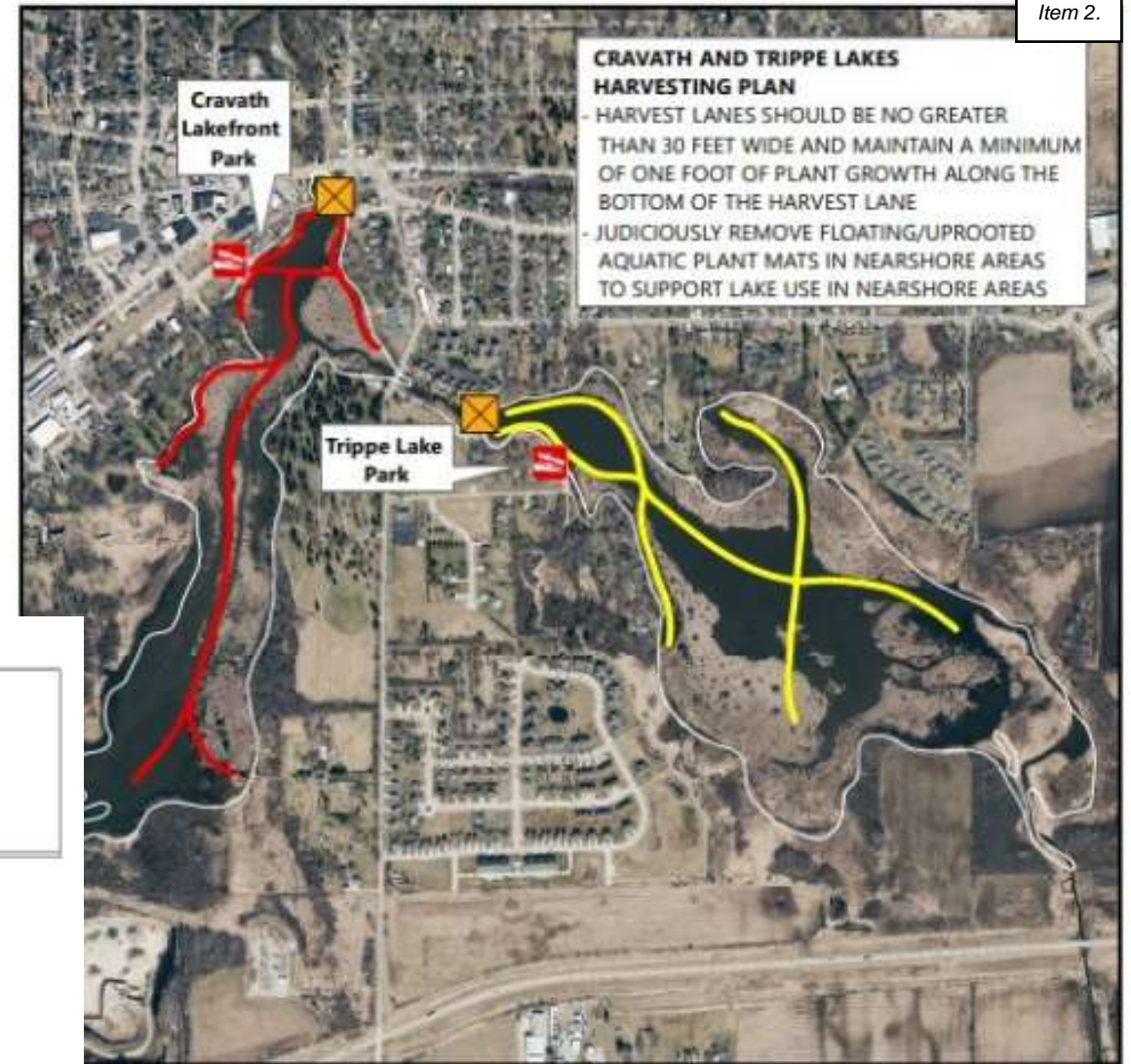
Permit Number: *SE-2026-65-26311M*
Permit Expiration Date: *12/31/2030*
Waterbody Name: *Trippe Lake & Cravath Lake*

Applicant Name: *City of Whitewater*
312 W. Whitewater Street
Whitewater, WI 53190
Email:
Phone:

Waterbody # (WBIC): *815200,816000*
Fee Received: *300*
Waterbody Address: *341 S Fremont Street*

Applicator Name: *Midwest Aquatics LLC*
P.O. Box 617
Oconomowoc, WI 53066
Email: midwestaquatics@sbcglobal.net
Phone: *262-385-5874*

Figure 3.1
Mechanical Harvesting Recommendations in Cravath and Trippe Lakes: 2025-2029



Item 2.

Where do we go from here:

- SEWRPC to return this summer for an updated survey
- Thoughts on goals for 2026:
 - Develop a shoreline best practices campaign (Newsletter, Mailings, Social Media Education)
 - Stormwater awareness- Simple actions for homeowners
 - Evaluate and improve: Signage (Rules Safety) Access points
 - Identify and apply for 1-2 grant (Healthy Lakes Grants)
- Refocus the Committee Itself
 - Create 1-year action plan with 3-5 achievable goals
 - Volunteer at Events: June 7th Reel Fun Fishing



We may not be able to control everything affecting the lake—but we can control how we educate, engage, and improve what's within our reach.

Citizen Service Information Form

This form is used to apply to City of Whitewater Boards, Committees or Commissions.

Date	1/28/2026
------	-----------

Applicant Information

First Name	Mark
------------	------

Last Name	Dorn
-----------	------

Home Address	400 S Rice St Unit 34
--------------	-----------------------

City	Whitewater
------	------------

State	WI
-------	----

Zip Code	53190
----------	-------

Home Phone Number	2627453250
-------------------	------------

Cell Number	2627463250
-------------	------------

Email Address	bizarromsd@gmail.com
---------------	----------------------

Boards/Committees/Commissions of Interest

Select all Boards, Committees & Commissions you are applying for by checking each box:	Parks & Recreation Board, Aquatic Center Committee (ACC)
--	--

Give a brief overview of your background, experience, interest, or concerns pertaining to the selected board(s), committee(s) or commission(s).	Lakes Advisory Committee: I am a 26 year resident of the Village at Trippe Lake condominiums; I'm also VP of their Board of Directors. I have previously served on the city of Whitewater cable TV/social media committee and have been a member of the Whitewater city Council, in the mid 1980s. I also presently have been showing films at seniors in the park for the past 15 years. I have a sincere interest in the maintenance and care of our lakes in the city of Whitewater.
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Optional: Upload supportive documents	<i>Field not completed.</i>
---------------------------------------	-----------------------------

(resume, recommendation letter, etc.)

Indicate whether you are available during the day or the early evening for a short interview with the City Manager & Common Council President. Yes, I would be available.

Business/Employer Information

Business/Employer Name Retired from UW-W. Alumni Diector, 1977- 2007.

Business/Employer Address Field not completed.

City Field not completed.

State Field not completed.

Zip Code Field not completed.

Business/Employer Phone Number Field not completed.

Reference #1 Full Name H. Gaylon Greenhill, Chancellor Emeritus

Reference #1 Address & Phone Number 435 W Starin Rd#301C Whitewater 53190 (262)-473-4466

Reference #2 Full Name Dr. Richard Haney

Reference #2 Address & Phone Number 851 Burr Oak Trail, Whitewater 53190 (262)-473-3181

Regular Board, Committee and Commission members are expected to attend at least three-quarters of the meetings each year. Alternate members are always welcome to attend all meetings, but are not required to attend meetings unless requested.

ORDINANCE No. 2072
AN ORDINANCE CREATING CHAPTER 2.73 LAKE ADVISORY COMMITTEE

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do ordain as follows:

SECTION 1. Whitewater Municipal Code Chapter 2.73 is hereby created to read as follows:

2.73.010 – Lake Advisory Committee

Lake Advisory Committee

Mission Statement: The Lake Advisory Committee is dedicated to preserving and enhancing the health, beauty, and recreational value of the lakes within the City of Whitewater. We strive to provide recommendations and guidance to local authorities, engage the community in lake-related activities, and promote responsible stewardship of our natural resources.

Committee Goals and Objectives:

1. **Lake Health and Water Quality:** Monitor and assess the water quality of local lakes, identify potential threats to their health, and recommend actions to maintain or improve water quality.
2. **Ecosystem Preservation:** Work to protect and restore the natural ecosystems in and around Whitewater's lakes, ensuring the long-term health of local flora and fauna.
3. **Recreational Opportunities:** Encourage safe and accessible recreational opportunities on Whitewater's lakes, including swimming, boating, fishing, and wildlife observation.
4. **Community Engagement:** Foster community awareness and involvement in lake-related issues through educational programs, outreach, and public events.
5. **Policy and Planning:** Collaborate with local government and authorities to develop and recommend policies, ordinances, and plans that promote the sustainable management of lakes and their watersheds.
6. **Research and Data Collection:** Conduct or support research and data collection efforts to better understand lake ecosystems and trends, aiding informed decision-making.

Committee Membership: The Lake Advisory Committee shall consist of up to 5 members and no less than 3 members. There shall be one alternate member appointed to serve. In the event one of the regular members is unable to attend, then the alternate member shall be called upon to attend and shall have full power to act and vote. The city manager and the common council president

shall review the committee applicants and recommend nominees to the common council. After considering the candidates nominated by the city manager and common council president, the common council shall appoint the members of the committee. Members should represent diverse backgrounds, including but not limited to residents, environmental experts, local business owners, and recreational enthusiasts.

Eligibility: To be eligible for membership on the Lake Advisory Committee, an individual must be a resident of the City of Whitewater or have expertise related to lake preservation and enhancement.

Meetings: The committee shall meet on a regular basis, at least once every two months, to discuss ongoing projects, reports, and lake-related issues. Meetings will be open to the public, and citizens are encouraged to attend and participate.

Committee Chair: The Committee members will select a Chairperson from among themselves to lead meetings, coordinate activities, and act as the primary liaison with city officials.

Reporting: The Lake Advisory Committee shall deliver semi-annual updates and reports to the Common Council, sharing information about its activities, findings, and recommendations. If necessary, the Committee may also provide additional updates to the Common Council. These reports will be accessible to the public through the city's website and other communication channels.

Community Partnerships: The Committee shall seek opportunities to collaborate with local organizations, schools, and other stakeholders interested in lake conservation and education.

Term Length: Committee members shall serve staggered terms of three years each, with the possibility of reappointment for up to two additional terms.

Inaugural Meeting: The inaugural meeting of the Lake Advisory Committee shall be scheduled within 30 days of the appointment of its initial members.

Amendment and Review: This charter may be amended as needed with the approval of the Common Council. It will be reviewed periodically to ensure its continued effectiveness in achieving its goals and objectives.

Ordinance introduced by Council Member Allen, who moved its adoption.

Seconded by Council Member Brown.

AYES: Allen, Brown, Dawsey Smith, Hicks, Gerber, Stone, Schreiber
NOES:
ABSENT:

ADOPTED: October 3, 2023

John Weidl, City Manager

Karri Anderberg, City Clerk



Council Agenda Item

Meeting Date:	Lakes Advisory Committee Meeting
Agenda Item:	November 17, 2025
Staff Contact (name, email, phone):	Steven T. Chesebro, schesebro@whitewater-wi.gov , 262-458-2780

BACKGROUND

(Enter the who, what, when, where, why)

A question has been raised regarding the extent to which advisory committee members or the committee itself can direct staff or create policies or procedures. Any committee’s authority is dependent on the method of creating that committee. While some committee’s such as plan commission are directly created by state statute, others can be created from time to time by the common council of a municipality or even by a City Manager. An example of an advisory committee created by statute can be found in Wis. Stat. § 62.23. The authority given to that committee is then dependent on what authority the creator has and what authority the creator bestowed upon the committee. Traditionally advisory committees are given the authority to make reports and recommendations regarding their area of expertise to departments, the City Manager, or the City Council. Advisory committees do not have the ability to directly implement any policies or procedures. Committee members do have some authority to determine what topics are placed on their agenda, especially when doing so as a committee or the chair of the committee who creates the agenda. However, the topics should be within the committee’s authority and follow the standard procedures the City utilizes for creating agendas.

Conclusion

An advisory committee’s authority is purely advisory, in that they can make recommendations and suggest certain actions be carried out. However, in order for City Staff to move forward with those actions it must align with the City’s existing policies or be approved by Common Council or the City Manager.

FINANCIAL IMPACT

(If none, state N/A)

If advisory committees or its members are able to provide direction to staff it could result in staff being provided competing directions or priorities, take away resources from other priorities that have been established by the City or result in time being spent on topics the City does not as a whole wish to support. By having staff receive directions solely from the City Manager or department head the City resources can be used more efficiently.

STAFF RECOMMENDATION

Advisory committees should be providing recommendations to the Common Council, the City Manager, or Department Heads who then should use their discretion and judgment on addressing those issued approved by the Common Council and City Manager.

ATTACHMENT(S) INCLUDED

(If none, state N/A)

None

AQUATIC PLANT MANAGEMENT PLAN FOR CRAVATH AND TRIPPE LAKES

WALWORTH COUNTY, WISCONSIN



**SOUTHEASTERN WISCONSIN
REGIONAL PLANNING COMMISSION**

Kenosha County

John Holloway
Amy Maurer
Robert Pitts

Racine County

Trevor Jung
Tom Kramer
Donald Trottier

Milwaukee County

Donna Brown-Martin,
Vice-Chairperson
Priscilla Coggs-Jones
Michael Maistelman

Walworth County

Charles Colman,
Chairperson
Brian Holt
Mary Knipper

Ozaukee County

Joe Messinger
Natalia Minkel-Dumit
Eric Stelter

Washington County

Katrina Hanson
Jeffrey Schleif
David Stroik, *Treasurer*

Waukesha County

Michael Crowley, *Secretary*
Paul Decker
Dewayne Johnson

**CITY OF WHITEWATER –
LAKE ADVISORY COMMITTEE**

Michelle Dujardin, *City Representative*
Ginny Colburn
Carol McCormick
Geoff Hale
Kurt Zipp
Elvira Kau
Gayle Stettler

CITY OF WHITEWATER

John Weidl, *City Manager*

**WISCONSIN DEPARTMENT
OF NATURAL RESOURCES**

Heidi Bunk, *Water Resources Biologist*

**SOUTHEASTERN WISCONSIN
REGIONAL PLANNING COMMISSION STAFF**

- Stephanie Hacker, AICP, LEED AP Executive Director
- Benjamin McKay, AICP Deputy Director
- Elizabeth Larsen, SPHR, SHRM-SCP Director of Administration
- Christopher Hiebert, PE MPO Director
- Eric Lynde Special Projects Director
- Joel Dietl, AICP Chief Land Use Planner
- Laura Herrick, PE, CFM Chief Environmental Engineer
- Ryan Hoel, PE Chief Transportation Engineer
- Rob Merry, PLS Chief Surveyor
- Nakeisha Payne Chief Community Engagement Specialist
- Thomas Slawski, PhD Chief Biologist

Special acknowledgement is due to Danielle Matuszak MS, Specialist-Biologist; Justin Poinsette, PhD, Principal Specialist-Biologist; Hanna Helker, Intern Biologist; Thomas Slawski, PhD, Chief Biologist; Megan Deau, Principal Graphic Designer for their contributions to the conduct of this study and the preparation of this report. Acknowledgement is also extended to the members of the Lake Advisory Committee for their contributions to the report. Acknowledgement is also extended to the lake monitoring volunteers for their time, efforts, and equipment.

MEMORANDUM REPORT
NUMBER 275

**AQUATIC PLANT MANAGEMENT PLAN FOR
CRAVATH AND TRIPPE LAKES, WALWORTH COUNTY, WISCONSIN**

Prepared by the
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, Wisconsin 53187-1607
www.sewrpc.org

August 2025

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INTRODUCTION

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Credit: Commission Staff

The Southeastern Wisconsin Planning Commission (Commission or SEWRPC) completed this aquatic plant inventory and management study of Cravath and Trippe Lakes (Lakes) on behalf of the City of Whitewater (City). This memorandum report is the Commission's first aquatic plant management plan for Cravath and Trippe Lakes. The Wisconsin Department of Natural Resources (WDNR) will use data and conclusions generated as part of the Commission's study to help evaluate the Lakes' aquatic plant community and draft an updated Aquatic Plant Control permit.

1.1 PROJECT SETTING, BACKGROUND, SCOPE, AND INTENT

Cravath Lake is a 70-acre impounded drainage lake located in the City of Whitewater in Walworth County. It is fed by both Spring Brook and Trippe Lake, and outflows to the Whitewater Creek, to the Bark River, and then to the Rock River (see Map 1.1).¹ Attaining a maximum depth of 10 feet, the Lake can support aquatic plant growth throughout most of its surface area. A 2017 survey performed by Lake and Pond Solutions observed 12 aquatic plant species in the Lake which included several beneficial native species such as Sago pondweed (*Stuckenia pectinata*), Illinois pondweed (*Potamogeton illinoensis*), and American lotus (*Nelumbo lutea*). Invasive aquatic plant species, including Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*) were also observed during the survey.

Trippe Lake is a 212-acre drainage lake also located in the City of Whitewater. It is fed by Whitewater Creek, and outflows into Cravath Lake (see Map 1.1). It has a maximum depth of 8 feet and was previously surveyed by Lake and Pond Solutions in 2017. A total of 16 species were reported, with similar beneficial native species (*Stuckenia pectinata*) as well as non-native invasives (*Potamogeton crispus* and *Myriophyllum spicatum*). Cravath and Trippe lakes underwent a drawdown from 2019 to 2021, followed by dredging and controlled burns in 2022 for management of aquatic plants. The aquatic plant survey conducted for this update was performed in July of 2024 where Commission staff utilized the recommended baseline monitoring protocol employed by the WDNR.²




¹ www.wwparks.org/lakes.

² Hauxwell, J., S. Knight, K. Wagner, A. Mikulyuk, M. Nault, M. Porzky and S. Chase, Recommended Baseline Monitoring of Aquatic Plants in Wisconsin: Sampling Design, Field and Laboratory Procedures, Data Entry and Analysis, and Applications, Wisconsin Department of Natural Resources Bureau of Science Services, Publication No. PUB-SS-1068, 2010.

Map 1.1 Location, Public Access, and Bathymetry of Cravath and Trippe Lakes



Note: Aerial imagery from 2024; Bathymetry depths are from WDNR, Trippe Lake's contours are from 1961 and Cravath Lake's contours are from 1966 and thus may not reflect the current depth of the lakes.

-  PUBLIC BOAT LAUNCH
-  PRIVATE BOAT LAUNCH
-  DAM

0 570 1,140 Feet
Source: SEWRPC and WDNR

The City of Whitewater manages aquatic plant growth on the Lakes to enhance navigation and recreational opportunities. Aquatic plant management is regulated by the WDNR and requires a permit. The City is required to reevaluate the aquatic plant community, update the aquatic plant management plan, and renew the aquatic plant management permit every five years. The City retained the Commission to reevaluate the Lakes' aquatic plant community and update the aquatic plant management plan. This updated plan needs to consider the present status of the aquatic plant community, must identify plant community changes that may have occurred, must examine the potential success or lack of success of the current aquatic plant management strategies, must consider current trends and issues that pertain to aquatic plant management issues and techniques, and must describe the methods and procedures associated with the proposed continuation of aquatic plant management in the Lakes. These efforts are supported through a WDNR NR 193 Surface Water Grant.

This updated aquatic plant management (APM) plan summarizes information and recommendations needed to manage the aquatic plant community of the Lakes. The plan covers four main topics:

- APM Goals and Objectives
- Aquatic Plant Community Changes and Quality
- Aquatic Plant Control Alternatives
- Recommended Aquatic Plant Management Plan

This memorandum focuses upon approaches to monitor and control actively growing nuisance populations of aquatic plants and presents a range of alternatives that could potentially be used to achieve desired APM goals and provides specific recommendations related to each alternative. These data and suggestions can be valuable resources when developing requisite APM permit applications and implementing future aquatic plant management efforts.



Credit: Commission Staff

2.1 AQUATIC PLANT MANAGEMENT GOALS AND OBJECTIVES

Aquatic plant management (APM) programs are designed to further a variety of lake user and riparian landowner goals and desires. For example, most APM programs aim to improve lake navigability. However, APM programs must also be sensitive to other lake uses and must maintain or enhance a lake's ecological integrity. Consequently, APM program objectives are commonly developed in close consultation with many interested parties. The Cravath and Trippe Lakes (Lakes) APM plan considered input from the City of Whitewater (City), Wisconsin Department of Natural Resources (WDNR), and the public. Objectives of the Cravath and Trippe Lakes APM program include the following.

- Effectively control the quantity and density of nuisance aquatic plant growth in well-targeted portions of Cravath and Trippe Lakes. This objective helps:
 - Enhance water-based recreational opportunities,
 - Improve community-perceived aesthetic values, and
 - Maintain or enhance the Lakes' natural resource value.
- Manage the Lakes in an environmentally sensitive manner in conformance with *Wisconsin Administrative Code* standards and requirements under Chapters NR 103, "Water Quality Standards for Wetlands," NR 107, "Aquatic Plant Management," and NR 109, "Aquatic Plants: Introduction, Manual Removal & Mechanical Control Regulations." Following these rules helps the City preserve and enhance the Lakes' water quality, biotic communities, habitat value, and essential structure and relative function in relation to adjacent areas.
- Protect and maintain public health and promote public comfort, convenience, and welfare while safeguarding the Lakes' ecological health through environmentally sound management of vegetation, wildlife, fish, and other aquatic/semi-aquatic organisms in and around the Lakes.

- Promote a high-quality water-based experience for residents and visitors to the Lakes consistent with the policies and practices of the WDNR, as described in the regional water quality management plan, as amended.³

To meet these objectives, the City of Whitewater executed an agreement with the Southeastern Wisconsin Regional Planning Commission (Commission or SEWRPC) to investigate the characteristics of the Lakes and to develop an aquatic plant management plan update. As part of this planning process, surveys of the aquatic plant community and comparison to the previous survey results were conducted. This chapter presents the results of each of these inventories.

2.2 AQUATIC PLANT COMMUNITY COMPOSITION, CHANGE, AND QUALITY

All healthy lakes have plants and native aquatic plants form a foundational part of a lake ecosystem. Aquatic plants form an integral part of the aquatic food web, converting sediments and inorganic nutrients present in the water into organic compounds that are directly available as food to other aquatic organisms. Through photosynthesis, plants utilize energy from sunlight and release the oxygen required by many other aquatic life forms into the water. Aquatic plants also serve several other valuable functions in a lake ecosystem, including:

- Improving water quality by filtering excess nutrients from the water
- Providing habitat for invertebrates, amphibians, reptiles, and fishes
- Stabilizing lake bottom substrates
- Supplying food for waterfowl and various lake-dwelling animals

Even though aquatic plants may hinder human use and/or access to a lake, aquatic plants should not necessarily be eliminated or even significantly reduced in abundance because they often support many other beneficial functions (see Table 2.1). For example, water lilies play a significant role in providing shade, habitat, and food for fish and other important aquatic organisms. They also help prevent damage to the lakeshore by dampening the power of waves that could otherwise erode the shoreline. Additionally, the shade that these plants provide helps reduce the growth of undesirable plants because it limits the amount of sunlight reaching the lake bottom. Given these benefits, large-scale removal of native plants that may be perceived as a nuisance and should be avoided when developing plans for aquatic plant management.

Aquatic Plant Surveys

Aquatic plant inventories have been completed in Cravath and Trippe Lakes in the past to support aquatic plant management permit applications. WDNR surveyed the Lakes' aquatic plants in 2006, followed by Lake and Pond Solutions in 2017 to establish long-term management goals and permitted management of the Lakes. The City has decided to evaluate the Lakes' aquatic plant community and prepare an aquatic plant management plan for the Lakes. The 2017 and 2024 surveys used the same point-intercept grid and methodology (see Figures 2.1 and 2.2).^{4,5,6} In this method, sampling sites are based on predetermined global

³ SEWRPC *Planning Report No. 30*, A Regional Water Quality Management Plan for Southeastern Wisconsin—2000, Volume One, Inventory Findings, *September 1978*, Volume Two, Alternative Plans, *February 1979*, Volume Three, Recommended Plan, *June 1979*, and SEWRPC *Memorandum Report No. 93*, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, *March 1995*.

⁴ *Sampling methodology changed from transect-based methods in 2011 to a point-intercept method beginning with the 2017 survey.*

⁵ R. Jesson and R. Lound, *Minnesota Department of Conservation Game Investigational Report No. 6*, An Evaluation of a Survey Technique for Submerged Aquatic Plants, 1962; as refined in the Memo from S. Nichols to J. Bode, J. Leverence, S. Borman, S. Engel, and D. Hesel, entitled "analysis of Macrophyte Data for Ambient Lakes-Dutch Hollow and Redstone Lakes Example," *Wisconsin Geological and Natural History Survey, University of Wisconsin-Extension, February 4, 1994*.

⁶ J. Hauxwell, S. Knight, K. Wagner, A. Mikulyuk, M. Nault, M. Porzky, and S. Chase, Recommended Baseline Monitoring of Aquatic Plants in Wisconsin: Sampling Design, Field and Laboratory Procedures, Data Entry and Analysis, and Applications, *Wisconsin Department of Natural Resources, Bureau of Science Services, Publication No. PUB-SS-1068 201, March 2010*.

Table 2.1
Examples of Positive Ecological Qualities Associated with a Subset of the Aquatic Plant Species Present or Historically Present in Cravath and Trippe Lakes

Aquatic Plant Species Present	Ecological Significance
<i>Ceratophyllum demersum</i> (coontail)	Provides good shelter for young fish; supports insects valuable as food for fish and ducklings; native
<i>Elodea canadensis</i> (common waterweed)	Provides shelter and support for insects which are valuable as fish food; native
<i>Lemna</i> spp. (duckweeds)	Very nutritious food source for waterfowl; mats can prevent extensive mosquito breeding; native
<i>Myriophyllum spicatum</i> (Eurasian watermilfoil)	None known. Invasive nonnative. Hinders navigation, outcompetes desirable aquatic plants, reduces water circulation, depresses oxygen levels, and reduces fish/invertebrate populations
<i>Nelumbo lutea</i> (American lotus)	Extensive stand provide habitat for wildlife, rhizomes consumed by muskrat and beaver; native
<i>Potamogeton crispus</i> (curly-leaf pondweed)	Adapted to cold water; mid-summer die-off can diminish water quality; invasive nonnative
<i>Potamogeton gramineus</i> (variable pondweed)	The fruit is an important food source for many waterfowl; also provides food for muskrat, deer, and beaver; native
<i>Potamogeton natans</i> (floating-leaf pondweed)	The late-forming fruit provides important food source for ducks; provides good fish habitat due to its shade and foraging opportunities; native
<i>Stuckenia pectinata</i> (Sago pondweed)	This plant is the most important pondweed for ducks, in addition to providing food and shelter for young fish; native

Note: Information obtained from A Manual of Aquatic Plants by Norman C. Fassett, University of Wisconsin Press; Guide to Wisconsin Aquatic Plants, Wisconsin Department of Natural Resources; and, Through the Looking Glass: A Field Guide to Aquatic Plants, Wisconsin Lakes Partnership, University of Wisconsin-Extension.

Source: SEWRPC

positioning system (GPS) location points that are arranged in a grid pattern across the entire surface of a lake. The grid patterns of Cravath and Trippe Lakes consist of 233 points and 305 points, respectively, (provided by WDNR) that allow the types and abundance of aquatic plants to be directly contrasted to prior point-intercept surveys. At each grid point sampling site, a single rake haul is taken and a qualitative assessment of the rake fullness, on a scale of zero to three, is made for each species identified. The same points were sampled using the same techniques in 2017 and 2024. This consistency enables more detailed evaluation of aquatic plant abundance and distribution change than has been possible in the past.

Commission staff conducted the 2024 survey on Cravath and Trippe Lake surveys on July 29th and July 15th-16th, respectively. Conditions during the surveys were adequate, with partly sunny skies and intermittent rain, low wind speeds, and little to no boat traffic. The Lakes' water clarity was low, which may have hindered visual observations of aquatic plant species within six feet of the sampling location. In general, the aquatic plant specimens were mature, and several species were in flower (e.g., white water lily (*Nymphaea odorata*)). In addition to the aquatic plants, Commission staff observed waterfowl, fish, muskrats, and turtles during the survey.

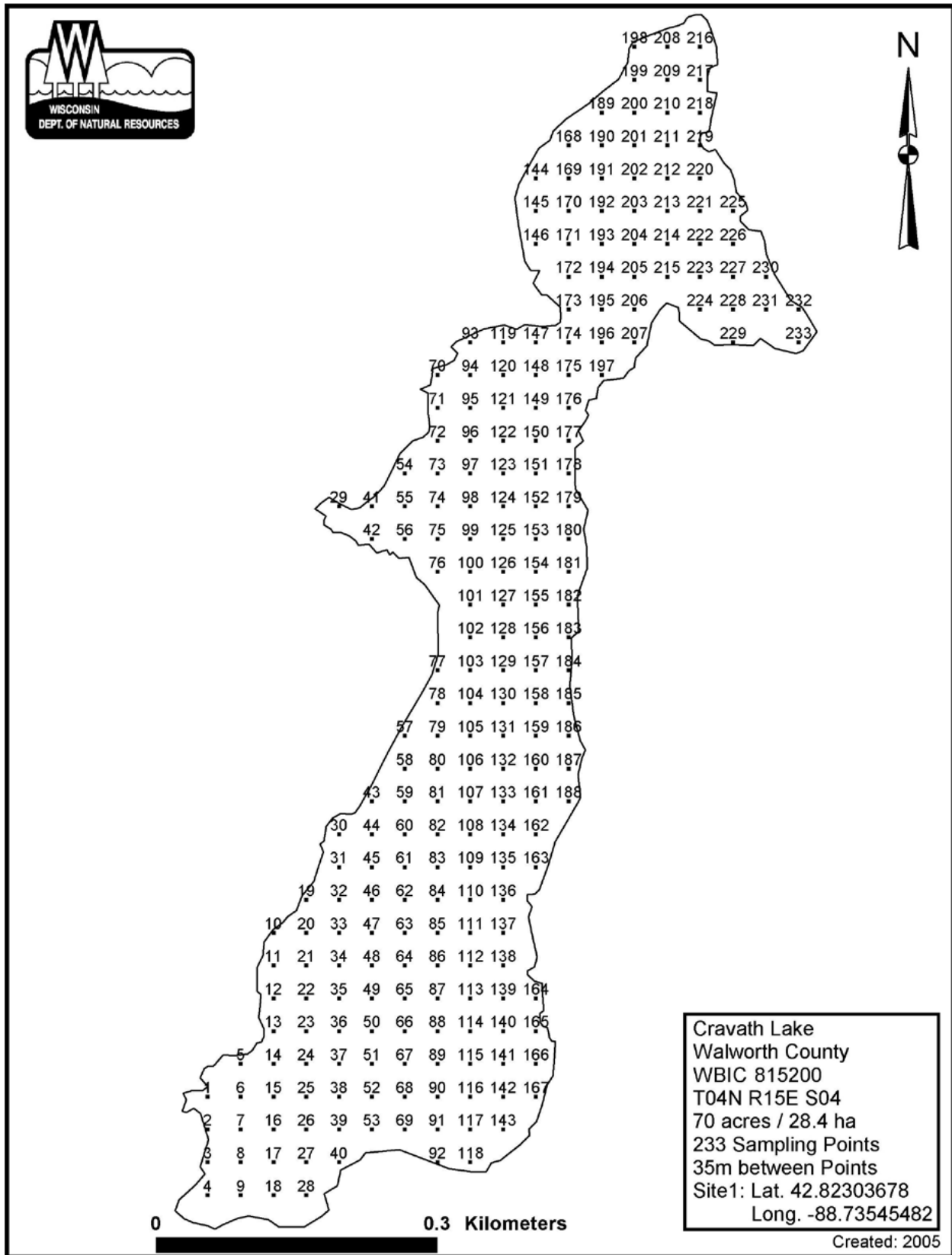
While Commission staff strived to survey as much of the Lakes as feasible, certain areas were not surveyed in 2024 compared to the 2017 survey. These areas included the southern bays of both lakes, as well as large portions near the shorelines that were non-navigable for sampling purposes due to dense cattail growth.⁷ Other points that were not surveyed were either due to points that were deemed to be on shore or near to the dam.

Aquatic Plant Survey Metrics

Each aquatic plant species has preferred habitat conditions in which that species thrives as well as conditions that limit or completely inhibit its growth. For example, water conditions (e.g., depth, clarity, source, alkalinity, and nutrient concentrations), substrate composition, the presence of or absence of water movement, and pressure from herbivory and/or competition all can influence the type of aquatic plants found in a water

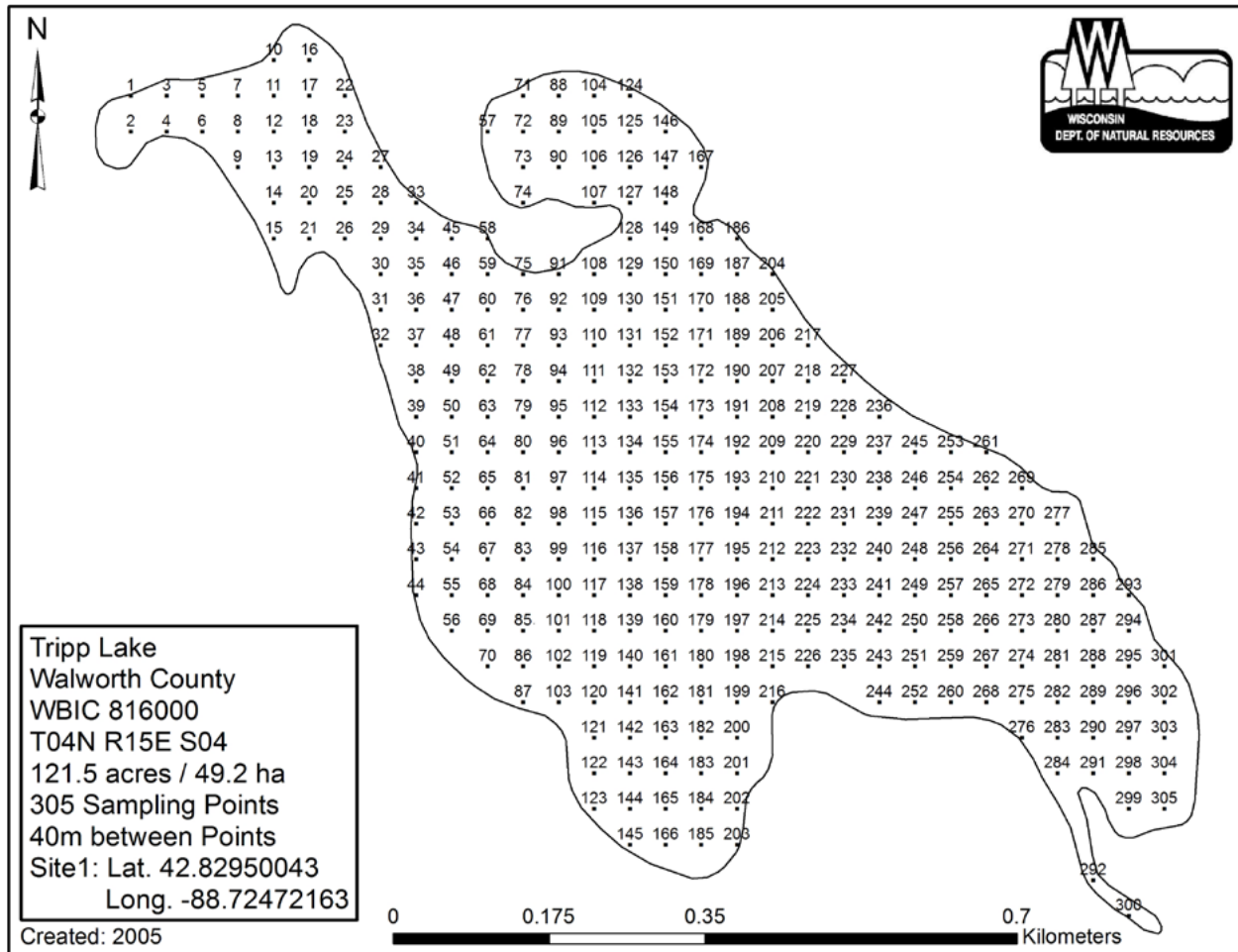
⁷ See Section 2.3 "Past and Present Aquatic Plant Management Practices" and section "Cattails in Trippe and Cravath Lakes for further descriptions of the Lakes' drawdown and subsequent cattail growth.

Figure 2.1
Aquatic Plant Sampling Grid for Cravath Lake



Source: WDNR

Figure 2.2
Aquatic Plant Sampling Grid for Trippe Lake



Source: WDNR

body. All other factors being equal, water bodies with a diverse array of habitat variables are more likely to host a diverse aquatic plant community. For similar reasons, some areas of a particular lake may contain plant communities with low diversity, while other areas of the same lake may exhibit higher diversity. Historically, human manipulation has often favored certain plants and reduced biological diversity (biodiversity). Thoughtful aquatic plant management can help maintain or even enhance aquatic plant biodiversity.

Several metrics are useful to describe aquatic plant community condition and to design management strategies. These metrics include total rake fullness, maximum depth of colonization, species richness, biodiversity, evaluation of sensitive species, and relative species abundance. Metrics derived from the 2017 and 2024 point-intercept surveys are described below.

Cravath Lake

Total Rake Fullness

As described earlier in this section, Commission staff qualitatively rated the plant abundance at each survey point by how much of the sampling rake was covered by all aquatic plant species.⁸ This rating, called total rake fullness, can be a useful metric evaluating general abundance of aquatic plants as part of the point-intercept survey. In the 2024 survey on Cravath Lake the average rake fullness was 1.32 (see Table 2.2 and Figure 2.3). This rake fullness is substantially lower than the average rake fullness of 2.36 recorded in the 2017 survey, indicating that the density of aquatic vegetation has decreased in that time.

⁸ This method follows the standard WDNR protocol.

Table 2.2
Cravath Lake Aquatic Plant Summary Statistics: PI Survey 2024

Statistic	Value
Total number of sites visited	114
Total number of sites with vegetation	94
Total number of sites shallower than maximum depth of plants	114
Frequency of occurrence at sites shallower than maximum depth of plants	82.46
Simpson Diversity Index	0.62
Maximum depth of plants (feet)	7.00
Number of sites sampled using rake on Rope (R)	15
Number of sites sampled using rake on Pole (P)	99
Average number of all species per site (shallower than max depth)	1.49
Average number of all species per site (vegetation sites only)	1.81
Average number of native species per site (shallower than max depth)	1.46
Average number of native species per site (vegetation sites only)	1.78
Species Richness	7
Species Richness (including visuals)	9

Source: SEWRPC

Maximum Depth of Colonization

Maximum depth of colonization (MDC) can be a useful indicator of water quality, as turbid and/or eutrophic (nutrient-rich) lakes generally have shallower MDC than lakes with clear water.⁹ It is important to note that for surveys using the point-intercept protocol, the protocol allows sampling to be discontinued at depths greater than the maximum depth of colonization for vascular plants. However, aquatic moss and macroalgae, such as musk grass and nitella, frequently colonize deeper than vascular plants and thus may be under-sampled in some lakes. For example, *Chara globularis* and *Nitella flexilis* have been found growing as deep as 37 and 35 feet, respectively, in Silver Lake, in Washington County. The MDC in 2024 in Cravath Lake was 7 feet, which was the deepest water depth recorded during the plant survey (see Table 2.2). Thus, the entire lake is shallow enough to support aquatic plant growth.

Species Richness

The number of distinct types of aquatic plants present in a lake is referred to as the species richness of the lake. Larger lakes with diverse lake basin morphology, less human disturbance, and/or healthier, more resilient lake ecosystems have greater species richness. Including visual sightings of aquatic plants, nine species were found in Cravath Lake during the 2024 survey (see Table 2.3). Commission staff saw between zero and five distinct aquatic plant species at individual sampling points on the Lake (see Figure 2.4).

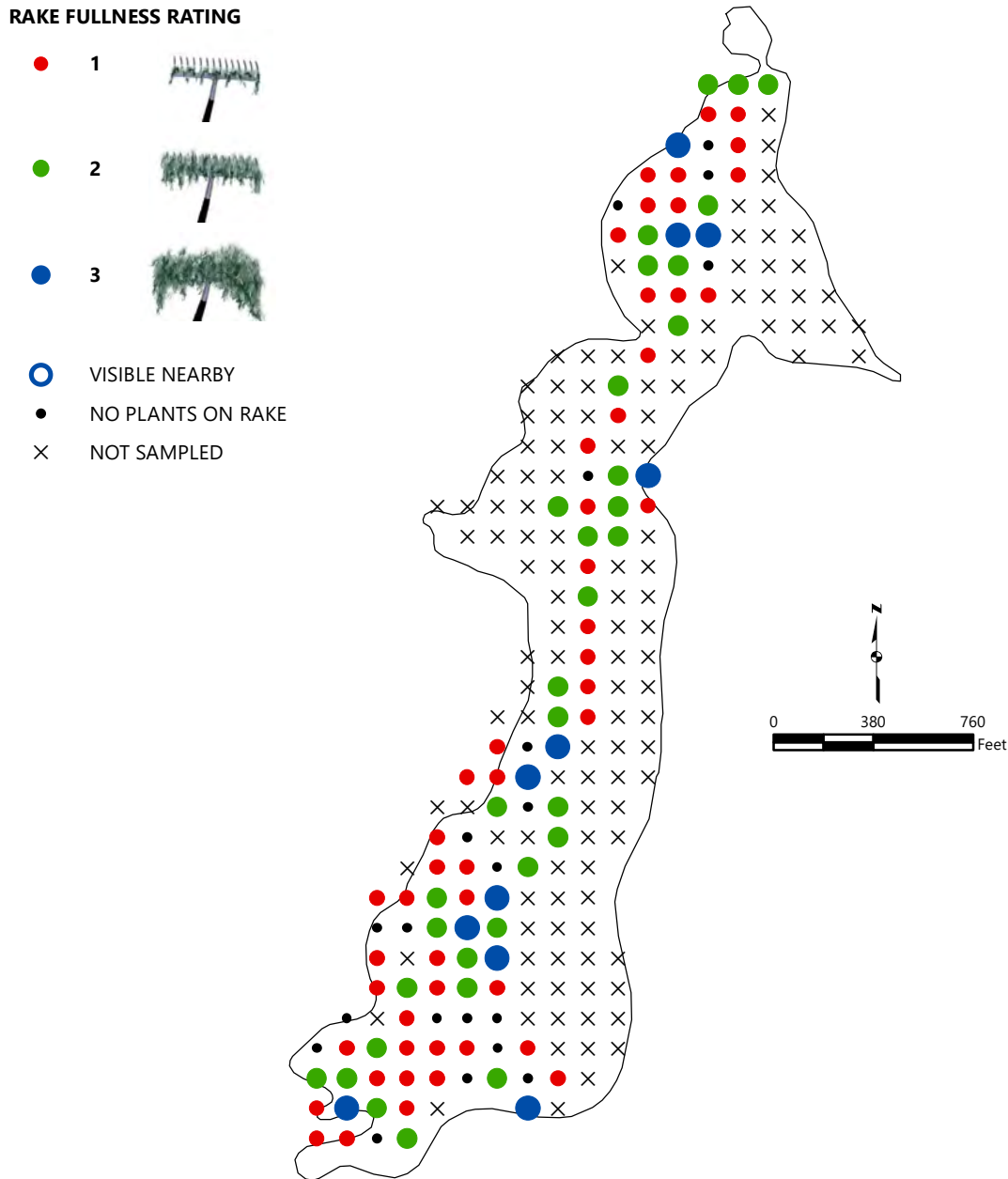
Biodiversity and Species Distribution

Species richness is often incorrectly used as a synonym for biodiversity. The difference in meaning between these terms is both subtle and significant. Biodiversity is based on the number of species present in a habitat along with the abundance of each species. For the purposes of this study, abundance was determined as the percentage of observations of each species compared to the total number of observations made. Aquatic plant biodiversity can be measured with the Simpson Diversity Index (SDI).¹⁰ Using this measure, a community dominated by one or two species would be considered less diverse than one in which several different species have similar abundance. In general, more diverse biological communities are better able to maintain ecological integrity in response to environmental stresses. Promoting biodiversity not only helps sustain an ecosystem but preserves the spectrum of options useful for future management decisions. In 2024, Cravath Lake’s SDI score was 0.62 in contrast to the Lake’s 2017 SDI of 0.82 (see Table 2.2). Commission staff found between zero and 5 species at points within Cravath Lake. Only two points had a species richness of 5 and only 6 points had richness of 4 (see Figure 2.4). With an SDI of 0.62, Cravath Lake has relatively low biodiversity compared to other lakes in Southeastern Wisconsin, which range in SDI values from approximately 0.5 (very low biodiversity) to 0.95 (very high biodiversity).

⁹D.E. Canfield Jr, L. Langeland, and W.T. Haller, “Relations Between Water Transparency and Maximum Depth of Macrophyte Colonization in Lakes,” *Journal of Aquatic Plant Management* 23, 1985.

¹⁰ The SDI expresses values on a zero to one scale where 0 equates to no diversity and 1 equates to infinite diversity.

Figure 2.3
Total Rake Fullness in Cravath Lake: July 2024



Note: Survey was conducted on Cravath Lake on July 29th, 2024.

Source: WDNR and SEWRPC

Sensitive Species

Aquatic plant metrics, such as species richness and the floristic quality index (FQI), can be useful for evaluating lake health. In hard water lakes, such as those common in Southeastern Wisconsin, species richness generally increases with water clarity and decreases with nutrient enrichment.¹¹ The FQI is an assessment metric used to evaluate how closely a lake’s aquatic plant community matches that of undisturbed, pre-settlement conditions.¹² To formulate this metric, Wisconsin aquatic plant species were assigned conservatism (C)

¹¹ Vestergaard, O. and Sand-Jensen, K. “Alkalinity and Trophic State Regulate Aquatic Plant Distribution in Danish Lakes,” *Aquatic Botany* 67, 2000.

¹² S. Nichols, “Floristic Quality Assessment of Wisconsin Lake Plant Communities with Example Applications,” *Lake and Reservoir Management* 15(2), 1999.

Table 2.3
Aquatic Plant Species Observed in Cravath Lake: 2006-2024

Aquatic Plant Species	Native or Invasive	2006	2017	2024
<i>Ceratophyllum demersum</i>	Native	X	X	X
<i>Elodea canadensis</i>	Native	X	X	X
<i>Lemna minor</i>	Native	X	X	X
<i>Myriophyllum spicatum</i>	Invasive	X	X	X
<i>Nelumbo lutea</i>	Native	--	X	--
<i>Nuphar advena</i>	Native	--	X	--
<i>Nuphar variegata</i>	Native	X	--	--
<i>Nymphaea odorata</i>	Native	X	X	X
<i>Potamogeton crispus</i>	Invasive	X	X	X
<i>Potamogeton gramineus</i>	Native	--	X	--
<i>Potamogeton illinoensis</i>	Native	--	X	--
<i>Potamogeton natans</i>	Native	--	X	--
<i>Potamogeton zosteriformis</i>	Native	X	X	--
<i>Sagittaria</i> sp.	Native	--	X	--
<i>Sparganium</i> sp.	Native	X	--	--
<i>Spirodela polyrhiza</i>	Native	X	--	--
<i>Stuckenia pectinata</i>	Native	X	X	X
<i>Typha</i> sp.	Hybrid	--	X	X
<i>Wolffia</i> sp.	Native	--	X	X
Species Total	--	11	16	9

Note: Red text indicates nonnative and/or invasive species.

Source: SEWRPC

values on a scale from zero to ten that reflect the likelihood that each species occurs in undisturbed habitat. These values were assigned based on the species substrate preference, tolerance of water turbidity, water drawdown tolerance, rooting strength, and primary reproductive means. Native “sensitive” species that are intolerant of ecological disturbance receive high C values, while natives that are disturbance tolerant receive low C values. Invasive species are assigned a C value of 0. A lake’s FQI is calculated as the average C value of species identified in the lake, divided by the square root of species richness. In 2024 Cravath Lake had an FQI of 8.5 and an average C value of 3.8, indicating a community tolerant of disturbance.

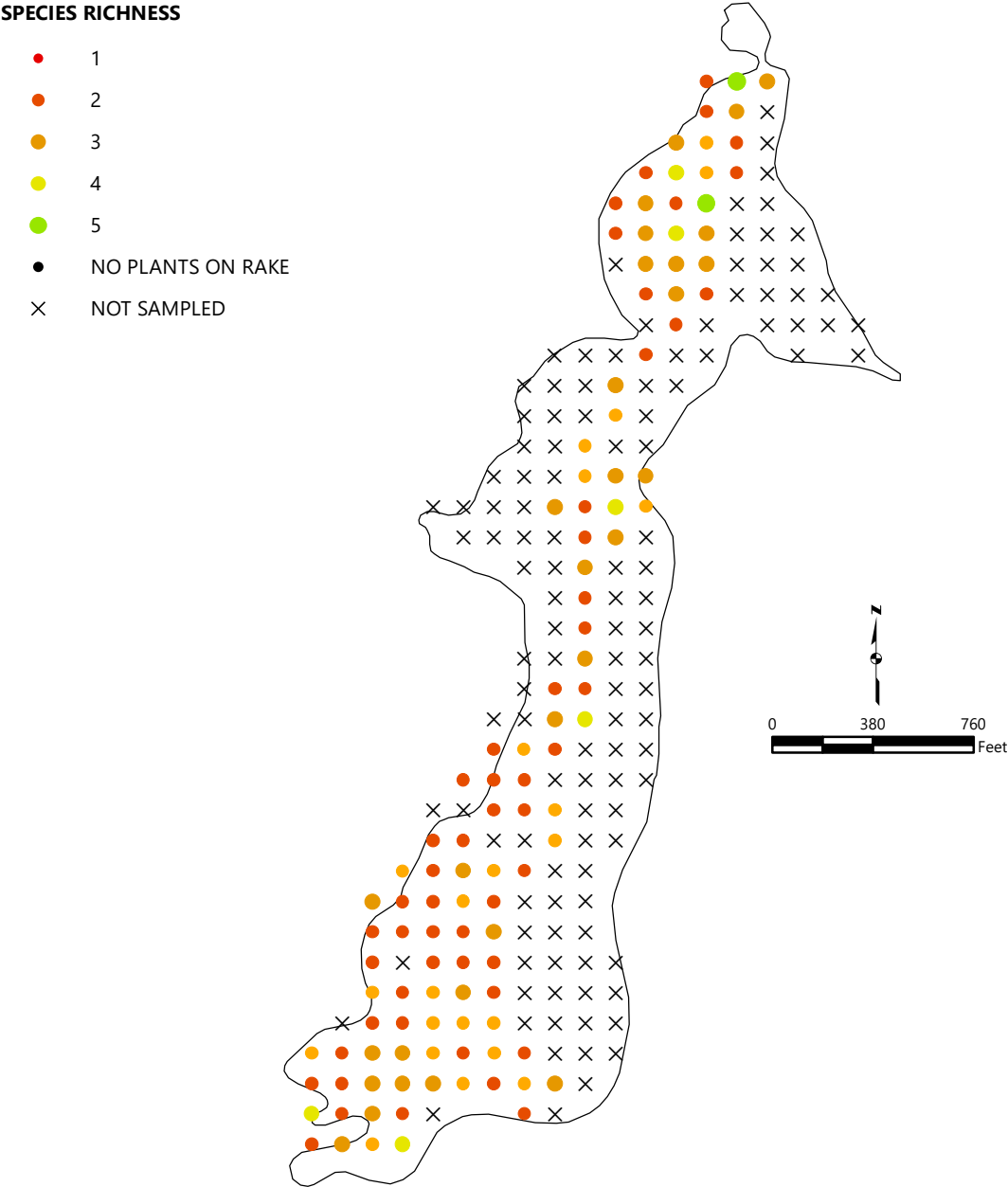
Aquatic plants metrics such as species richness and disturbance tolerance are often used as indicators of the ecological health of a lake due to aquatic plants’ varying sensitivity to human activity. In hard water lakes, such as those common in Southeastern Wisconsin, species richness generally increases with water quality and decreases with nutrient enrichment.¹³ Beginning with the 2024 impairment listing cycle, WDNR began utilizing a model developed to assess lake health by examining its aquatic plant community.¹⁴ This model evaluates whether a lake has been disturbed by human activity using known species sensitivity to disturbance as well as the littoral frequency of occurrence of each species observed on the lake.¹⁵ No sensitive aquatic plant species, as designated by this model, were found in Cravath Lake during the 2024 survey, but several species considered “tolerant” were observed, including EWM, coontail, duckweed, elodea, CLP, Illinois pondweed, Sago pondweed, and watermeal. The lack of sensitive species and the number of tolerant species in the Lake indicates that the water and subsequent plant community are not of high quality.

¹³ Vestergaard and Sand-Jensen, 2000, op. cit.

¹⁴ Mikulyuk, A., M. Barton, J. Hauxwell, C. Hein, E. Kujawa, K. Minahan, M. E. Nault, D. L. Oele, and K. I. Wagner, “A Macrophyte Bioassessment Approach Linking Taxon-specific Tolerance and Abundance in North Temperate Lakes,” Journal of Environmental Management 199: 172-180, 2017.

¹⁵ Disturbance variables in the model included the lake’s nutrient status, specific conductance (a proxy measurement for salt concentrations), and the amount of developed land use (e.g., agriculture, roads, urban lands) within the lake’s watershed.

Figure 2.4
Species Richness in Cravath Lake: July 2024



Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

Relative Species Abundance

In the 2024 survey of Cravath Lake, the five most common aquatic plant species found were: 1) Duckweed (*Lemna* sp.), 2) Coontail (*Ceratophyllum demersum*), 3) Elodea (*Elodea canadensis*), 4) Watermeal (*Wolffia* sp.), and 5) Curly-leaf pondweed (*Potamogeton crispus*) (see Appendix A, Figures A.1-A.5). Duckweed was observed at 112 points across Cravath Lake and could be seen clumping together among the cattail (*Typha* sp.) stands within the Lake. Coontail was found at 81 points across the Lake. Elodea was found at only 13 points in Cravath Lake, primarily located in the southern half of the Lake. Watermeal was found at twelve points in 2024.

Invasive Species

Eurasian Watermilfoil (EWM)

EWM is one of eight milfoil species found in Wisconsin and is the only exotic or nonnative milfoil species. EWM favors mesotrophic to moderately eutrophic waters, fine organic-rich lake-bottom sediment, warmer water with moderate clarity and high alkalinity, and tolerates a wide range of pH and salinity.^{16,17} In Southeastern Wisconsin, EWM can grow rapidly and has few natural enemies to inhibit its growth. Furthermore, it can grow explosively following major environmental disruptions, as small fragments of EWM can grow into entirely new plants.¹⁸ For reasons such as these, EWM can grow to dominate an aquatic plant community in as little as two years.^{19,20} In such cases, EWM can displace native plant species and interfere with the aesthetic and recreational use of waterbodies. However, established populations may rapidly decline after approximately ten to 15 years.²¹

Human-produced EWM fragments (e.g., created by boating through EWM), as well as fragments generated from natural processes (e.g., wind-induced turbulence, animal feeding/disturbance) readily colonize disturbed sites, contributing to EWM spread. EWM fragments can remain buoyant for two to three days in summer and two to six days in fall, with larger fragments remaining buoyant longer than smaller ones.²² The fragments can also cling to boats, trailers, motors, and/or bait buckets where they can remain alive for weeks contributing to transfer of milfoil to other lakes. For these reasons, it is especially important to remove all vegetation from boats, trailers, and other equipment after removing them from the water and prior to launching in other waterbodies.

During the 2024 survey of Cravath Lake, Commission staff found EWM at 3 points across the Lake (see Appendix A, Figure A.6). All three points with EWM were located on the northern end of the lake, nearest to Cravath Lakefront Park and the outlet of the Lake. EWM was not found anywhere else in the lake. Two of the three points had a rake fullness of one and one point had a rake fullness of two.

Curly-Leaf Pondweed (CLP)

Curly-leaf pondweed, like Eurasian watermilfoil, is identified in Chapter NR 109 of the Wisconsin Administrative Code as a nonnative invasive aquatic plant. Although survey data suggests it presently is only a relatively minor species in terms of dominance, and, as such, is less likely to interfere with recreational boating activities, the plant can grow dense strands that exclude other high value aquatic plants. For this reason, curly-leaf pondweed must continue to be monitored and managed as an invasive member of the aquatic community. Lastly, it must be remembered that curly-leaf pondweed senesces by midsummer and therefore may be underrepresented in the inventory data presented in this report.

During the 2024 survey of Cravath Lake, Commission staff did not find CLP on the rake at any points across the Lake (see Appendix A, Figure A.5). It was, however, seen as a visual observation at four points at the southern end of the Lake. CLP was not found anywhere else in the lake.

Apparent Changes in Cravath Lake's Observed Aquatic Plant Communities: 2017 Versus 2024

The 2024 aquatic plant survey identified a total of nine different plant species including visual observations, half of the 18 species found in the 2017 aquatic plant survey. Thus, it is evident that Cravath Lake has lost some of the diversity of its aquatic plant community following the 2019 to 2021 drawdown.

¹⁶ U.S. Forest Service, *Pacific Islands Ecosystems at Risk (PIER)*, 2019.: hear.org/pier/species/myriophyllum_spicatum.htm.

¹⁷ S.A. Nichols and B. H. Shaw, "Ecological Life Histories of the Three Aquatic Nuisance Plants: *Myriophyllum spicatum*, *Potamogeton crispus*, and *Elodea canadensis*," *Hydrobiologia* 131(1), 1986.

¹⁸ Ibid.

¹⁹ S.R. Carpenter, "The Decline of *Myriophyllum spicatum* in Eutrophic Wisconsin (USA) Lake," *Canadian Journal of Botany* 58(5), 1980.

²⁰ Les, D. H., and L. J. Mehrhoff, "Introduction of Nonindigenous Vascular Plants in Southern New England: a Historical Perspective," *Biological Invasions* 1:284-300, 1999.

²¹ S.R. Carpenter, 1980, *op. cit.*

²² J.D. Wood and M. D. Netherland, "How Long Do Shoot Fragments of *Hydrilla* (*Hydrilla verticillata*) and Eurasian Watermilfoil (*Myriophyllum spicatum*) Remain Buoyant?," *Journal of Aquatic Plant Management* 55: 76-82, 2017.

In addition to the number of different aquatic plant species detected in the Lake, several other comparisons can be drawn between the 2017 and 2024 aquatic plant survey results, as examined below.

- The total littoral vegetated frequency of occurrence decreased by 17.5 percent from 2017 to 2024. It was 82.5 percent in 2024 compared to 100 percent in 2017 (see Table 2.2).
- The MDC in Cravath Lake during the 2024 survey was 7 feet, 1.5 feet deeper than the 2017 survey, where the MDC was 5.5 feet (see Table 2.2). However, this increase is likely due to the increase in the Lake's water depth as the lake was dredged during the 2019 to 2021 drawdown. In both the 2017 and 2024 surveys, the MDC equals the maximum water depth for the lake indicating that aquatic plants are able to grow across the entire waterbody.
- The composition and order of the five most common species changed from 2017 to 2024. Three of the 5 top most common species remained the same but the other two most common species changed. In 2024 the five were 1) duckweed, 2) coontail, 3) elodea, 4) watermeal, and 5) curly-leaf pondweed. In 2017 the five most common species were 1) duckweed, 2) coontail, 3) watermeal, 4) white water lily (*Nymphaea odorata*), and 5) Eurasian watermilfoil.
- Several native aquatic plant species have small populations within Cravath Lake including white water lily and sago pondweed (*Stuckenia pectinata*), both of which were found at less than 10 points across the Lake (see Table 2.4).
- EWM occurrence decreased greatly between 2017 and 2024. It was found at 98 points in 2017 and three sites in 2024 with an additional 21 visual sightings in 2017 and zero in 2024 (see Table 2.4 and Figure 2.5).
- CLP occurrence also decrease with it being found at zero points in 2024 compared to the 27 in 2017. There were 39 additional visual sightings in 2017 and only four sightings in 2024 (see Table 2.4 and Figure 2.6).

It should be noted that the City completed a multi-year drawdown to reduce aquatic invasive species on Cravath Lake.²³ Based on the minimal EWM and CLP found in Cravath Lake in 2024 compared to 2017, it can be concluded that the drawdown was successful in reducing invasive species populations in the Lake.

As was described earlier, sensitive aquatic plant species are the most vulnerable to human disturbance. Therefore, changes in sensitive species abundance can indicate the general magnitude of human disturbance derived stress on a waterbody's ecosystem. Overall, the sensitive species richness decreased between 2017 and 2024. The sensitive aquatic plant, variable pondweed (*Potamogeton gramineus*), was the only sensitive species found during the 2017 survey and was found at nine points on the Lake. No sensitive species were found in 2024. There are varying reasons that the loss of sensitive plant species can be attributed to including: lake drawdown, increased pollutants, competition by more tolerate plants species, or human disturbances.

Trippe Lake

Aquatic Plant Survey Metrics

In the 2024 survey on Trippe Lake the average rake fullness was 1.29 (see Table 2.5 and Figure 2.7). This rake fullness is slightly lower than Cravath and significantly lower than the 2017 survey of Trippe Lake, indicating that the aquatic plant density has declined following the drawdown. The MDC in 2024 in Trippe Lake was six feet (see Table 2.5). Considering that Trippe Lake reaches a maximum depth of eight feet in only one small portion of the lake, the MDC indicates that aquatic plants can colonize the vast majority of the lake bottom.

During the 2024 survey of Trippe Lake, including visual observations, 12 species of aquatic plants were documented (see Table 2.6). Commission staff found between zero and six individual species at a single point on the Lake (see Figure 2.8) In 2024, Trippe Lake's SDI score was 0.80 (see Table 2.5), up from its 2017 SDI of 0.75, indicating relatively good biodiversity of aquatic plants in the Lake.

²³ See Section 2.3 "Past and Present Aquatic Plant Management Practices" for more information on the drawdown of Cravath and Trippe Lakes by the City of Whitewater.

**Table 2.4
Cravath Lake Aquatic Plant Survey Summary: July 2017 Versus July 2024**

Aquatic Plant Species	Native or Invasive	Number of Sites Found ^a (2017/2024)	Frequency of Occurrence Within Vegetated Areas ^b (2017/2024)	Average Rake Fullness ^c (2017/2024)	Relative Frequency of Occurrence ^d (2017/2024)	Visual Sightings ^e (2017/2024)
<i>Ceratophyllum demersum</i> (coontail)	Native	200/67	95.69/71.28	2.20/1.57	23.6/39.4	1/14
<i>Elodea canadensis</i> (waterweed)	Native	74/12	35.41/12.77	1.27/1.17	8.7/7.1	14/1
<i>Lemna minor</i> (duckweed)	Native	193/79	92.34/84.04	1.71/1.42	22.8/46.5	12/33
<i>Myriophyllum spicatum</i> (Eurasian watermilfoil)	Invasive	98/3	46.89/3.19	1.35/1.33	11.6/1.8	21/0
<i>Nelumbo lutea</i> (American lotus)	Native	3/--	1.44/--	1.67/--	0.4/--	3/--
<i>Nuphar advena</i> (Yellow pond-lily) ^f	Native	0/--	0/--	0/--	0/--	26/--
<i>Nymphaea odorata</i> (white water lily)	Native	53/1	25.36/1.06	1.43/1.00	6.3/0.6	88/5
<i>Potamogeton crispus</i> (curly-leaf pondweed)	Invasive	27/0	12.92/0	1.04/0	3.2/0	39/4
<i>Potamogeton gramineus</i> (variable pondweed)	Native	2/--	0.96/--	1.00/--	0.2/--	7/--
<i>Potamogeton illinoensis</i> (Illinois pondweed) ^g	Native	0/--	0/--	0/--	0/--	1/--
<i>Potamogeton natans</i> (floating-leaf pondweed)	Native	0/--	0/--	0/--	0/--	4/--
<i>Potamogeton zosteriformis</i> (flat-stem pondweed)	Native	5/--	2.39/--	1.00/--	0.6/--	4/--
<i>Sagittaria</i> sp. (arrowhead)	Native	1/--	0.48/--	1.00/--	0.1/--	5/--
<i>Stuckenia pectinata</i> (Sago pondweed) ^g	Native	14/1	6.70/1.06	1.00/1.00	1.7/0.6	36/8
<i>Typha</i> sp. (cattail)	Native	0/0	0/0	0/0	0/0	33/14
<i>Wolffia</i> sp. (watermeal)	Native	178/7	85.17/7.45	1.63/1.14	21.0/4.1	10/5

Note: Sampling occurred at 114 sampling sites on July 29th, 2024. 94 of the 114 surveyed sites had vegetation. Red text indicates non-native and/or invasive species.

^a Number of Sites refers to the number of sites at which the species was retrieved and identified on the rake during sampling.

^b Frequency of Occurrence, expressed as a percent, is the percentage of times a particular species occurred when there was aquatic vegetation present at the sampling site.

^c Average rake fullness is the average amount, on a scale of 0 to 3, of a particular species at each site where that species was retrieved by the rake.

^d Relative Frequency of Occurrence, expressed as a percent, is the frequency of that particular species compared to the frequencies of all species present.

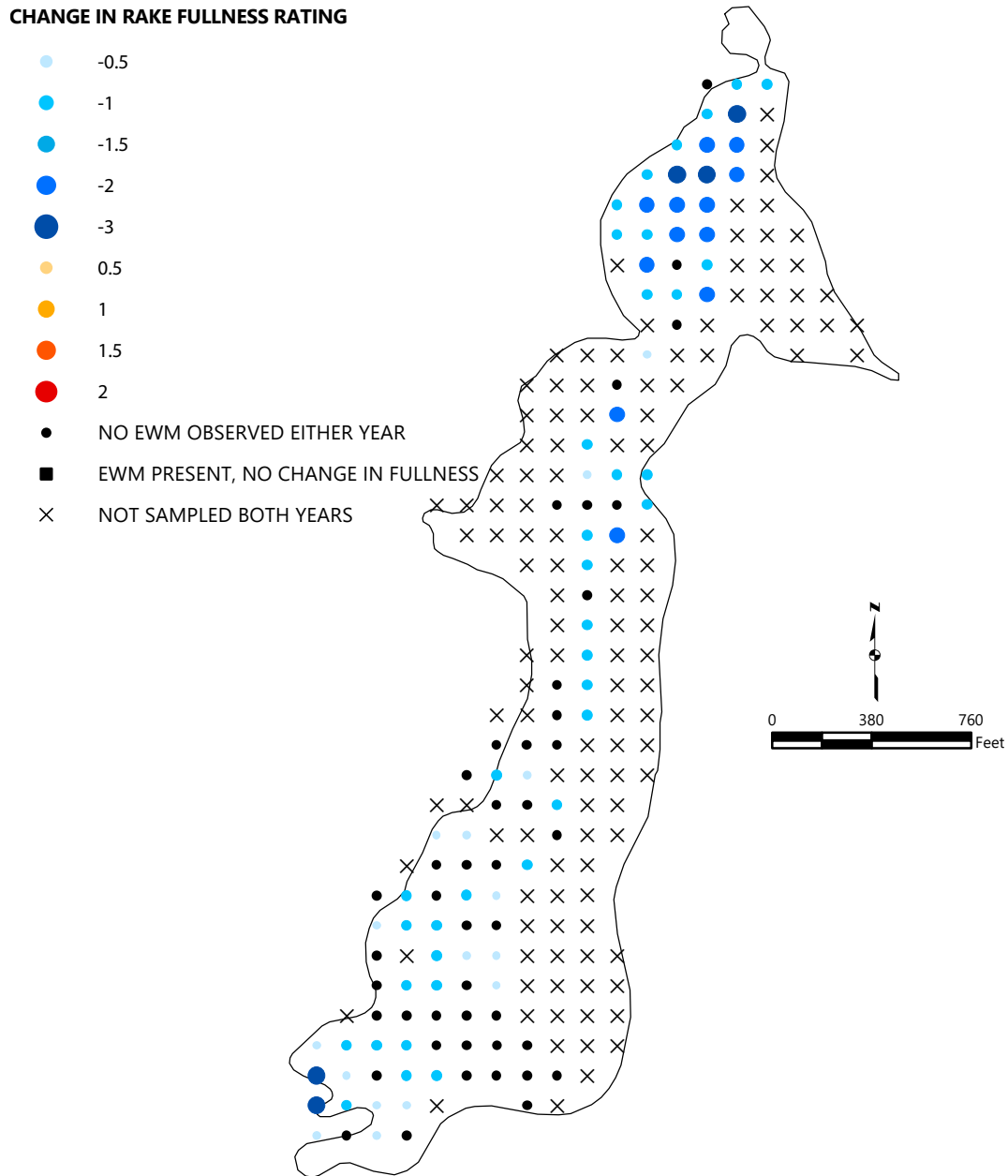
^e Visual Sightings is the number of sites where that particular species was visually observed within six feet of the actual rake haul location but was not actually retrieved on the rake and was not, therefore, assigned a rake fullness measurement for that site. At sites where this occurred, the species was simply marked as "present" at that site. Recording the number of visual sightings helps give a better picture of species distribution throughout the lake.

^f Designated as a Species of Special Concern by the WDNR Natural Heritage Inventory.

^g Considered a high-value aquatic plant species known to offer important values in specific aquatic ecosystems under Section NR 107.08 (4) of the Wisconsin Administrative Code.

Source: WDNR and SEWRPC

Figure 2.5
Change in Eurasian Watermilfoil Total Rake Fullness in Cravath Lake: 2017-2024



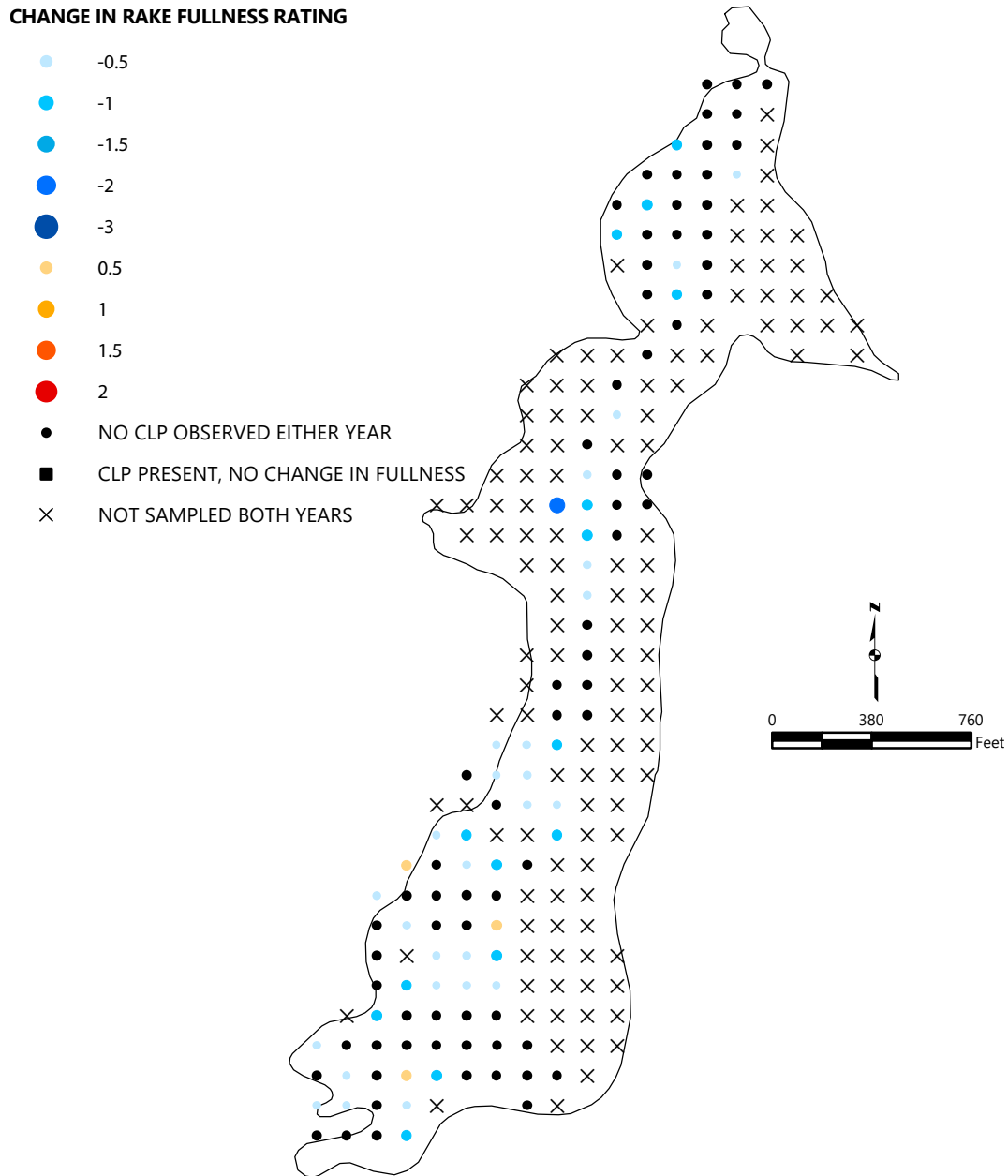
Note: Survey was conducted on Cravath Lake on July 29th, 2024.

Source: WDNR and SEWRPC

Sensitive Species

In 2024, Trippe Lake’s FQI was 11.67, with a mean C value of 4.1 within the Lake. Although higher than Cravath Lake, these values are still lower than many lakes in southeastern Wisconsin as FQI within the Region ranges from 6.9 (poor) to 34 (excellent) while the mean C ranges from 4.0 (poor) to 7.5 (excellent). Many of the other low-scoring lakes within southeastern Wisconsin, such as Lake Comus and Honey Lake in Walworth County, are also stream impoundments.

Figure 2.6
Change in Curly-Leaf Pondweed Total Rake Fullness in Cravath Lake: 2017-2024



Note: Survey was conducted on Cravath Lake on July 29th, 2024.

Source: WDNR and SEWRPC

Similar to Cravath Lake, no sensitive aquatic plant species as described in Mikulyuk et al.²⁴, were found in Trippe Lake during the 2024 survey. However, several of the same tolerant species were observed. Sensitive plants species are more susceptible to pollution and human disturbances in the lake. The lack of sensitive species in the Lake indicates that the water and subsequent plant community are not of high quality. This can also be an indicator of high human disturbance and/or pollution in the Lake.

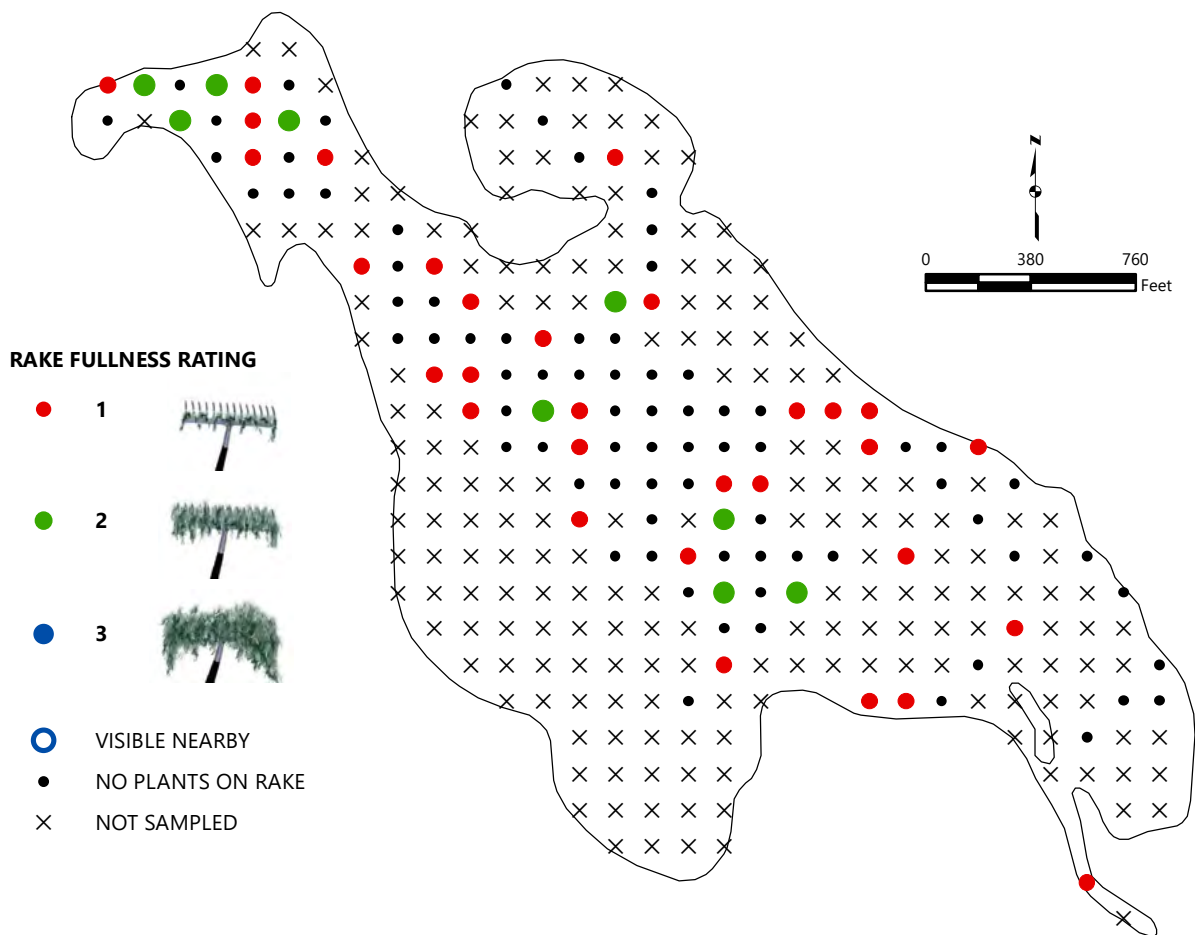
²⁴ Mikulyuk, A.M., et al., "A Macrophyte Bioassessment Approach Linking Taxon-Specific Tolerance and Abundance in North Temperate Lakes," *Journal of Environmental Management* 199: 172-180, 2017.

Table 2.5
Trippe Lake Aquatic Plant Summary Statistics: PI Survey 2024

Statistic	Value
Total number of sites visited	116
Total number of sites with vegetation	39
Total number of sites shallower than maximum depth of plants	116
Frequency of occurrence at sites shallower than maximum depth of plants	33.62
Simpson Diversity Index	0.80
Maximum depth of plants (feet)	6.00
Number of sites sampled using rake on Rope (R)	25
Number of sites sampled using rake on Pole (P)	91
Average number of all species per site (shallower than max depth)	0.49
Average number of all species per site (vegetation sites only)	1.46
Average number of native species per site (shallower than max depth)	0.39
Average number of native species per site (vegetation sites only)	1.29
Species Richness	9
Species Richness (including visuals)	13

Source: SEWRPC

Figure 2.7
Total Rake Fullness on Trippe Lake: July 2024



Note: Survey was conducted on Trippe Lake on July 15th-16th, 2024.

Source: WDNR and SEWRPC

Table 2.6
Aquatic Plant Species Observed in Trippe Lake: 2017-2024

Aquatic Plant Species	Native or Invasive	2017	2024
<i>Ceratophyllum demersum</i>	Native	X	X
<i>Elodea canadensis</i>	Native	X	X
<i>Lemna minor</i>	Native	X	X
<i>Myriophyllum spicatum</i>	Invasive	X	--
<i>Nelumbo lutea</i>	Native	X	X
<i>Nuphar advena</i>	Native	X	--
<i>Nuphar variegata</i>	Native	--	X
<i>Nymphaea odorata</i>	Native	X	X
<i>Potamogeton crispus</i>	Invasive	X	X
<i>Potamogeton foliosus</i>	Native	X	--
<i>Potamogeton gramineus</i>	Native	X	--
<i>Potamogeton illinoensis</i>	Native	X	--
<i>Potamogeton natans</i>	Native	X	--
<i>Potamogeton nodosus</i>	Native	X	--
<i>Potamogeton zosteriformis</i>	Native	X	--
<i>Sagittaria</i> sp.	Native	X	--
<i>Sparganium</i> sp.	Native	--	X
<i>Schoenoplectus</i> sp.	Native	--	X
<i>Spirodela polyrhiza</i>	Native	X	--
<i>Stuckenia pectinata</i>	Native	X	X
<i>Typha</i> sp.	Hybrid	X	X
<i>Vallisneria americana</i>	Native	X	--
<i>Wolffia</i> sp.	Native	X	X
<i>Zizania</i> sp.	Native	X	--
Species Total	--	21	12

Note: Red text indicates nonnative and/or invasive species.

Source: SEWRPC

Relative Species Abundance

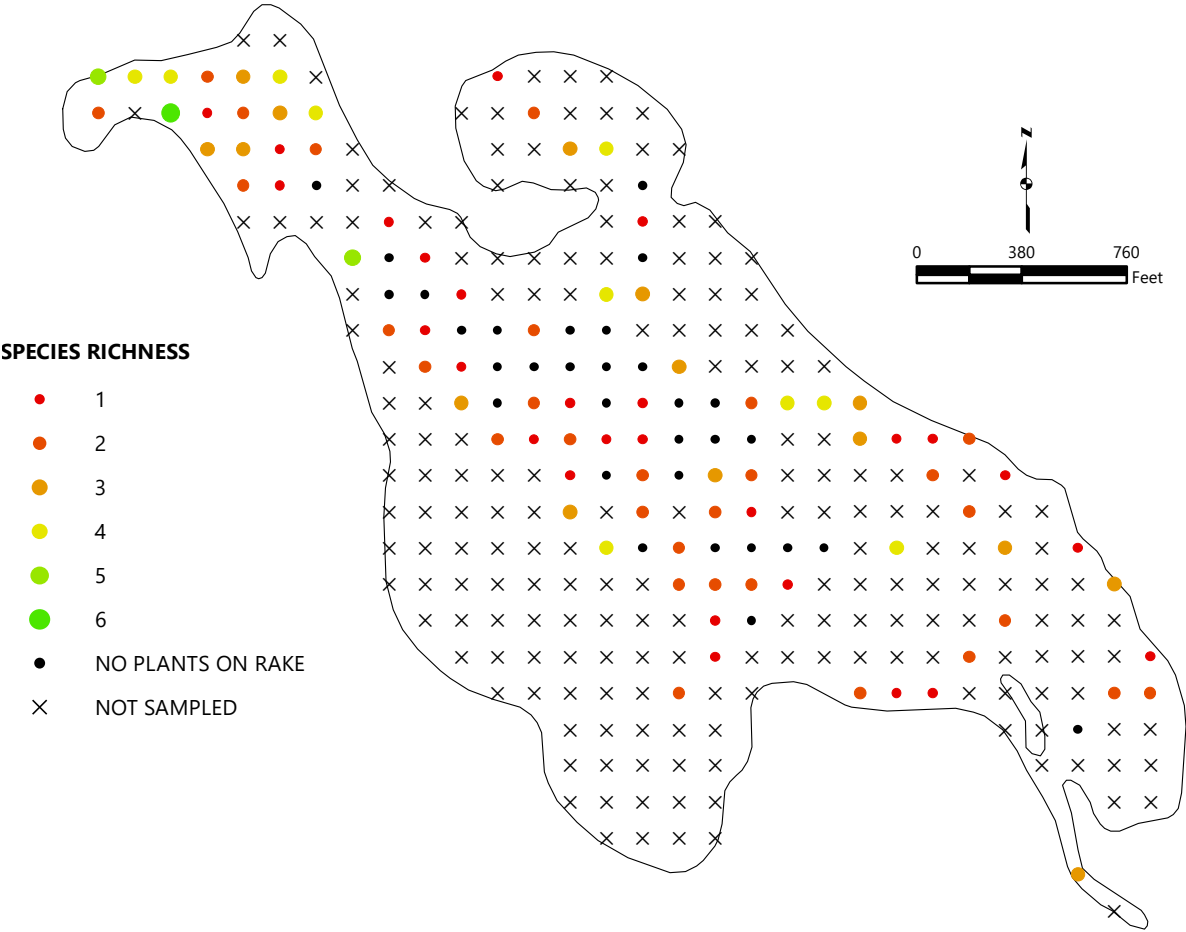
In the 2024 survey of Trippe Lake, the five most common aquatic plant species found were: 1) Duckweed (*Lemna* sp.), 2) Curly-leaf pondweed (*Potamogeton crispus*), 3) Coontail (*Ceratophyllum demersum*), 4) Watermeal (*Wolffia* sp.), and 5) Sago pondweed (*Stuckenia pectinata*) (see Maps B.1 through B.5). Duckweed was found consistently throughout the Lake and was seen from a distance in areas that were non-navigable due to cattail growth. Curly-leaf pondweed was found in highest abundance in the northwestern portion of the lake and was mainly found as a visual sighting or as a 1 rake fullness. Only one point have a rake fullness for CLP of 2. Coontail was found intermittently throughout the Lake, never having a rake fullness higher than a 2. Watermeal, while found sporadically throughout Trippe Lake, inhabited similar areas to duckweed. Sago pondweed was found at 21 points on Trippe lake with only one point having a sago pondweed rake fullness of 2.

Invasive Species

No EWM was found in the 2024 survey in Trippe Lake, though it has historically been found in the Lake, including at 27 points in 2017. As described later in the chapter, water level drawdowns can be an effective tool for managing EWM populations as is evident by the substantial decrease in the EWM populations of both lakes since 2017.

Curly-leaf pondweed, like Eurasian watermilfoil, is identified in Chapter NR 109 of the Wisconsin Administrative Code as a nonnative invasive aquatic plant and thus must be monitored. In 2024, 12 points had CLP on the rake in Trippe Lake with an additional 27 visual observations (see Appendix B, Figure B.2). CLP was spread throughout the open water portions of the Lake but seen with the highest rake fullness in the northwestern portion of the Lake near the outlet.

Figure 2.8
Species Richness in Trippe Lake: July 2024



Note: Survey was conducted on Trippe Lake on July 15th-16th, 2024.
Source: WDNR and SEWRPC

Apparent Changes in Observed Aquatic Plant Communities in Trippe Lake: 2017 Versus 2024

The 2024 aquatic plant survey identified a total of 13 different plant species including visuals, compared to the 22 species found in the 2017 aquatic plant survey. Thus, it is evident that Trippe Lake has lost some of the diversity of its aquatic plant community.

In addition to the number of different aquatic plant species detected in the Lake, several other comparisons can be drawn between the 2017 and 2024 aquatic plant survey results, as examined below.

- The total littoral vegetated frequency of occurrence declined from 80.56 percent in 2017 to 33.62 in 2024, a decrease of 46.94 percent (see Table 2.5).
- The MDC in Trippe Lake during the 2024 survey was 6 feet, 1.5 feet shallower than the 2017 survey, where the MDC was 7.5 feet (see Table 2.5). In both surveys, aquatic plants were observed to the maximum water depth of the lake indicating that plants could cover the entirety of the lake bottom.
- The composition and order of the five most common species changed from 2017 to 2024. Two of the five most common species remained the same but the other three changed. In 2024, the five most common aquatic plant species found were: 1) duckweed, 2) curly-leaf pondweed, 3) coontail, 4) watermeal, and 5) sago pondweed (see Appendix B, Figure B.1-B.5). In 2017 the five most common species were 1) American lotus (*Nelumbo lutea*), 2) coontail, 3) white water lily, 4) Eurasian watermilfoil and 5) duckweed.

- Several native aquatic plant species have small populations within Trippe Lake including spatterdock (*Nuphar variegata*) and bur reed (*Spartanium* sp.), both of which were found at fewer than 10 points across the Lake (see Table 2.7).
- CLP occurrence increased from four points in 2017 to 12 points in 2024 (see Table 2.7 and Figure 2.9). However, CLP still constitutes a small part of the overall aquatic plant community.

It should be noted that the City completed a multi-year drawdown to reduce aquatic invasive species on Trippe Lake.²⁵ Based on the lack of EWM and minimal CLP found in Trippe Lake in 2024 compared to 2017, it can be concluded that the drawdown was successful in reducing invasive species populations in the Lake.

As was described earlier, sensitive aquatic plant species are the most vulnerable to human disturbance. Therefore, changes in sensitive species abundance can indicate the general magnitude of human disturbance derived stress on a waterbody's ecosystem. Overall, the sensitive species richness decreased between 2017 and 2024. Two sensitive species were observed in 2017: variable pondweed (*Potamogeton gramineus*) was found at one point while yellow pond lily (*Nuphar advena*, not to be confused with spatterdock, *Nuphar variegata*) was found at four points. No sensitive species were found in 2024. There are varying reasons that the loss of sensitive plant species can be attributed to including: lake drawdown, increased pollutants, competition by more tolerate plants species, or human disturbances.

Cattails in Trippe and Cravath Lakes

A major concern of the Lakes' residents is the dense cattail growth in the Lakes. Hybrid cattail (*Typha x glauca*) are a hybridization of native broad-leaved cattail species (*Typha latifolia*) and invasive narrow-leaved cattail species (*Typha angustifolia*). Hybrid cattail will invade and colonize freshwater marshes, wet meadows, fens, roadsides, ditches, shallow ponds, streams and lakeshores.²⁶ While cattails have been present in the shallow areas of the lakes for many years, the population increased greatly after water levels remained low post-drawdown of both lakes.

Commission staff were unable to sample large portions of the lake due to the dense growth of hybrid cattails (see Figure 2.10 and Figure 2.11). Much of the shoreline was unable to be seen or accessed from the Lakes' open water due to the dense growth (see Figure 2.12). Commission staff used aerial imagery to estimate the increase of cattail growth in the Lakes from pre draw-down conditions in 2015 as well as recent cattail conditions in 2023 (see Figure 2.13)²⁷. The cattail coverage on Trippe Lake in June 2015 was estimated to be 27 acres, or 22 percent. Comparatively, the cattail coverage in May 2023 was estimated to be 50 acres, or 41 percent of the lake acreage. Cravath Lake's cattail coverage in June 2015 was estimated to be 3 acres, or 5 percent. Comparatively, the cattail coverage in May 2023 was estimated to be 33 acres, or 47 percent.

2.3 PAST AND PRESENT AQUATIC PLANT MANAGEMENT PRACTICES

In July of 2019, to "freeze out" invasive species, restore navigation depths, and to improve the overall health of the Lakes, the City began draining both Cravath and Trippe Lakes.²⁸ The project was originally planned to have the Lakes drawn down for one year but was extended to a second year to ensure maximum lake-bed exposure for the dredging of the lakes. By August 2021, the Lakes were fully drawn down and were originally planned to be refilled in the spring of 2022.

While the Lakes were drawn down, the City received permits to dredge out lake-bottom material to improve future navigation of the Lakes. As of March 1, 2022, 68,800 cubic yards of sediment had been removed from the Lakes, 85 percent of the original 81,000 cubic yards anticipated to be removed. To prepare for the

²⁵ See Section 2.3 "Past and Present Aquatic Plant Management Practices" for more information on the drawdown of Cravath and Trippe Lakes by the City of Whitewater.

²⁶ dnr.wisconsin.gov/topic/Invasives/fact/CattailHybrid.

²⁷ Cattail coverage on the lake utilized Google Earth historical imagery. Coverage estimates are approximate and are not exact due to difficulty distinguishing between cattail coverage and floating leaf aquatic plant coverage.

²⁸ For more information on the drawn downs, dredging and controlled burns see: www.whitewater-wi.gov/520/Lakes-Drawdown-Updates.

**Table 2.7
Trippe Lake Aquatic Plant Survey Summary: July 2017 Versus July 2024**

Aquatic Plant Species	Native or Invasive	Number of Sites Found ^a (2017/2024)	Frequency of Occurrence Within Vegetated Areas ^b (2017/2024)	Average Rake Fullness ^c (2016/2024)	Relative Frequency of Occurrence ^d (2016/2024)	Visual Sightings ^e (2016/2024)
<i>Ceratophyllum demersum</i> (coontail)	Native	106/19	91.38/48.72	1.93/1.26	46.3/33.3	37/4
<i>Elodea canadensis</i> (waterweed)	Native	19/3	16.38/7.69	1.11/1.00	8.3/5.3	11/1
<i>Lemna minor</i> (duckweed)	Native	3/7	2.59/17.95	1.00/1.00	1.3/12.3	60/37
<i>Myriophyllum spicatum</i> (Eurasian watermilfoil)	Invasive	27/--	23.28/--	1.15/--	11.8/--	39/--
<i>Nelumbo lutea</i> (American lotus)	Native	19/1	16.38/2.56	1.84/1.00	8.3/1.8	208/3
<i>Nuphar advena</i> (Yellow pond-lily) ^f	Native	0/--	0/--	0/--	0/--	4/--
<i>Nuphar variegata</i> (white-water lily)	Native	--/1	--/2.56	--/1.00	--/1.8	--/0
<i>Nymphaea odorata</i> (white water lily)	Native	15/0	12.93/0	1.53/0	6.6/0	80/8
<i>Potamogeton crispus</i> (curly-leaf pondweed)	Invasive	4/12	3.45/30.77	1.00/1.08	1.7/21.1	21/27
<i>Potamogeton foliosus</i> (leafy pondweed)	Native	3/--	2.59/--	1.00/--	1.3/--	8/--
<i>Potamogeton gramineus</i> (variable pondweed)	Native	1/--	0.86/--	1.00/--	0.4/--	0/--
<i>Potamogeton illinoensis</i> (Illinois pondweed) ^g	Native	4/--	3.45/--	1.25/--	1.7/--	5/--
<i>Potamogeton natans</i> (floating-leaf pondweed)	Native	12/--	10.34/--	1.75/--	5.2/--	14/--
<i>Potamogeton nodosus</i> (long-leafed pondweed)	Native	3/--	2.59/--	1.00/--	1.3/--	7/--
<i>Potamogeton zosteriformis</i> (flat-stem pondweed)	Native	1/--	0.86/--	1.00/--	0.4/--	2/--
<i>Sagittaria</i> sp. (arrowhead)	Native	0/--	0/--	0/--	0/--	3/--
<i>Sparganium</i> sp. (bur-reed)	Native	--/0	--/0	--/0	--/0	--/1
<i>Spirodela polyrhiza</i> (large duckweed)	Native	1/--	0.86	1.00/--	0.4/--	2/--
<i>Stuckenia pectinata</i> (Sago pondweed) ^g	Native	6/9	5.17/23.08	1.00/1.11	2.6/15.8	48/12
<i>Typha</i> sp. (cattail)	Native	0/1	0/2.56	0/1.00	0/1.8	45/17
<i>Vallisneria americana</i> (eel-grass/wild celery) ^g	Native	5/--	4.31/--	1.20/--	2.2/--	5/--
<i>Wolffia columbiana</i> (common watermeal)	Native	0/4	0/10.26	0/1.00	0/7.0	25/17
<i>Zizania</i> sp. (wild rice)	Native	0/--	0/--	0/--	0/--	5/--

Note: Sampling occurred at 116 sampling sites on July 15th-16th, 2024. 39 of the 116 surveyed sites had vegetation. Red text indicates non-native and/or invasive species.

^a Number of Sites refers to the number of sites at which the species was retrieved and identified on the rake during sampling.

^b Frequency of Occurrence, expressed as a percent, is the percentage of times a particular species occurred when there was aquatic vegetation present at the sampling site.

^c Average rake fullness is the average amount, on a scale of 0 to 3, of a particular species at each site where that species was retrieved by the rake.

^d Relative Frequency of Occurrence, expressed as a percent, is the frequency of that particular species compared to the frequencies of all species present.

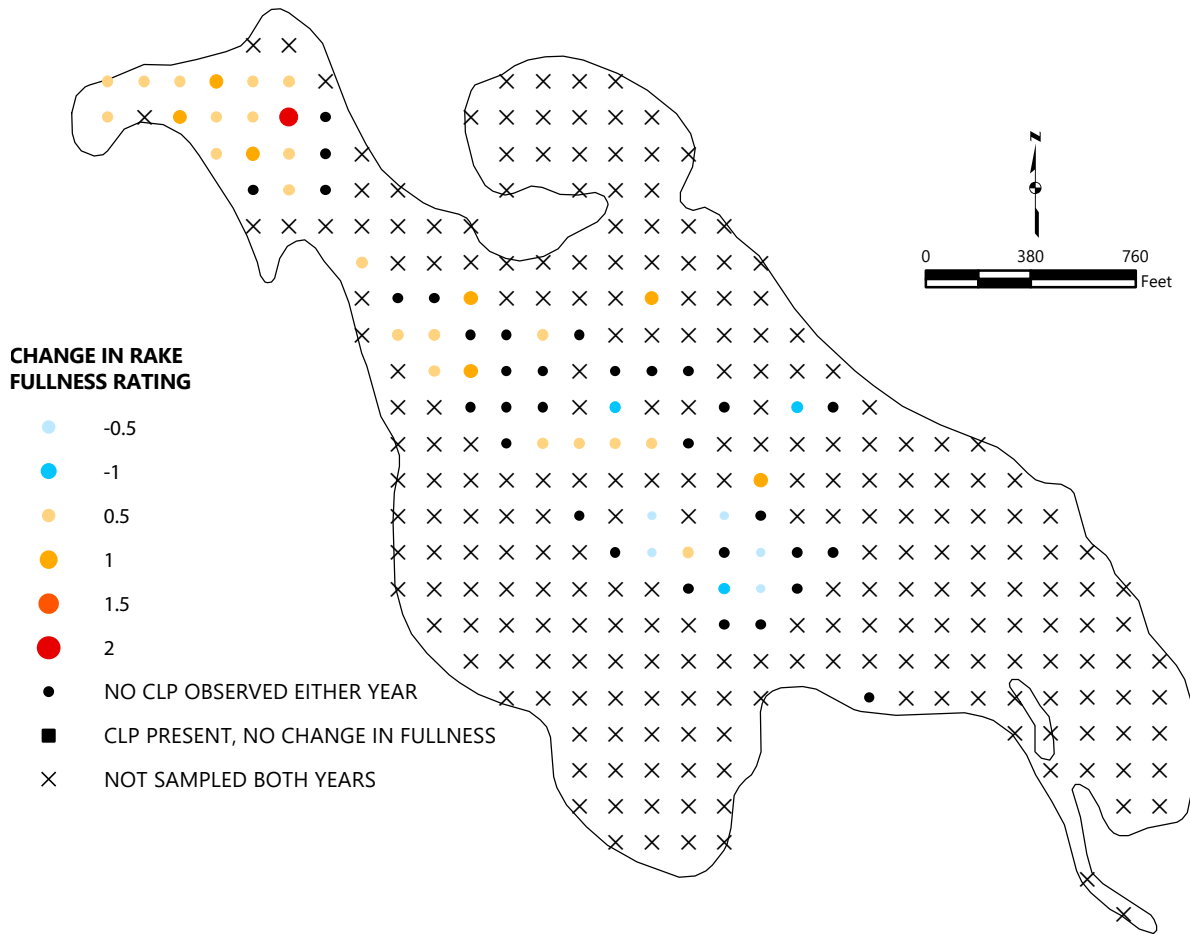
^e Visual Sightings is the number of sites where that particular species was visually observed within six feet of the actual rake haul location but was not actually retrieved on the rake and was not, therefore, assigned a rake fullness measurement for that site. At sites where this occurred, the species was simply marked as "present" at that site. Recording the number of visual sightings helps give a better picture of species distribution throughout the lake.

^f Designated a Species of Special Concern by the WDNR Natural Heritage Inventory.

^g Considered a high-value aquatic plant species known to offer important values in specific aquatic ecosystems under Section NR 107.08 (4) of the Wisconsin Administrative Code.

Source: WDNR and SEWRPC

Figure 2.9
Change in Curly Leaf Pondweed in Trippe Lake: 2017-2024



Note: Survey was conducted on Trippe Lake on July 15th-16th, 2024.

Source: WDNR and SEWRPC

dredging in early 2022, the City contracted with Field & Stream Restorations to conduct a controlled burn in areas of the Lakes (see Figure 2.14). Controlled burns are often used to remove invasive species and reduce the amount of settling sediment in the Lakes from decaying vegetation material from aquatic plants.

In the fall of 2023, the City received permits to dredge Cravath and Trippe Lakes to manage the cattail populations. In total, an estimated 16,300 square feet of material was removed from the Lakes from the Cravath fishing pier, the Cravath west lakefront dock, the Cravath concrete bump-out and the Trippe Lake boat launch. Additionally, in the fall of 2024, the City received a second permit to dredge the Lakes, removing an estimated 37,020 square feet of material. Material was removed from five locations: Cravath amphitheater, Cravath west lakefront dock, the Cravath west fishing pier, the Cravath eastern shoreline, and the Trippe fishing pier at the Clay Street Nature Park.

2.4 POTENTIAL AQUATIC PLANT MANAGEMENT METHODOLOGIES

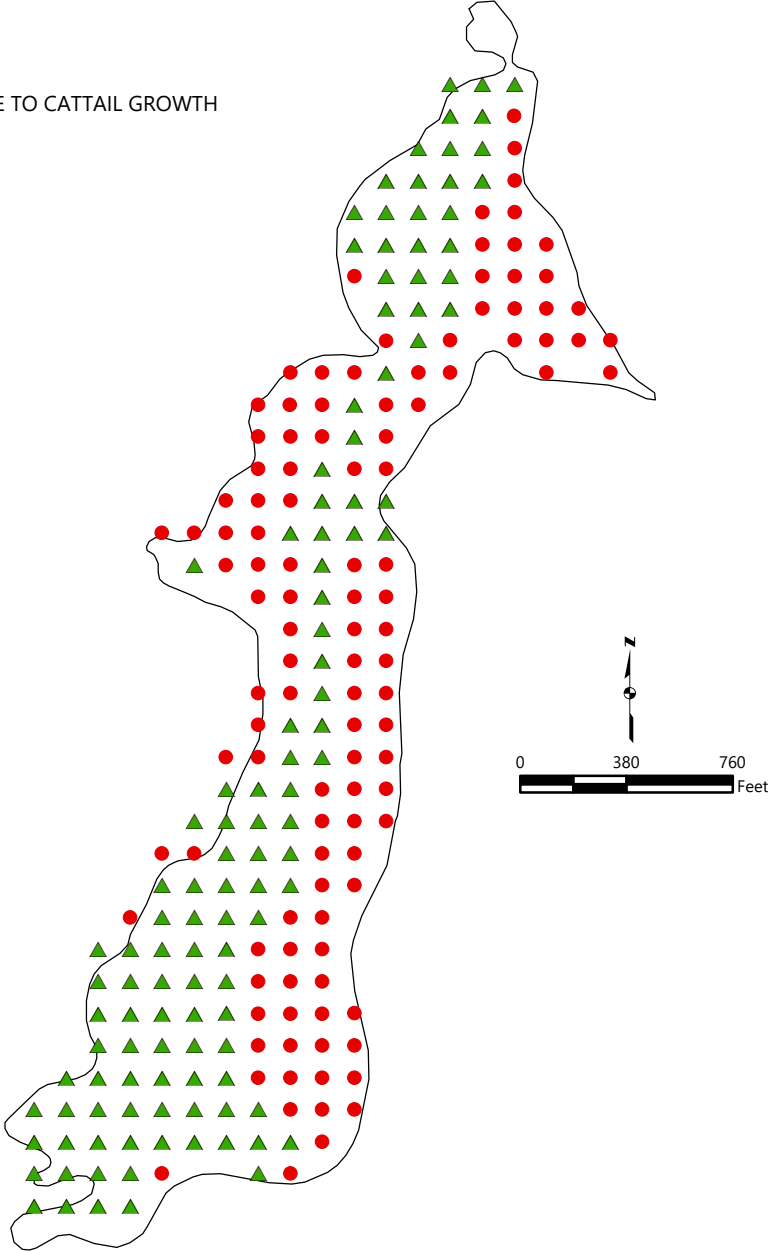
Aquatic plant management techniques can be classified into six categories.

- *Physical measures* include lake bottom coverings
- *Biological measures* include the use of organisms such as herbivorous insects
- *Manual measures* involve physically removing plants by hand or using hand-held tools such as rakes

Figure 2.10
Cattail Extent on Cravath Lake: July 2024

LEGEND

- ▲ SAMPLED
- NONNAVIGABLE DUE TO CATTAIL GROWTH

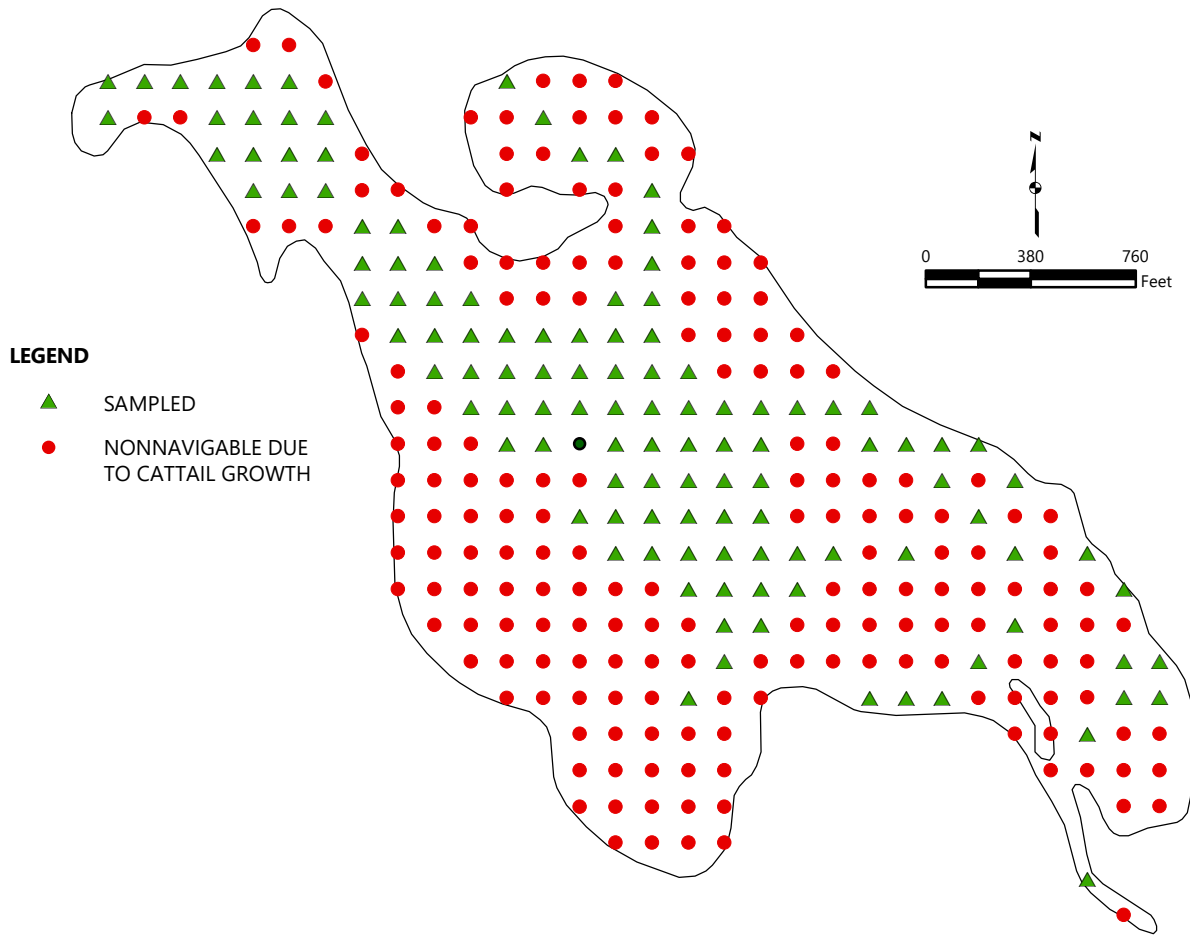


Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

- *Mechanical measures* rely on artificial power sources and remove aquatic plants with a machine known as a harvester or by suction harvesting
- *Chemical measures* use aquatic herbicides to kill nuisance and nonnative plants *in-situ*
- *Water level manipulation measures* utilize fluctuations in water levels to reduce aquatic plant abundance and promote growth of specific native species

All aquatic plant control measures are stringently regulated and most require a State of Wisconsin permit. Chemical controls, for example, require a permit and are regulated under *Wisconsin Administrative Code Chapter NR 107, "Aquatic Plant Management,"* while placing bottom covers (a physical measure) requires

Figure 2.11
Cattail Extent on Trippe Lake: July 2024



Note: Survey was conducted on Trippe Lake on July 15th-16th, 2024.

Source: WDNR and SEWRPC

a WDNR permit under Chapter 30 of the *Wisconsin Statutes*. All other aquatic plant management practices are regulated under *Wisconsin Administrative Code* Chapter NR 109, "Aquatic Plants: Introduction, Manual Removal and Mechanical Control Regulations." Furthermore, the aquatic plant management measures described in this plan are consistent with the requirements of Chapter NR 7, "Recreational Boating Facilities Program," and with the public recreational boating access requirements relating to eligibility under the State cost-share grant programs set forth in *Wisconsin Administrative Code* Chapter NR 1, "Natural Resources Board Policies." Water level manipulations require a permit and are regulated under *Wisconsin Statutes* 30.18 and 31.02.^{29,30} More details about each aquatic plant management category are discussed in the following sections, while recommendations are provided later in this document.

Non-compliance with aquatic plant management permit requirements is an enforceable violation of Wisconsin law and may lead to fines and/or complete permit revocation. The information and recommendations provided in this memorandum help to frame permit requirements. Permits can cover up to a five-year period.³¹ At the end of that period, the aquatic plant management plan must be updated. The updated plan must consider the results of a new aquatic plant survey and should evaluate the success, failure, and effects

²⁹ docs.legis.wisconsin.gov/statutes/statutes/30/ii/18.

³⁰ docs.legis.wisconsin.gov/statutes/statutes/31/02.

³¹ Five-year permits allow a consistent aquatic plant management plan to be implemented over a significant length of time. This process allows the selected aquatic plant management measures to be evaluated at the end of the permit cycle.

Figure 2.12
Hybrid Cattails in Cravath and Trippe Lakes: July 2024

Trippe Lake Cattails



Cravath Lake Cattails



Source: SEWRPC

of earlier plant management activities that have occurred on the lake.³² These plans and plan execution are reviewed and overseen by the WDNR regional lakes and aquatic invasive species coordinators.³³

Physical Measures

Lake-bottom covers and light screens provide limited control of rooted plants by creating a physical barrier that reduces or eliminates plant-available sunlight. Various materials such as pea gravel or synthetics like polyethylene, polypropylene, fiberglass, and nylon can be used as covers. The longevity, effectiveness, and overall value of some physical measures is questionable. The WDNR does not permit these kinds of controls. Consequently, lake-bottom covers are not a viable aquatic plant control strategy for the lakes.

Biological Measures

Biological control offers an alternative to direct human intervention to manage nuisance or exotic plants. Biological control techniques traditionally use herbivorous insects that feed upon nuisance plants. This approach has been effective in some southeastern Wisconsin lakes.³⁴ For example, milfoil weevils (*Eurhychiopsis lecontei*) have been used to control EWM. Milfoil weevils do best in waterbodies with balanced panfish populations,³⁵ where dense EWM beds reach the surface close to shore, where natural shoreline areas include leaf litter that provides habitat for over-wintering weevils, and where there is comparatively little boat traffic. This technique is not presently commercially available, making the use of milfoil weevils non-viable for the Lakes.

Manual Measures

Manually removing specific types of vegetation is a highly selective means of controlling nuisance aquatic plant growth, including invasive species such as EWM. Two commonly employed methods include hand raking and hand pulling. Both physically remove target plants from a lake. Since most plant stems, leaves,

³² Aquatic plant harvesters must report harvesting activities as one of the permit requirements.

³³ Information on the current aquatic invasive species coordinator is found on the WDNR website.

³⁴ B. Moorman, "A Battle with Purple Loosestrife: A Beginner's Experience with Biological Control," *LakeLine* 17(3): 20-21, 34-37, September 1997; see also, C.B. Huffacker, D.L. Dahlsen, D.H. Janzen, and G.G. Kennedy, *Insect Influences in the Regulation of Plant Population and Communities*, pp. 659-696, 1984; and C.B. Huffacker and R.L. Rabb, editors, *Ecological Entomology*, John Wiley, New York, New York, USA.

³⁵ Panfish such as bluegill and pumpkinseed are predators of herbivorous insects. High populations of panfish lead to excess predation of milfoil weevils.

Figure 2.13
Hybrid Cattail Extent in Cravath and Trippe Lakes

June 2015 Cattails



May 2023 Cattails



Google Earth Pro Imagery

The second manual control method, hand-pulling whole plants (stems, roots, leaves, seeds) where they occur in isolated stands, is a simple means to control nuisance and invasive plants in shallow nearshore areas that may not support large-scale initiatives. This method is particularly helpful when attempting to target nonnative plants (e.g., EWM, CLP) during the high growth season when native and nonnative species often mix. Hand pulling is more selective than raking, mechanical removal, and chemical treatments, and, if carefully applied, is less damaging to native plant communities. Recommendations regarding hand-pulling, hand-cutting, and raking are discussed later in this document.

Mechanical Measures

Two methods of mechanical harvesting are currently employed in Wisconsin - mechanical harvesting and suction harvesting. Both are regulated by WDNR and require a permit.³⁷

Mechanical Harvesting

Aquatic plants can be mechanically gathered using specialized equipment commonly referred to as harvesters. Harvesters use an adjustable depth cutting apparatus that can cut and remove plants from the water surface to up to about five feet below the water surface. The harvester gathers cut plants with a conveyor, basket, or other device. Mechanical harvesting is often a very practical and efficient means to control nuisance plant growth and is widely employed in Southeastern Wisconsin.

In addition to controlling plant growth, gathering and removing plant material from a lake reduces in-lake nutrient recycling, sedimentation, and targets plant reproductive potential. In other words, harvesting removes plant biomass, which would otherwise decompose and release nutrients, sediment, and seeds or other reproductive structures (e.g., turions, bulbils, plant fragments) into a lake. Mechanical harvesting is particularly effective and popular for large-scale open-water projects. However, small harvesters are also produced that are particularly suited to working around obstacles such as piers and docks in shallow nearshore areas.

An advantage of mechanical harvesting is that the harvester, when properly operated, “mows” aquatic plants and, therefore, typically leaves enough living plant material in place to provide shelter for aquatic wildlife and stabilize lake-bottom sediment. Harvesting, when done properly, does not kill aquatic plants, it simply trims plants back. Aside from residual plant mass remaining because of imperfect treatment strategy execution, none of the other aquatic plant management methods purposely leave living plant material in place after treatment. Aquatic plant harvesting has been shown to allow light to penetrate to the lakebed and stimulate regrowth of suppressed native plants. This is particularly effective when controlling invasive plant species that commonly grow quickly early in the season (e.g., EWM, curly-leaf pondweed) when native plants have not yet emerged or appreciably grown.

A disadvantage of mechanical harvesting is that the harvesting process may fragment plants and thereby unintentionally propagate EWM and curly-leaf pondweed. EWM fragments are particularly successful in establishing themselves in areas where plant roots have been removed. This underscores the need to avoid harvesting or otherwise disrupting native plant roots. Harvesting may also agitate bottom sediments in shallow areas, thereby increasing turbidity and resulting in deleterious effects such as smothering fish breeding habitat and nesting sites. To this end, most WDNR-issued permits do not allow deep-cut harvesting in water less than three feet deep,³⁸ which limits the utility of this alternative in many littoral and shoal areas. Nevertheless, if employed correctly and carefully under suitable conditions, harvesting can benefit navigation lane maintenance and can reduce regrowth of nuisance plants while maintaining, or even enhancing, native plant communities. Due to the depth of the Lakes and the desire for cattail control, traditional cutting mechanical harvesting is not a feasible method to be used on the Lakes.

Suction Harvesting, DASH, and Diver-Assisted Hand Pulling

Another mechanical plant harvesting method uses suction to remove aquatic plants from a lake. Suction harvesting removes sediment, aquatic plants, plant roots, and anything else from the lake bottom and disposes this material outside the lake. Since bottom material is removed from the lake, this technique also requires a dredging permit in addition to the aquatic plant management permit.

³⁷ Mechanical control permit conditions depend upon harvesting equipment type and specific equipment specifications.

³⁸ Deep-cut harvesting is harvesting to within one foot of the lake bottom. This is not allowed in shallow water because it is challenging to ensure that the harvester avoids lake-bottom contact in such areas.

First permitted in 2014, DASH is a mechanical process where divers identify and pull select aquatic plants and roots from the lakebed and then insert the entire plant into a suction hose that transports the plant to the surface for collection and disposal. The process is a mechanically assisted method for hand-pulling aquatic plants. Such labor-intensive work by skilled professional divers is, at present, a costly undertaking and long-term monitoring will need to evaluate the efficacy of the technique. If the City or individual property owners choose to employ DASH, a NR 109 permit is required. Nevertheless, many apparent advantages are associated with this method including: 1) lower potential to release plant fragments when compared to mechanical harvesting, raking, and hand-pulling, thereby reducing spread and growth of invasive plants like EWM; 2) increased selectivity of plant removal when compared to mechanical harvesting which in turn reduces native plant loss; and 3) lower potential for disturbing fish habitat. This method will be discussed further in Chapter 3.

Water Level Manipulation Measures

Manipulating water levels can also be an effective method for controlling aquatic plant growth and restoring native aquatic plant species, particularly emergent species such as bulrush and wild rice.³⁹ While water level manipulation affects all aquatic plants within the drawdown zone, two studies from Price County, Wisconsin show reduced abundance of invasive EWM and curly-leaf pondweed and increased abundance of native plant species following winter drawdowns.^{40,41} Thus, drawdowns can be used to dramatically alter the composition of a lake's aquatic plant community. As described in Section 2.3, the City drew down both Cravath and Trippe Lakes and successfully reduced the populations of EWM and CLP.

While drawdowns are effective in reducing submerged invasive species populations, undesired emergent species, such as invasive cattails and phragmites, can also colonize exposed sediment, so measures should be taken to curtail their growth during a drawdown.⁴² Both Cravath and Trippe Lakes have experienced this with 41 percent of Trippe and 47 percent of Cravath having dense hybrid cattail growth, to the extent of impeding navigation in the Lakes. Additionally, water level manipulation can also have unintended impacts on water chemistry and lake fauna.^{43,44} Decreased water clarity and dissolved oxygen concentrations as well as increased nutrient concentrations and algal abundance have all been reported following lake drawdowns. It will be important to monitor the Lakes in the years to come following any potential drawdown.

Controlled Winter Burning

Prescribed burns, also known as controlled burns, are useful in managing emergent plants during drawdowns. While lakes are drawn down, existing organic material from aquatic plants are exposed and able to be burned off. This reduces the amount of plant material on the bottom of the lake, can reduce nonnative plant populations and can allow for new areas to become available for beneficial native plants to grow.

Controlled burns often require a burn plan.⁴⁵ A burn plan is a document that addresses all aspects of the burn to ensure a safe implementation of controlled burning activities. The plan should contain the following:

- Describe site conditions, including existing vegetation and desired future conditions
- Dictate specific weather conditions and ignition patterns needed for desired fire behavior

³⁹ For detailed literature reviews on water level manipulation as an aquatic plant control measure, see C. Blanke, A. Mikulyuk, M. Nault, et al., *Strategic Analysis of Aquatic Plant Management in Wisconsin*, Wisconsin Department of Natural Resources, pp. 167-171, 2019 as well as J.R. Carmignani and A.H. Roy, "Ecological Impacts of Winter Water Level Drawdowns on Lake Littoral Zones: A Review," *Aquatic Sciences* 79: 803-824, 2017.

⁴⁰ Onterra, LLC, *Lac Sault Dore, Price County, Wisconsin: Comprehensive Management Plan*, 2013.

⁴¹ Onterra, LLC, *Musser Lake Drawdown Monitoring Report*, Price County, Wisconsin, 2016.

⁴² Blanke et al., 2019, *op. cit.*

⁴³ Ibid.

⁴⁴ Cooke, *op. cit.*

⁴⁵ For more information on controlled burns, see dnr.wisconsin.gov/topic/forestfire/prescribedfire.

- Outline any issues relating to communities, roads, structure, adjacent lands, smoke management and/or traffic control
- Outline and smoke sensitive areas such as schools, airports or hospitals
- Identify fire break parameters
- Identify personnel and equipment need to safely complete the burn
- Outline of a contingency plan for reacting to any emergencies surrounding the burn

Burns are recommended to be conducted during the winter for lakes. WDNR also recommends that a trained burn boss be consulted on the parameters of the prescribed fire and to be available during the burn. It is also encouraged to reach out to local authorities to ensure they are following local ordinances and regulations. Due to the ability of the lake to be drawn down during the winter months, a controlled burn on the lakes may be beneficial in assisting with aquatic plant management, particularly for encroachment of hybrid cattail.

MANAGEMENT RECOMMENDATIONS AND PLAN IMPLEMENTATION

3



Credit: Commission Staff

This chapter summarizes the information and recommendations needed to manage aquatic plants in Cravath and Trippe Lakes (Lakes), particularly the nonnative species of hybrid cattail, Eurasian watermilfoil (EWM) and curly-leaf pondweed (CLP). Accordingly, it presents a range of alternatives that could potentially be used, and provides specific recommendations related to each alternative. The measures discussed focus on those that can be implemented by the City of Whitewater (City) in collaboration with the Wisconsin Department of Natural Resources (WDNR) and residents on the Lakes. The aquatic plant management recommendations contained in this chapter are limited to approaches that monitor and control nuisance level aquatic plant growth in the Lakes after the growth has already occurred.

The individual recommendations presented below, and which collectively constitute the recommended aquatic plant management plan, balance three major goals:

- Improving navigational access within the Lakes
- Protecting the native aquatic plant community
- Controlling CLP, EWM, and hybrid cattail populations

Plan provisions also ensure that current recreational uses of the Lakes (e.g., swimming, boating, fishing) are maintained or promoted. The plan recommendations described below consider common, State-approved, aquatic plant management alternatives including manual, chemical, and mechanical measures.

3.1 RECOMMENDED AQUATIC PLANT MANAGEMENT PLAN

The most effective plans to manage nuisance and invasive aquatic plant growth rely on a combination of methods and techniques as well as consideration of when and where these techniques should be applied. The recommended aquatic plant management plan techniques are briefly summarized in the following paragraphs. These management techniques were discussed with both the City and the WDNR.

Aquatic Plant Management Recommendations

The most effective plans to manage nuisance and invasive aquatic plant growth rely on a *combination* of methods and techniques. A “silver bullet” single-minded strategy rarely produces the most efficient, most reliable, or best overall result. This plan recommends three primary aquatic plant management techniques: harvesting, chemical treatment, and prescribed burning. Each of these techniques have custom adaptations for the conditions present in the Lakes. These methods are combined to form the recommended Cravath and Trippe Lakes’ aquatic plant management program. The elements of this program are listed below.

1. **Prescribed/controlled burning of cattail material** should be considered to manage the cattail populations that have densely colonized large portions of the Lakes. WDNR requires the drawdown of lakes to be completed before October 1st to protect any animals that overwinter in lake beds. Controlled burns should be done during the months during a lake-drawdown when the lakebeds are exposed and easily accessed. The City should consult with WDNR and the County to ensure they are following local and state regulations regarding prescribed/controlled burns. Due to the ability to draw down both lakes, this management technique should be considered a high priority.
2. **Chemical treatment of hybrid cattail populations.** The spraying of chemicals has long been used as a method to control non-native plant populations. In the case of Cravath and Trippe Lakes, helicopter spraying of Imazapyr or Glyphosate to control hybrid cattails should be considered a high priority.⁴⁶ Chemical applications should be limited to developed shorelines including the shorelines near the lakefront parks.⁴⁷ Imazapyr is most effective when used during spring, when cattails are still actively growing. Glyphosate is most effective when sprayed in the autumn as cattails begin to die back for the winter. In addition to helicopter spraying, hand-wicking and regular spraying from boats, on foot, or from amphibious vehicles should also be considered for smaller cattail stands or in areas where helicopter spraying is not feasible or desired due to proximity to residences or sensitive species (e.g., near stands of yellow water lily (*Nuphar advena*), a Species of Special Concern).
3. **Invasive species plant control.** While the 2024 aquatic plant survey did not reveal a need to actively control EWM or CLP, these plants should still be monitored. As aquatic plant community species change, the need for management changes. This is particularly true in heavily used shallow areas. It should be noted that should winter drawdowns be utilized for controlled burns, they will also assist in keeping invasive species such as EWM and CLP under control. This recommendation should be considered a high priority.
4. **Manual removal of nuisance plant growth in near-shore areas** should be considered in areas too shallow, inaccessible, or otherwise unsuitable for other plant control methods. “Manual removal” is defined as control of aquatic plants by hand or using hand-held non-powered tools. Cattails can often be drowned out using manual removal techniques such as below-water cutting of the stalks in early spring and late fall. Given what is known of plant distribution, this option is given medium priority. Riparian landowners need not obtain a permit for manually removing aquatic plants if they confine this activity to a 30-foot width of shoreline (including the recreational use area such as a pier) that does not extend more than 100 feet into the Lakes and they remove all resulting plant materials from the Lakes.⁴⁸ A permit is required if the property owner lives adjacent to a sensitive area or if the City or other group actively engages in such work.⁴⁹ Prior to the “raking/hand-pulling” season, an educational campaign should be actively conducted to help assure that shoreline residents appreciate the value of native plants, understand the relationship between algae and plants (i.e., more algae will

⁴⁶ Should chemical spraying be utilized as a management strategy, maps of the location of the spray events should be created and approved by WDNR.

⁴⁷ All chemical applications should be in compliance with NR 107.08(3).

⁴⁸ The manual removal area limitation for nearshore aquatic plants applies to shorelines where native plants are present. The removal area limitation does not apply to areas populated solely with nonnative and invasive plants.

⁴⁹ If a lake district or other group wants to remove invasive species along the shoreline, a permit is necessary under Chapter NR 109, “Aquatic Plants: Introduction, Manual Removal and Mechanical Control Regulations,” of the Wisconsin Administrative Code, as the removal of aquatic plants is not being completed by an individual property owner along his or her property.

grow if fewer plants remain), know the basics of plant identification, and the specifics about the actions they are allowed to legally take to “clean up” their shorelines.⁵⁰

5. **Diver-Assisted Suction Harvesting or Hand-pulling.** Diver-assisted harvesting or hand-pulling is beneficial when conducting aquatic plant management in an area that a full-sized harvester may not be able to reach. Additionally, it is useful when targeting specific invasive species while keeping native species intact. This tactic may be useful when targeting smaller specific or shallower areas of the Lakes. This recommendation should be considered a low priority.
6. **Stocking of native aquatic plant species.** Once hybrid cattail and other non-native aquatic plant populations have been lowered, opportunities for native aquatic plant colonization will be increased. Stocking of native aquatic plants will promote biodiversity of the plant community in the Lakes as well as assist in preventing the rebound on nonnative and nuisance species of plants. It is recommended that native plants which have been previously documented in the Lakes (e.g., *Potamogeton natans*, *P. gramineus*, *P. zosteriformis*, *P. illinoensis*, *P. nodosus*, *Valisneria americana*) be stocked. Some methods for transplanting native plants include hand planting, weighting and sinking plants, as well as weaving plants in mats or blocks that are placed in the waterbody. These methods vary in their cost, feasibility, and success rates.⁵¹ This recommendation should be considered a medium priority.⁵²
7. **Begin participating in the Clean Boats Clean Waters program to monitor the public launches.** Participation in this program proactively encourages lake users to clean boats and equipment before launching and after using them in Cravath and Trippe Lakes. The WDNR has a grant program that can help fund monitoring efforts (see “Future Funding” later in this chapter).
8. **Stay abreast of best management practices to address invasive species.** The City should regularly communicate with Walworth County and WDNR staff about the most effective treatment options for invasive species as novel techniques and/or chemical products that may more effectively target these species become available.

At this time, the Southeastern Wisconsin Regional Planning Commission (Commission or SEWRPC) staff are not recommending the use of mechanical harvesting in Cravath or Trippe Lakes due to the high density of cattails and the low abundance and density of aquatic plants. Should the City desire to do mechanical harvesting in the Lakes, they would be required to obtain a permit from the WDNR. Should the submersed aquatic plant community grow to a nuisance level that impedes navigation, the City may then consider mechanical harvesting. Harvesting lanes should not exceed 30 feet in width and maintain a minimum of one foot of plant growth on the bottom of the lane (see Figure 3.1).

To ensure sustainable recreational use and the long-term health of the Lake, the following conditions must be added to all aquatic plant harvesting practices:

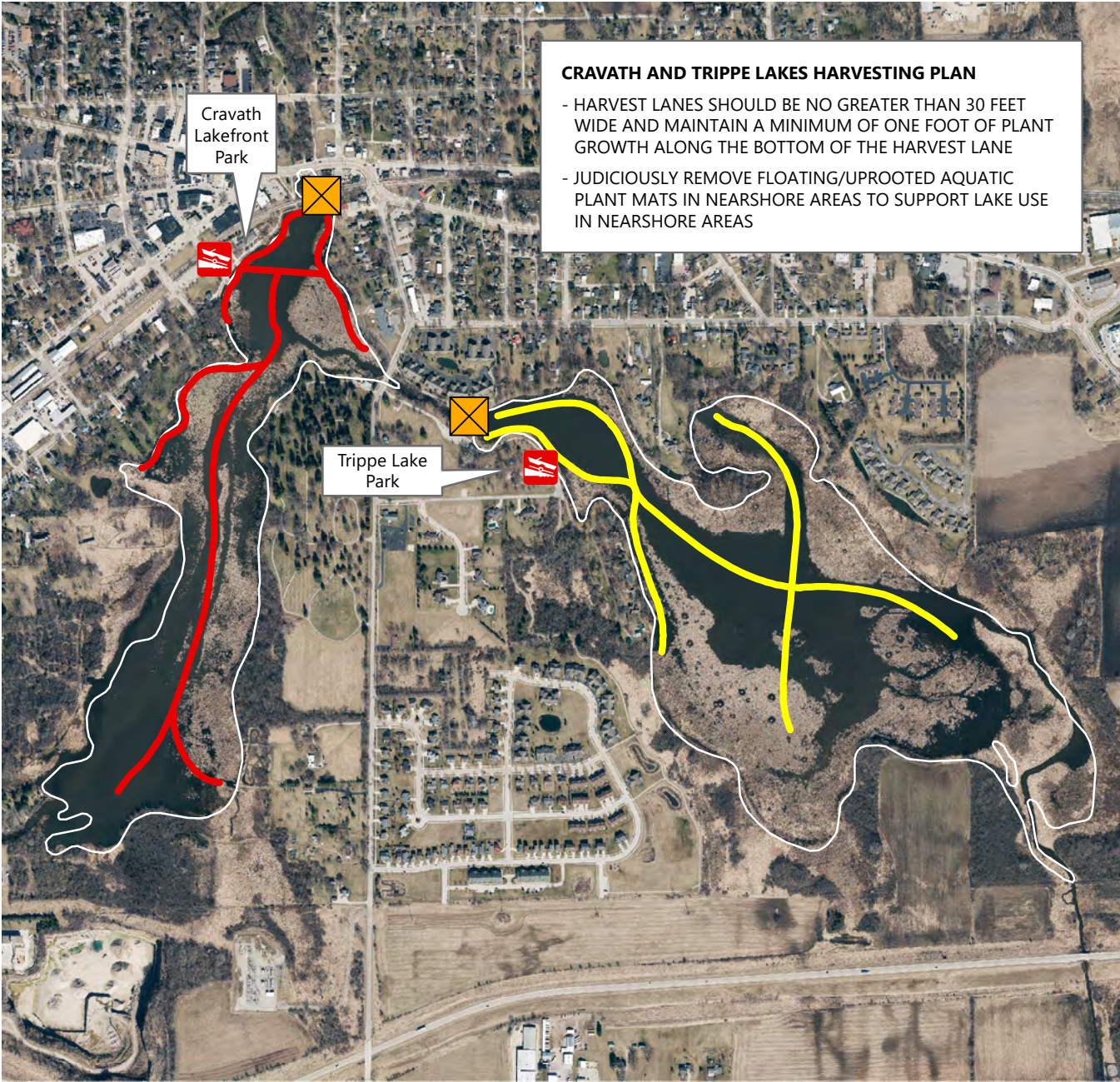
1. **Maintain at least 12 inches of living plant material after harvesting.** Harvesting equipment operators must not intentionally denude the lakebed. Instead, the goal of harvesting is to maintain and promote healthy native aquatic plant growth. Harvesting invasive aquatic plants can promote native plant regrowth since many invasive aquatic plants grow early in the season depriving later emerging native plants of light and growing room.
2. **Harvesting native pondweeds (*Potamogeton* spp.) and muskgrasses (*Chara* spp.) outside of the designated harvesting lanes is prohibited.** These plants provide habitat for young fish, reptiles, and insects in the Lake.
3. **Inspect all cut plants for live animals. Immediately return live animals to the water.** A second staff person equipped with a net should accompany and assist the harvester operator. Animals

⁵⁰ Commission and WDNR staff could help review documents developed for this purpose.




⁵¹ For further information on methods and pros/cons to the different methods can be found at edis.ifas.ufl.edu/publication/SS685.

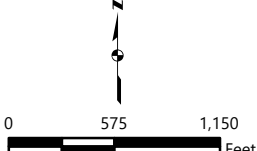
⁵² Stocking of native plants have been partially successful in lakes in SE Wisconsin such as Lac La Belle and Okauchee Lakes.

Figure 3.1
Mechanical Harvesting Recommendations in Cravath and Trippe Lakes: 2025-2029



Note: Aerial imagery from 2024

-  PUBLIC BOAT LAUNCH
-  PRIVATE BOAT LAUNCH
-  DAM
-  TRIPPE HARVESTING LANES
-  CRAVATH HARVESTING LANES



Source: SEWRPC

can be caught in the harvester and harvested plants, particularly when cutting larger plant mats. Consequently, carefully examine cut materials to avoid inadvertent harvest of fish, crustaceans, amphibians, turtles, and other animals.

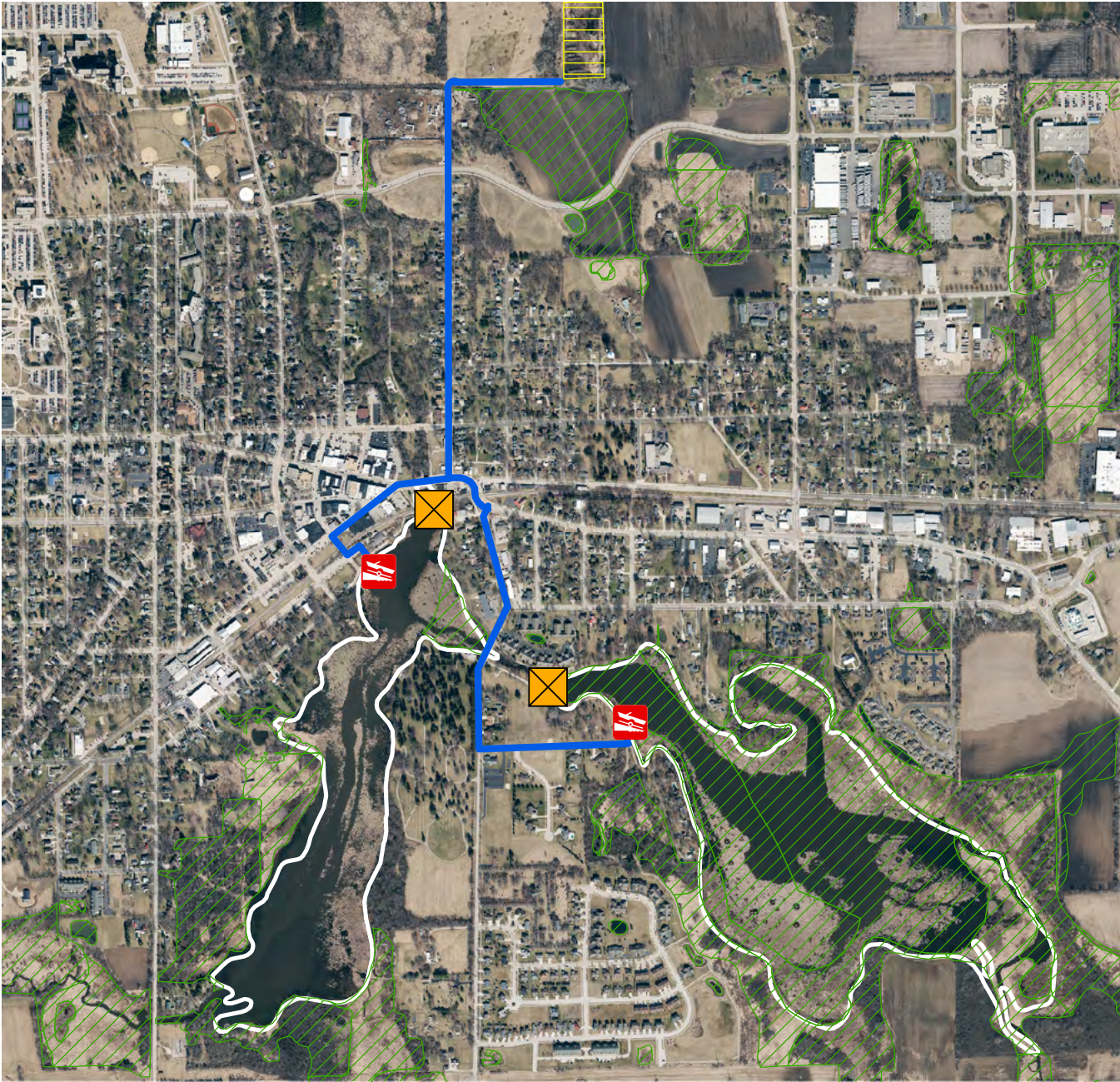
4. **Harvesting should not occur in the early spring** to avoid disturbing fish spawning. Studies suggest that harvesting activities can significantly disturb the many fish species that spawn in early spring. Thus, avoiding harvesting during this time can benefit the Lake's fishery.
5. **All harvester operators should adhere to the harvesting specifications and practices as described in the harvesting permit.** Harvester operators should review of the aquatic plant management plan and associated permits with special emphasis focused on the need to restrict cutting in shallow areas and have plant identification skills to encourage preservation of native plant communities. Additionally, all harvester operators are obligated to record their work for inclusion in annual reports that are required under harvesting permits.
6. **Harvesting can fragment plants.** Plant fragments may float in the Lake, accumulate on shorelines, and help spread undesirable plants. The harvesting program should include a comprehensive plant pickup program that all residents can use. This helps assure that harvesting does not create a nuisance for Lake residents. The program typically includes residents raking plants, placing them in a convenient location accessible to the harvester (e.g., the end of a pier), and regularly scheduled pickup of cut plants by the harvester operators. This effort should be as collaborative as practical.
7. **Proper disposal of aquatic plants is required.** All plant debris collected from harvesting activities must be collected and disposed at the designated disposal sites using the designated disposal route, as shown on Figure 3.2. No aquatic plant material may be deposited within identified floodplain and wetland areas.

Future Funding

The City should utilize WDNR Surface Water Grants to further their efforts in monitoring and managing the Lakes, inspecting watercraft at boat launches, and targeting areas for management. Key grant programs to fund these efforts are as follows:

- **Clean Boats, Clean Waters** – this grant program covers up to 75 percent of up to \$24,000 to conduct watercraft inspections, collect data, educate boaters about invasive species, and reporting invasive species to the WDNR.
- **Aquatic Invasive Species Prevention** – this grant program covers up to 75 percent of \$4,000 for projects that help prevent the spread of AIS species. Eligible costs include the acquisition of decontamination equipment at public boat launches as well as targeted management at boat launches or other access points. All lakes are eligible for at least \$4,000 in funding. The City must participate in the Clean Boats, Clean Waters program to maintain eligibility for this grant program.
- **Aquatic Invasive Species Control** – this grant program covers up to 75 percent of up to \$50,000 for small-scale projects and \$150,000 for large-scale projects that suppress or reduce an AIS population within a lake. Given the current limited spread of EWM and CLP within the lakes, the small-scale project is more appropriate at this time. The large-scale projects should be considered if the populations of these species increase or a novel invasive species, such as starry stonewort, is observed within the lake. Aquatic Invasive Species Control grants fund projects that utilize integrated pest management and are designed to cause multi-season suppression of the target species. An approved aquatic plant management plan is a requirement to participate in this program and only approved recommendations from the plan are eligible projects for funding through this program.

Figure 3.2
Harvesting Disposal Route and Location for Cravath and Trippe Lakes: 2025-2029



Note: Aerial imagery from 2024

- PUBLIC BOAT LAUNCH
- PRIVATE BOAT LAUNCH
- DAM
- HARVESTING DISPOSAL
- ROUTE DISPOSAL SITE
- WDNR DESIGNATED WETLANDS

0 720 1,440 Feet
Source: SEWRPC

- **Recreational Boating Facilities Grant Program**⁵³ – this grant program covers up to 50 percent of \$250,00 for a recreational boating facility project. These projects can include aquatic plant harvesting equipment, rehabilitation of facilities, trash skimming equipment, improvement or repair of locks, construction projects such as ramps or dredging for safe water depths. The City has received grants from this program in the past to assist with the funding of projects.

The City should consider applying for these grant programs whenever feasible to support the monitoring, communication, watercraft inspection, and targeted management recommended in this aquatic plant management plan.

3.2 SUMMARY AND CONCLUSIONS

As requested by the City, the Commission worked with the City to develop a scope of work to provide information needed to allow the City to apply for aquatic plant management permits. This report, which documents the findings and recommendations of the study, examines existing and anticipated conditions, potential aquatic plant management problems, and lake use. Conformant with the study's intent, the plan includes recommended actions and management measures as well as options for future funding.

Successfully implementing this plan will require cooperative engagement from the City, State and regional agencies, Walworth County, municipalities, and residents/users of the Lakes. The recommended measures help foster conditions sustaining and enhancing the natural beauty and ambience of Cravath and Trippe Lakes while promoting a wide array of water-based recreational activities suitable for the Lakes' intrinsic characteristics.

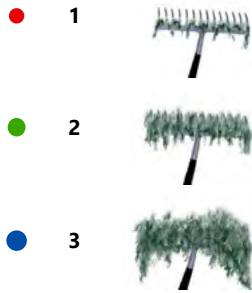
⁵³ dnr.wisconsin.gov/aid/RBF.html.

APPENDICES

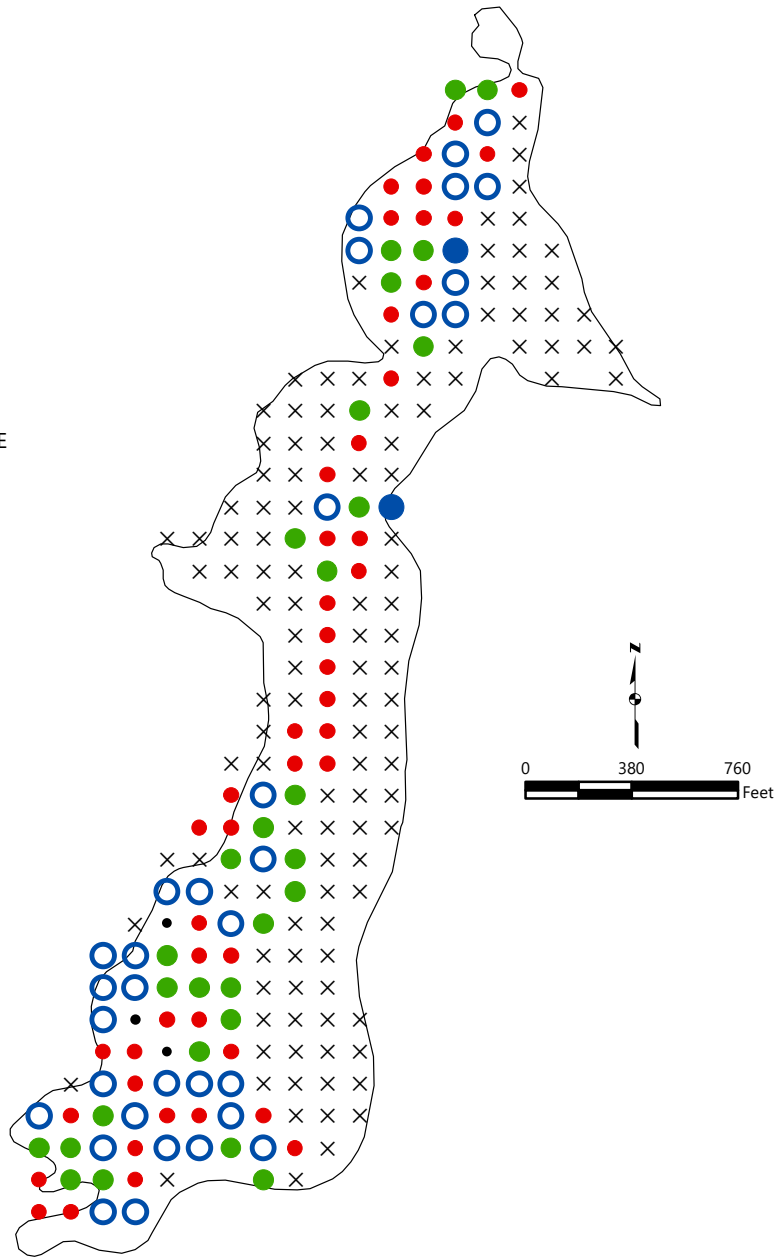
CRAVATH LAKE AQUATIC PLANT RAKE FULLNESS APPENDIX A

Figure A.1
Duckweed Rake Fullness in Cravath Lake: July 2024

RAKE FULLNESS RATING






- 1
- 2
- 3
- VISIBLE NEARBY
- NO PLANTS ON RAKE
- × NOT SAMPLED



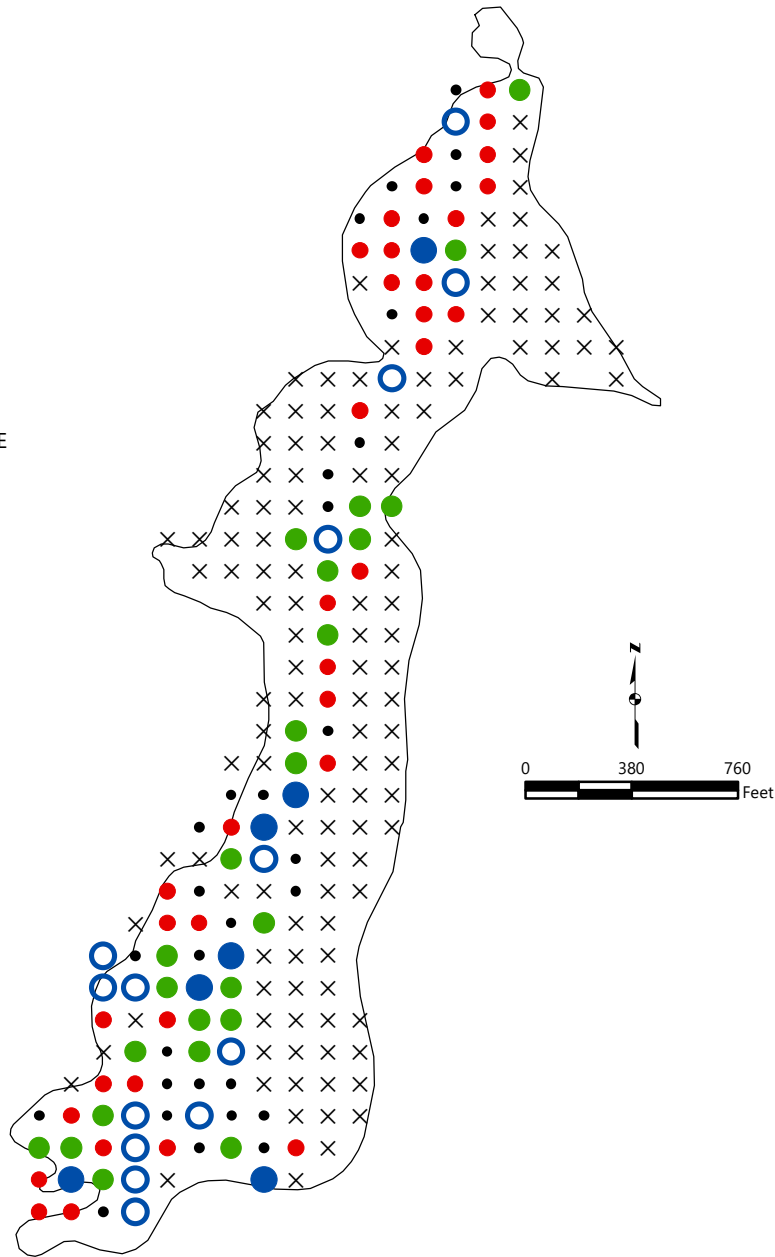
Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

Figure A.2
Coontail Total Rake Fullness in Cravath Lake: July 2024

RAKE FULLNESS RATING

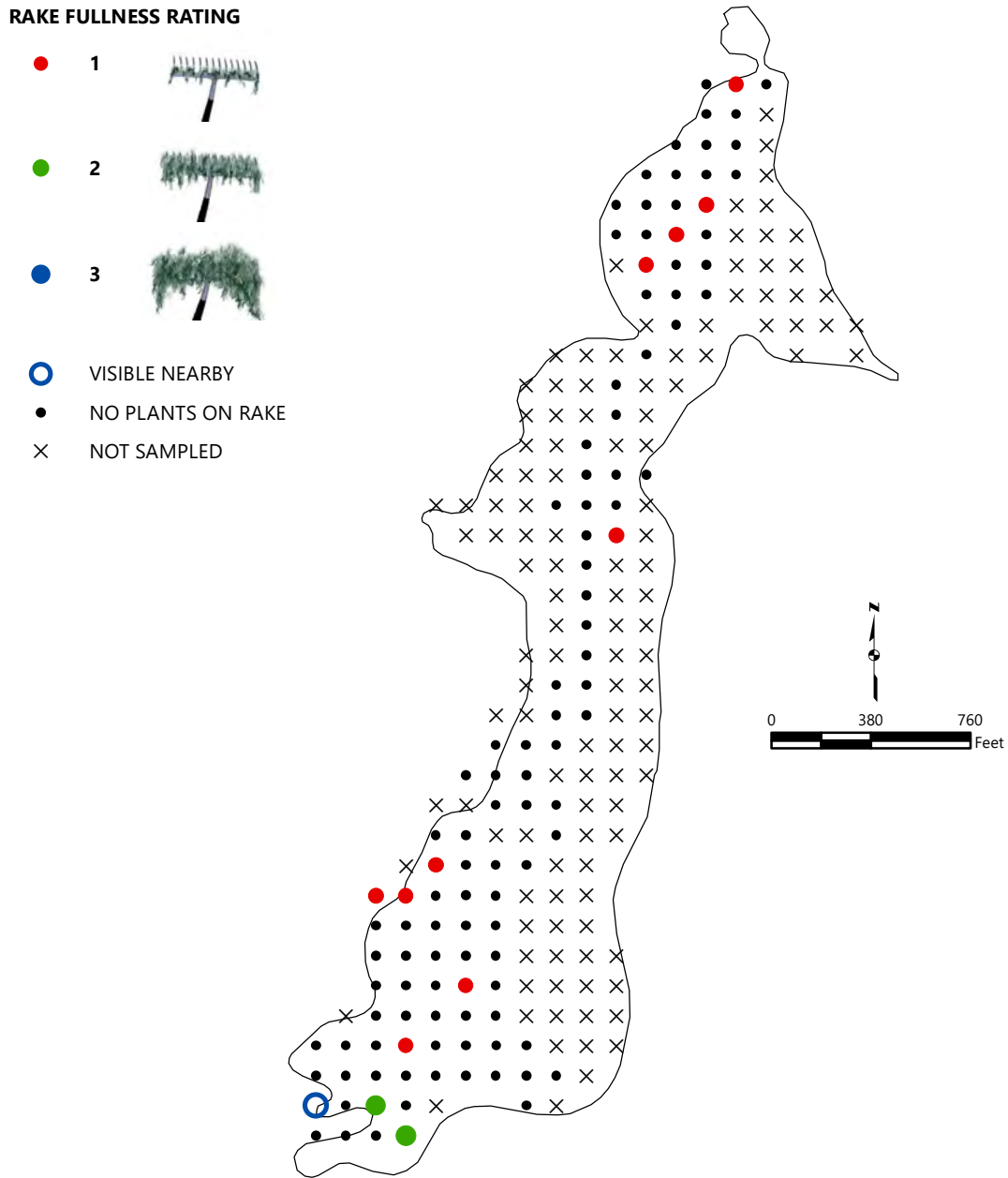
- 1 
- 2 
- 3 

- VISIBLE NEARBY
- NO PLANTS ON RAKE
- × NOT SAMPLED



Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC




Figure A.3
Elodea Total Rake Fullness in Cravath Lake: July 2024



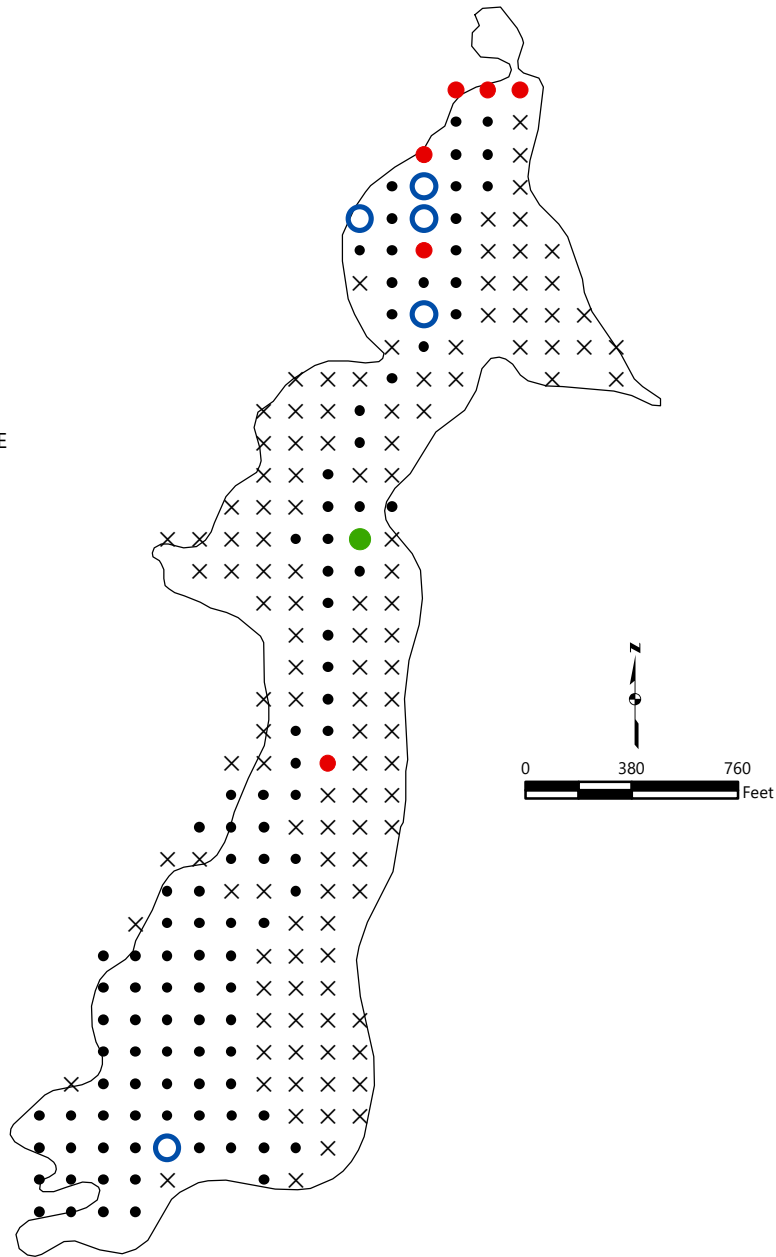
Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

Figure A.4
Watermeal Total Rake Fullness in Cravath Lake: July 2024

RAKE FULLNESS RATING

- 1 
- 2 
- 3 

- VISIBLE NEARBY
- NO PLANTS ON RAKE
- × NOT SAMPLED

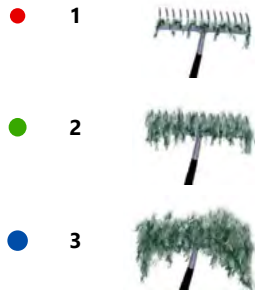


Note: Survey was conducted on Cravath Lake on July 29th, 2024.

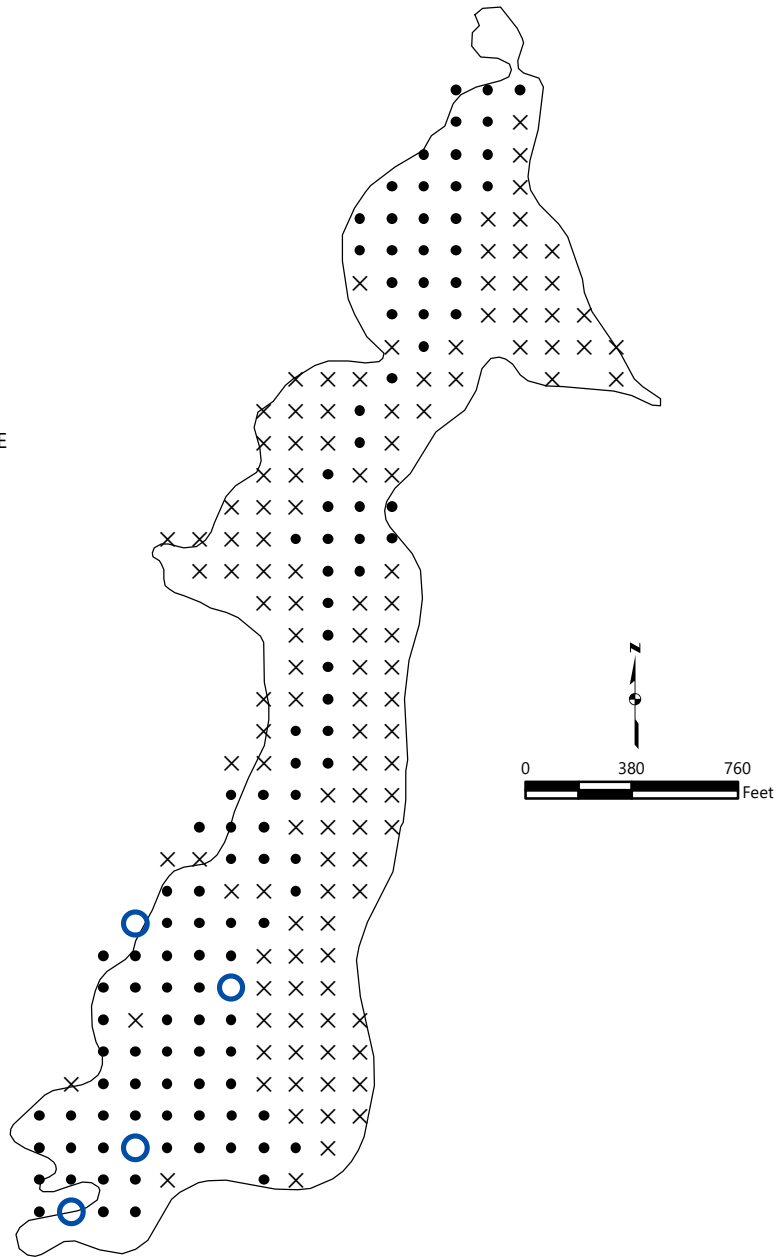
Source: WDNR and SEWRPC

Figure A.5
Curly-Leaf Pondweed Total Rake Fullness in Cravath Lake: July 2024

RAKE FULLNESS RATING



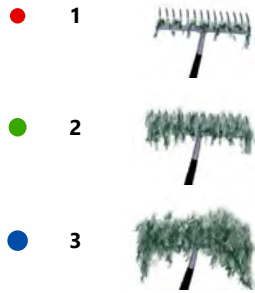
- 1
- 2
- 3
- VISIBLE NEARBY
- NO PLANTS ON RAKE
- × NOT SAMPLED



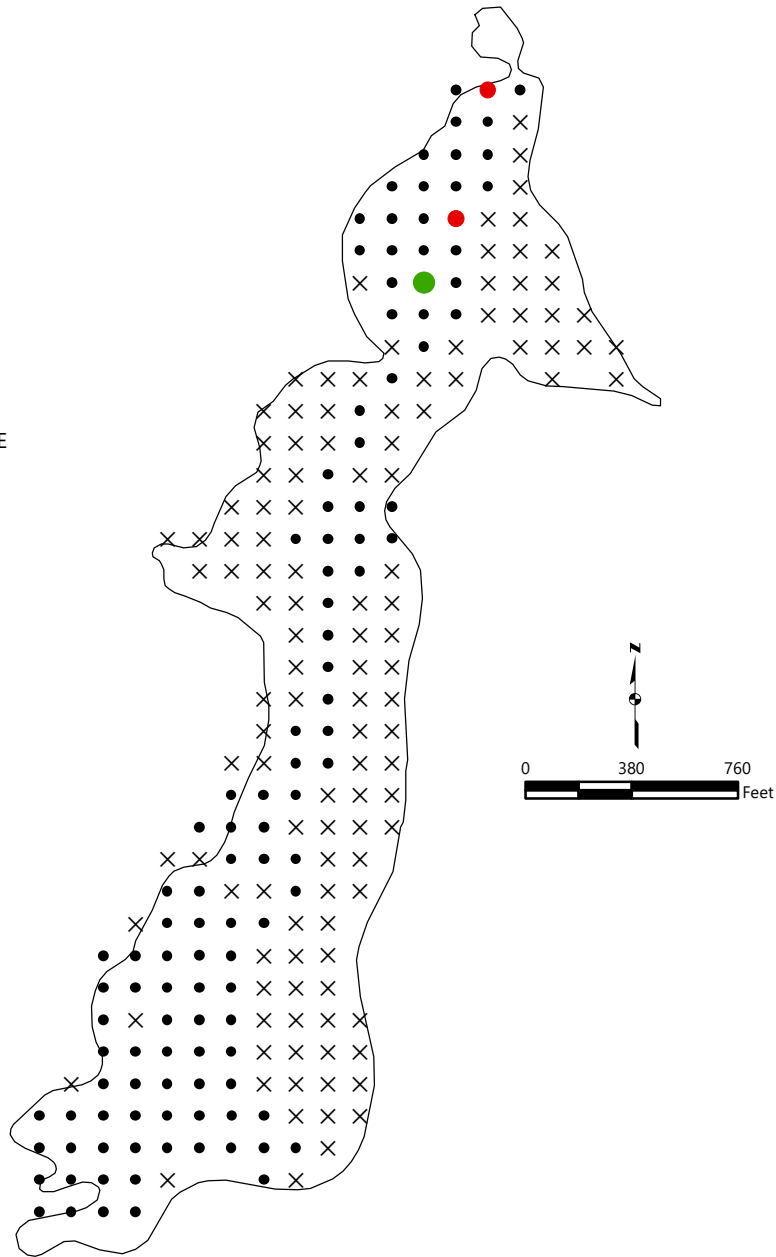
Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

Figure A.6
Eurasian Watermilfoil Total Rake Fullness in Cravath Lake: July 2024

RAKE FULLNESS RATING



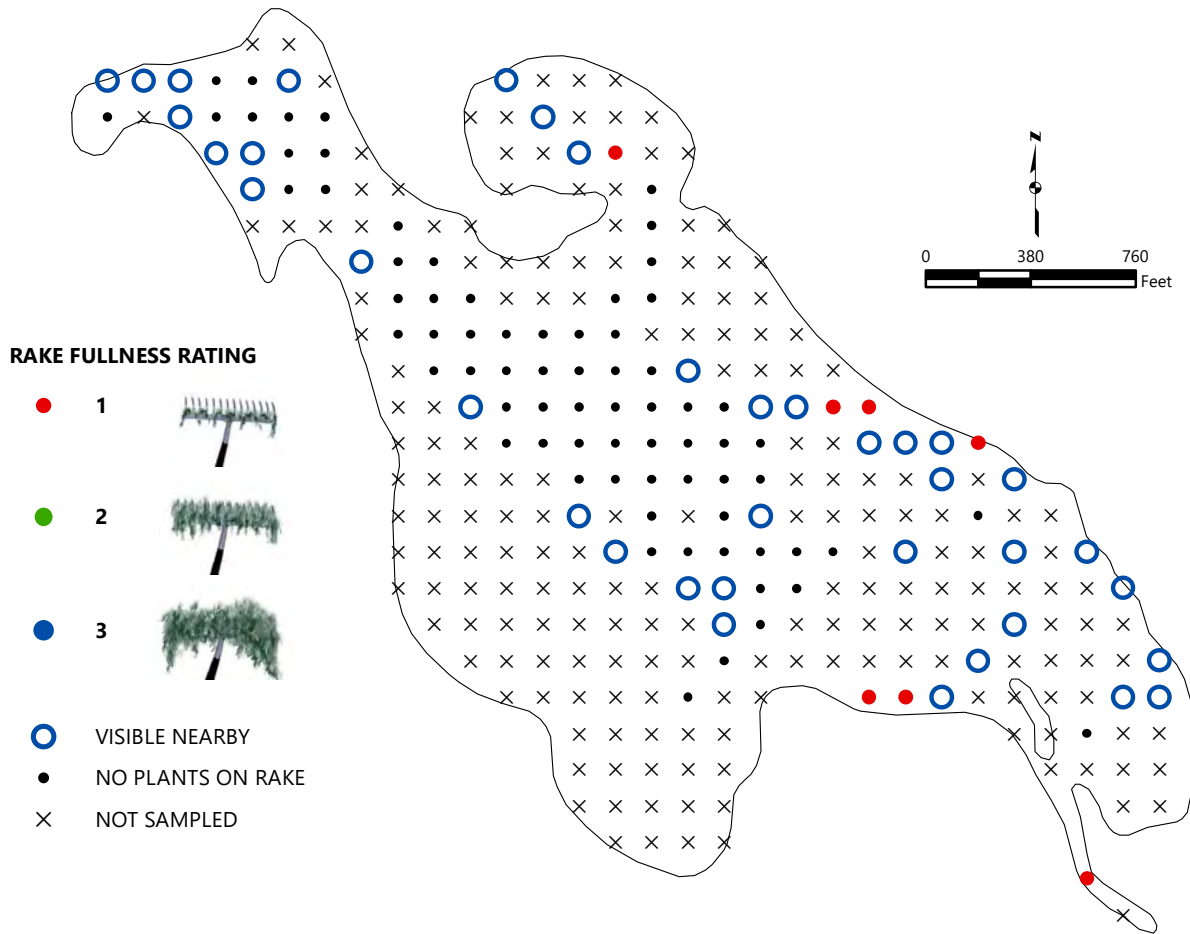
- 1
- 2
- 3
- VISIBLE NEARBY
- NO PLANTS ON RAKE
- × NOT SAMPLED



Note: Survey was conducted on Cravath Lake on July 29th, 2024.
Source: WDNR and SEWRPC

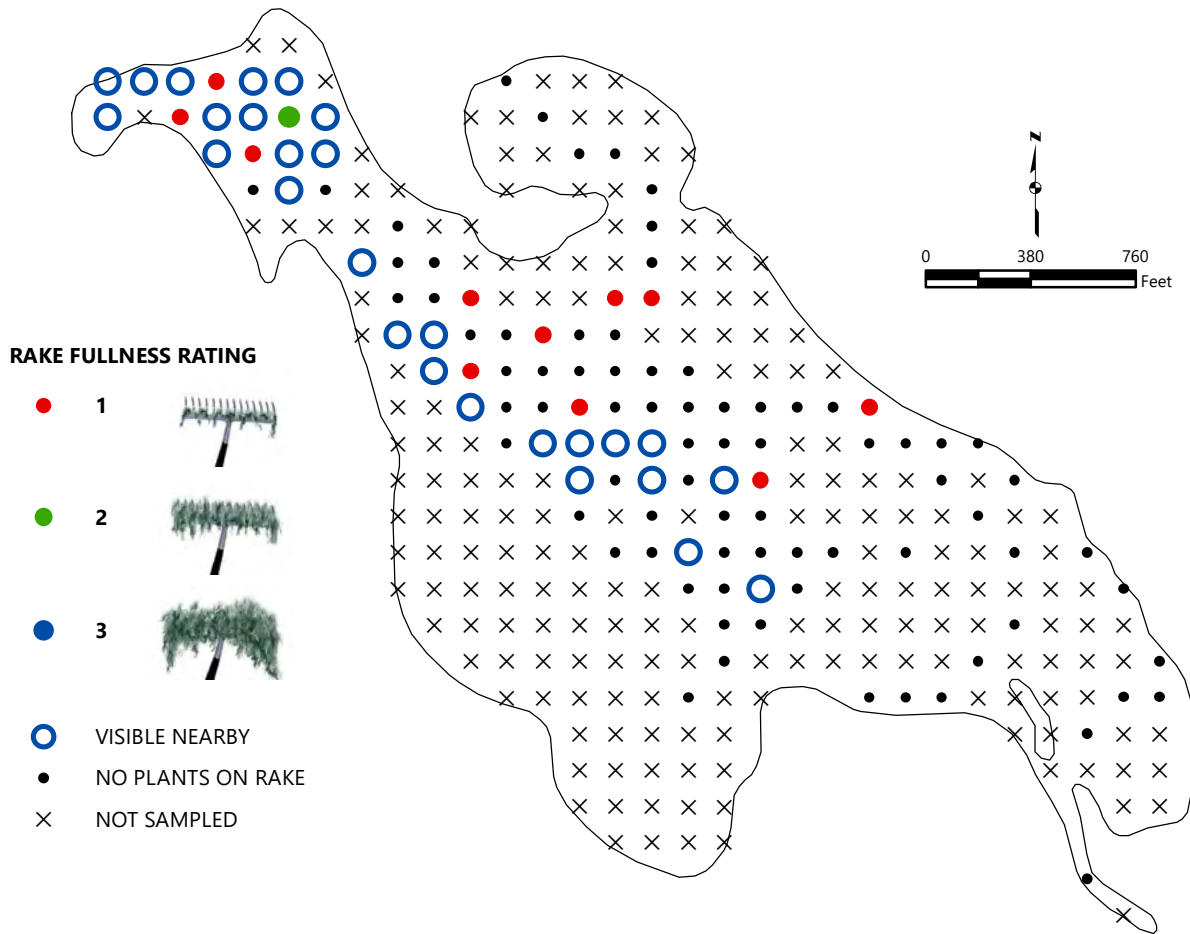
**TRIPPE LAKE AQUATIC
PLANT RAKE FULLNESS
APPENDIX B**

Figure B.1
Duckweed Rake Fullness in Trippe Lake: July 2024



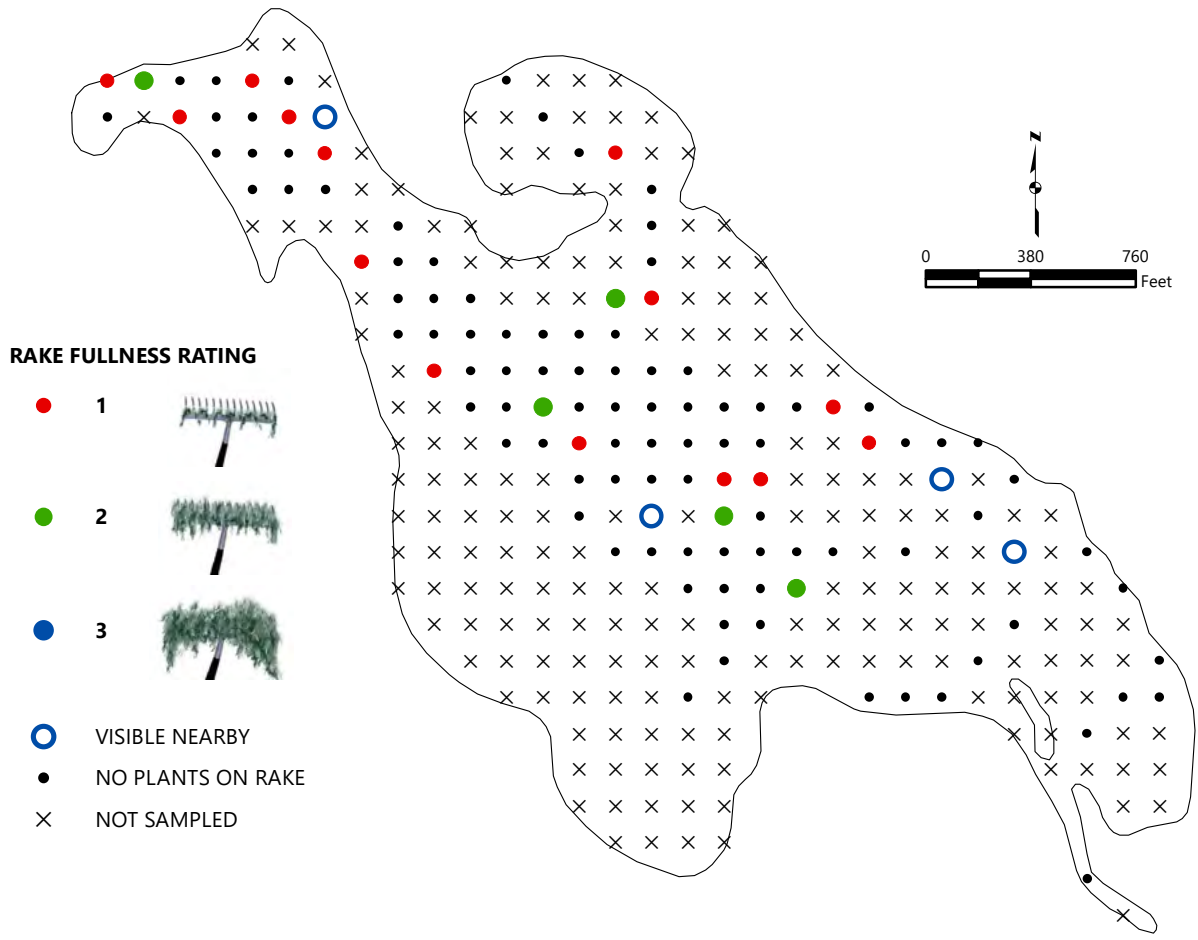
Note: Survey was conducted on Trippe Lake on July 15th-July16th, 2024.
Source: WDNR and SEWRPC

Figure B.2
Curly-Leaf Pondweed Rake Fullness on Trippe Lake: July 2024



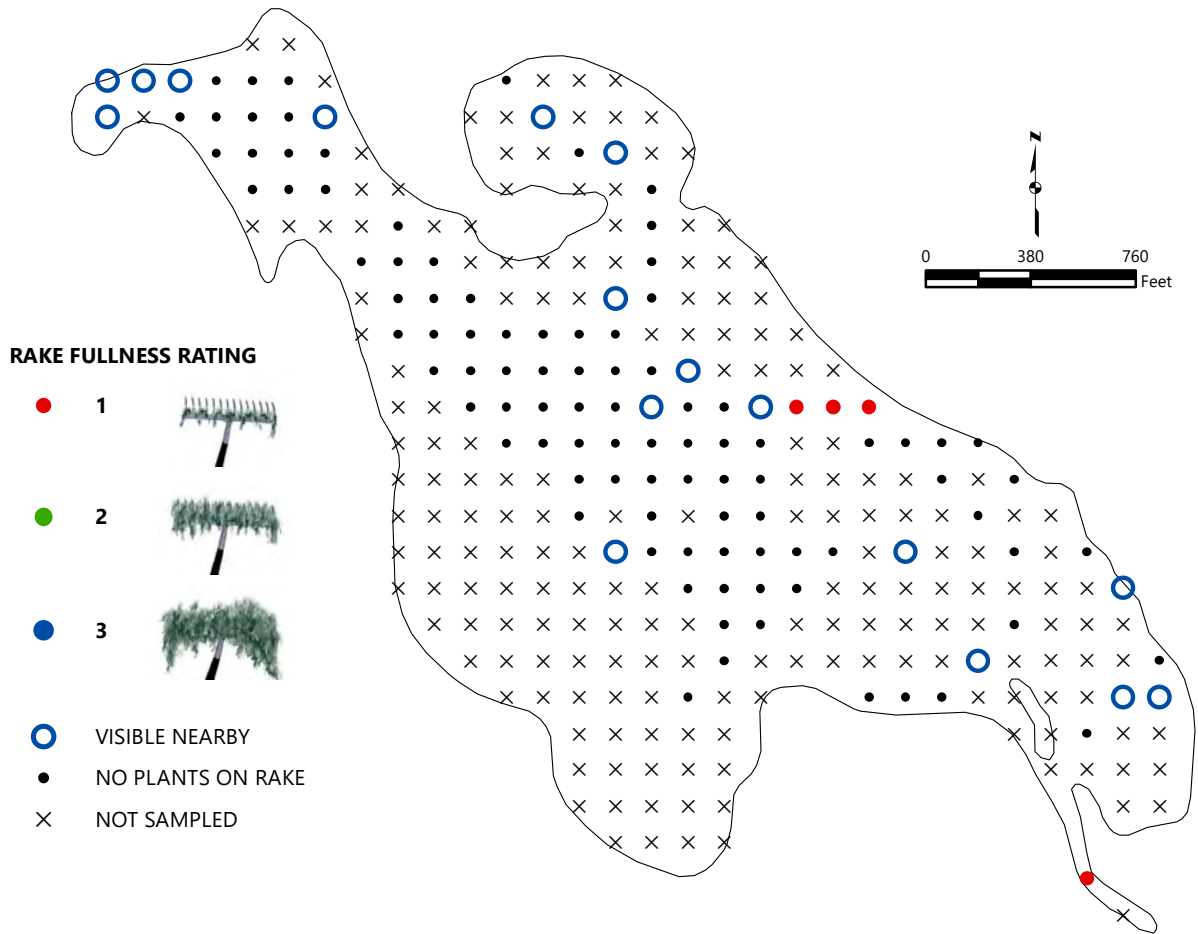
Note: Survey was conducted on Trippe Lake on July 15th-July16th, 2024.
Source: WDNR and SEWRPC

Figure B.3
Coontail Rake Fullness in Trippe Lake: July 2024



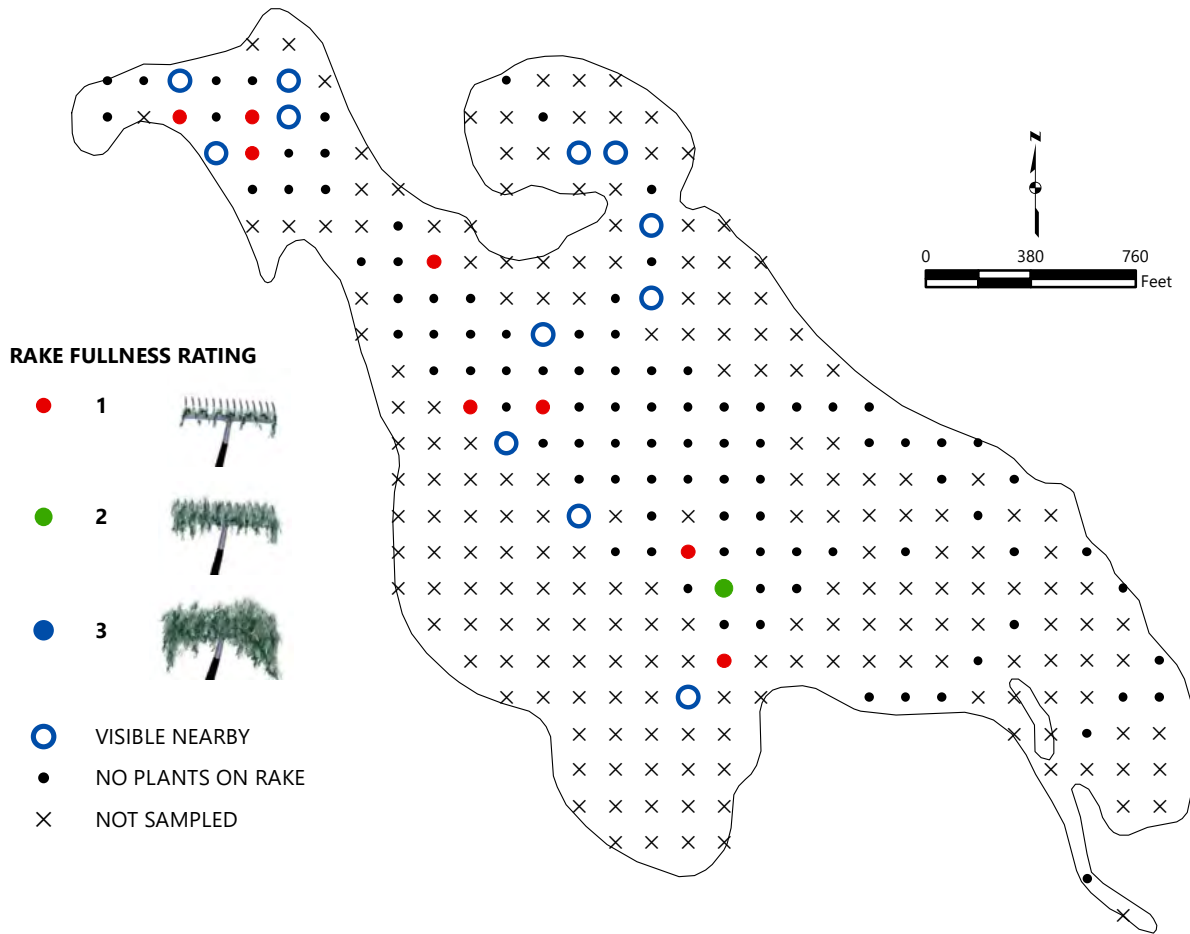
Note: Survey was conducted on Trippe Lake on July 15th-July16th, 2024.
Source: WDNR and SEWRPC

Figure B.4
Watermeal Rake Fullness in Trippe Lake: July 2024



Note: Survey was conducted on Trippe Lake on July 15th-July16th, 2024.
Source: WDNR and SEWRPC

Figure B.5
Sago Pondweed Rake Fullness in Trippe Lake: July 2024



Note: Survey was conducted on Trippe Lake on July 15th-July16th, 2024.
Source: WDNR and SEWRPC

State of Wisconsin DNR Department of Natural Resources Water Permit Central Intake – attn. APM PO Box 7185 Madison, WI 53707-7185	Mechanical Aquatic Plant Control Permit
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Permit Number: SE-2026-65-26311M	Waterbody # (WBIC): 815200,816000
Permit Expiration Date: 12/31/2030	Fee Received: 300
Waterbody Name: Trippe Lake & Cravath Lake	Waterbody Address: 341 S Fremont Street
Applicant Name: City of Whitewater	Applicator Name: Midwest Aquatics LLC
312 W. Whitewater Street	P.O. Box 617
Whitewater, WI 53190	Oconomowoc, WI 53066
Email:	Email: midwestaquatics@sbcglobal.net
Phone:	Phone: 262-385-5874

The Department has received and reviewed your application to mechanically remove up to 11.25 acres of aquatic plants in Trippe and Cravath Lakes, Walworth County.

Aspects of this permit may not be changed. Please go to this web address: <https://permits.dnr.wi.gov/water/SitePages/Permit%20Search.aspx> to search for and download the permit documents.

Your permit application meets the minimum requirements by law and a permit is being issued with the following conditions:

Permit Conditions

1. You shall follow the treatment plan outlined in the June 2025 Aquatic Plant Management Plan for Cravath and Trippe Lakes, permit application and permit conditions. Any changes to the permitted activity (or Department approved management plan) will require an additional permit from the Department.
2. You shall perform the treatment notification protocols, treatment plan, and reporting protocols in compliance with Ch. NR 109, Wis. Adm. Code. The conditions and treatment plan are required to be followed to ensure efficacy of the treatment.
3. You shall notify Lakes Biologist Heidi Bunk of the Department of Natural Resources by email at Heidi.bunk@wisconsin.gov 4 business days before treatment with the date and time of proposed treatment. This notification shall occur each year.

4. You shall have a paper or electronic copy of this decision letter, the Aquatic Plant Management Plan for Cravath and Trippe Lakes and permit with the individual conducting the harvesting during all associated harvesting events.
5. The quantity and species of plants to be mechanically harvested and the widths of the cutting paths must be in accordance with the 2025 APM plan for Cravath and Trippe Lakes and as additionally described in the permit application (Site Map 15325 and Site Map 25357, submitted with your permit application).
6. Cutter bars must be kept out of the sediment. A minimum of 1 foot of aquatic plant growth must remain at the bottom of the lake in all harvested areas.
7. You shall remove all game fish, turtles, frogs and other non-target organisms from the harvesting hopper immediately upon their capture, unless the action interferes with the safe operation of the equipment. In this instance, the organisms shall be unloaded when the equipment is docked for unloading. You shall take all precautions to avoid bycatch.
8. You shall remove all harvested materials from the water immediately.
9. You shall not disturb the substrate of the waterbody via paddle wheels, cutter or roller bar.
10. You shall ensure the method of unloading and disposal of harvested aquatic plants prevents the release of plant fragments back into the lake or other waterbodies.
11. You shall not use the paddle wheels to scoop floating plants towards the shore due to the scouring and resuspension of sediments, and erosion of the shoreline.
12. Cut channels shall be limited to 30 feet in width or less.
13. Stands of native aquatic plants such as native pond weeds, chara and waterstar grass shall not be top cut or clear cut outside of designated harvesting lane channels as denoted on the harvesting maps.
14. Stands of yellow water lily shall not be clear cut outside of designated harvesting lane channels as denoted on the harvesting maps.
15. You shall submit an annual report of aquatic plant material removed by weight (unit) and volume (unit) and species, a detailed map of treatment areas, total acres harvested, a report detailing the non-target impacts and the species and number of fish encountered within 30 days of the last treatment to both:
 - a. [The Water ePermitting System](#) and
 - b. Heidi Bunk at Heidi.bunk@wisconsin.gov

Findings of Fact

1. The applicant has certified to the department that a copy of the application has been made available to all affected property owners' associations, inland lakes districts, and riparian owners.
2. The Department of Natural Resources has determined that the agency's review of the proposed project constitutes an integrated analysis action under s. NR 150.20(2), Wis. Adm. Code. The Department has considered the impacts on the human environment, alternatives to the proposed projects and has provided opportunities for public disclosure and comment. The Department and the applicant have completed all procedural requirements of s. 1.11(2)(c), Wis. Stats., and NR 150, Wis. Adm. Code for this project.
3. The project as permitted will comply with all applicable requirements of Sections 23.24 and 281.17(2), Wis. Stats., and Chapter NR 109 Wis. Adm. Code.
4. The Department has determined that a state listed herptile species has been documented in Trippe and Cravath Lakes.
5. The Department has determined that a state listed plant species has been documented in Trippe and Cravath Lakes.
6. The Department has determined that a state listed bird species has been documented in Trippe and Cravath Lakes.
7. Your permit application has been reviewed and meets the minimum requirements by law and a permit is being issued. Issuance of the permit is not an endorsement or approval for the action authorized.

Conclusions of Law

1. The Department has authority under s. 23.24 , Wis. Stats., and Ch. NR 109, Wis. Adm. Code, to issue an order approving the application in full.
2. The project as authorized under this permit, if conducted in accordance with the conditions of this permit, meets the standards in s. 23.24, Wis. Stats., and Ch. 109, Wis. Adm. Code, and is hereby approved.
3. The Department has complied with the Wisconsin Environmental Policy Act, s. 1.11, Wis. Stats.

Notices

- It is your responsibility to comply with all provisions in Wis. Stat. s. 30.07 and Wis. Adm. Code s. NR 40.07 related to removal of aquatic plants and animals and draining of water from boats, vehicles, and equipment. For further information, please refer to the following: <https://dnr.wi.gov/topic/invasives/prevention.html>.
- It is your responsibility to comply with the provisions of Ch. NR 500, Wis. Adm. Code, regarding solid waste transporting. For more information, please refer to the following: <https://dnr.wisconsin.gov/topic/Waste/Licenses.html>
- The disturbance and redistribution of lakebed material is considered dredging per s. NR 345.03 (5), Wis. Adm. Code, and is prohibited unless the provisions of s. 30.20 (1), Wis. Stats., are met. It is your responsibility to avoid these activities until obtaining written approval from the Department Waterways and Wetlands program.
- The approval of an aquatic plant management permit does not represent an endorsement of the permitted activity but represents that the applicant has complied with all criteria of this chapter.
- Noncompliance with the permit can result in enforcement actions under Chs. 23, 30 and 31, Wis. Stats., and restriction of aquatic plant management activities for subsequent years under Ch. NR 109, Wis. Adm. Code.
- You shall comply with local and county ordinances regarding disposal of aquatic plant materials. Disposal of the harvested aquatic plants must be located in the areas specified in the permit application (City of Whitewater Compost Site, Figure 3.2 in the Aquatic Plant Management Plan). Disposal shall not occur in a wetland or floodplain.
- **The Department recommends a second observer on the harvester to help capture and return frogs, turtles and fish back to the lake.**

If you have any questions or concerns, I can be reached at 262-719-0814 or by email at heidi.bunk@wi.gov.

State of Wisconsin Department of Natural Resources for the Secretary

By: Bunk, Heidi	04/16/2026	04/16/2026
Lakes Biologist	Date Signed	Date Mailed

Please Note:

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent. This notice is provided pursuant to s. 227.48(2), Wis. Stats. To request a contested case hearing pursuant to s. 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Lakes Advisory Committee Meeting Goals & Objectives Establish 1/25/24

Goals & Objectives	Extra Discussion/Ideas
Creation of Lakes District	Asking Whitewater/Rice Lake District for help
Education/Promotion of Lake District & Overall Value of our Lakes to our community	Social Media, City Manager Newsletter
Cattail mangement and removal	Dredge, Swamp Devil, Drone Spray, Truxor
Update Lakes Management Plan with Southeastern Wisconsin Reginal Planning Commission	
Balanced ecosystem	
Purchase of equipment to manage lakes moving forward	Truxor w/attachments
Create navigational waters for no wake actvities	
Plant management plant, to include all plants, not just cattail	Evaluate submerged weeds in Spring
Water quality improvement & ability to maintain	
Identify water locations being fed into the lake, to include quality, & plan to catch nutrients before entering main lake	
Identify and work with agriclutlure land owners to improve water quality and soure of runoff feeding the lake	
Colaboration with UW-Whitewater for future capstone studies, funding, educational speakers	
Increase Recreational Activities: Kayak, Canoe, Fishing, Bird Watching,	Rental options at Cravath Lakefront Building
Improve Pier & ADA Access in multiple locations, first targeting Clay Street Nature Park location	ADA Kayak Launch
Dredge & Bring Back Swimming Hole at Trippe Lake	What is the appropriate depth
Explore Political Avenues for Back-up	Baldwin on Water Quality
Shoreline Restoration	
Fish Stocking for 2024 and future years	
Enhance Landscaping on City owned areas around the lakes	Exercise Equipment on the pathways
Storm water management plan that spells out water entering the lake	
Explore Grants that could help Lake District & Individual Land Owners	
Connect with Wisconsin Wetlands for Public Education & Resources	