

# AQUATIC PLANTS AND THE WEED HARVESTING PROGRAM



This brochure explains the importance of aquatic plants to the health of Lake Ripley, our weed harvesting program, and what YOU can do to help as a citizen of the Lake Ripley watershed.

## Water Quality

What do you think of when you think about water quality? Clean, clear water in which to swim? Water where the fishing is good? Water for quiet paddling to enjoy a summer morning? Or perhaps a fast trip in a speedboat, pulling a tube full of laughing children?

Scientists think about water quality slightly differently; they think about the parameters that would indicate a healthy lake ecosystem. Their measurements look for good levels of dissolved oxygen, low levels of turbidity (suspended solids in water, as would happen from soil erosion or by stirring up lake bottom sediment), water clarity (clear-ish water, not an overabundance of the tiny plants which are the basis of the lake food web).

The challenge is that most sources of lake water pollution are widely diffused. Most lakes, like Lake Ripley, are mostly harmed by thousands of minor daily small activities that add nutrients to the lake.

Practically every homeowner, farmer, and contractor marginally increases pollution through commonplace activities such as lawn maintenance, the cultivation of crops, and construction. Added together, these small everyday actions critically threaten lakes and their ecosystems.

## The Big Picture

Too many nutrients in the water is the biggest threat to lakes in the Midwest. Nutrient pollution has a variety of causes, and many relate directly to the ways we live on our shorelines. Nutrients are basically plant food—they feed the algae and aquatic plants that are essential to the lake food-web and the lake ecosystem. Only when overabundant do nutrients create big problems, like algae blooms or excessive plant growth.

Lakes naturally accumulate nutrients and sediments as they age. As plants and algae grow they absorb nutrients. When they die and decompose, they release them. Ever so slowly, lakes fill in with plant and other organic material, and sediment that washes in from the land. In lakes with undeveloped shorelines, this aging process unfolds very slowly. But a very developed shoreline increases the nutrients entering the lake, speeding up the process significantly.

Excess nutrients and sediments end up in our lake through a number of different ways.

# Fertilizer

Fertilizer is any chemical or natural substance added to soil to increase its fertility.

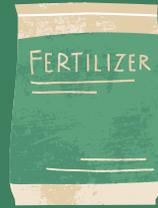
Most of us have no idea how fertile our lawn is, yet we still apply fertilizers. Maybe it's because we like the look of a green lawn, or maybe it's because we don't like dandelions, and we believe that applying chemicals is the way to achieve what we want. We need to change our way of thinking before it's too late.

Fertilizers are food for plants. You might think you are feeding your lawn, but you are also feeding the plants in the lake! Aquatic plants like fertilizer as much as lawn grass does. Fertilizers entering our lake leads to an over-abundance of aquatic plant growth, algae blooms, and fish kills. If you apply fertilizer to your lawn, and you are concerned about the abundance of plants in the lake, you need to realize that you are part of the problem!

There are alternatives to using fertilizer! You can get a similar effect by leaving lawn clippings on your lawn, where they can return nutrients to feed the soil and lawn.

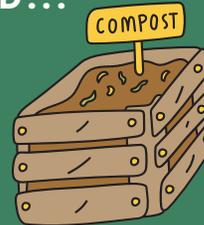
## HOW YOU CAN HELP

**DON'T USE FERTILIZERS!**



Using fertilizer on your yard adds to the problem. Fertilizer contains nutrients that aquatic plants need, such as phosphorus, nitrogen and potassium. These nutrients often get carried away by stormwater runoff into our lake.

**INSTEAD...**



You can compost! Compost at the most basic level is decomposed organic matter. Adding compost to your garden bed can replace the need for fertilizers altogether! You can also set your mower blade to the highest setting to reduce the need for watering your lawn.



Did you know? Dandelions are nectar sources for pollinators? They are also natural lawn fertilizers!

# plants happen



Aquatic plants are essential to all aquatic ecosystems. A thriving and diverse native plant community is the foundation of a healthy lake. Aquatic plants are vital for maintaining ideal water quality and habitat conditions. Plants keep algae in check by competing for nutrients. Plants stabilize lake-bottom sediment, protect shorelines against erosion, both of which lowers turbidity. Plants add oxygen to the water during photosynthesis and they provide cover and spawning sites for fish. Plants create shelter for the zooplankton - who eat algae! Many waterfowl and other wildlife eat aquatic plants.

A loss of aquatic plants and the habitat they create leads to declines in native fish and wildlife, while favoring more tolerant "rough fish", like carp. It also leads to algae blooms and higher turbidity, resulting in a loss of water clarity. In other words, the plants are helping water quality by absorbing the excess nutrients that enter our lake from lawns and farms.

# Pesticide

A pesticide is any substance intended to prevent, destroy, or repel any pest. Pesticides include insecticides, fungicides, herbicides, and other various substances used to control pests. Insecticides includes mosquito control (fogging and/or spraying).

Pesticides pose significant risk to wildlife and human health! Non-target animals are often exposed directly or indirectly to these chemicals. They disrupt hormones in animals which affects their behavior, their ability to reproduce, their mobility, and their ability to navigate. Exposure to pesticides significantly impacts the animals ability to survive.

In humans, pesticides are stored in our colon, where they slowly but surely poison the body. Pesticides have been linked to cancer, Alzheimer's Disease, ADHD, and birth defects. They harm the nervous, reproductive, and endocrine systems. They have also been linked to developmental changes in a wide range of species.

There are alternatives to pesticides, such as companion planting, live traps, and hand-removal.

## HOW YOU CAN HELP

### DON'T USE PESTICIDES!



The use of lawn pesticides by homeowners accounts for the majority of wildlife poisonings reported to the EPA each year. Pesticides harm all wildlife, and stormwater runoff carries these chemicals into our lake where they poison the small creatures of the lake's food web.

### INSTEAD...



Encourage insect-eating birds in your yard by planting native plants! Native plants will prevent weedy species from growing. These plants will also attract native wildlife to your yard!



## CURRENT

## STATISTICS

**AMERICAN HOMEOWNERS USE APPROXIMATELY 70 MILLION POUNDS OF PESTICIDES**

*Based on data produced by the National Audubon Society (2022)*



- It is estimated that approximately 7 million wild birds are killed each year, due to the use of pesticides by homeowners.
- When a bird or small mammal is sickened by pesticides, they neglect their young, abandon their nests and become more susceptible to disease and predators. More often than not, they die. And if eaten by a predator hawk or mammal, those die too.
- Many songbirds are insect-eaters and feed insects (mosquitos and caterpillars) to their young! They are valuable partners in controlling insect pests.

# Erosion

Lakeshore erosion causes high turbidity (murky water full of particles of soil in the water). The natural force of wind, waves, or ice can cause this erosion.

People can cause erosion, too. Some common causes are creating waves from boats, removing shoreline plants by any sort of digging, dredging, filling in, or construction near the shoreline. Rain falling on bare soil can move that soil into the lake.

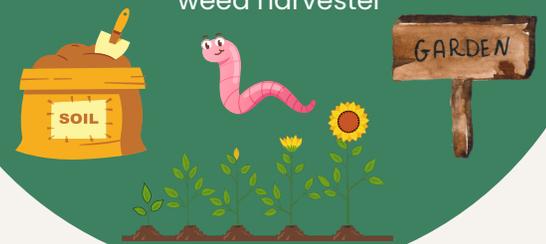
Natural erosion produces nearly 30% of the total sediment in the United States, erosion from human use of land accounts for the remaining 70%.



## HOW YOU CAN HELP

There are many different ways you can help reduce the amount of soil that leaves your property.

- Don't disturb the soil within 30' of the shoreline
- Get a permit for any digging or construction within 30' of the shoreline.
- Ensure proper erosion control materials are used by your contractor.
- Plant a shoreline buffer between your lawn and the water
- Plant a raingarden uphill to reduce stormwater flowing to the lake across your lawn
- Don't burn leaves near the shoreline (ash is plant food!)
- Please learn to appreciate the aquatic plants that live around the lakeshore. They are our best tool for maintaining good water quality in our lake
- Don't accelerate your boat until you are at least 200' away from any shoreline
- When raking up floating plant debris, do it carefully so you aren't uprooting plants
- Use the navigational lanes opened up by our weed harvester



# Turbidity

(disturbed lake-bottom sediment)

The removal of rooted, native aquatic plants near the shoreline or piers eliminates the roots that are stabilizing the lake bottom and keeping sediments in place.

Uprooting plants deliberately or accidentally with boat propellers or kayak paddles brings sediment up into the water where it interferes with water clarity, and challenges all the creatures who live in the water, like fish.



Aquatic plants can only live in near-shore water, typically no deeper than 20 feet. When surface water is turbid, less light enters the water, and aquatic plants cannot perform photosynthesis meaning less organisms can survive.



# THE WEED HARVESTING PROGRAM

The District's weed-harvesting program is a long-term commitment. An effective harvesting program involves maintaining, storing and deploying multiple pieces of equipment. It also involves obtaining and administering permits, training and supervising machine operators, recordkeeping, and maintaining public relations.

## **Permit Approved Locations:**

1. Water depths greater than 3.0 feet
2. At least 10 feet from private piers, boat hoists, swim rafts, and other structures
3. Permit-approved locations dominated by non-native, invasive plant species growing near or at the surface
4. Permit-approved navigational lanes that route motor boat traffic to open water areas

Originally, the District's weed harvesting program focused solely on removing the two invasive plants in Lake Ripley: Eurasian watermilfoil and curly-leaf pondweed. Nowadays, the program has grown to include harvesting navigational lanes around the lake to give better access to recreational users.

# THE HISTORY OF HARVESTING

**June 1989**

A newspaper article titled "The 'Worst weed problem ever' in Lake Ripley" was published in the Jefferson County Union. This article described how the invasive plant, Eurasian watermilfoil, had taken over the lake.

**May 1991**

The District purchases our first harvester, conveyor and dump truck! Our weed harvesting program begins.

**May 2015**

With help from a Wisconsin DNR grant, the District purchased a HM-420 Aquatic Plant Harvester and a conveyor system from Aquarius Systems.

**October 2022**

The District Board passes a motion to issue the statement that "the Lake District will not collect riparian prop-chop."



**May 1990**

Inception of the Lake Ripley Management District with the purpose of controlling the invasive plants Eurasian watermilfoil and curly-leaf pondweed.

**September 1992**

Our first Aquatic Plant Management Plan stated: "Plant masses and fragments that have been washed up on the shoreline have been the responsibility of the riparian residents and associations."

**May 2018**

With help from a WDNR grant, the District purchased a Lowrance GPS unit to improve the accuracy of our cutting lanes.

**Since the beginning of our program, the District has removed over 1,000 loads of harvested plants from Lake Ripley!**

**The great news is that the Eurasian watermilfoil population has decreased from 75% in 1989 to 17.29% in 2020.**

# FREQUENTLY ASKED QUESTIONS

## Q: Where does the harvester cut?

A: The harvester is permitted to cut specific navigational lanes around the lake. The District partners with the DNR to create these lanes.

## Q: How many crew members do we have?

A: The District currently (2023) has three crew members.

## Q: How many days a week does the District's harvester cut plants?

A: At the start of the season (beginning of June) the crew is cutting three days a week. By the beginning of July through the end of September the crew is typically cutting five days a week. During October it goes back to three days a week.

## Q: Can the harvester collect prop-chop around my pier?

A: No. The harvester is not permitted to go into areas 3' or shallower to ensure the safety of our crew members and our equipment.

## Q: Do the paddlewheels create prop-chop?

A: The paddlewheels can uproot plants when they get into water that is too shallow. However, the amount of prop-chop created by the harvester is negligible compared to the amount of prop-chop it collects created by other boats.

## Q: Does the harvester collect all of the plants that it cuts?

A: Yes! The harvester is designed to collect 98% of the material that is cut.



# WHAT ARE AQUATIC INVASIVE SPECIES?

Aquatic invasive species are freshwater or marine organisms that have been spread beyond their native range to places where they are causing harm. They can cause tremendous harm to our environment, economy, and health. They drive out and eat native plants and wildlife, spread diseases, and damage infrastructure.

Eurasian watermilfoil is the most widespread invasive species in the Upper Midwest, being found in hundreds of lakes - including Lake Ripley.

Curly-leaf pondweed has also invaded Lake Ripley. This species is widespread in Wisconsin.



Eurasian water milfoil



Curly leaf pondweed

For more information on aquatic invasive species in Lake Ripley, visit our website.



# THINK GLOBALLY, ACT LOCALLY

*Our lake in the time of climate change...*



Global climate change is not a future problem. It is here now. And although certain parts of the Earth are experiencing more drastic changes more rapidly, we are experiencing climate change right here in Wisconsin!

## **Below are some examples of how Wisconsin is experiencing climate change:**

- More rain in the fall, less in the spring and summer.
- Large intense rain events rather than what we're used to.
- Ice coverage on the lake is shorter, creating a longer growing season for algae and aquatic plants. That means conditions are more favorable for algae and plant growth than they were 40 years ago...
- The lake water is warming. Fish are seeking respite under the shade of aquatic plants.
- Warmer temperatures can allow existing invasive species to expand their range into habitat that is currently too cool.

LET'S  
VOLUNTEER



## **Are you looking for more ways to get involved or be informed?**

- Become a citizen scientist! You can help monitor water clarity, water quality, ice-on and ice-off, and more!
- Volunteer your time at the Lake District Preserve - because remember: everything we do on land affects our water quality.
- Participate in our monthly board meetings.
- Become informed about lake issues by reading Ripples or visiting our website!
- Find other volunteer opportunities online or by calling the District office.

## HOW THE DISTRICT ACTS ON BEHALF OF THE LAKE AND RESIDENTS

The Lake Ripley Management District's mission is to protect and enhance Lake Ripley's water quality and overall ecological health, while maintaining public access and use of the lake that is safe, fair and practical.

### **Listed below are some of the duties the District focuses on:**

- Ongoing water quality monitoring, looking for trends
- Population surveys of aquatic plants, macroinvertebrates and frogs; all of which indicate how healthy our lake ecosystem is and/or indicate an unexpected trend we need to monitor closely
- Monitoring weed-harvesting closely to know what is working and what needs a permit revision
- Keep District residents informed through our website and our newsletter, Ripples, and monthly meetings
- Ongoing work to fulfill goals of our management plans
- Developing programs, such as our cost-share program, that assist land owners in implementing best-management practices.

WHAT WE

DO

# IT'S TIME TO TAKE ACTION!

The fundamental reason people harm the lakes is not because people don't care. It's that we often fail to connect what we do on the land with what happens as a consequence to the lake - to the water's clarity, the fishes' reproduction, growth, and survival; to the overall health of the lake ecosystem; to the desirability and value of the homes on the lakeshore; and to the quality of lake country life itself.

There are many different ways you can help Lake Ripley. Make your promise to do what's best for the lake today!



## CONTACT US

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**Paul Garrison, retired DNR, teaching residents about water quality.**

The District strives to educate residents and others who visit Lake Ripley about lake ecology, conservation practices, recreational safety, watershed management and climate issues.

Through this brochure we hope to educate people on lake ecology and how it interacts with our weed harvesting program! Each lake is unique - no two lakes are the same. That's why it's important to have a Lake District committed to protecting Lake Ripley.

