

June 10, 2021

**Regulating Recreation
on Lakes:
Carrying Capacity**

Thursdays
@4:00



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FREE WEBINAR



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Managing Recreational Impacts on Lakes: Carrying Capacity

A “Thursdays @ 4:00” webinar presentation

June 10, 2021

Michael Engleson, Wisconsin Lakes



Increased Recreational Use – A Top Priority for Wisconsin Lakes

- Research and Understanding
- Lake User Education
- Local Management and Enforcement
- Strong & Supportive Statewide Policies



Recreational Uses of Lakes

► On-water

- Swimming
- Fishing
- Powerboats
- Personal Watercraft (i.e. jet skis)

► Off-water

- Residential Development
- Short-term home rentals
- Campgrounds
- Shoreland day-use



Increasing recreational pressure – the statistics

- ▶ 310,000 new powerboats sold in the U.S. last year, 12% increase over 2019
 - ▶ 8% national increase in personal watercraft sales, 20% in wakeboats
- ▶ In Wisconsin, boat sales increased 9%, registrations rose by 2% to 621,114
 - ▶ Up from 607,289 in 2019, but less than 2017 (624,882) and the high of 2011 (629,000)
- ▶ 1.27 Million fishing licenses in 2020, up 19% from 2019



Sources:

- Milwaukee Journal Sentiinel, <https://www.jsonline.com/story/sports/outdoors/2021/01/23/wisconsin-boat-sales-and-registrations-up-during-coronavirus-pandemic/6664556002/>
- WDNR WI Recreational Vehicle Safety Education & Enforcement 2019 Annual Program Report, https://dnr.wi.gov/files/pdf/pubs/le/LEB314_2019.pdf

Types of Recreational Impact

► Personal

- Safety
- Frustration
- Displacement

► Ecological/Environmental

- Habitat
- Water Quality
- Aquatic Invasive Species (AIS)



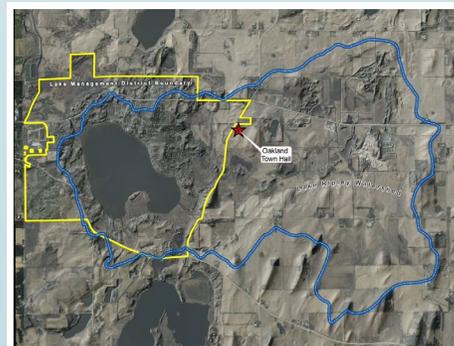
References

- *Load Limits for Lakes*, Lowell Klessig
(1994, *Lake & Reservoir Management* 10(1):69073)



- *Lake Ripley Comprehensive Improvement Plan, Ch. 3 – Lake Use*

<https://lakeripley.org/wp-content/uploads/2021/01/LRIP-Section-3-Lake-Use.pdf>



Carrying Capacity

The number of watercraft that can simultaneously operate on the lake without:

- 1) Compromising User Safety
- 2) Causing significant user displacement or dissatisfaction
- 3) Causing environmental harm to the resource



Determining Carrying Capacity

Methodology:

- 1) Calculate usable lake area that supports a range of boating activities and speeds safely and without significant environmental impact
- 2) Establish minimum spatial requirements for various boating activities/speeds
- 3) Conduct census of watercraft during peak periods of lake use and relative proportions of watercraft engaged in different activities/speeds
- 4) Choose optimum boating densities
- 5) Compare actual use to the lake's estimated carrying capacity

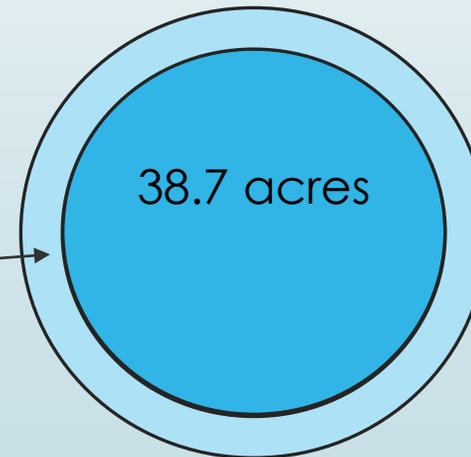


Determining Usable Area

- ▶ Subtract portions of lake already user-restricted
 - ▶ e.g. swim areas, no wake zones around shore
- ▶ Subtract areas that need protection
 - ▶ e.g. shallow areas, sensitive areas
- ▶ Example

Really Round Lake (50 acres)

100 ft slow no wake



Determining Optimal Boating Density

- ▶ Published spatial requirements estimated for various types of watercraft
 - ▶ Based on lake user perceptions of “what’s too much to make this stink”
- ▶ Develop sliding scale based on what types of activities are occurring on the lake and when
- ▶ Lake Ripley: 10-30 acres per boat, depending on activity
 - ▶ E.g. Fishing would require 10 acres per boat, waterskiing might require 30

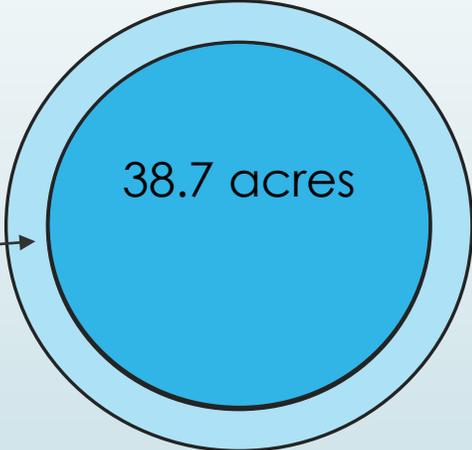


Capacity for Really Round Lake?

- ▶ 3 boats fishing, 1 boat travelling at high speed

Really Round Lake (50 acres)

100 ft slow no wake



38.7 acres

The diagram shows a large circle representing a lake. Inside this circle is a smaller, solid blue circle. The area between the two circles is a light blue ring. An arrow points from the text '100 ft slow no wake' to the inner boundary of this ring. The text '38.7 acres' is centered within the inner blue circle.





So What Do We Do About This?

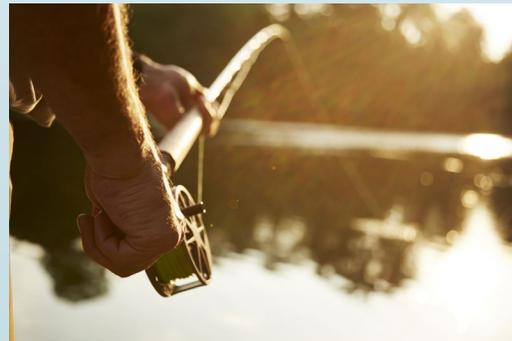


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Public Trust Doctrine

- ▶ *Wisconsin Constitution, Article IX, Section 1*

The waters of Wisconsin “shall be common highways and forever free, as well to the inhabitants of the state as to the citizens of the United States, without any tax, impost or duty therefor.”



- “Without legislated restraint, democratically adopted, free public resources like water are inevitably trampled by too many users; by a single, well-organized user group; or by technology that simply overwhelms other uses and sometimes destroys the natural resource itself”
- “The importance placed on the public trust doctrine has also led some users to feel they have a right to any use any lake at any time. They extrapolate the right of access to the water and extend it to any activity their equipment might allow them to perform”

- Lowell Klessig, *Load Limits for Lakes*



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Big Green Lake??

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Lowell's Goals

“To be more inclusive and more integrated, lake management policies must deal with at least four primary goals”:

- 1) Aesthetic Opportunity
- 2) Recreational Opportunity
- 3) Environmental Security
- 4) Economic Opportunity





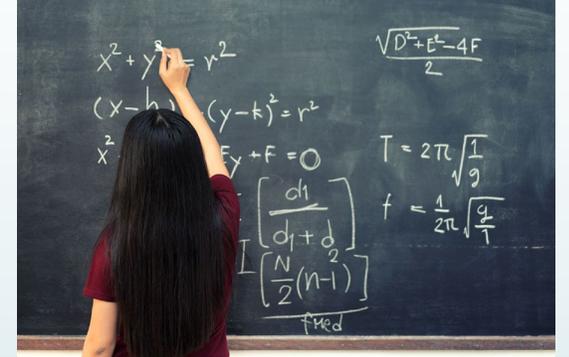
Increased Recreational Use – A Top Priority for Wisconsin Lakes

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- Local Management and Enforcement
- Strong & Supportive Statewide Policies



Research & Understanding

- Need a basis of rigorous, scientific understanding of impacts
- Need to understand how to use social science to help change attitudes and actions



Lake User Education

- Users need to understand their impacts and how those impacts affect others and the lake environment
- Partner with state and local government, boating and water recreation industries, other non-profit organizations



Local Management & Enforcement

- ▶ Unique lakes deserve unique solutions
- ▶ The enforcement problem



Local Management & Enforcement

- ▶ Local options
 - ▶ Self-regulation – courtesy requests
 - ▶ Design of public access points
 - ▶ Public access fees
 - ▶ Time and space zoning
- ▶ Difficult or impossible to regulate on boat type, horsepower, or speed limits



Strong & Supportive Statewide Policies



- ▶ Apply statewide regulations where appropriate
- ▶ State law must support local efforts (local control!)
- ▶ Funding!
- ▶ Current political climate must be taken into account



What Can **YOU** Do to Help?

- Document your local situation
- Start the conversation with other lake stakeholders
- Support Wisconsin Lakes' efforts



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Thank you!

Michael Engleson

Executive Director,
Wisconsin Lakes

mengleson@wisconsinlakes.org

www.wisconsinlakes.org

608.661.4313

PO Box 7723
Madison WI 53707

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