July 17, 2025

DNR Recreation Warden Peter Wetzel
890 Spruce Street
Baldwin, WI 54728
Peter.Wetzel@wisconsin.gov

Dear Mr. Wetzel:

Subject – Proposed enhanced wake boating ordinance for the Town of Spider Lake.

Attached is a proposed enhanced wake boating ordinance for the Town of Spider Lake, Sawyer County. We request DNR review pursuant to Wis Stat 30.77(3)(d). We also attached a Condition Report for the ordinance.

Please note, the ordinance cover:

1) All lakes wholly within the Town of Spider Lake.

We understand that there is no requirement for a public hearing under Wis. Stat. 30.77(3)(aw) for lakes wholly within Spider Lake. Attached for you convenience is a November 25, 2009 memo from the DNR legal staff confirming this where a single town adopts a boating ordinance limited to lakes wholly within its boundaries.

We look forward to receiving DNR comments regarding the proposed ordinance and the condition report.

With appreciation,

Quentin C. Johnson

QUENTIN C. JOHNSON
TOWN CHAIRMAN, TOWN OF SPIDER LAKE

Model ordinance for consideration by towns wishing to regulate hazardous wakes. Please be certain to carefully review and consider requesting review by counsel for the town. Ver. 09.30.24

ORDINANCE NO. 2025-___

Town of Spider Lake, Sawyer County, Wisconsin

AN ORDINANCE RESTRICTING CERTAIN ARTIFICIAL WAKE ENHANCEMENT

WHEREAS, in the interest of public health, safety, and/or welfare, including the public's interest in preserving natural resources, the Town of Spider Lake ("Town") has the authority to enact ordinances covering waters within its jurisdiction if the ordinances are not contrary to or inconsistent with Chapter 30, Wis. Stats., and they relate to the equipment, use, or operation of boats or to any activity regulated by Sections. 30.60 to 30.71, Wis. Stats.; and

WHEREAS, there exist within the Town numerous lakes; and

WHEREAS, artificially enhanced wakes can cause environmental damage to lakes and lakeshore, including resuspension of sediment adding nutrients to the water and increased risk of algal blooms, turbidity, shoreline erosion, and threats to aquatic life and waterfowl; and

WHEREAS, boats with ballast systems increase the likelihood of aquatic invasive species being introduced and spread on lakes; and

WHEREAS, artificially enhanced wakes can damage shoreline, lake bottom, moored boats, and shoreline structures including docks; and

WHEREAS, operating boats in a stern down manner creates downward prop wash, disturbing the lake bottom far below the wave zone, 20 feet and more below the surface; and

WHEREAS, artificially enhanced wakes can endanger swimmers, anglers, and other watercraft; and

WHEREAS, the use of ballast and wake enhancing fins can cause unsafe operation by causing the bow to rise obscuring vision forward; and

WHEREAS, the Town submitted a draft of this ordinance to the Wisconsin DNR for advisory review at least 60 days prior to passage, pursuant to 30.77(3)(d), Wis. Stats.; and

WHEREAS, the Town Board, after considering public comments and any DNR suggestions, determines that adopting this Ordinance is consistent with all other ordinances of the Town and would promote the public health, safety and welfare, including the public's interest in preserving natural resources;

NOW, THEREFORE, the Board of Supervisors of the Town of Spider Lake, Sawyer County, Wisconsin, does hereby ordain as follows:

Section 1. Applicability and Enforcement: The provisions of this ordinance shall apply to all waters wholly within the Town of Spider Lake, Sawyer County, Wisconsin. This ordinance shall be enforced by all officers of Spider Lake, Sawyer County, Wisconsin and all other individuals empowered to enforce ordinances in this Town.

Section 2. Certain Artificial Wake Enhancement Prohibited

(1) Prohibited Equipment. No person may use or employ ballast tanks, ballast bags or fins to cause a boat to operate in a bow-high manner, or which increases or enhances a boat's wake.

(2) Prohibited Operation. No person may operate a boat in an artificially bow-high manner having the effect of increasing the boat's wake. Such prohibited operation shall include wake enhancement by use of ballast tanks, or ballast bags, or fins, or continuous operation at transition speed (the speed below planing speed in which a boat is operating in plowing mode).

(3) Certain Operations Excluded. In no event shall any of the following operations be deemed a violation of this Ordinance, provided such operations do not use or employ ballast tanks, ballast bags or wake enhancing fins: i) water skiing, ii) tubing, iii) wake boarding employing a tow rope; iv) brief transition operation to empty a boat of bilge water, or v) brief transition operation of a boat accelerating into a planing condition.

Section 3. Penalty.

(1) Wisconsin state boating penalties as found in s. 30.80, Wis. Stats., and deposits established in the Uniform Deposit and Bail Schedule established by the Wisconsin Judicial Conferences, are hereby adopted by reference, except all references to fines are amended to forfeitures and all references to imprisonment are deleted.

(2) To the extent that the penalty for any violation of this Ordinance is not provided under Wisconsin state boating penalties as found in s. 30.80, Wis. Stats., any person violating this Ordinance shall forfeit $500 for the first offense and shall forfeit $1000 for the second and subsequent offenses within one year. Deposits established in the WISCONSIN CIRCUIT COURT FEE, FORFEITURE, FINE AND SURCHARGE TABLES shall also apply to any violation.

Section 4. Severability. Should any portion of this Ordinance or the affected Code Section(s) be held invalid by a court of competent jurisdiction, the remainder shall not be affected.

Section 5. Effective Date. Upon adoption, this Ordinance shall take effect the day after publication or posting.

Enacted: _____, 202_ **TOWN OF SPIDER LAKE**

By _____

_____, Town Chair

CLERK'S CERTIFICATE OF ENACTMENT

I hereby certify that the foregoing Ordinance was duly enacted by the Town of Spider Lake Board of Supervisors on the date indicated above.

Dated: _____, 202_ _____

_____, Town Clerk

Published/Posted on _____, 202_ by _____.

CONDITION REPORT TO SUPPORT AN ORDINANCE RESTRICTING ARTIFICIALLY ENHANCED WAKES IN THE WATERS OF THE TOWN OF SPIDER LAKE, SAWYER COUNTY

Introduction

Wisconsin's inland lakes are among the state's most critical natural resources and have incalculable aesthetic, environmental and economic value. In the interest of public health, safety, and/or welfare including the public's interest in preserving natural resources, and protection of the environment and outdoor recreation, the Town of Spider Lake ("Town") has the authority to enact ordinances covering waters within its jurisdiction, if the ordinances are not contrary to or inconsistent with Chapter 30, Wis. Stats., and they relate to the equipment, use, or operation of boats or to any activity regulated by Wis. Stats. Sections. 30.60 to 30.71 and 30.77 (3)(a).

Purpose of the Ordinance

The purpose of this ordinance is to (1) prevent the environmental degradation caused by artificially enhanced wakes and corresponding downward propeller wash generated by boats for wake sports such as wake surfing and (2) protect public safety. The proposed ordinance is for all lakes wholly within the town of Spider Lake.

Specifically, the proposed ordinance would prohibit the use of ballast tanks, ballast bags or fins to cause a boat to operate in a bow-high manner, or which increases or enhances a boat's wake. It also would prohibit operating a boat in an artificially bow-high manner having the effect of increasing the boat's wake; this would include prohibiting wake enhancement by use of ballast tanks, ballast bags and fins, or continuous operation at transition speed (the speed below planing speed in which a boat is operating in plowing mode).

In no event would any of the following operations be deemed a violation of the ordinance, provided such operations do not use ballast tanks, ballast bags or wake-enhancing fins: 1) water skiing, 2) tubing, 3) wake boarding employing a tow rope, 4) brief transition operation to empty a boat of bilge water, or 5) brief transition operation of a boat accelerating into a planing condition. Thus, restrictions on water skiing and other tow rope activities are not within the intended scope of the proposed ordinance.

Moreover, nothing in the proposed ordinance would preclude the use of wake boats, provided the ballast tanks and other features intended to create enhanced wakes or cause the boat to operate in a bow-up stern-down orientation are not deployed. These boats could continue to be used for cruising, water skiing and other activities provided the ballast tanks and other wave-enhancing features are not deployed or the boat is not operated at continuous transition speed.

Various studies and surveys (see Appendix 1) have been conducted that reveal the negative effects of enhanced wakes on inland lakes. The results suggest aquatic invasive species (AIS) presents a significant threat as it can be transferred in ballasted boats used for enhanced wakes and these ballasts cannot be completely drained or inspected. The findings further indicate wake sports require large lakes more than 1,500 acres with enhanced wake boating activity occurring at least 700 feet from the shoreline or other lake users and in water depths of at least 20-30 feet.

By increasing displacement of the boat and equipped with very powerful engines, wake boats

impart very large quantities of energy. The energy of these waves increases with the square of their amplitude, such that a two-fold increase in wave height generates four times more energy and a three-fold increase in wave height generates nine times more energy[1]. Most of this wave energy is conserved until it encounters shallow water, concentrating energy on all materials or objects present, including the shoreline, lake bottom, wildlife habitat, docks, moored boats, swim rafts and other lake recreators.

When wake boats operating in a bow-up stern-down manner, the propeller wash may scour the lake bottom to depths of more than 20 feet, destroying aquatic vegetation and fish spawning beds, and churning the sediment into the water column, degrading the water quality.

Local Conditions Necessitating a Local Ordinance

In recent years, there has been a dramatic increase in boats equipped to generate artificially enhanced wakes on inland lakes across the state of Wisconsin, and now on the Town lakes. While there have been some discussions regarding a minimum statewide law regulating the use of ballasts and generation of enhanced wakes, it is uncertain if or when any action will occur and if such minimal action would adequately protect lakes in the town of Spider Lake.

More lake residents are expressing concern about the effects of enhanced wakes on their environment and on public safety and an urgency to act now.

The Wisconsin DNR's Spring 2023 and 2024 Survey results indicate that both Sawyer County residents and those who recreate in Sawyer County are overwhelmingly in favor of legislation that would prohibit the operation of boats in a manner that creates artificially enhanced wakes.

- The town of Spider Lake has 14 lakes wholly within the Town greater than 50 acres[2]. This include Spider Lake, Clear Lake and North Lake within the Spider Chain of Lakes and Ghost Lake, Lost Land Lake and Teal Lake in what are often referred to as the Quiet Lakes. (See Appendix 2.)

- Artificially enhanced wakes can cause irreversible damage to shorelines, lake beds, moored boats, and shoreline structures. Enhanced wakes and the associated propeller wash can uproot aquatic plants and resuspend the lake sediment. This churning action can increase phosphorus levels in the water column that lead to algae blooms. Any toxic substances that may be present in the sediment reenter the water column, degrading water quality and posing additional risks to aquatic wildlife and plants[3].

- In the town of Spider Lake, Ghost Lake is an impaired water - 303(d) listed – with a fish consumption advisory for mercury. Bottom disturbance of a lake already classed as mercury impaired will increase mercury levels as mercury tends to concentrate in the sediment.

- The town of Spider Lake has eight lakes that are designated Priority Navigable Waterways (PNW) for either Musky or Walleye. These are waters that are self-

[1] Formulas for Boat Wakes, webpage http://boatwakes.homestead.com/files/form.htm

[2] Per 30.635, Wis. Statutes, on lakes 50 acres or less having public access, motorboats may not be operated in excess of slow-no-wake speed, except when such lakes serve as thoroughfares between 2 or more navigable lakes.

[3] The Effects of Wake Boats on Lake Ecosystem Health: A Literature Review, Wisconsin's Green Fire, May 2024 https://wigreenfire.org/wake-boats-lakes-update-may-2024/

sustaining for musky populations or waters self-sustaining for walleye populations in ceded territories. These waters for musky include: Ghost Lake, Holmes Lake, Lost Land Lake, Lower Clam Lake, North Lake, Ole Lake, Spider Lake and Teal Lake. For walleye, these waters include Teal Lake.

- Additionally, Wilson Lake is designated as Wild Rice Open Waters Lake per the DNR Surface Water Data Viewer.[4]

- Spider Lake and Teal Lake also are designated as an Outstanding Resource Waters (ORW); only 97 of Wisconsin's 15,000 lakes have this designation.[5]

- Enhanced wakes have negative effects on wildlife, such as the nests of loons and other waterfowl[6]. The lakes within the Town are known for having abundant aquatic vegetation growth which supports nesting and migratory ducks, as detailed on the DNR SWDV About the Waters for many of these lakes.

- The use of ballast and wake-enhancing fins, vanes, shapers or other such devices puts the boat in a bow-up stern-down position. This may obstruct the driver's view, leading to increased safety risks for others on the lake: anglers, kayakers, paddleboarders, and swimmers. There have been various reports of close-call encounters between wake boats and other water sport enthusiasts.

- Ballast systems are virtually impossible to empty completely, thereby increasing the risk of carrying aquatic invasive species from one lake to another, which is illegal in the state of Wisconsin. Ballast tanks contain an average of 8 and up to 23 gallons of residual water, according to a University of Wisconsin study[7].

- Among lakes wholly in the Town, known AIS is limited to Hybrid / Eurasian water milfoil in Lost Land Lake as well as banded and/or Chinese mystery snails in Lost Land Lake, Spider Lake and Teal Lake; Purple Loosestrife in Clear Lake; non-native water lilies in Spider; and curly-leaf pondweed also in Spider Lake. Even more important, nine of the 14 lakes have no known AIS. It's essential to ensure all these lakes remain as pristine as possible.

- Preventing the introduction of new invasive species such as spiney water fleas, zebra mussels and quagga mussels, all of which arrived in the Great Lakes via ship ballasts and are now spreading across Wisconsin inland lakes, is a priority for the town of Spider Lake. Spiny water fleas have infected two water ways in Iron County and five lakes in Vilas County, less than 100 miles to the east and Lake Superior, 50 miles to the north[8]; and zebra mussels are known to be in two lakes in neighboring Washburn County [9]. Studies have found that each of these invasive organisms can survive long periods of time in residual ballast water, quickly reproduce and upset the entire lake

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[4] DNR https://dnrmaps.wi.gov/H5/?viewer=SWDV&runWorkflow=search&param=LAKE,WATERBODY_WBIC,2419600

[5] DNR Outstanding and Exceptional Water Resources, https://dnr.wisconsin.gov/topic/SurfaceWater/orwerw.html

[6] The Effects of Wake Boats on Lake Ecosystem Health: A Literature Review, Wisconsin's Green Fire, May 2024 https://wigreenfire.org/wake-boats-lakes-update-may-2024/

[7] Volume and contents of residual water in recreational watercraft ballast systems," Management of Biological Invasions (2016) Volume 7, Issue 3: 281-286, first published online 04/18/2016, https://www.reabic.net/journals/mbi/2016/3/MBI_2016_Campbell_etal.pdf

[8] DNR AIS, https://apps.dnr.wi.gov/lakes/invasives/AISLists.aspx?species=SPINY_WATERFLEA

[9] DNR AIS, https://apps.dnr.wi.gov/lakes/invasives/AISLists.aspx?species=ZM

ecosystem, decimating the food supply for native organisms and encouraging conditions needed for the rapid growth of blue-green algae. As example, a University of Minnesota study on two inland lakes with zebra mussel infestations found a 97% chance of a ballast tank used in a recreational boat containing at least 1 zebra mussel veliger and a 71% change of it containing 100 veligers[10].

- Whereas items like live wells can be emptied, inspected and allowed to dry, ballast tanks can't be fully drained, inspected or dried as they are closed systems. Currently, there is no readily available way in Wisconsin to clean and decontaminate ballast systems, which require hundreds of gallons of water heated to more than 120 degrees[11].

- Lake users also report they are unable to use their lake out of concerns for safety when just one or two boats are out operating in wake-surf mode. For example:
  - Kayakers and paddlers not going out on lake when wake surfing activity is occurring
  - Boats towing skiers or tubers returning to their docks out of safety concerns
  - Anglers having to move to other areas of the lake to ensure they can safely fish
  - Pontoon boats getting swamped or completely re-routing to avoid entire areas of the lake when a wake boat is generating enhanced wakes
  - Young children not being able to play in the shallows given the wave energy from a wake boat's enhanced wakes

- As a result of artificially enhanced wakes, property owners also have reported numerous incidents and complaints:
  - Damage to docks, piers, seawalls and boats as well as moored boats breaking their ties due to enhanced wakes
  - Shoreline damage, severe erosion and high turbidity with clear lakes turning murky as sediment re-enters the water column
  - Fish and habitat damage, including significant amounts of weed floating on the water and washing up on shore

How a Town Ordinance Would Solve the Above Issues for Spider Lake

Compliance with a Town ordinance prohibiting boats from generating artificially enhanced wakes on the lakes in the town of Spider Lake would result in the following benefits for the Town:

- The negative environmental impacts associated with boats generating artificially enhanced wakes, described above, would be prevented, as well as the costs associated with further ecological degradation.

- The safety risks associated with boats generating artificially enhanced wakes, noted above, would be eliminated. Everyone enjoying the lakes would be that much safer.

- The likelihood of ballast tanks used by these boats transferring aquatic invasive species from one lake to another would be reduced or eliminated as well as the spread within the lake, helping to avoid the significant associated costs of AIS remediation.

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[10] "Occurrence and Survival of Zebra Mussel (*Dreissena polymorpha*) Veliger Larvae in Residual Water Transported by Recreational Watercraft," University of Minnesota thesis, Adam Doll, Dec. 2018, https://conservancy.umn.edu/handle/11299/202094

[11] https://cpw.state.co.us/activities/boat-inspections

Upon adopting the proposed ordinance, appropriate signage would be placed at all public landings, in accordance with Wisconsin law. Based on the experiences of the Town related to other existing boating ordinances and the experiences of other Wisconsin municipalities that have adopted ordinances regulating the creation of enhanced wakes, such signage and general education regarding the ordinance will help ensure compliance.

Possible Negative Effects of Adopting the Ordinance

Certain individuals may be opposed to any or all forms of regulation and a limited number may feel the ordinance is infringing on their rights to lake usage. However, when one or two people can operate boats that intentionally generate artificially enhanced wakes on small or mid-size lakes, many others can't navigate safely or enjoy their activities and the scenic beauty, water quality and aquatic habitat will be damaged or destroyed.

The boating industry claims they can self-regulate. However, this has not proven to be the case given the mounting damage and concerns raised by other lake users.

Impact on Public Health, Safety or Welfare if the Ordinance is not Adopted

The Town of Spider Lake Board of Supervisors commissioned our Ad Hoc Boating Ordinance Committee in 2024 to consider all impacts of all boating activities on Town lakes. After the committee invested over 700 hours of research and public meeting time, the committee strongly encouraged the Board to enact a Wake Enhancement Activity Ordinance. The detailed recommendation is included here as Appendix 3. After reviewing science-based studies, lake experiences and public input, the Town of Spider Lake concluded that public safety and protection of its valued resources would be best served by adopting the proposed ordinance.

Appendix 1

Relevant Research Studies and Surveys

Several studies contributing to the facts in this condition report were completed a few years ago. Since that time, boats generating enhanced wakes have gotten more powerful and their wakes bigger (e.g., increasing in height from 2-4 ft. to 4-6 ft, and more) and more powerful. Therefore, the figures cited in this report are likely conservative. More studies are underway and in review.

- Ballast tank water retention and invasive species: "Volume and contents of residual water in recreational watercraft ballast systems," Management of Biological Invasions (2016) Volume 7, Issue 3: 281-286, first published online 04/18/2016, https://www.reabic.net/journals/mbi/2016/3/MBI_2016_Campbell_etal.pdf; and "Occurrence and Survival of Zebra Mussel (*Dreissena polymorpha*) Veliger Larvae in Residual Water Transported by Recreational Watercraft," University of Minnesota thesis, Adam Doll, Dec. 2018, https://conservancy.umn.edu/handle/11299/202094.

- Wave height, power and energy: "A field study of maximum wave height, total wave energy, and maximum wave power produced by four recreational boats on a freshwater lake," St. Anthony Falls Laboratory, College of Science & Engineering, University of Minnesota, SAFL Project Report No. 600, 02/02/2022, https://conservancy.umn.edu/handle/11299/226190.

- The Effects of Wake Boats on Lake Ecosystem Health: A Literature Review, Wisconsin's Green Fire, May 2024 https://wigreenfire.org/wake-boats-lakes-update-may-2024/.

- Wave size, power and turbidity: "A phased study of the water quality and wave propagation dynamics currently impacting a small southeast Wisconsin freshwater lake: Waukesha," Terra Vigilis Group, as contained in Responsible Wakes for Vermont Lakes (see pp 16-37 of linked presentation where study is embedded), https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Additional%20supporting%20Information%20submitted%2007292022.pdf.

- Sawyer County public sentiment support for regulating artificially enhanced wakes to lakes of greater than 1500 acres and 700 feet from shore: "2023 Spring Hearing Results by County," Wisconsin Conservation Congress and Department of Natural Resources, 04/20/2023, https://dnr.wisconsin.gov/sites/default/files/topic/About/WCC/2023/SpringHearing/2023_CountyResults.pdf.

- Sawyer County public sentiment support for regulating artificially enhanced wakes to lakes of greater than 1500 acres, 700+ feet from shore, 20+ depth; and prohibiting use of ballast systems on Wisconsin Lakes & Rivers: "2024 Spring Hearing Results by County," Wisconsin Conservation Congress and Department of Natural Resources, 04/25/2024, https://dnr.wisconsin.gov/sites/default/files/topic/About/WCC/2024/SpringHearing/2024_StatewideResultsByCounty.pdf.

Appendix 2

Lakes Greater than 50 Surface Acres within Spider Lake Include[12]

Lake Name	Surface Area (acres)	Max. Depth (ft)	Mean Depth (ft) (where known)	Shoreline Perimeter (miles) (where known)	Public Boat Landing	WBIC (WDNR Water Body Index Code)	Comments
Beaver Lake	59	15		2.54	0	2419800	Too small and shallow for wake surfing.
Christy Lake	122	10		3.54	0	2425700	Within the Chequamegon-Nicolet National Forest. Lake too small and shallow for wake surfing.
Clear Lake	250	25		(See Spider Lake)	1	2435800	More than two-thirds of lake is identified as PNW-ANSRI Critical Habitat Area/Sensitive Area Designation.* Lake is shallow; includes two islands; not deep enough for wake surfing.
Ghost Lake	384	12	5	7.34	1	2423000	PNW – Musky Area.* 303d listed: Ghost Lake is impaired for mercury; fish advisory. Lake is very shallow and narrow.
Holmes Lake	62	22			0	2419600	PNW – Musky Area. Lake is too small and too shallow.
Lewis Lake	52	15	9	1.48	0	1860200	Lake is very small and shallow.
Lost Land Lake	1,264	21	12	11.3	1	2418600	Within the Chequamegon-Nicolet National Forest. PNW – Musky Area. Lake is irregularly shaped; less than 1% is more than 20 feet deep.
Lower Clam Lake	214	30		4.18	1	2429300	Within the Chequamegon-Nicolet National Forest. PNW – Musky Area Narrow lake with island; not enough depth or distance for wake surfing.
North Lake	132	30	14	2.5 miles	0	2436000	PNW – Musky Area. Approximately one-third of the lake and nearly the entirety of the shoreline is designated as PNW-ANSRI Sensitive Area Designation.* Not enough depth or distance for wake surfing.
Ole Lake	88	30	11	2	0	2419000	PNW – Musky Area. Lake is too small, narrow and shallow for wakes surfing.
Spider Lake	1,194	64	14	20.75 (including ~2.4 miles of island shoreline; as well as	1	2435700	Outstanding Resource Water (ORW). PNW – Musky Area. Narrow, very irregularly shaped, with two primary basins, multiple bays and 12 islands; very limited above 20

[12] Wisconsin Lakes, Find a Lake, https://apps.dnr.wi.gov/lakes/lakepages/Results.aspx?advanced=true&location=44&wbic=

				Clear Lake)			Multiple areas of the near-shoreline are designated as PNW-ASNRI Sensitive Areas of Lakes. The lake is generally shallow with fluctuating depths and islands throughout making it unsuitable for wake surfing.
Star Lake	106	15		1.8	0	2420100	Within the Wilson Lake State Natural Area and Chequamegon-Nicolet National Forest. The lake is almost entirely under 5 feet deep and has three islands.
Teal Lake	1,024	31	15	11.8 miles (including 3 miles of island shoreline)	1	2417000	Within the Chequamegon-Nicolet National Forest. Outstanding Resource Water (ORW); PNW*- Walleye Area; PNW – Musky Area. Six islands and many sandbars; no meaningful area over 20 feet deep.
Wilson Lake	103	25	6	3.5	0	2420000	Within the Wilson Lake State Natural Area and Chequamegon-Nicolet National Forest. ANSRI - Wild Rice designation.* Shallow lake with narrow channel between two lobes.

* As used and identified in the DNR Surface Water Data Viewer for each lake. Areas of inclusion at:
PNW – Priority Navigable Waterways (PNW)
https://dnrmaps.wi.gov/Geocortex/Essentials/4_15_0_EXT/REST/sites/Surface_Water_Data_Viewer/Viewers/SWDV/VirtualDirectory/Resources/web/datasets/designated_waters/PNW.html
ANSRI - Areas of Special Natural Resource Interest
https://dnrmaps.wi.gov/Geocortex/Essentials/4_15_0_EXT/REST/sites/Surface_Water_Data_Viewer/Viewers/SWDV/VirtualDirectory/Resources/web/datasets/asnri/ASNRI.html

Appendix 3

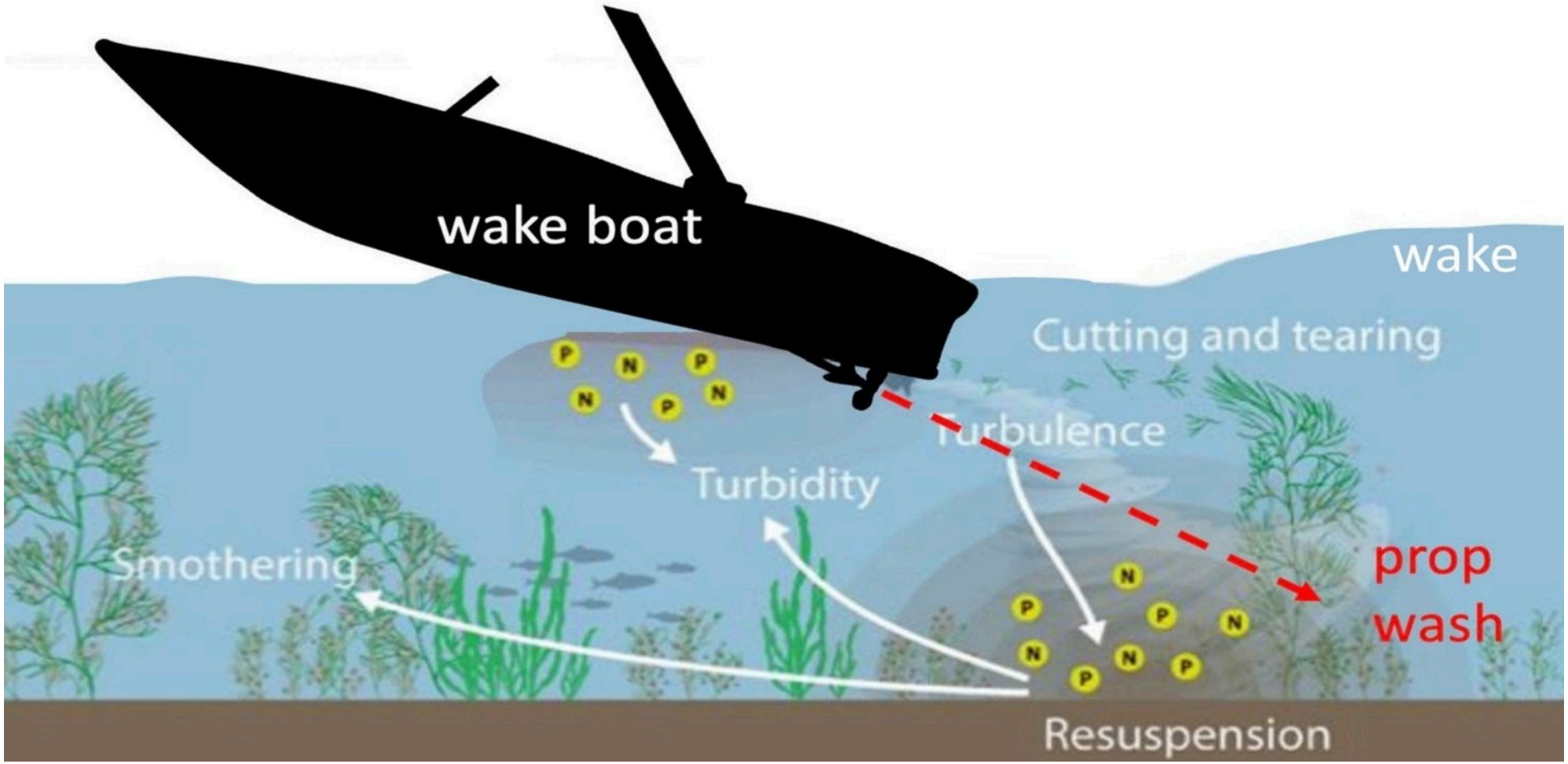
WAKE BOATS

- What they do: Create "enhanced wakes" for the purpose of surfing behind the boat or wake boarding

- The technology: The boats ride deep in the water by taking on ballast water or by use of hydrofoils to plow through the water and create large waves

WAKE BOATS: Two Harmful Impacts

1. High energy wakes
2. Prop wash down to 26’



THE HARM (due to prop wash)

- Prop wash scours the bottom and stirs up sediment, releasing Phosphorus (=algae blooms) and heavy metals like Mercury
- Destruction of native aquatic plants by smothering and tearing
- Smothering/silting over fish spawning grounds
- Increased turbidity
- Videos available on “Lakes at Stake” and “Last Wilderness Alliance” websites show these affects well

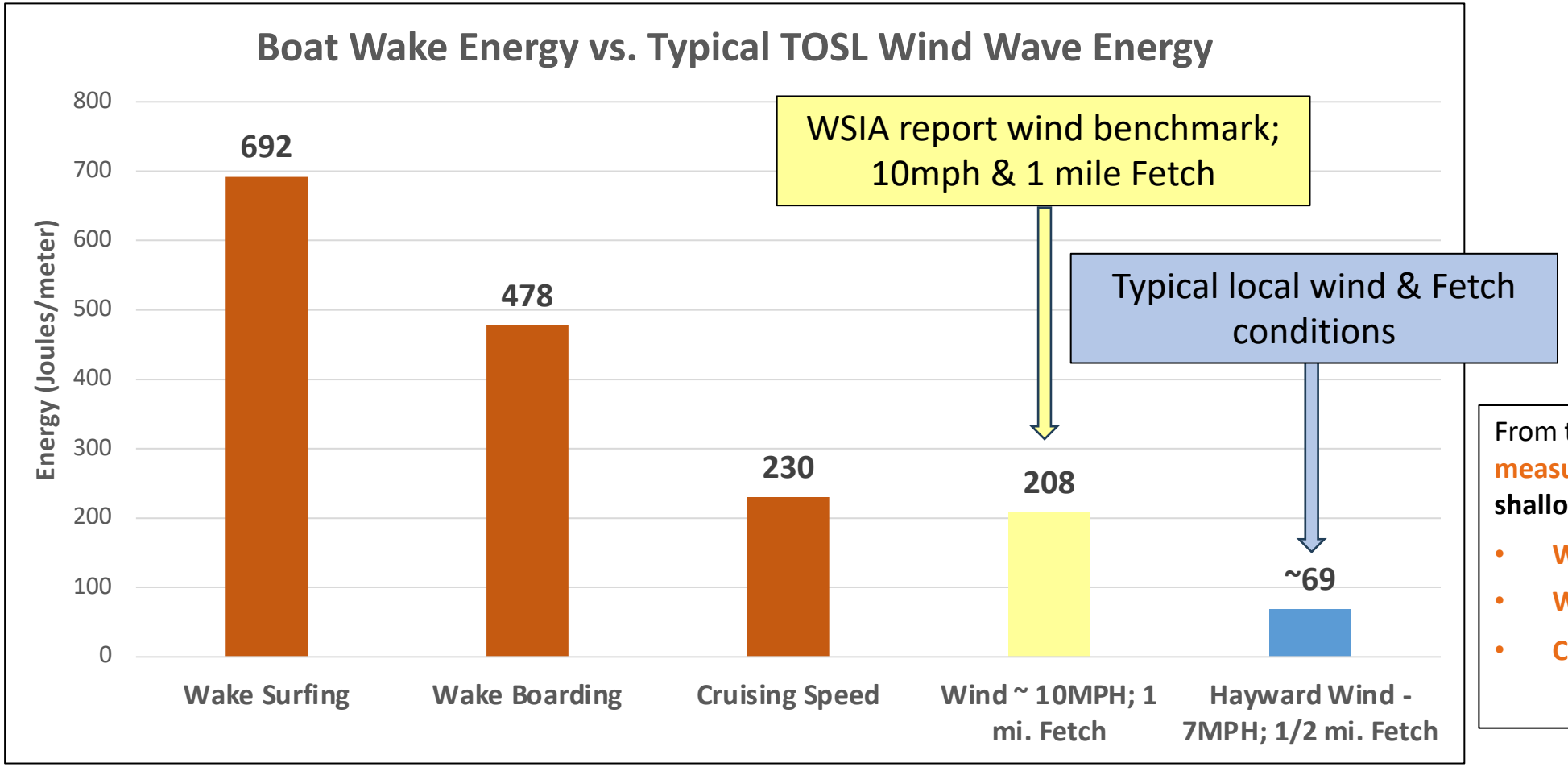
WAKE BOATS: Trail of disturbed sediment (photo from “Lakes at Stake” website)

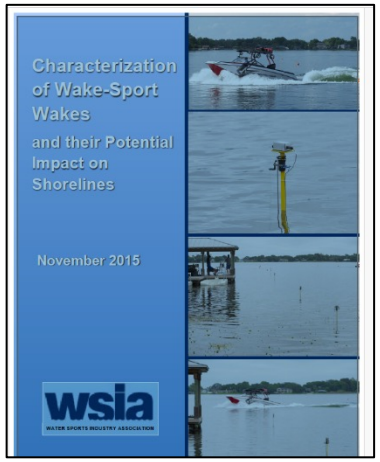
THE HARM (from large waves)

- Shoreline erosion: Waves are 2-3 times larger than other boats and carry 4-9 times the energy
- Destruction of native shoreline plants
- Birds and fish: Near-shore nesting birds (Loons) and fish spawning grounds are negatively impacted.
  - Loons nest very close to water's edge
  - WI Loon population has declined 22% in past 25 years
- Safety: Waves up to 3' can capsize kayaks, paddle boards, etc.

LOON NESTS
Imagine a 2’ wave crashing over the nests

Comparison: Boat Wake Energies vs. Wind Wave Energies





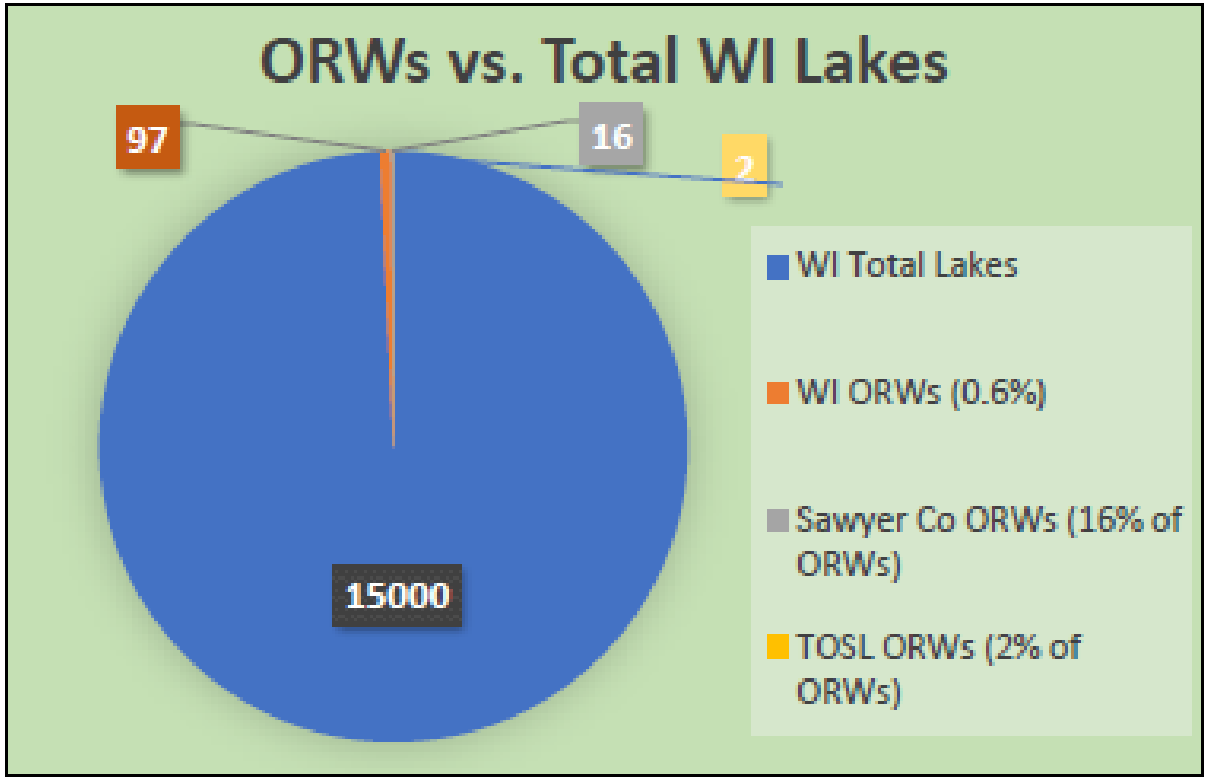
From the WSIA report, **wake energies measured at 210' from the boat, shallow water passes:**

- **Wake surf mode: 692 J/m**
- **Wake board mode: 478 J/m**
- **Cruising mode: 230 J/m**

Using average local wind speeds and typical Fetch lengths, wind wave energies are roughly 1/10th of Wake Surfing wake energies and 1/7th of Wake Boarding wake energies, *even when measured 210' from the boat*.

Outstanding Resource Waters (ORWs)
TOSL has two: Spider Lake and Teal Lake

- ORW/ERW status identifies waters that ***the State has determined warrant additional protection***...
- ORW/ERW designations...require WI to adopt ***antidegradation policies to prevent any lowering of water quality – especially in those waters having significant ecological or cultural value.***
- ORWs **receive the state's *highest protection standards***., with ERWs a close second.



SAFETY

- Examples:
  - Last Wilderness Alliance (LWA) has provided examples/reports from northern Wisconsin. There are 31 entries.
    - Injuries like broken ribs and broken legs
    - Fishing people thrown out of their boats
    - Sail boats and paddle boats staying off the water when wake boats are present.
    - Children not wanting to go in water when large waves are washing up on shore.
  - Example from Little Spider: Wake boat wave washed over a pontoon. Wave height was above the railing!

Wake Boat Impact: Compared to other water craft & water activities

(From "Lakes at Stake" website)

IMPACT	Jet Ski	Pontoon Boat	Ski Boat	Wake Boat	Canoe	Paddle Boad	Kayak	Fishing Boat	Swimming	Duck Hunting	Scuba	Sailing	Sea Plane
Safety of Others													
Shoreline Damage													
Fisheries and Fish Habitat													
Waterfowl													
Bottom Disturbance (Sediment Resuspension)													
Water Clarity (Turbidity)													
Aquatic Invasive Species													

Impact when sport is performed in accordance with existing statutes and Ordinances

	Significant Impact
	Moderate Impact
	Minimal or No Impact

DAMAGING AFFECTS DOCUMENTED BY:

- U of M-St. Anthony Falls Laboratory
  - Study #1: Shoreline damage. Report available
  - Study #2: Prop-wash affects. Report due 1st Quarter 2025
- Terra Vigilis Environmental Services Group (wave impact)
- Michigan DNR: Report available
- “Last Wilderness Alliance” (Wisconsin) See video on web site
- “Lakes at Stake” video on website
- WSIA (Water Sports Industry Association) (wake energy)

PUBLIC OPINION

- Questions from WDNR Conservation Congress Survey
  - “Do you support wake boat regulation?” (#32)
    - **Yes, 10,002 (73%)**
    - No, 3,715 (27%)
  - “Prohibit wake boats on lakes less than 1,500 acres, less than 20’ average depth, and closer than 700’ from shore?” (#43)
    - **Yes, 10,274 (75%)**
    - No, 3,363 (25%)
- Results from Town of Spider Lake Survey (2023)
  - 90% want to preserve North-woods atmosphere
  - 75% support the boating ordinances
  - **73% want wake boats regulated**

WISCONSIN LAKES COALITION

Formed to: “Defend Wisconsin’s waters from the devastating impacts of wake-enhancing boating”
Five Originating Members

LAST WILDERNESS ALLIANCE

WISCONSIN LAKES

WISCONSIN'S greenfire
VOICES FOR CONSERVATION

LAKES AT STAKE WISCONSIN

WISCONSIN WILDLIFE FEDERATION

WISCONSIN LAKES COALITION

- Coalition principles for Wake Boats
  - 700’ from shore
  - 30’ minimum depth
  - Prevent AIS spread from ballast water
  - Local control

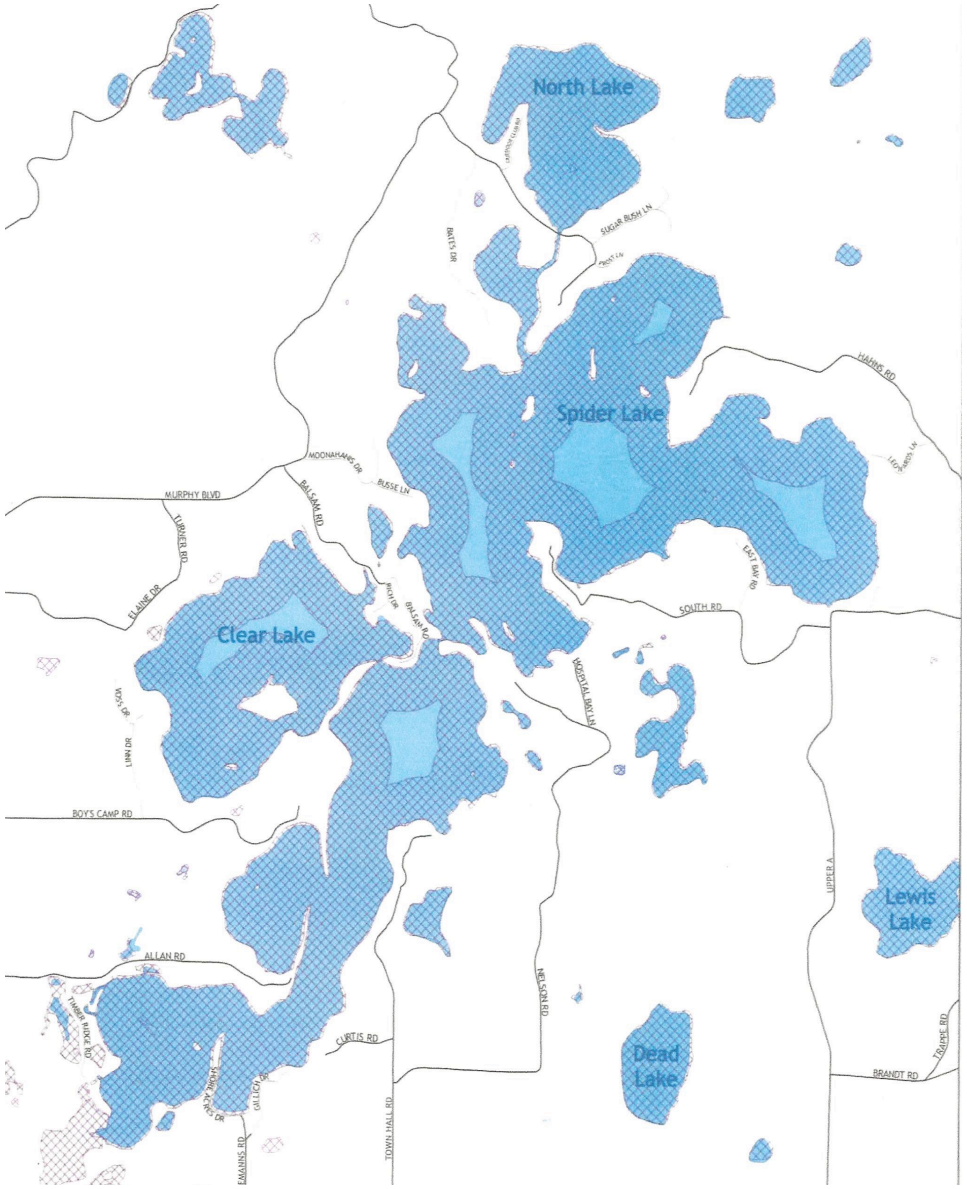
- Coalition now has 60 members and is growing:
  - 18 Lake Associations
  - 16 Fishing organizations (Muskies, Walleyes, Trout, Bass)
  - 3 County Lakes Organizations including ”Sawyer County Lakes Forum”
  - 6 Conservation organizations

WAKE BOAT ORDINANCES- Two Approaches

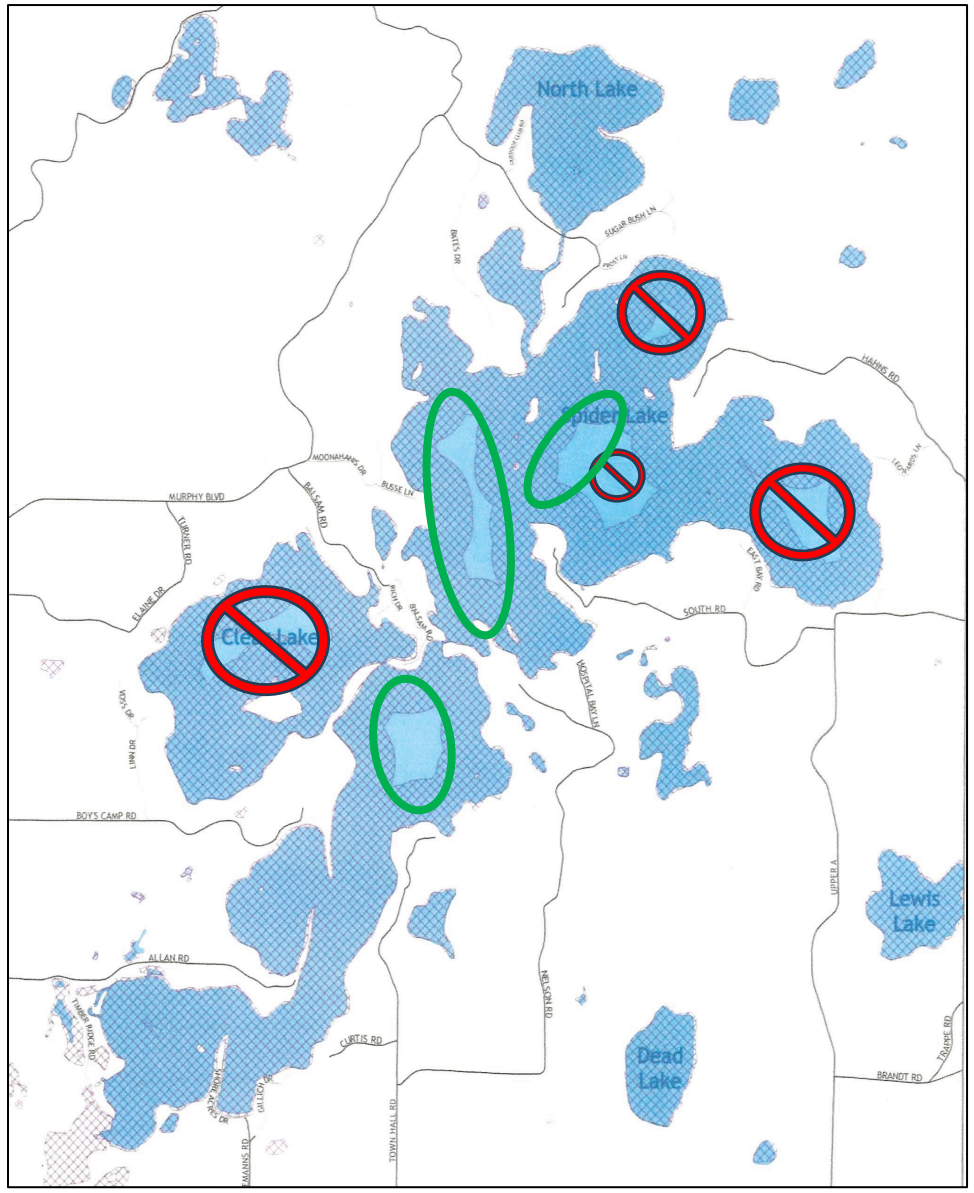
- Limiting approach:
  - Cannot operate within 700 feet of shore
  - Cannot operate in water less than 20’ deep (or 30’)

- Exclusion approach:
  - No wake surfing allowed (the Last Wilderness Alliance approach)

Spider Chain with 700’ Restricted Zone



Spider Chain: 20’ Water Depth Overlaid On 700’ Restricted Zone



Denotes where water is at least 20’ deep **AND** 700’ from shore

Denotes water not at least 20’ deep

Only VERY limited areas even potentially suitable for wake boating activity on Spider Chain.

LOCAL ORDINANCE STATUS

- Towns in **Sawyer County** that have wake boat ordinances (for all waters within towns)
  - Town of Hayward
  - Town of Round Lake (Includes Round Lake)
  - Town of Bass Lake (Includes Grindstone and Lac Court Oreilles)
    - Those all used the 700’ exclusion zone
- Town of Cable (total ban)

CREATING A TOWN ORDINANCE REGULATING WAKE SURFING

(per “Last Wilderness Alliance”)

- Wisconsin law authorizes towns to regulate watercraft use on their own lakes *(Wis Stat 30.77(3))*

- At least 31 Wisconsin towns have already done this to limit or prohibit enhanced wakes created by wake boats
  - LWA has assisted on 20 of the ordinances

A FEW DETAILS ON WAKE BOATS

- Can wake boats be used as regular boats? Yes, by not using the ballast tanks, the hydrofoils, or any other devices that create enhanced wakes.

- Are there different designs of wake boats? Yes, and there could be more coming. That is why the ordinance needs to prohibit the activity, not the boat.

RECOMMENDATION to TOSL

- Immediately enact a stand alone local ordinance prohibiting wake surfing and all activities that use “enhanced wakes”.

- “Last Wilderness Alliance” is available to assist. They have the legal and technical expertise (including 4 attorneys and a PHD Limnologist) plus document templates.

Final Notes:

- **The single most important thing the TOSL can do to preserve and protect the health of the town's lakes, is to prohibit wake surfing and enhanced wakes!**

- Wake boats in wake surfing mode do the following:
  - Damage shorelines
  - Stir up sediment, increasing turbidity and releasing phosphorous
  - Endanger the participants of all other water activities
  - Harm fish beds and loon nests
  - Destroy native vegetation
- Wake boats spread AIS from ballast water