WCCOLA Spring Mtg. May 2, 2026

Wakesurf Research Update

U of M
St. Anthony
Falls Lab
(SAFL)
Wakesurf
Research:
Phase 1

(Published)

Wakesurf Waves (Surface Impacts)

Objective:

- Evaluate wave height, energy, power of wakesurf boats.

- Compare wakesurf boats (+ an aftermarket wake shaper) to a non-wakesurf boat.

U of M
St. Anthony Falls Lab (SAFL)
Wakesurf Research:
Phase 1

(Published)

Wakesurf Waves (Surface Impacts)

Key Findings: Wave Characteristics

- Compared to regular power boats, wakesurf boats produce substantially greater wave:
  - Heights (2-3x)
  - Energy (3-9x)
  - Power (6-12x)

U of M St. Anthony Falls Lab (SAFL) Wakesurf Research: Phase 1

(Published)

Wakesurf Waves (Surface Impacts)

Key Findings: Wave Characteristics

- Wakesurf boats require distances between 500-600+ feet to reduce wave height/energy/power to levels equivalent to non-wakesurf boats in planing mode.

U of M
St. Anthony
Falls Lab
(SAFL)
Wakesurf
Research:
Phase 2

(Published)

Lakebed and Water Column (Below-Surface Impacts)

Objective:

- Assess prop thrust impacts on lake bottoms at various lake depths.

- Evaluate water quality impacts of lake bottom disturbance caused by prop thrust.

U of M
St. Anthony
Falls Lab
(SAFL)
Wakesurf
Research:
Phase 2

(Published)

Lakebed and Water Column (Below-Surface Impacts)

Key Finding #1:

All powerboats have potential to damage aquatic vegetation in shallow water. All boats should:

a) Avoid lake areas with aquatic vegetation.
b) Stay in depths of 10 feet or greater when in slow-cruising and planning modes.
c) Trim motor and go even slower when in less than 10 feet of water.

U of M
St. Anthony
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Wakesurf
Research:
Phase 2

(Published)

Lakebed and Water Column (Below-Surface Impacts)

Key Finding #2:

- Wakesurfing impacts lakebeds at much greater depths than standard powerboats.

- Wake boats should operate in 20 feet of water or greater when in surf mode to minimize lakebed disturbance.

U of M St. Anthony Falls Lab (SAFL) Wakesurf Research: Phase 3

(Underway)

Wind- vs. Boat-Generated Waves: Impacts on Lakebeds, Shorelines, and Water Quality

Research Timeline:

Research/Data Collection: 2024-2025

Data Analysis: 2025-2026

Published Report: Summer 2026

Wakesurf Research: Impacts on Water Quality

- Mixed Results to Date

Wakesurf Research: Impacts on Water Quality

U of M SAFL Phase 2

Sediment & Water Column Findings

Increases in:

- [1]Resuspension & entrainment of sediment
- Suspended solids (14 feet or less)
- [2]Turbidity (14 feet or less)

[1] "…especially if the activity is consistently carried out in the same location."

[2] "Multiple boat passes are expected to have a cumulative impact during heavy traffic periods."

Wakesurf Research: Impacts on Water Quality

U of M SAFL Phase 2

Total Phosphorus Findings

- No impacts found.

- Values typical of what's normally found in the two Lake Minnetonka study bays:
  - Maxwell Bay
  - North Arm Bay

Wakesurf Research: Impacts on Water Quality

Terra Vigilis Environmental Services Group

Total Phosphorus Findings

- North Lake (Wisconsin, 2022)
  - 17-33% increase in phosphorus within 30 minutes of disturbance.
- Lake Waramaug (Connecticut, 2024)
  - 110% increase in total phosphorus 20 feet below the surface (no significant increase caused by the waterski boat).

Broad Implications of Wakesurfing on Lakes

- Significant environmental impacts on:
  - Shoreline erosion
  - Lake bottoms
  - Aquatic plant habitats
  - Fish spawning areas
  - Water quality (↑ phosphorus and algal blooms)
- Safety issues
- Increased risk of AIS spread (ballast systems)
- Recreation equity
- Statewide regulations unlikely in the near term

Is There Anything We Can Do in MN?

- Pursue local county ordinances.
- DNR has a process for this → "Local Surface Use Zoning" (click here for details).
  - Caribou Lake (near Lutsen) is the first MN lake to regulate wakesurfing through this process. Click here for more info.
  - Cook County Board unanimously approved lake association's petition request. Click here for more info.

Options to Consider for Local Ordinances

Degree of Difficulty

Wakesurf Prohibitions for "Vulnerable" Lakes

Small, Narrow, Shallow, Impaired

Science-Based Wakesurf Restrictions

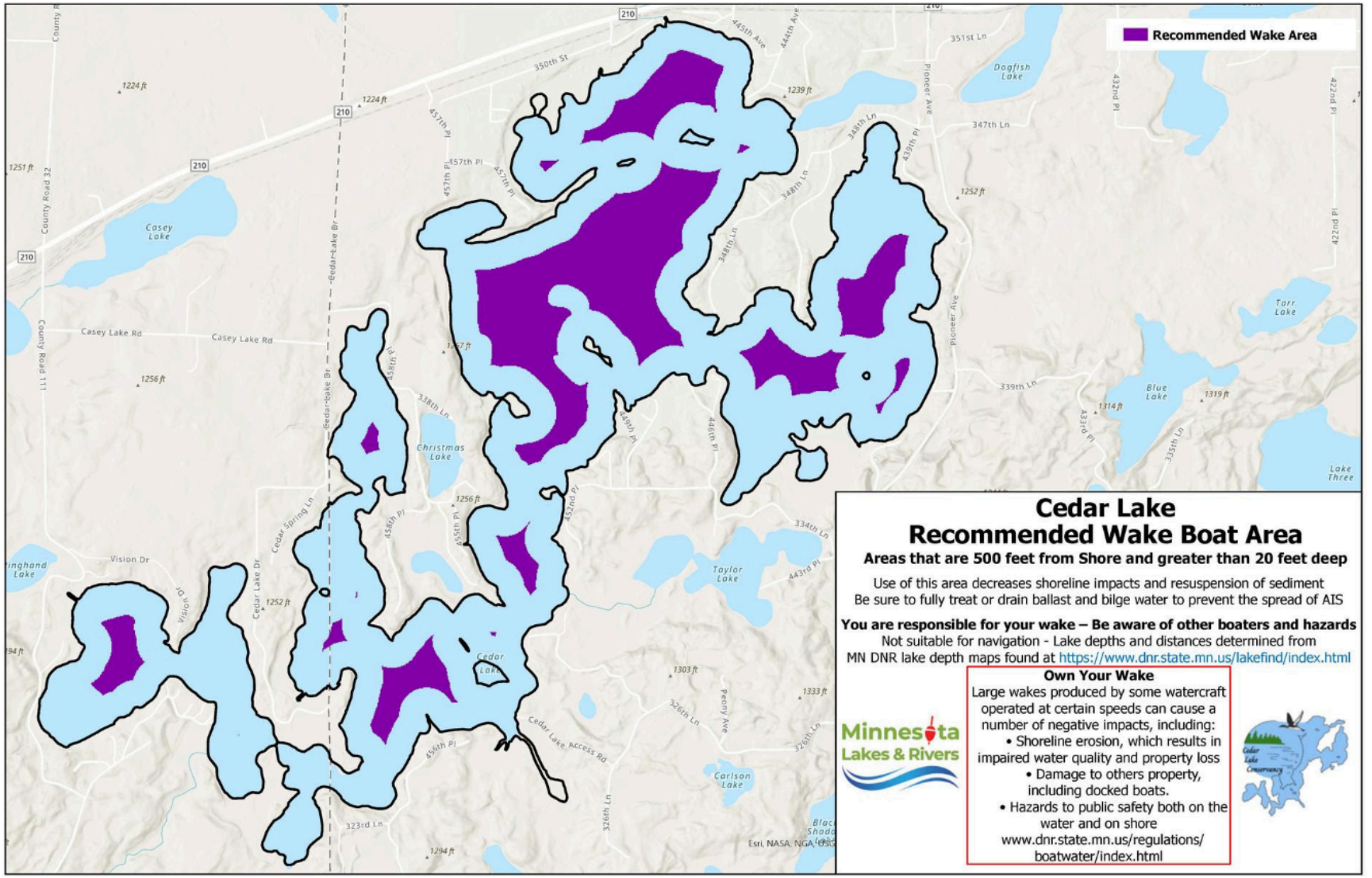
500-600 feet from shore

20+ feet deep

Boat Launch Signs Showing "Wakesurf Zones"

Lake maps with shaded areas noting appropriate distance from shore/lake depth for wakesurf activities.

Wakesurf Zone Map Example



More Work Needed Before Proceeding

Individual Lakes

Educate residents on the research.

Determine appetite for restriction among residents.

Issue will likely be a challenging one.

Wright County COLA (WCCOLA)

Assess level of member interest in pursuing local ordinances.

Serve as liaison between lake community and county leaders.

Wright County Commissioners

Will need education on research, DNR local ordinance process, and interest level of county lakes.

WCCOLA Efforts to Date

Summer 2025:

- Met with Wright County.
- Covered U of M Phase 1 + expected Phase 2 findings.
- Once Phase 2 was published, sent summary of research, implications, and our local ordinance proposals.

Wright County Response

Spring 2026:

- Support boat launch signage idea.
- Indicated that several advocacy groups (pro/con) were discussing statewide restrictions with lawmakers this legislative session.
- Would prefer to see statewide restrictions vs. patchwork of local ordinances.
- Want to see how things play out legislatively before considering local options.

What Can County Lakes Do Right Now?

Get Wakesurf Zone Signs Installed at Your Launch(es)!

- Public launches (work with DNR).
- Other (private, city, county, township, federal) → permission from landowner.
- DNR reviews for message, font size, overall size, color, & placement.
- No DNR approval fee.
- Prefer a 12 x 18 or 18 x 24 sign (larger might be possible, but will depend on space availability and may lengthen approval time).
- About 2-3 week approval time (existing location & pre-approved design).
- New MLR designs (11 x 17 or 17 x 11) for sale are DNR approved. The previously sold version was NOT.

What Can County Lakes Do in the Next Year or Two?

Educate, Assess, Document, & Report!

- **Educate Your Residents**
  - Share research & U of M SAFL underwater and overhead drone videos.
- **Assess/Survey Your Residents**
  - Understand level of support/opposition for reasonable restrictions (larger lakes) or limited prohibitions (small, shallow, impaired).
- **Document, Document, Document**
  - Journal critical incidents (date, issue, action taken).
  - Gather visual evidence (pictures/videos).
- **Report (Serious/Dangerous Behavior)**
  - Sheriff's non-emergency line.
  - Create law enforcement record of safety issues.
  - Boat registration number.

WCCOLA Next Steps

- **Remain in Contact with Wright County**
  - Assess county's appetite for local ordinances if statewide regulations don't happen in coming years.
- **Determine Level of Member Patience**
  - How long do we wait to see if statewide action happens?
  - What if county board does not want to pursue local ordinance route?
- **Do We Consider Formally Organizing?**
  - Constituent pressure campaign.

Q & A

Presentation Resources

- U of M SAFL Research Website
- Terra Vigilis Environmental Svcs. Group Research
  - North Lake, WI
  - Lake Waramaug, CT
- Purchase MLR "Own Your Wake" Map
  - Design only ($150 single or 2-lake chain; $250 for chains of 3 or more lakes)
  - Lake association must be MLR member
  - Lakes will need to find own sign vendors (extra $)
- DNR Public Launch Sign Approval Contact
  - nancy.stewart@state.mn.us; 651-259-5616