WISCONSIN DEPARTMENT OF NATURAL RESOURCES

# Cyanobacteria (aka Blue-green Algae) and Other Algae:
## An Introduction to the Basics for Winchester Town Lakes

April 22, 2026 | Winchester Town Lakes Committee

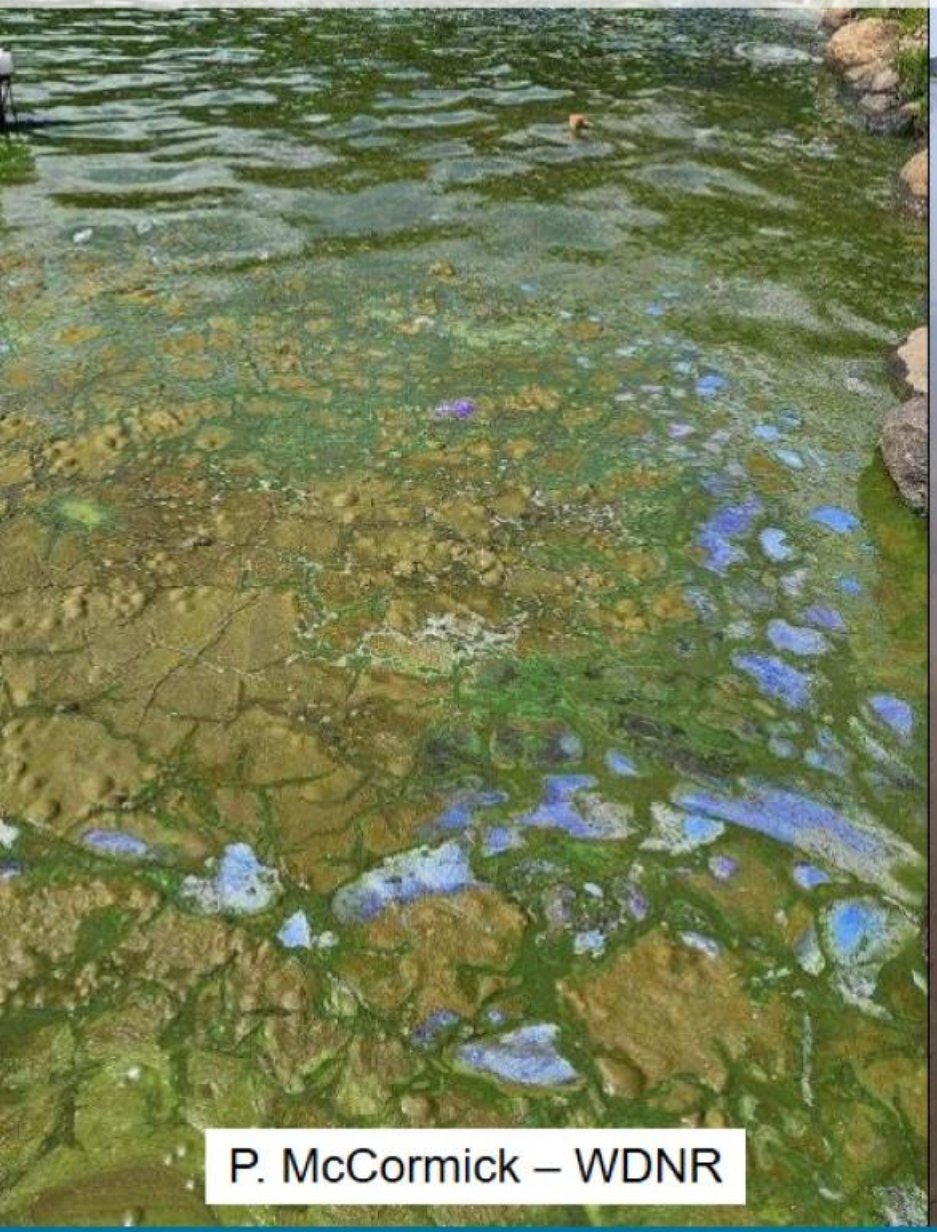
Gina LaLiberte

# Cyanobacteria = Blue-green Algae

**Cyanobacteria are EVERYWHERE!**

**But… blooms are NOT a problem everywhere.**

# Bloom = nuisance level of cyanobacteria



P. McCormick – WDNR

K. Reinl - NERR

N. Erler – Sawyer County

# Planktonic

# Benthic



# actively growing: GREEN

J. Williamson

# decomposing: pigments are released

M. Meade - WDNR


B. Butterfield

# Planktonic blooms may be many different colors.


R. McLennan


N. Trombly


T. Moris


Unknown CLA Volunteer


DLSD

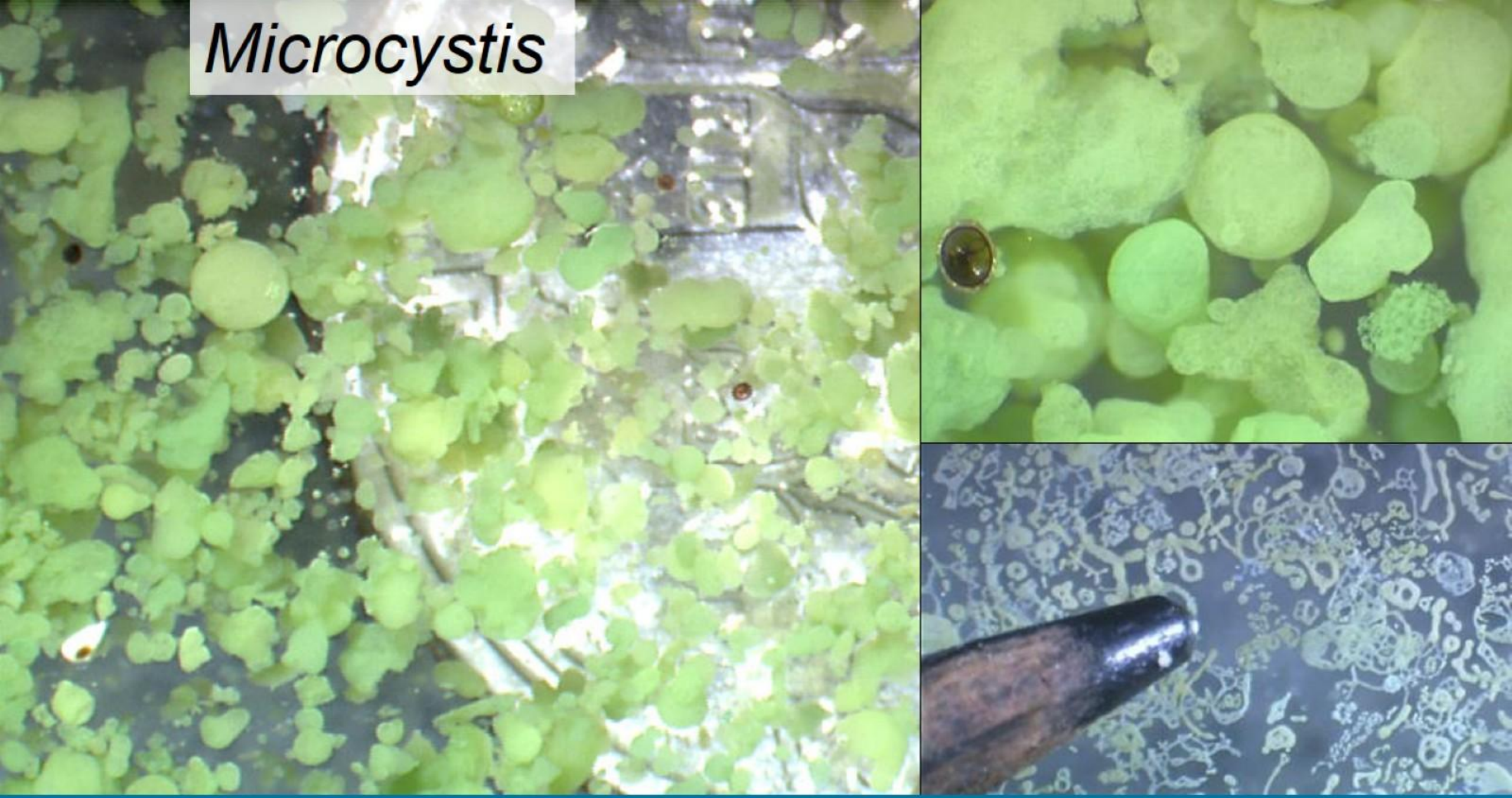

J. Williamson


Finn Ryan, yaharaproject.org


WDHS

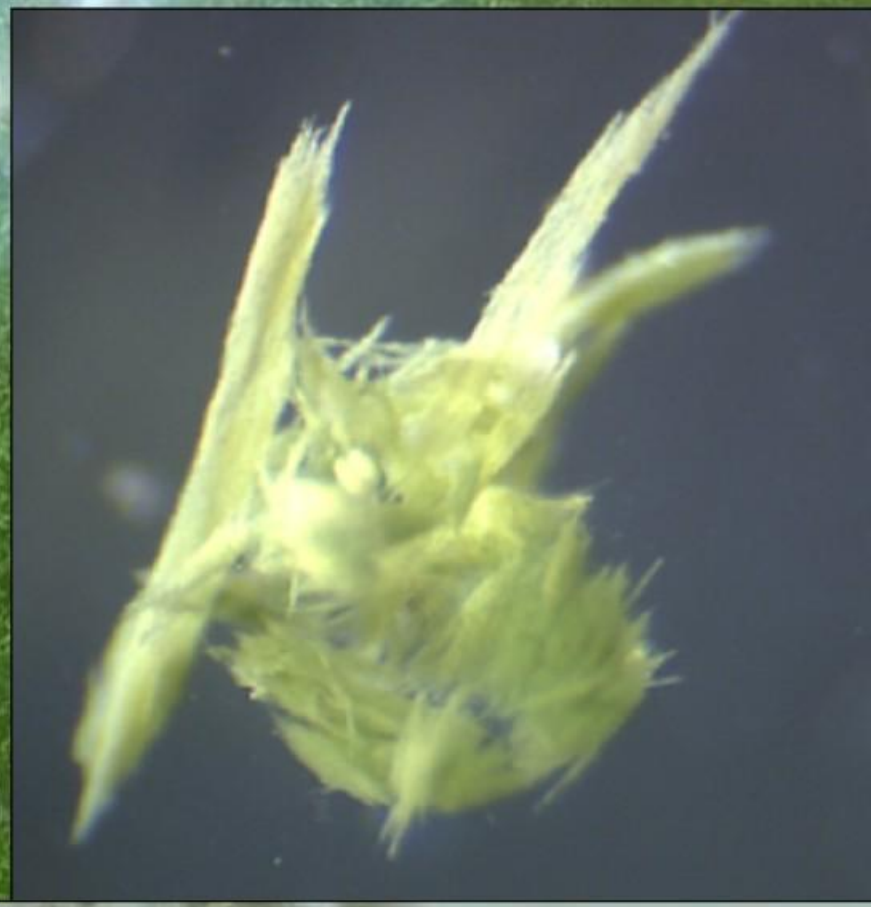

J. Williamson


A. Dryja


Microcystis

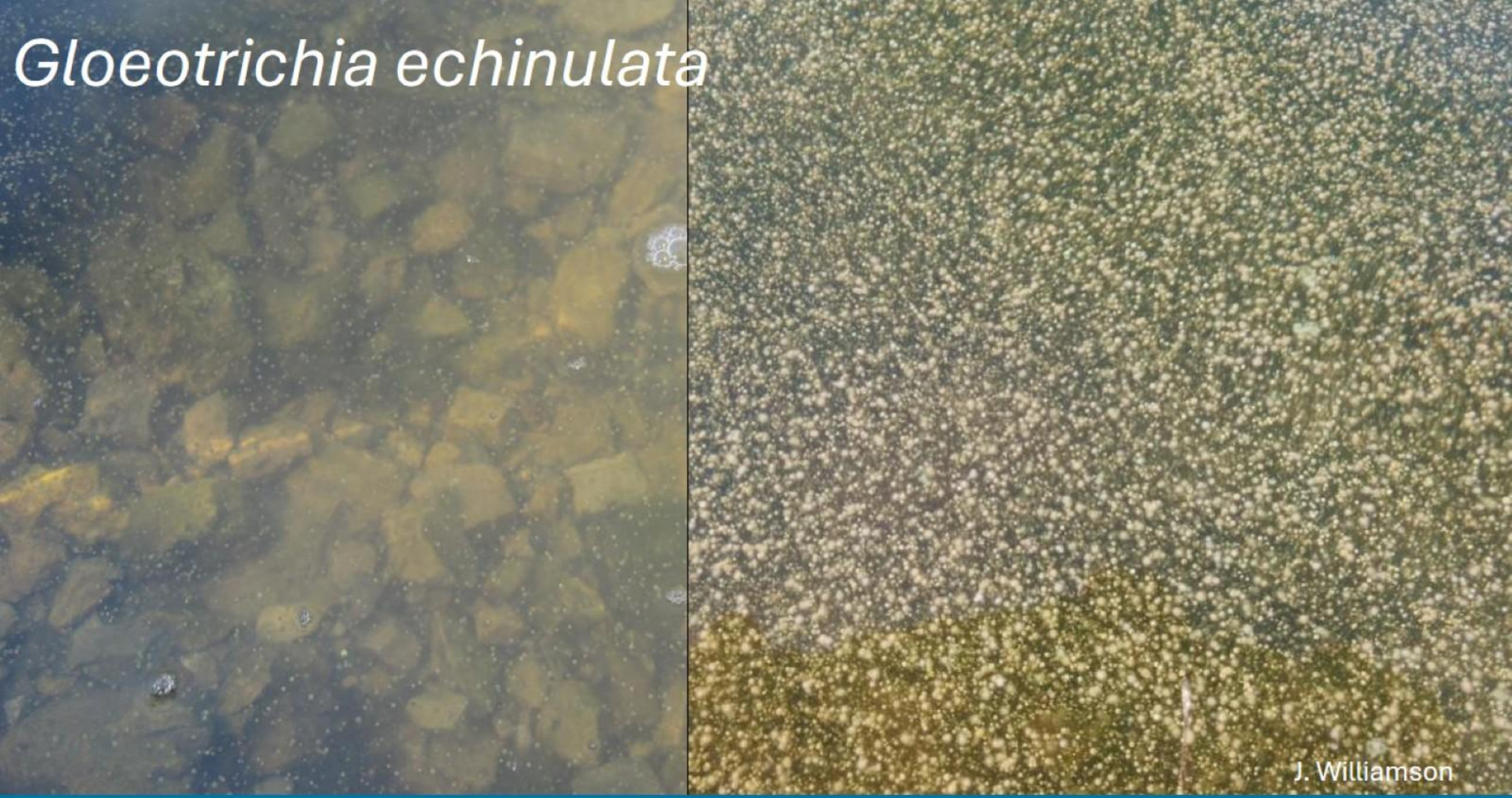
# *Aphanizomenon*

Tiny grass clippings



C. Carlson

# *Gloeotrichia echinulata*



J. Williamson

# *Gloeotrichia echinulata*




Clean Lakes Alliance Monitoring Volunteer

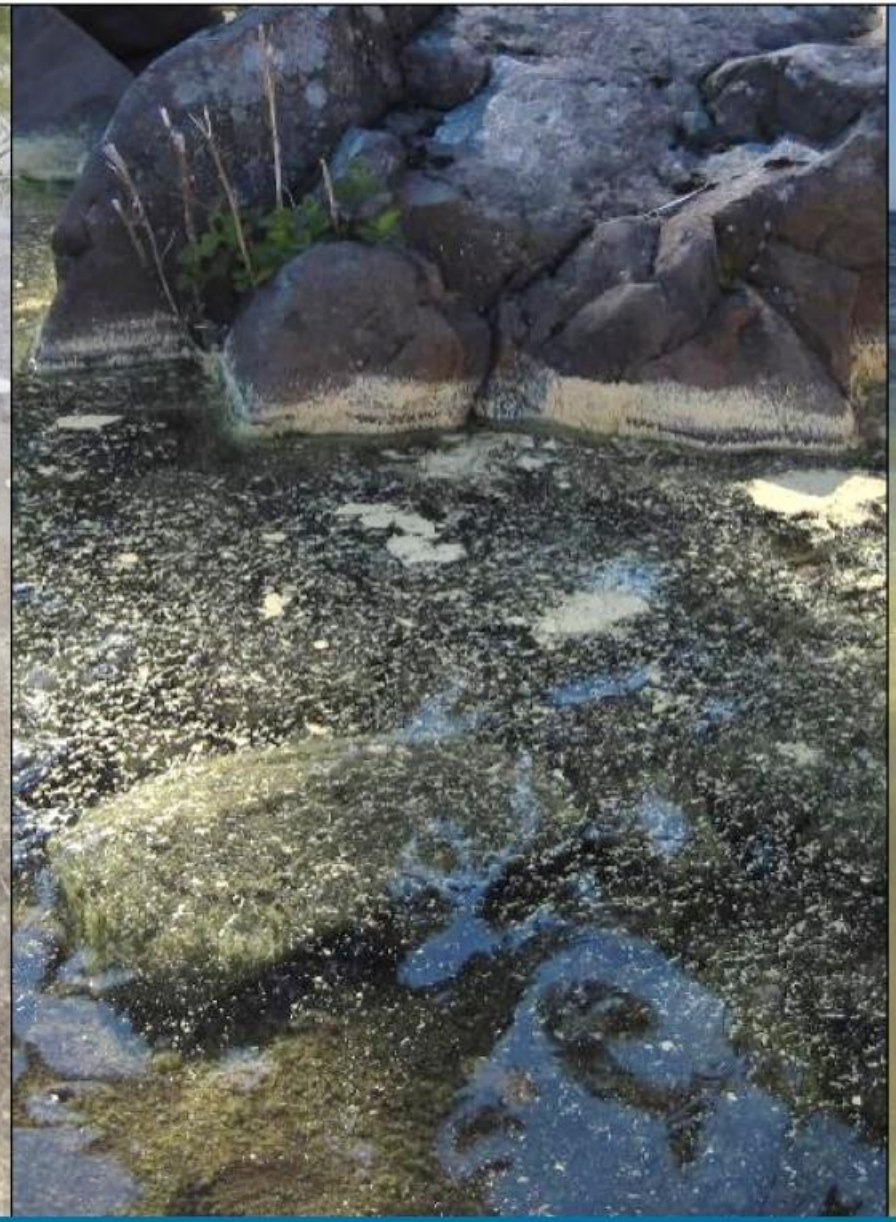

J. Marty – EOR, Inc.

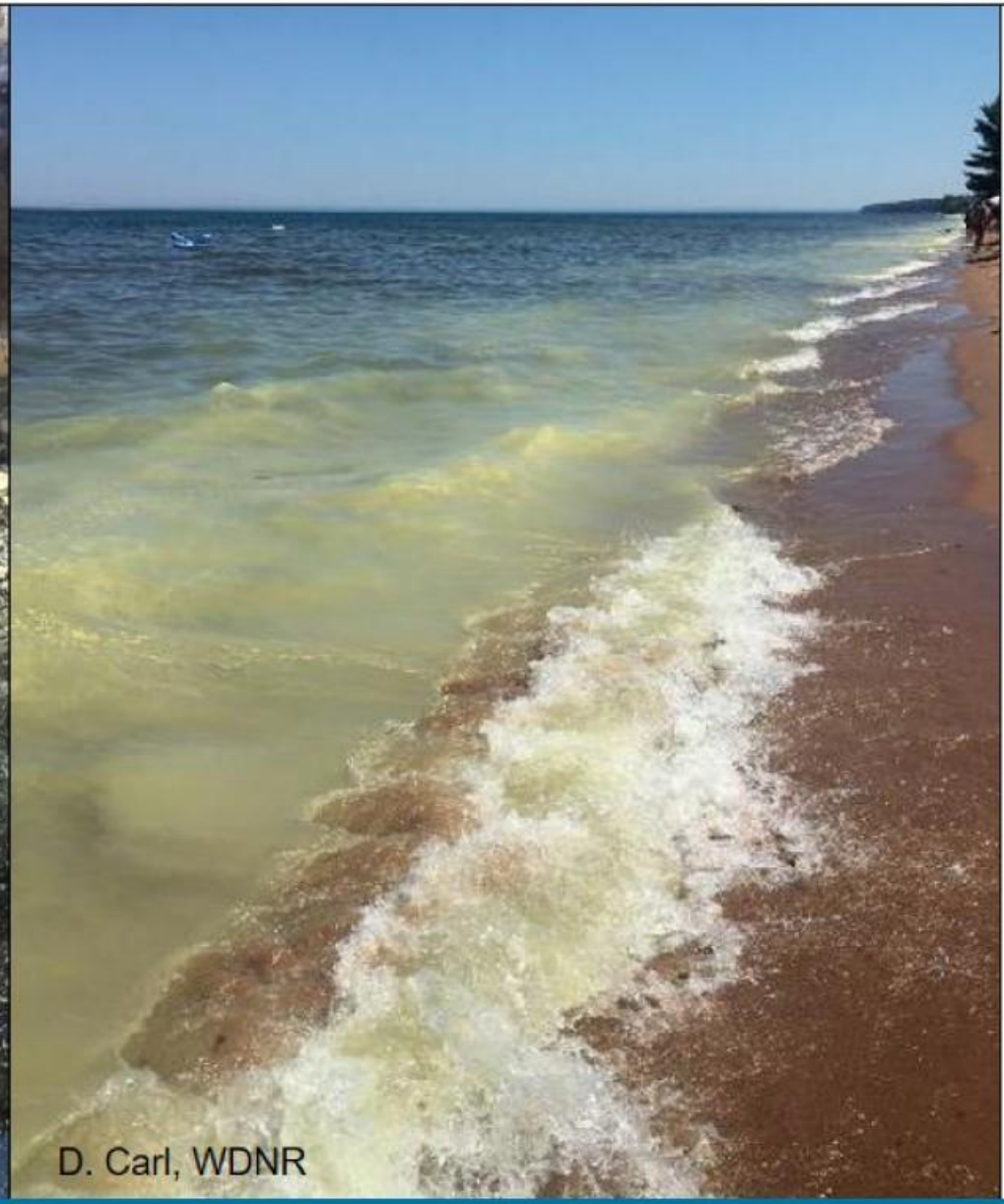

Be aware of look-alikes

*Wolffia* (water meal), *Lemna*, *Spirodela* (duckweeds)

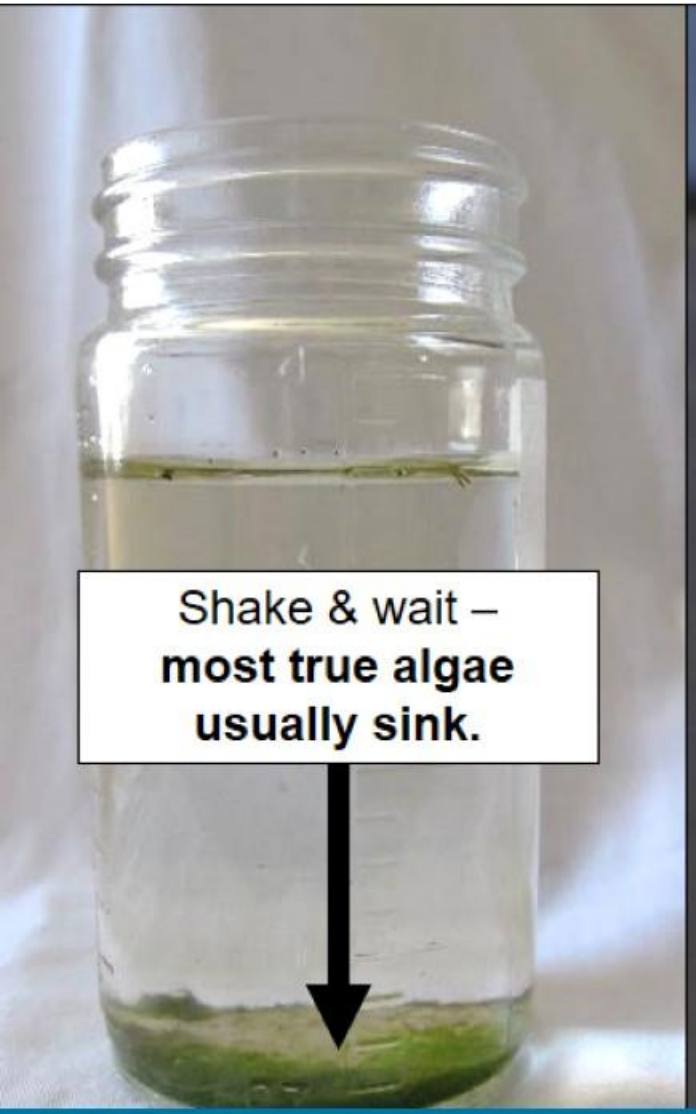
# Pollen is pale yellow - look for similar yellow dust on land.


B. Nordin, WDNR




D. Carl, WDNR

# A “Jar Test” can indicate if green water contains planktonic cyanobacteria

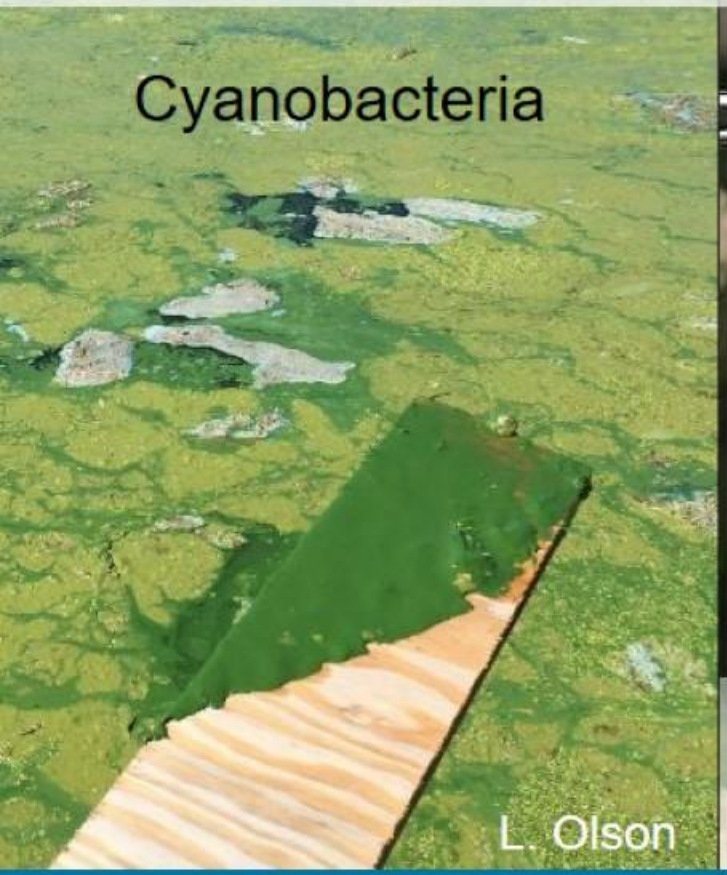




dhs.wisconsin.gov Staying Safe and Healthy in Wisconsin’s Lakes Fact Sheet
**tinyurl.com/55r7npvj**

# Are you seeing floating cyanobacterial mats or something else?

"**Stick Test**" – does it coat a stick like paint?
Does it drape over a stick like green hair?
(There is 1 exception, so look at color.)





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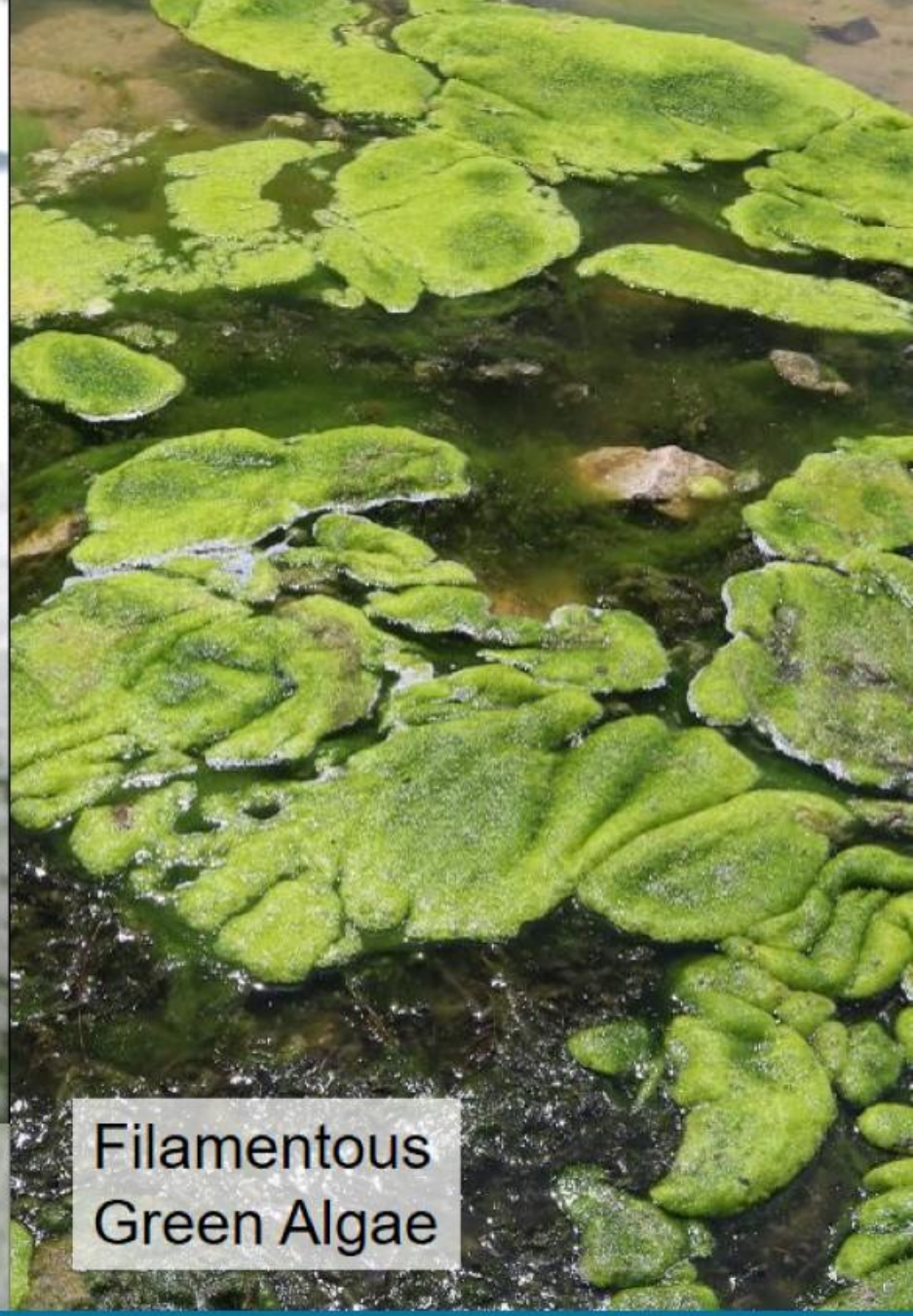

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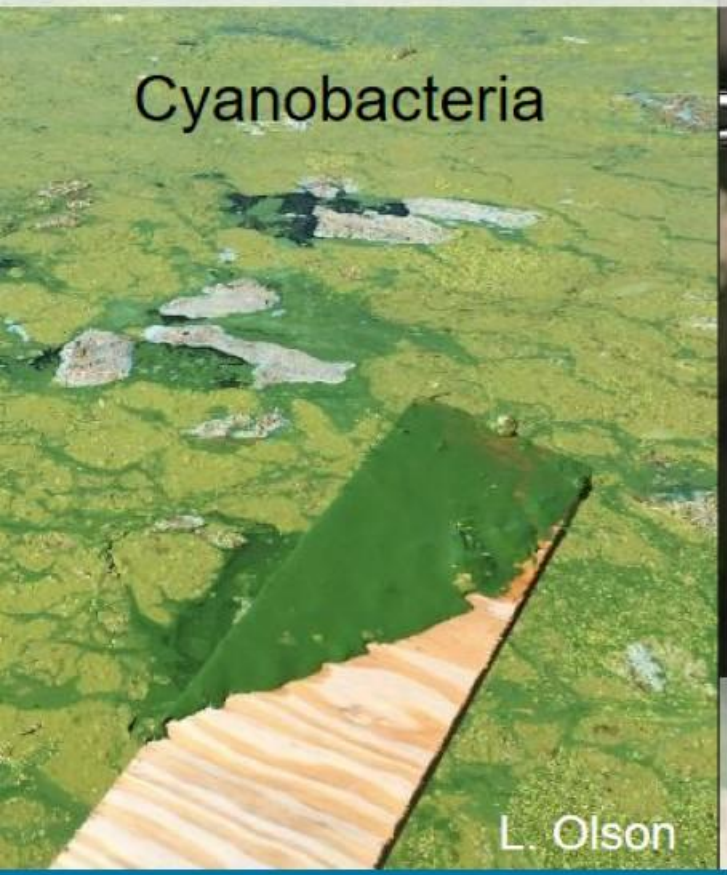



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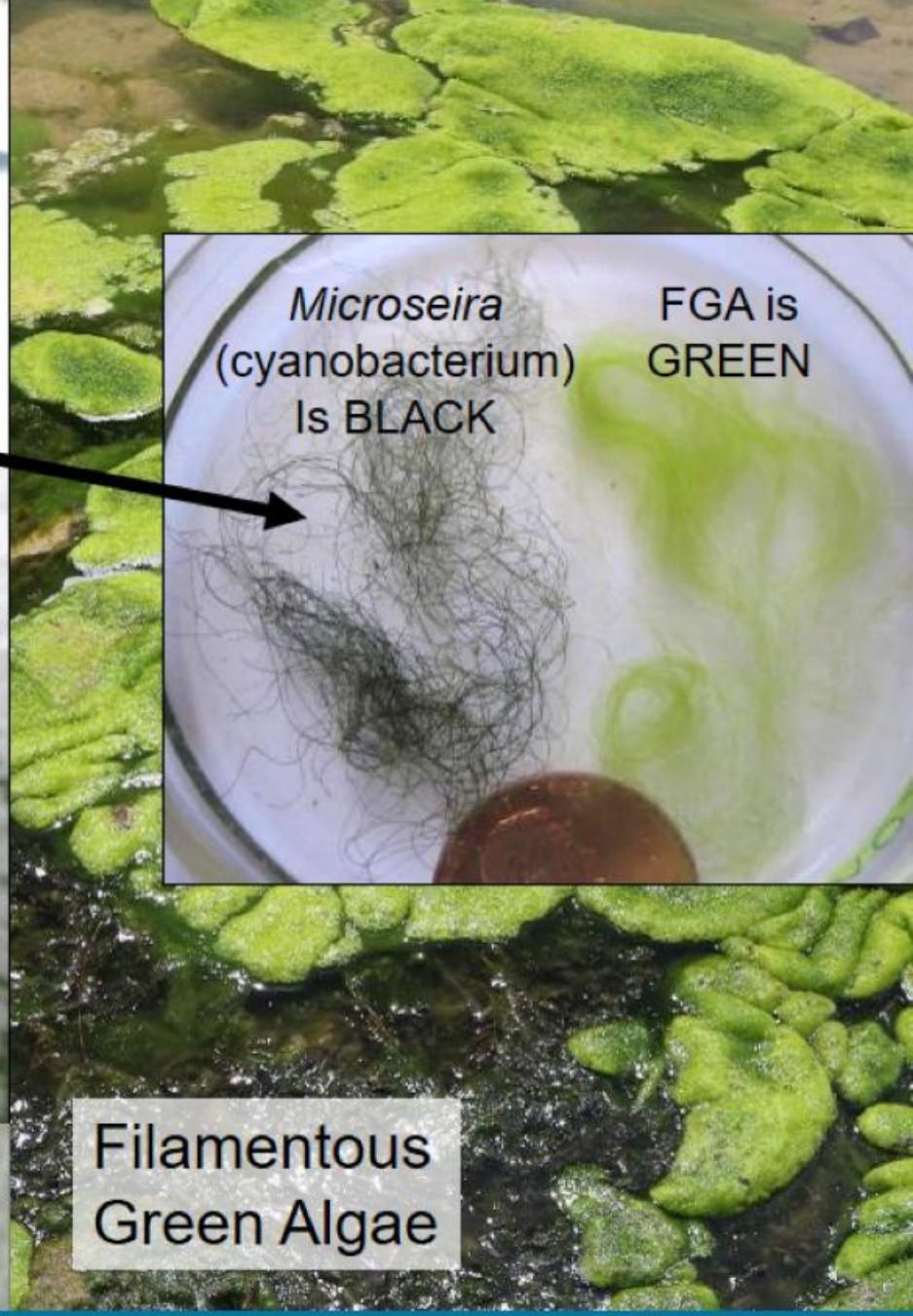
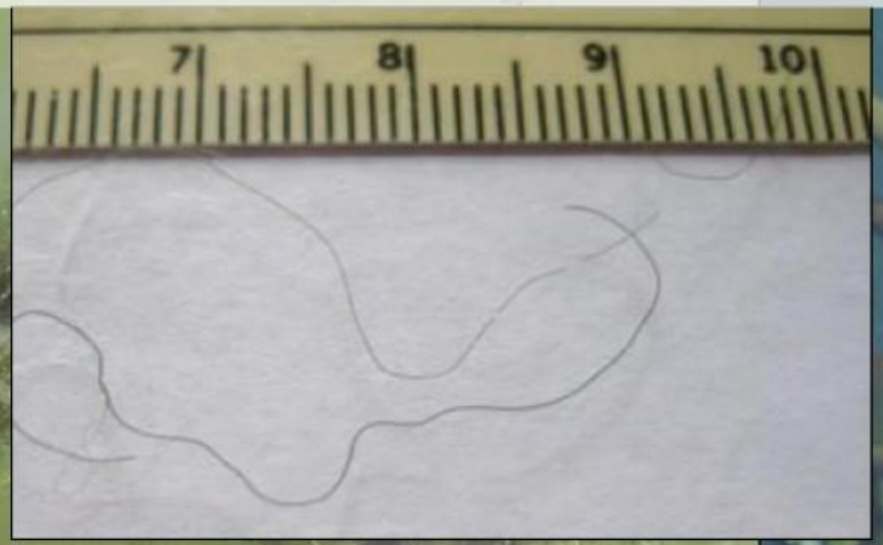


*Microseira wollei* is the filamentous cyanobacterium that is the exception to the stick test.

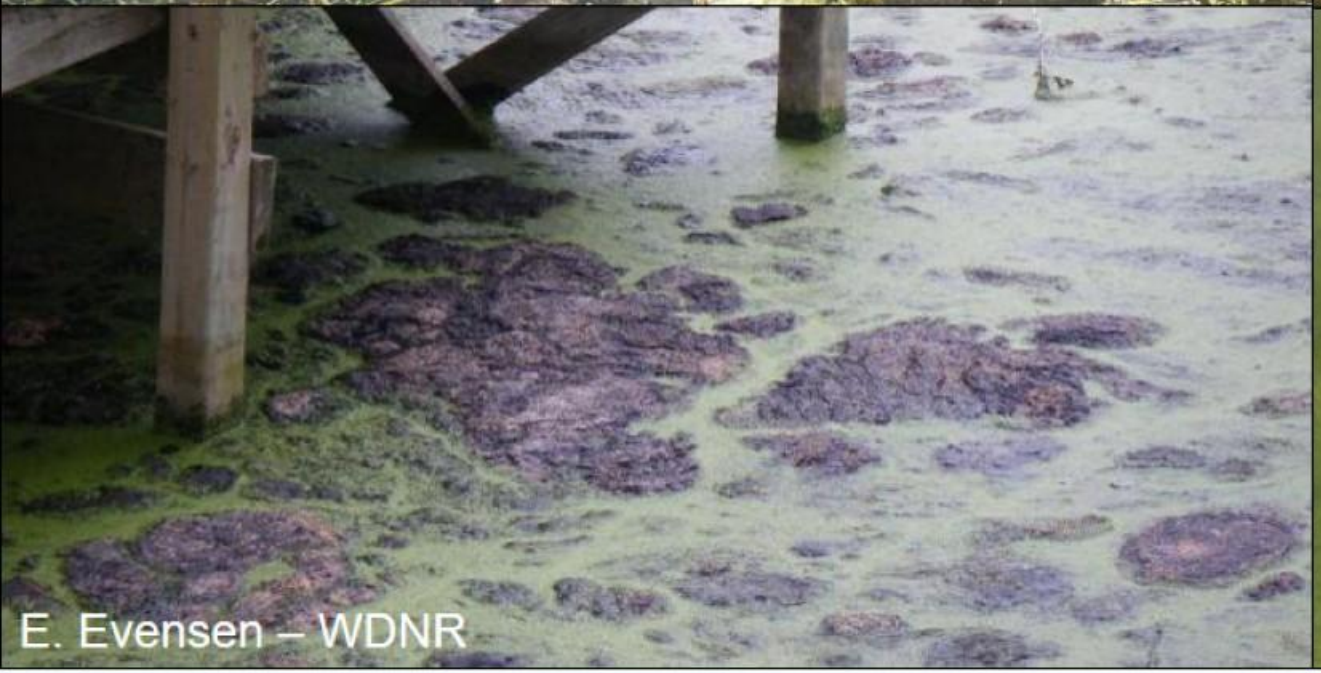



Grows entangled with aquatic plants.

Under the right conditions, rolls around on the lake bottom and forms balls.

# Benthic mats float off the bottom of lakes & rivers.



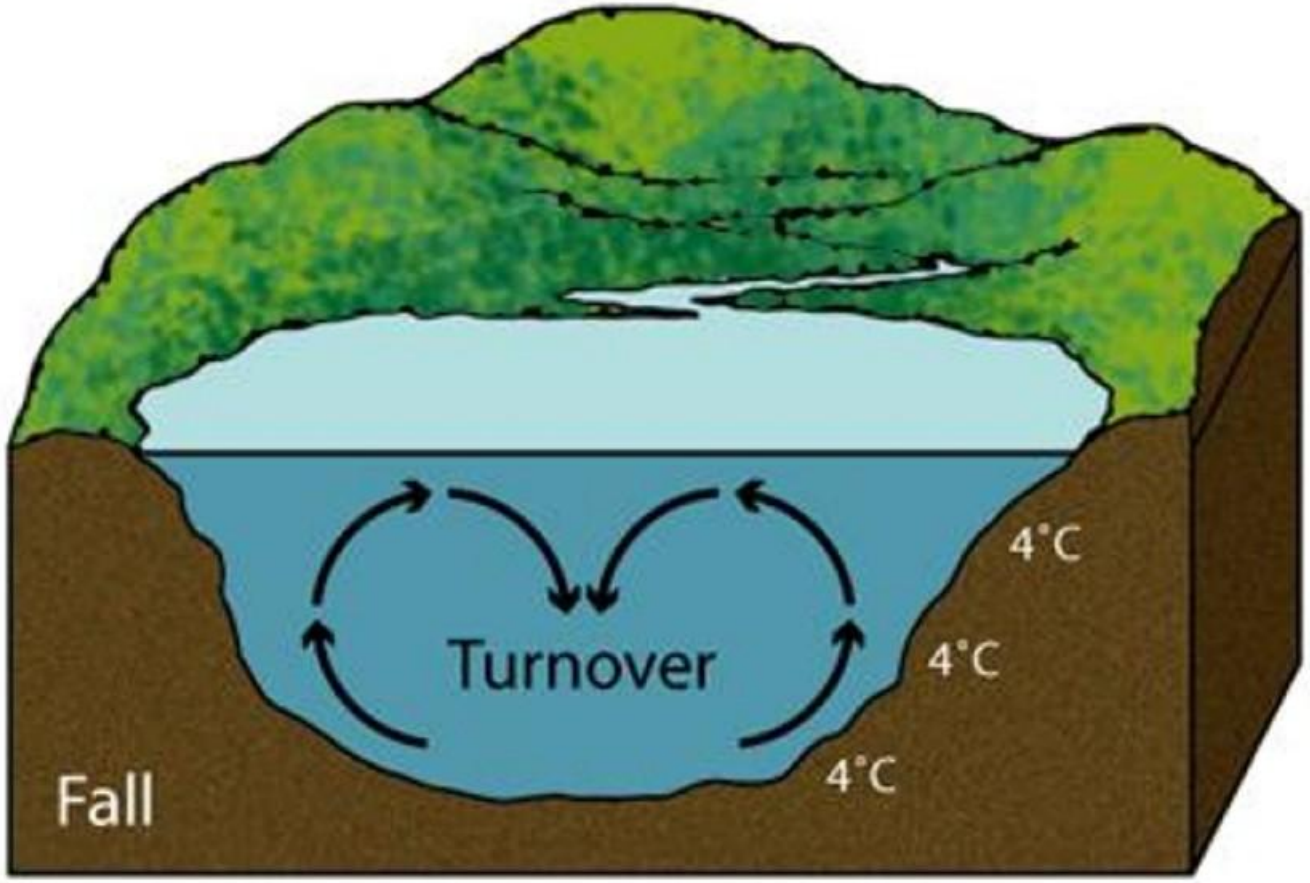



# High-nutrient (eutrophic) lakes are vulnerable to large & ongoing blooms.

Impoundments are very vulnerable:

- Sediments & nutrients retained
- Shallow
- Aquatic plant loss from drawdown

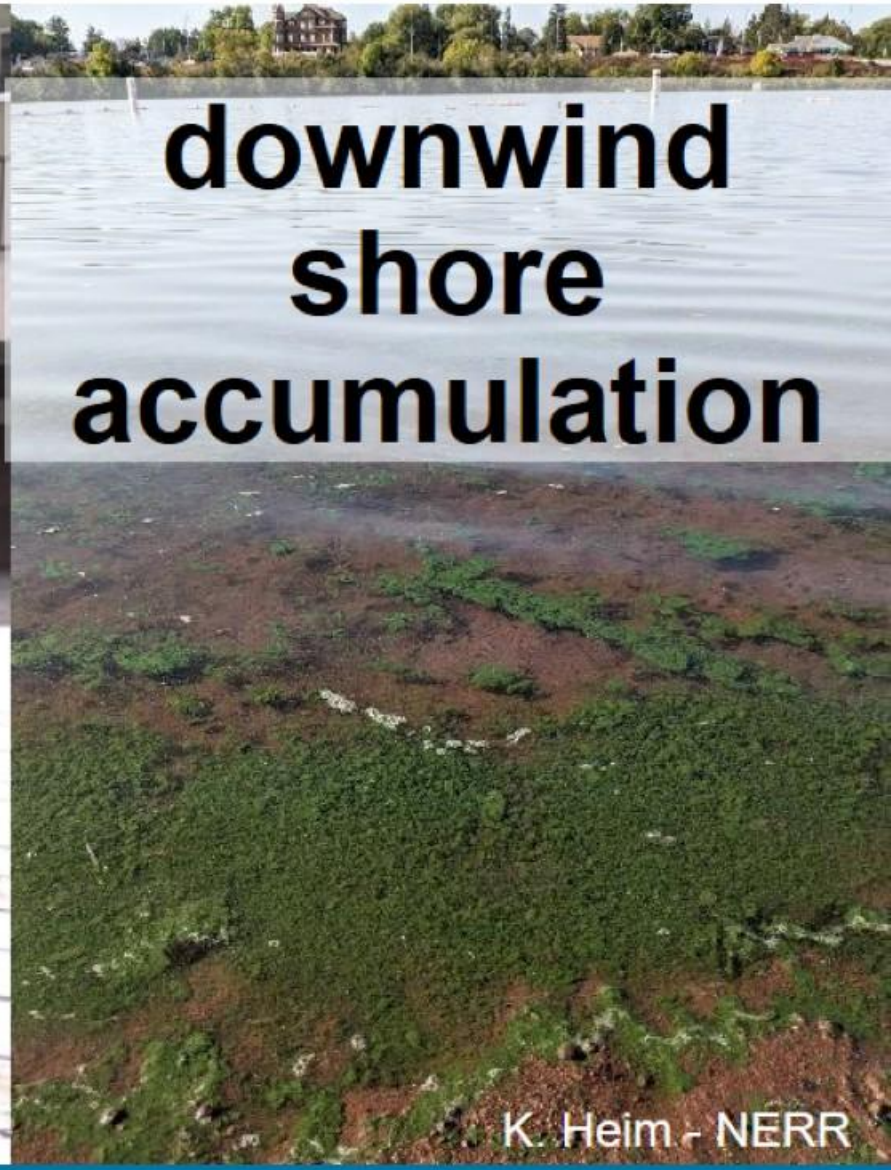
# Fall turnover can lead to late-season blooms.



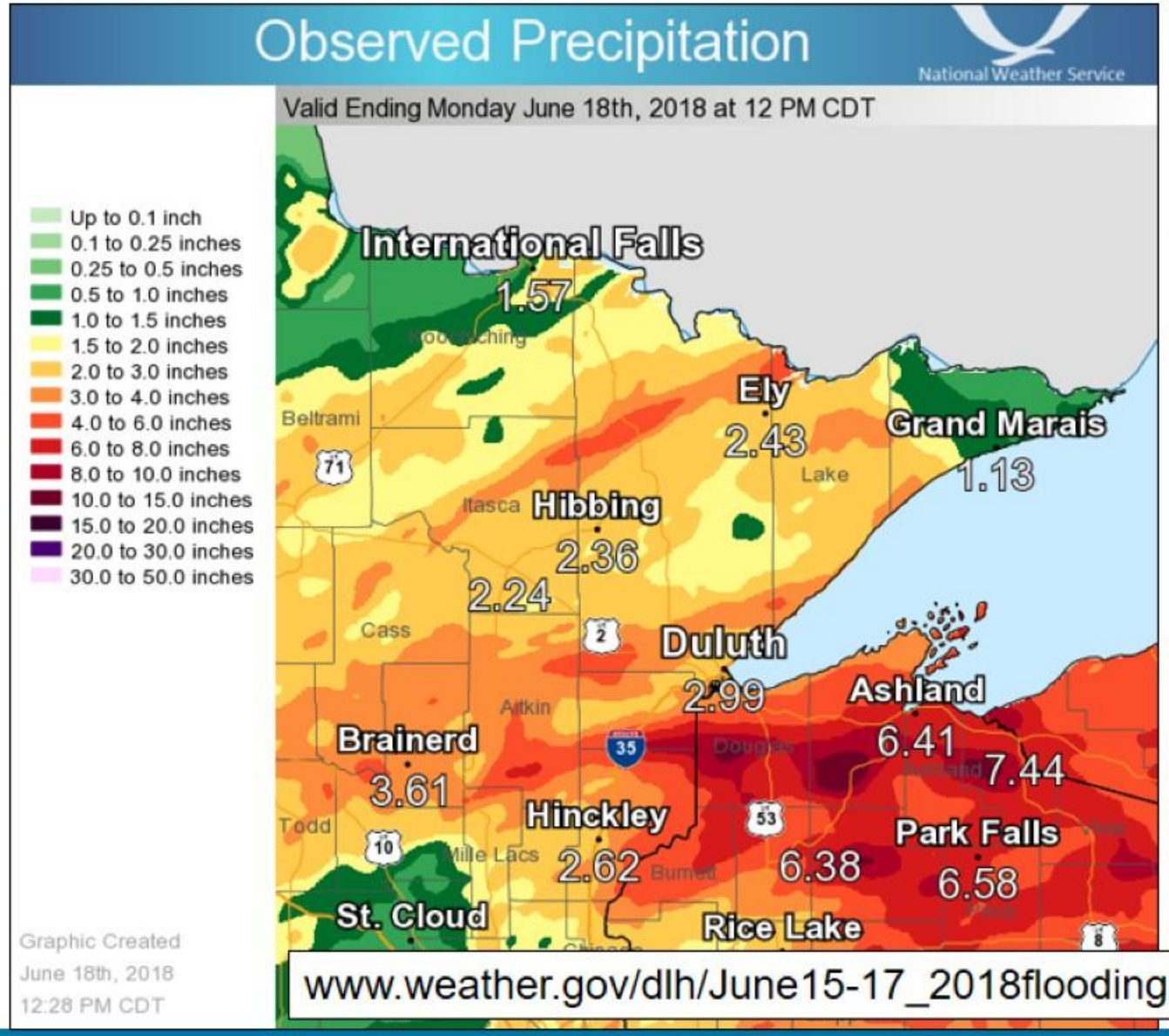

National Geographic, via blog.limnology.wisc.edu

- Stratification ends
- Nutrients from near bottom of lake are mixed throughout the water
- Blooms can grow even at low temperatures

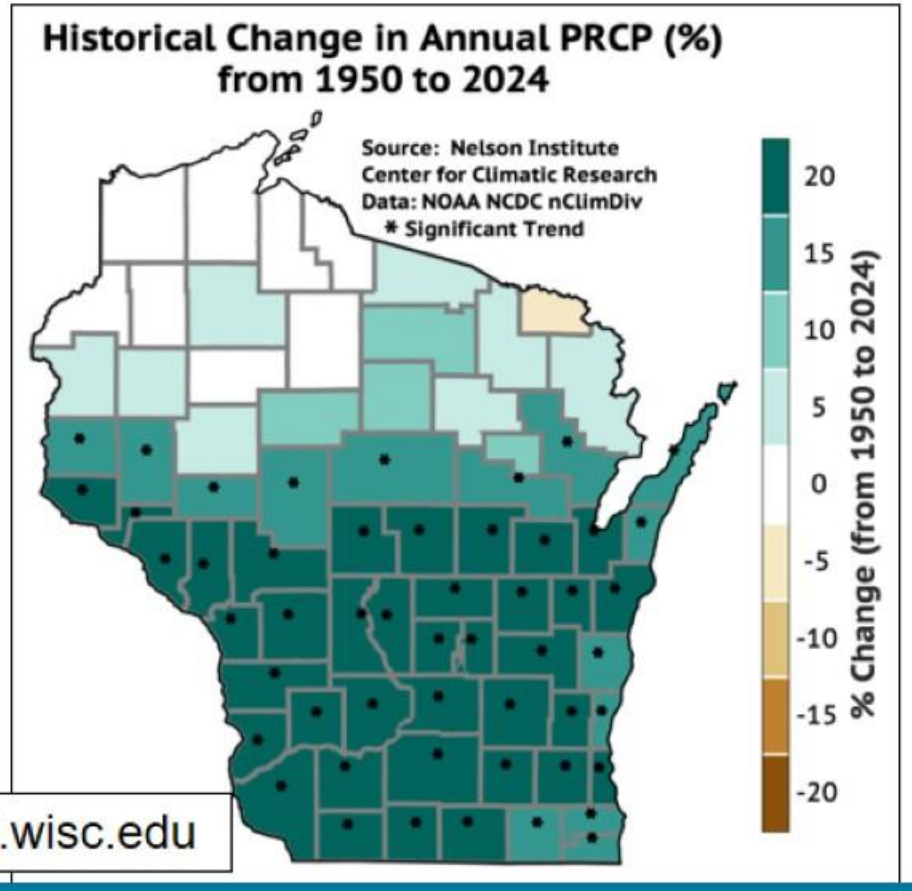
# Wind (or lack thereof) is a physical driver.

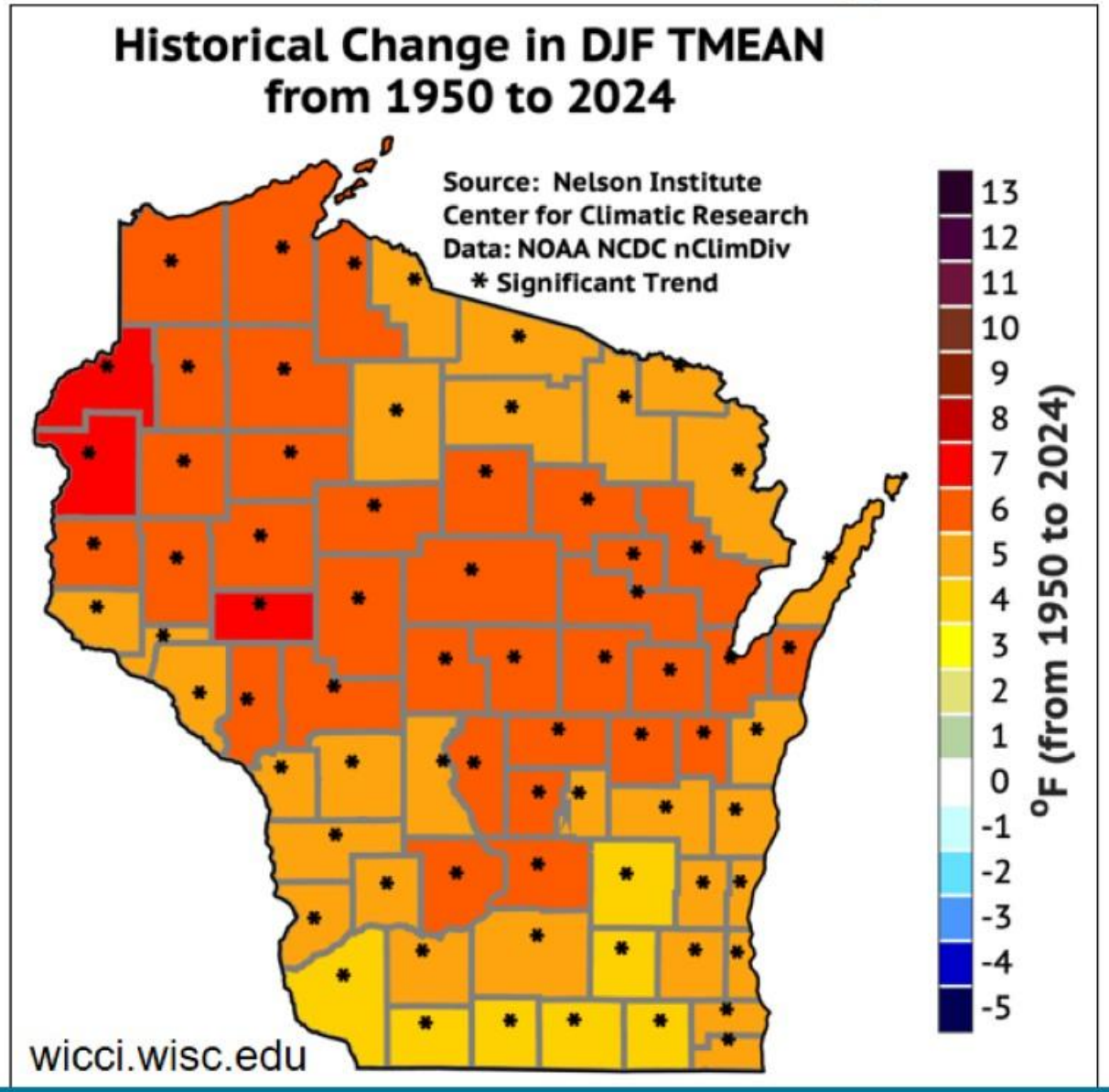
# Climate change exacerbates blooms




- More intense precipitation events
- Wetter overall

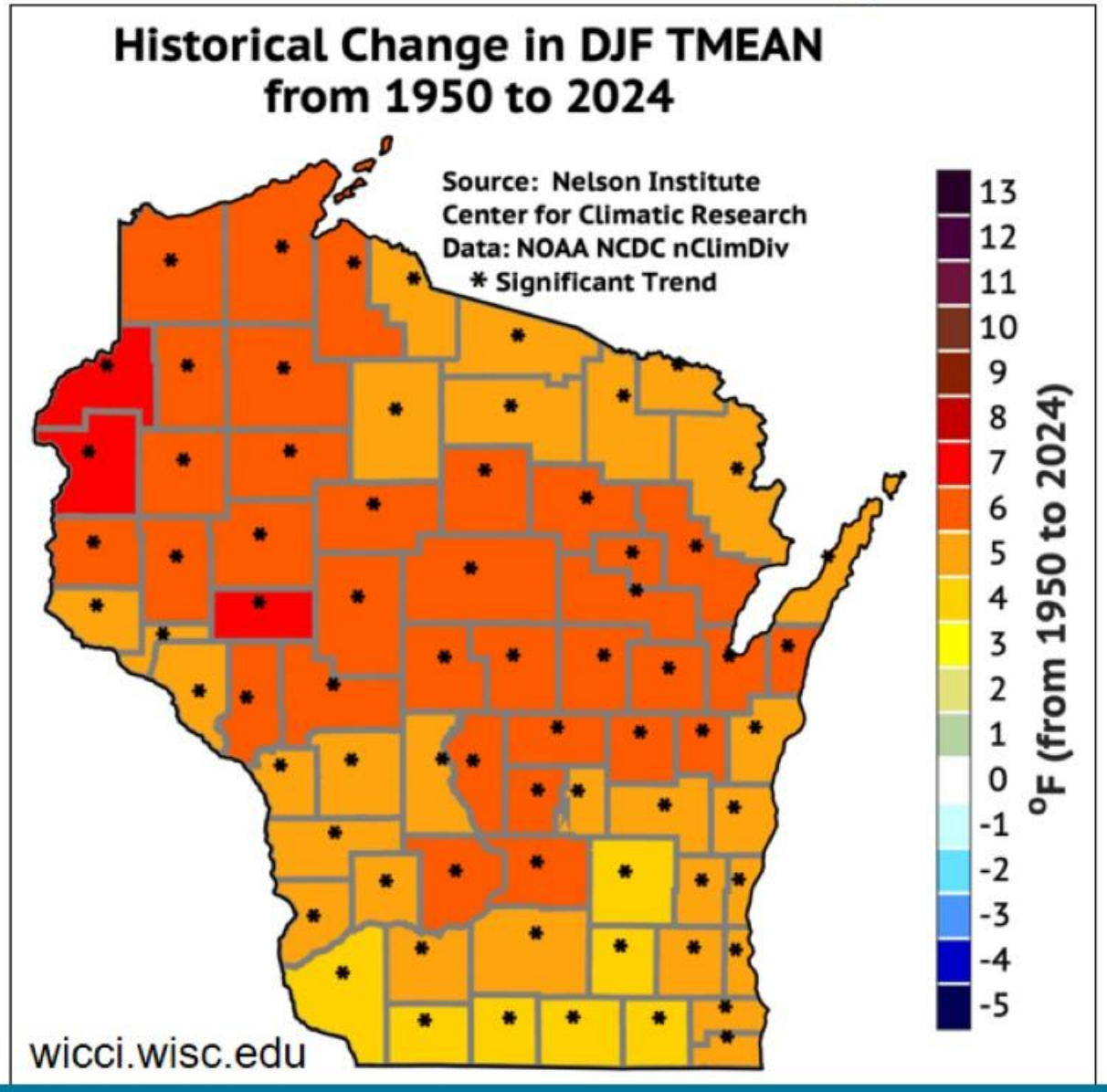


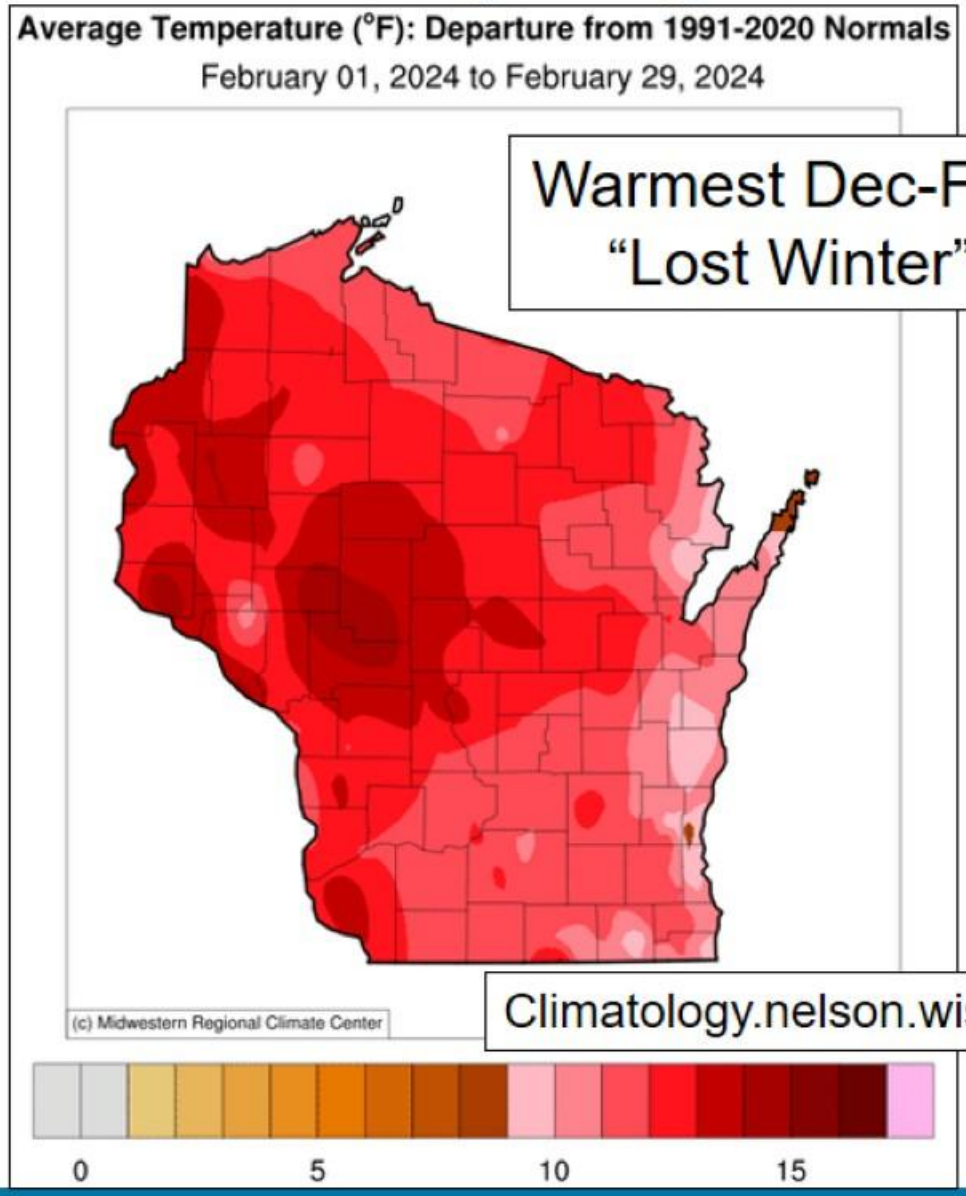
# Climate change is an overlying driver




- Winters warming fastest
- Longer growing season
- Shorter ice duration

# Climate change is an overlying driver




# Cyanobacteria and Recreational Risk

# Blooms & Health Impacts

- Cyanobacteria make many bioactive compounds; some are toxins.
- Exposure routes are:
  - Ingestion
  - Inhalation
  - Skin exposure


M. La Pergola on Unsplash


J. Orrico on Unsplash

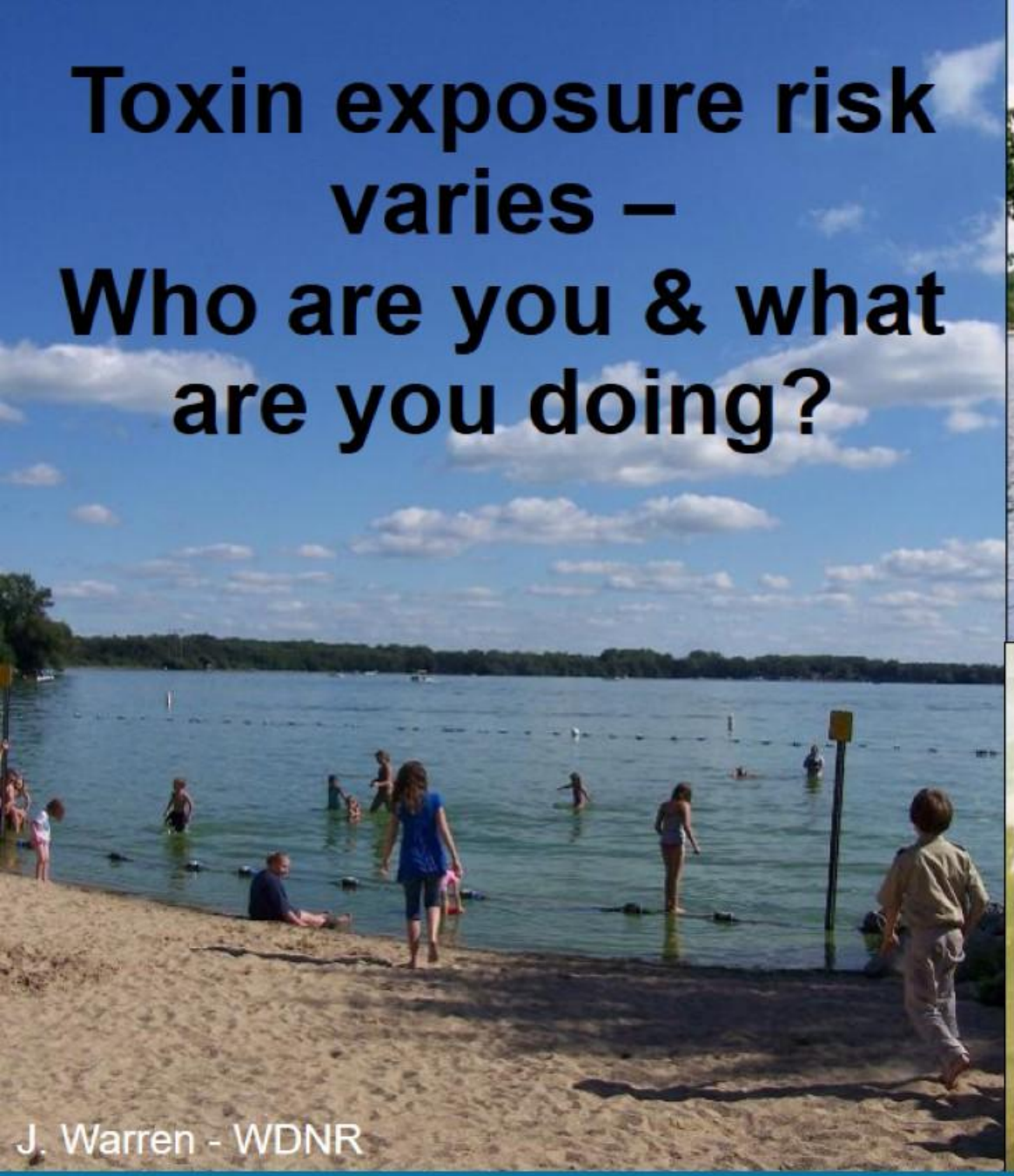

WDNR

# What We Know: Exposure Routes & Toxins

- Liver & kidney toxins: microcystins, nodularins, & cylindrospermopsin
- Neurotoxins: anatoxins, saxitoxins, guanitoxin, aetokthonotoxin, BMAA
- Dermatotoxins: lipopolysaccharides
- **Not all cyanobacteria make toxins, and toxins are not made all the time.**
- **You can't tell if toxins are present by looking at a bloom, so treat any high concentration of cyanobacteria with caution.**



# Toxin exposure risk varies – Who are you & what are you doing?



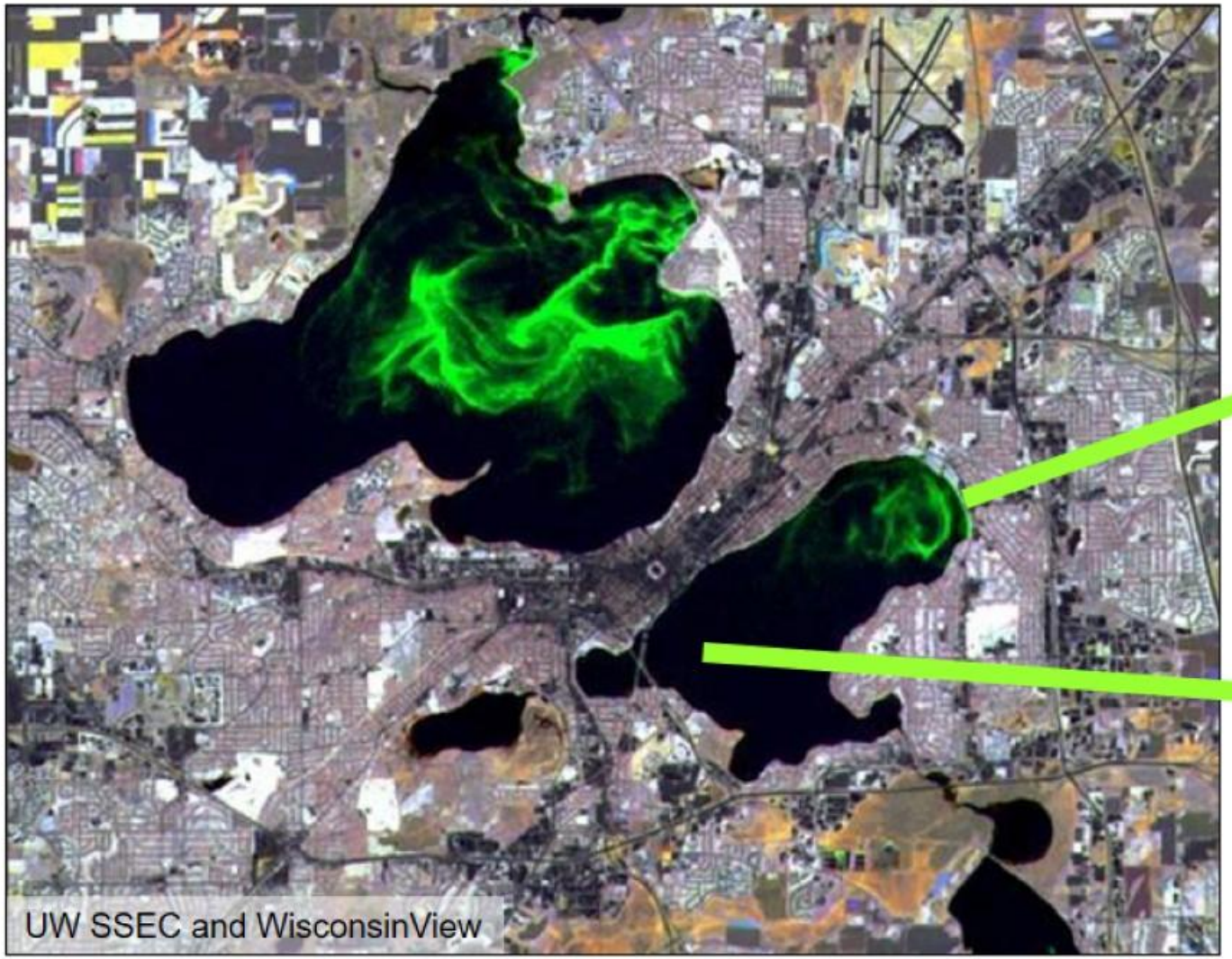
J. Warren - WDNR

J. Sullivan - WDNR

# Toxin Research: Fish Consumption

- Not all health risks from cyanotoxins in fish are currently known.
- Toxins may accumulate in organs, so only eat fillets.
- Rinse fillets well with clean water before cooking or freezing.
- Fish from waters with recurring blooms may have off-flavors from taste & odor compounds.
- Wisconsin Department of Health Services fact sheet: www.dhs.wisconsin.gov/publications/p03625.pdf
  *A Guide for Safe Fishing Practices and Fish Consumption in Wisconsin's Lakes and Rivers*

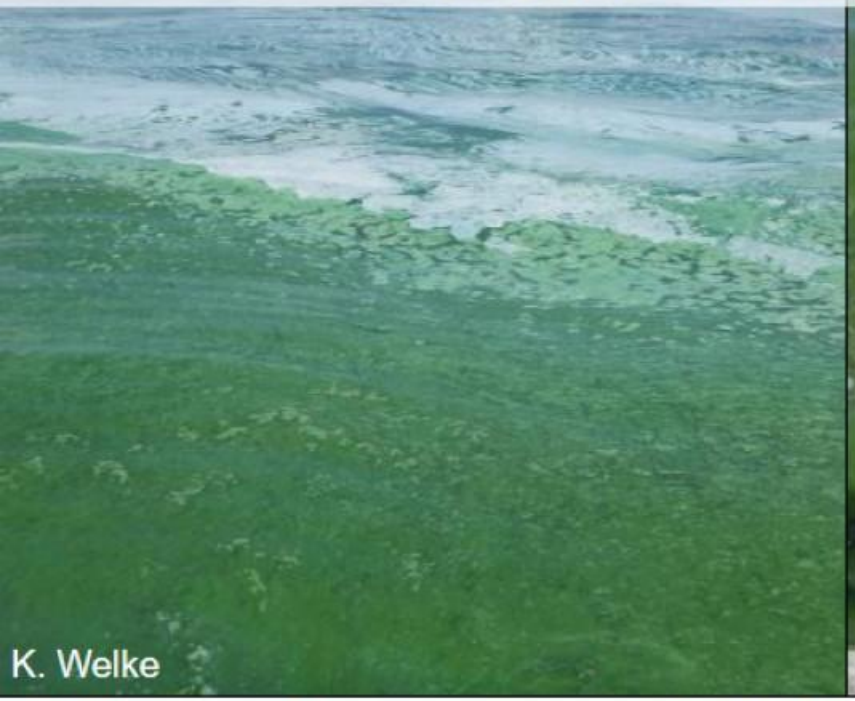
# Monitoring Challenge: Patchy in Time & Space




**Wind can create highly localized blooms.**

# Visual observation: you can see the blooms of highest concern

Surface scums or opaque “pea soup” water indicate **possible high toxin concentrations** *if toxins are being produced*.




## Judgement calls?

Chunks of material floating or growing on lake bottom – is it in a swimming area?


Fine dust on surface – will the wind pick up and disperse it?

**Water is never 100% safe – other bacteria, viruses, and parasites may be present.**

# Simple practices for water safety

- Learn what to look for when there's no testing or signage.
- Use common sense – **questionable water is questionable**.
- Avoid submerging your head if water contains lots of particles or debris. **Keep little kids and pets out of these conditions.**
- Choose the **clearest** water possible for little kids and pets. **Avoid swimming in shallow, warm, stagnant water bodies.**
- Always **shower** after swimming in a lake, river, or pond.
- **Keep water out of your mouth!** This will help to protect you from other bacteria, viruses, and parasites.

WI DNR

# Protect your lake's resilience to blooms

Structure landscaping for infiltration to reduce runoff.
Site and maintain septic systems properly.
Native plants are better than turf grass for infiltration.
*Bonus: better food and habitat for pollinators and wildlife.*
Reduce or stop use of fertilizers, herbicides, pesticides, salt.




# CONNECT WITH US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"WILD WISCONSIN: OFF THE RECORD"