

The One Best thing

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UNIVERSITY OF MINNESOTA EXTENSION



“So You Think You Know the Lake”

Our contestants today are:

- Katy Howe
- Nancy Neal
- Mae Tinguely



Question #1

What common nutrient has the greatest, negative, impact on water clarity?

A. Nitrogen

B. Phosphorus

C. Potassium



Phosphorus: Water Quality Enemy #1

Excess phosphorus:

- Fuels the overgrowth of aquatic plants and algae
- Can cause blue-green scums along the shore
- Decreases water clarity
- Diminishes oxygen for fish

Itasca County Shoreland Guide to Lake Stewardship




Question #2

How many pounds of algae will one pound of phosphorus feed?

A. 5 pounds

B. 50 pounds

 C. 500 pounds

D. 5000 pounds



The Long Lake Challenge

To reverse the downward trend in our lakes clarity, we need to remove 43 pounds of phosphorus every year.

43 pounds of phosphorus will feed 21,500 pounds of algae (over 10 tons)



Question #3

Which of these is NOT a contributor to phosphorus pollution?

A. Firepits

B. Pet Waste

C. Malfunctioning
Septic Systems

D. Outboard Motor
Exhaust



Where is all this Phosphorus Coming From?

Phosphorus is vital to plant growth - thus plants are high in phosphorus

When plants are burned, phosphorus is left in the ashes

When plants are consumed as food, phosphorus is concentrated in feces and urine

So:

Manage the ashes in your fire pit and if possible locate the firepit 50' from the lake

Clean up after your pets

Keep your septic system in proper working order

If you can't remember the last time you had your septic tank pumped --- do it now!



Question #4

The #1 contributor to phosphorus pollution on most developed lakes is?

A. Pet Waste

B. Stormwater Runoff 

C. Sketchy Mowing Practices

D. Improper use of Fertilizer



Runoff Doesn't Mean Run Away...

A developed lot, compared to an undeveloped, natural lot will have:

A 500% increase in runoff volume

A 700% increase in phosphorus washing into the lake

A 900% increase in sediment flowing into the lake

We all live on developed lots so we are all contributing to the problem but there are things we can do to minimize stormwater runoff.



Question #5

The #1 contributor to stormwater runoff on most developed lakes is?



A. Turfgrass Lawns

B. Roofs & Downspouts

C. Paved Surfaces

D. Riprap Covered Shorelines



Slow the Flow

Allowing rainwater and snowmelt to infiltrate is the key

- Nutrients will be absorbed rather than flow into the lake

How do I slow the flow?

- Mow Less Area:
 - Replace some lawn with natural areas
 - Consider a “Bee Lawn”
 - Mow where you walk and play
- Mow Less Often:
 - Taller grass allows for better root growth



Question #6

The average length of the roots in a turf grass lawn is?



A. <8"

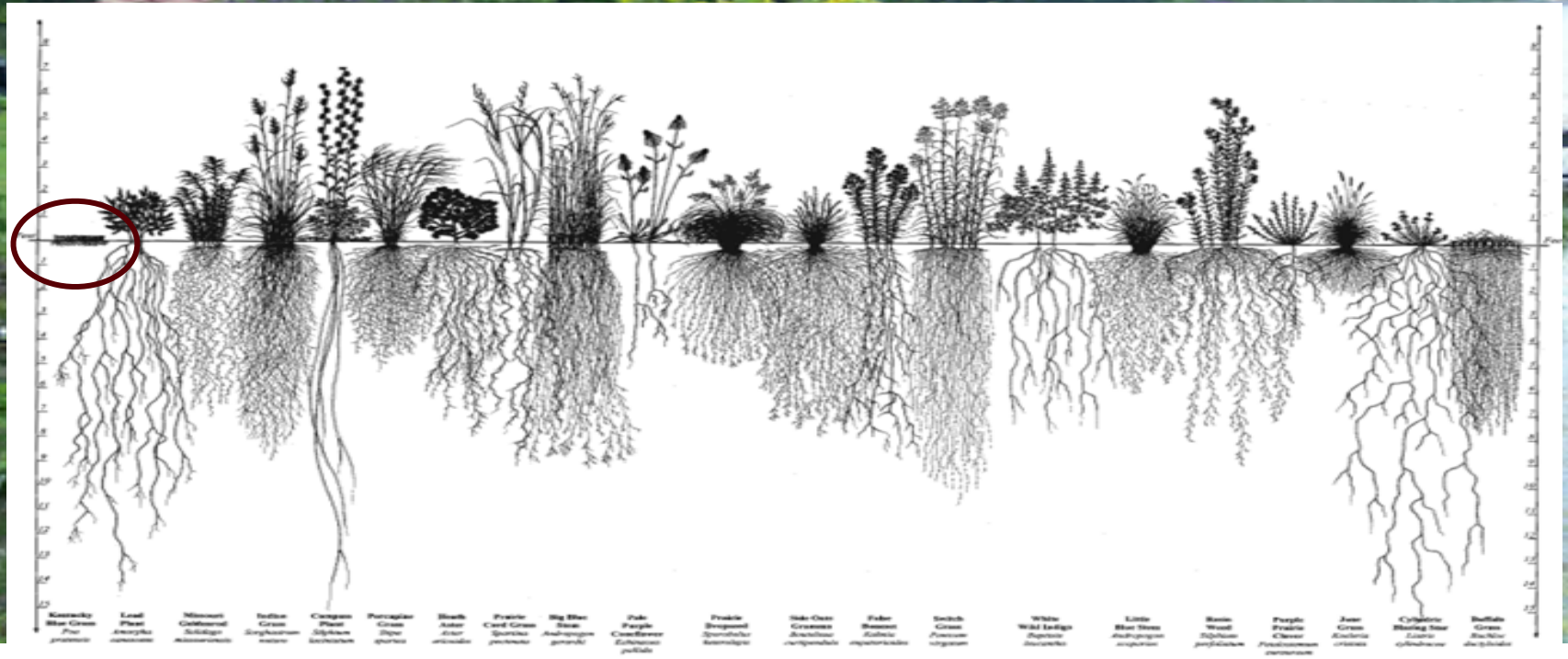
B. 8" - 18"

C. 18" - 36"

D. >36"



Not all Plant Roots are the Same



Question #7

An area of native vegetation extending away from the waters edge is called a(n) ____ ?

A. Eyesore

B. Shoreland Buffer Strip 

C. Riparian Habitat

D. Weed Patch



Question #8

A Shoreland Buffer Strip:

A. Reduces Nutrient Pollution

B. Reduces Sediment Pollution

C. Stabilizes the Shoreline

D. All of the Above



Infiltration is our Friend!

- A 20' wide Buffer Strip can trap:
 - 80% of the phosphorus pollution
 - 90% of the sediment pollution
 - Reduce erosion caused by wave action



Question #9

A Shoreland Buffer Strip:

A. Slows Runoff

B. Provides Habitat

C. Deters Geese

D. All of the Above



Promote the Good; Deter the BaD

- A Shoreland Buffer Strip:
 - Slows stormwater runoff allowing it to infiltrate
 - Provides habitat for fish, birds, dragonflies, butterflies, turtles, mink, etc
 - Geese love a manicured lawn...



Question #10

According to the MN DNRs “Score Your Shore” web site, natural vegetation should be maintained along what % of a lots shoreline ?

A. 25%

B. 50%



C. 75%

D. >95%





<https://www.dnr.state.mn.us/scoreyourshore/index.html>

The DNR Website is an excellent resource

It provides a guidelines for how to manage your property in a lake friendly manner



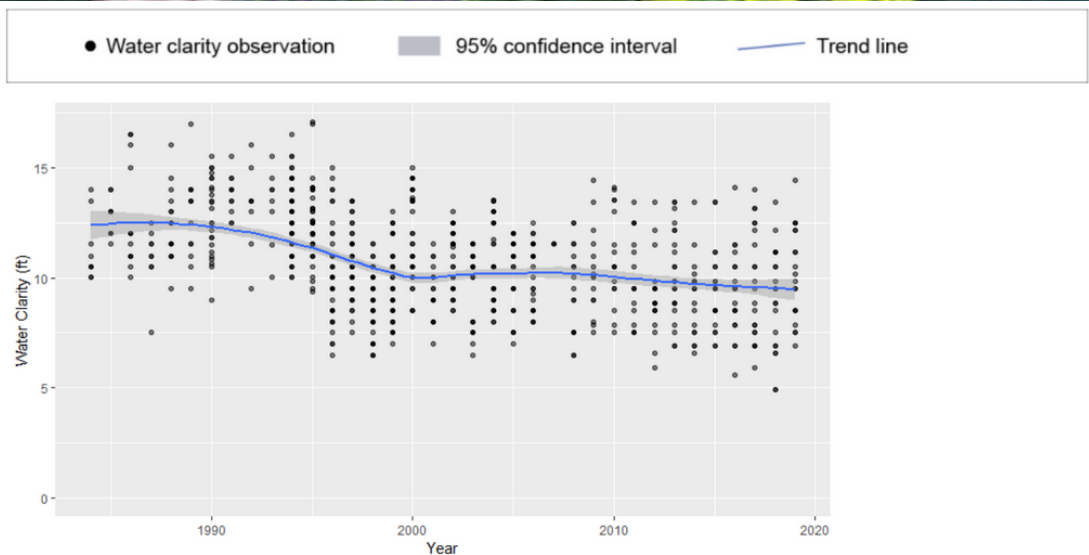
A photograph of a lush garden with various flowers and plants, including red and yellow blooms, situated next to a body of water. The garden is filled with green foliage and colorful flowers, with a small wooden structure visible in the background. The water is calm, and a house is visible in the distance across the water.

Thank You Kay, Mae & Nancy!



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Long Lake Secchi Data



Water transparency is an excellent indicator of water quality, and the majority of these data are collected by volunteers. Many years of data are needed to detect trends in water quality, and we are always looking for new volunteers. Join the MPCA's Citizen Lake Monitoring Program and help collect this important information for your lake.

Data from 1984 - 2019

Downward trend (down is bad...)

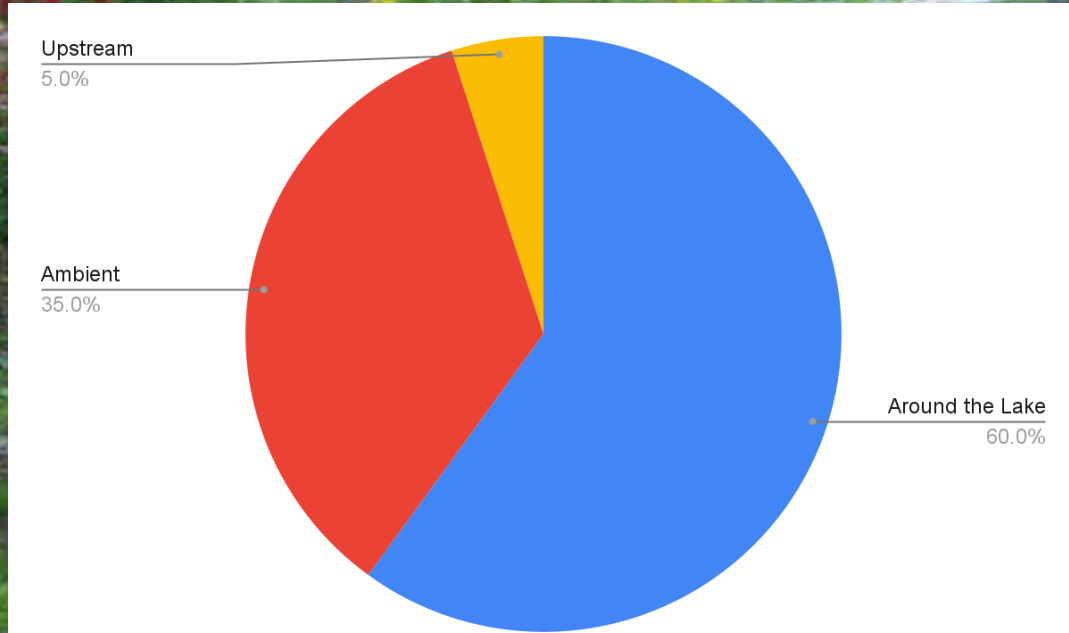
○ 12.5' in 1984

○ 9.5' in 2019

Impact of Zebra Mussels is uncertain
(<https://academic.oup.com/plankt/article/31/11/1437/1441716>)

Reducing P load is probably good

Long Lake Phosphorus Sources



What Can We do?

There is one thing that everyone can do to improve the quality of the water in the lake!

That one thing might be different for everyone.

- Mow less
- Put in rain barrels
- Create a rain garden
- Create a shoreland buffer strip
- Manage the ashes in your firepit
- Clean up after your pet

We are all part of the problem, we all need to be part of the solution!
600 little actions can have a big impact





“Do what you can, with what you have, where you are”

Theodore Roosevelt



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Thank You

As a Master Gardener I am a volunteer

As a gardener I love to talk gardening

If you have any questions about any aspect of gardening around the lake

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Sources and Additional Reading



Water Quality and Lake Shore Management:

<https://itascawaters.org/assets/2018%20Files/The%20Itasca%20country%20shoreland%20guide%202018.pdf>

<https://www.dnr.state.mn.us/rys/index.html>

<https://extension.umn.edu/water/shoreland-properties#preserving-natural-landscapes-1904262>

<http://www.shorelandmanagement.org/depth/citizen.pdf>

Native Plants:

<https://www.nwf.org/NativePlantFinder/>

Pollinators:

The Pollinator Victory Garden - Kim Eierman

Natures Best Hope - Doug Tallamy

Green Lawns

<https://www.beelab.umn.edu/learn-more/beelawn>

(Lawns to Legumes) <https://bwsr.state.mn.us/l2l>

