

## 500 FEET FROM SHORE IS NOT ENOUGH

*RWVL Supports Requiring Wake Boats to Maintain a 1,000-Foot Minimum Operating Distance from Shore*

**Summary.** Responsible Wakes for Vermont Lakes (RWVL) enthusiastically supports the majority of the rule proposed by the Department of Environmental Conservation (DEC) to regulate wake boat operations through a change to the Vermont [Use of Public Waters Rules](#) (UPWR).<sup>†</sup> We also support the DEC's "Home Lake Rule" recommendation to reduce wake boat spread of aquatic invasive species (AIS). As written, the DEC rule recognizes the need to protect Vermont's lakes and ponds and normal users from the issues caused by wake boats.

However, RWVL does not support DEC's proposed 500-foot minimum distance from shore for wake boat operation. Instead, RWVL advocates a 1,000-foot wake boat operating distance as recommended in our [March 2022 petition to the Agency of Natural Resources](#) (ANR). This distance better protects Vermont's inland lakes and ponds and the safety of those who use them. It is also supported by strong scientific evidence, will produce substantial economic benefit, and enjoys overwhelming community support.

**Public comments during the 16-month petition period have *strengthened* support for RWVL petition.**



**Figure 1.** Appropriate wake surfing is being enjoyed >1,000 feet from shore, in water >20 feet deep, >200 feet away from other lake users, and with spotters and a wake boat driver

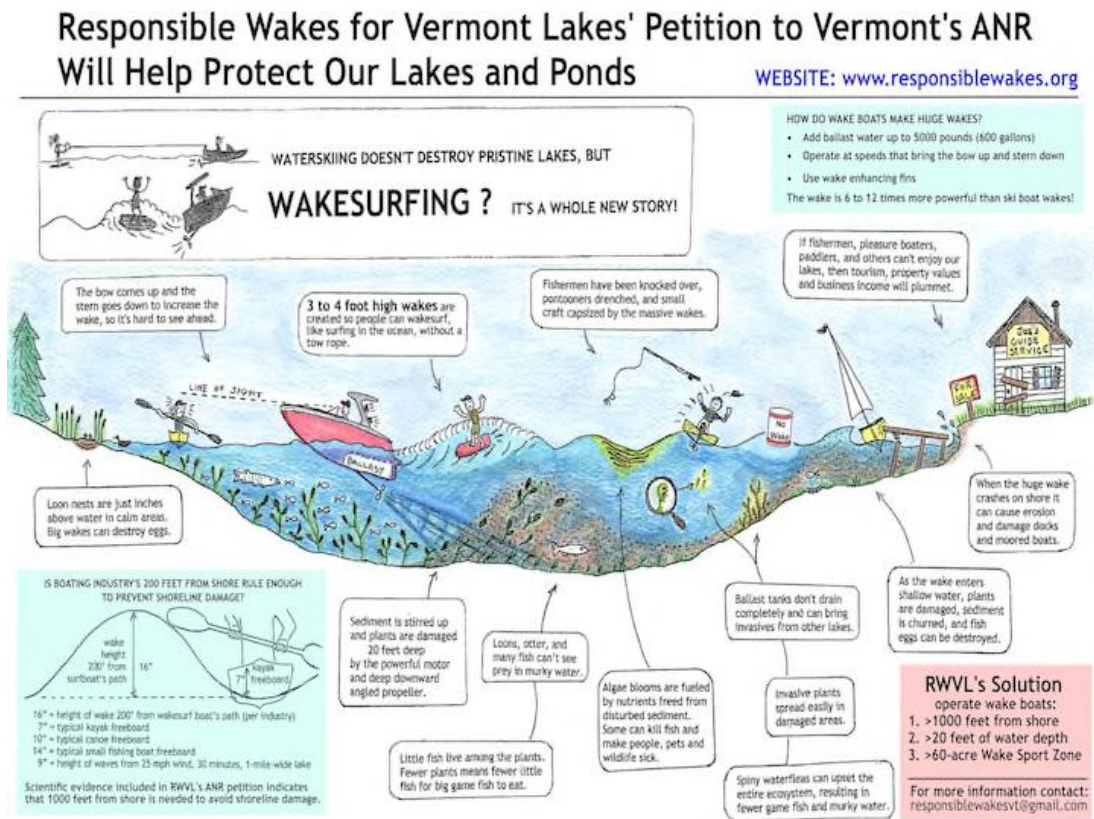
## SCIENTIFIC DATA AND CONSIDERATIONS

***Recommendations made by two world-renowned hydraulics researchers indicate that 500 feet from shore is not enough to protect Vermont's lakes from adverse powerful wake boat impacts (Figure 2).***

- [Jeff Marr](#), M.S., Associate Director of Engineering and Facilities at the University of Minnesota, and principal investigator for the [St Anthony Falls Research Laboratory's \(SAFL\) study](#) performed in 2020, found that a distance greater than 600 feet from shore is needed to make the peak power in wake surf waves equivalent to normal ski-boat waves at 200 feet.
- [Yves Prairie](#), Ph.D., UNESCO Chair in Global Environmental Change, and principal investigator for the [University of Quebec at Montreal wake boat study](#) performed in 2013, found that a distance of at least 300 meters (984 feet) is needed to make turbulence from breaking wake surfing wakes equivalent to that of normal wind waves.

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<sup>†</sup> Those unfamiliar with wake boats and wake surfing (**Figure 1**) are encouraged to view [RWVL's 1-minute wake boat video](#). It is important to recognize that the UPWR adopted does not apply to tubing, waterskiing, or any conventional watercraft activity; it applies only to wake boats in which ballast or other wave enhancing systems are employed. Wake boats not employing these systems can be used the same as any other watercraft.



**Figure 2.** Illustration of the many adverse consequences of wake surfing performed inappropriately

**Existing scientific research does not consider the projected increase in wake boat weight, horsepower, wake size, and the number of concurrently operating wake boats. These must be considered because the UPWR require various traditional uses to be "enjoyed in a reasonable manner, considering the best interests of both current and future generations."**

Wake boats have doubled in weight and horsepower over the past two decades (see [RWVL Petition to Agency of Natural Resources to Amend the Vermont UPWR](#), p 18 & 19). Had today's boats been used, the protective distances recommended in the SAFL and Quebec studies would have been greater.

- The wake boat industry openly strives to produce bigger and more powerful wakes (see the March 2023 issue of [Motorboat & Yachting Magazine](#): "[Best wake surf boats: 6 top models for creating the biggest wake](#)").
- Wake boat sales continue to increase each year, resulting in an increasing number of wake boats operating *concurrently* on a lake. Multiple boats create multiple wake waves that can meet, merge, and result in larger, more powerful waves than those created by a single wake boat. Existing scientific research does not consider these additive effects from multiple wake boats.

**Scientists' understanding of the true impact of wake boats on lakes and lakeshore environments continues to evolve. It is thus of the utmost importance that the State of Vermont exercise caution in its protection of lake ecosystems and lake users both now and into the future.**

- The "precautionary principle" ([Kriebel et al. Environ Health Persp 2001](#)) states that "When there is substantial scientific uncertainty about the risks and benefits of a proposed activity, policy decisions should be made in a way that errs on the side of caution with respect to the environment and the health of the public."
- In the context of human health, governments have applied the precautionary principle to include consideration of animal studies and toxic substances. The level of precaution is

determined not only by the degree of scientific uncertainty but also by weighing the risks versus the potential benefits. For wake boats, the benefits — in the form of recreational enjoyment — accrue only to a very small segment of the lake-using public. Meanwhile, substantial ecological and safety risks extend to Vermont's lakes and the vast majority of the lake-using public.

- Scientific data on the impact of wake sports may be limited, but all available research points in the same direction: wake boats are a new and different class of boats that are more powerful and destructive than boats traditionally found on inland lakes and ponds.
- The Vermont [UPWR](#) state: "*The Rules attempt to ... [ensure] that natural resource values of the public waters are fully protected.*" The State has a duty to exercise a high level of caution to *fully protect* its citizens and the environment while avoiding expensive, potentially irreversible harm.

***During the 16-month public comment period, the appearance of these findings has strengthened RWVL's recommendations for the 1,000-ft minimum distance from shore for wake boat operation.***

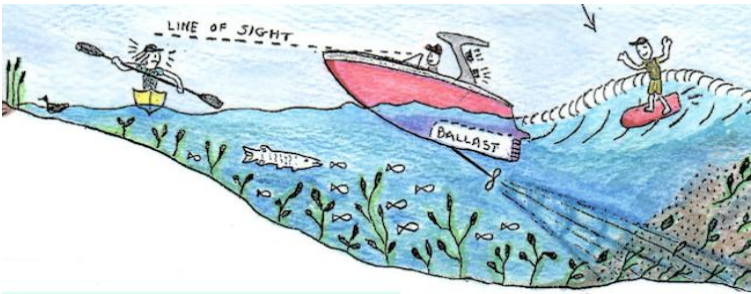
- Publication of Francis et al. 2022. "Wake boats: concerns and recommendations related to natural resource management in Michigan waters." Michigan Dept of Natural Resources, Fisheries Report 37, Lansing. <https://mymlsa.org/wp-content/uploads/2022/09/DNR-Wake-Boat-Report.pdf>.
- "Wave Physics Demands 1000-Feet," Comments of physics teacher Phil Logsdon submitted to the ANR on Aug 4, 2023, regarding below surface wave generation.
- A [recent close examination of measurements from the industry-funded 2015 Goudey and Girod study](https://www.wsia.net/wp-content/uploads/2020/03/WSIA_draft_report_Rev_II.pdf) ([https://www.wsia.net/wp-content/uploads/2020/03/WSIA\\_draft\\_report\\_Rev\\_II.pdf](https://www.wsia.net/wp-content/uploads/2020/03/WSIA_draft_report_Rev_II.pdf)) suggests that at 500-feet from a wake surfing boat the wake remains 10 inches high, and even at 1,000-feet remains 5 inches high, enough to preclude normal and traditional lake activities.

## PUBLIC SAFETY

***The State's 500-foot minimum distance from shore does not consider the inevitable conflicts with other users and the resulting serious public safety issues out on the lakes where wake boats operate. The [UPWR](#) state: "... use conflicts shall be managed in a manner that provides for all normal uses to the greatest extent possible..." Compared to a minimum 1,000-foot distance from shore, a 500-foot distance leaves only a narrow band near shore for traditional users, thus contradicting the State mandate (see our RWVL "[A Day on the Lake](#)" Animation).***

- The State seems focused on the idea that any new rule must restrict the use of wake boats as minimally as possible. This is a backward interpretation of the [UPWR](#). Wake sports are a unique, non-traditional use that restricts all other lake users. When wake boats operate in wake surf mode, all other lake recreational activities are at risk. Therefore, the State must focus not on the impact of a new rule on wake sports (a tiny fraction of lake users) but rather on the rule's impact on all other lake users engaged in traditional activities. 500 feet from shore is not sufficient to protect traditional lake users. A 500-foot rule will restrict traditional users to a narrow lakeshore band and, especially when recreating close to the 500-foot mark, will subject them to dangerously powerful wake boat waves from wake boats operating right at or close to the 500-foot distance. This eliminates the safe practice of all normal, traditional lake activities, particularly for seniors and children, i.e., those at greatest risk of injury. Wake boats dominating the center of the lake will preclude waterskiing (relying on long stretches of flat water) and sailing (depending on the steady mid-lake winds). Paddlers, trolling anglers, and other small craft users, especially the less experienced, will avoid the middle of the lake fearing wake boat arrival.
- Stern-weighted wake boats raise the boat's bow, making it difficult for the operator to see traditional lake users, thus placing them at greater risk (**Figure 3**).
- Safety issues associated with wake boat operation was also a major concern of the public in their testimony and written comments. Safety was a major factor in [FOVLAP's statement of support](#).





**Figure 3.** Illustration of major safety problems associated with inappropriate wake surfing caused by stern-weighted wake boats: 1) operating too close to shore; 2) operating in too shallow water; and 3) obstructing the driver's forward view of others.

***A 1,000-foot requirement would allow more of Vermont's smaller, more vulnerable lakes and ponds to be exclusively available for normal uses.***

- With a 1,000-foot minimum distance, fewer lakes would be eligible for wake boat activities, thus exposing fewer lakes to the dangers created by wake boats (**Figure 2**).
- With a 1,000-foot minimum distance, traditional users and wake boats would more safely share the remaining larger lakes with their wake sport zones. Accepting that waves generated by today's ballasted wake boats dissipate to an acceptable level over a 500-foot distance, there would be an additional 500-foot "safety zone" providing greater relative safety to skiers, paddlers, rowers, small sailboats, anglers, and swimmers.

## ECONOMIC BENEFITS

***Vermont's state and local economies will be better protected with a 1,000-foot minimum distance.***

- The state's robust tourist economy depends on clean, clear, safe lakes and ponds (**Figure 4**). The sustained growth of Vermont's critical recreational tourist industry is far more dependent on the enjoyment of the many traditional users than on the few wake sports enthusiasts. RWVL estimates that the potential annual economic benefits from regulating wake boats at 1,000 feet are \$93 million, compared to an estimated potential annual cost of about \$8 million, primarily due to reduced growth of wake boat sales (see RWVL's detailed "[Economic Impact Analysis](#)").
- Not included in this analysis is the reduced cost of maintaining Vermont's water quality, responding to algal blooms exacerbated by excess phosphorus and threats of AIS spread via wake boat ballast tanks. The state spends hundreds of thousands of dollars annually to mitigate ecological damage caused by excess phosphorus and millions of dollars annually to combat the spread of AIS. Additionally, many lake users donate time and money—often more than the state contributes. As state funding continues to decrease in proportion to the need, the burden of protecting these public waters may fall even more heavily on private citizen donations, making the costs to local communities a more significant issue. Enacting the RWVL's minimum 1,000-foot distance will result in the following:
  - Fewer lakes impacted by wake boats filling and emptying ballast tanks, thus reducing the lake-to-lake spread of new or existing AIS.
  - Less phosphorus churned up in lake bottom sediment in shallow water by wake boat waves.
  - Fewer and less extensive algal blooms.
  - Reduced spread of milfoil to new locations within already impacted lakes, by reducing where wake boats, with deep running props that can fragment plants, are allowed to operate.
- Environmental remediation will be reduced with less need to repair wake boat-induced damage; if wake boats operate at least 1000 ft from shore, less shoreline and property damage will result.
- Property values and the property tax base will be maintained as a result of reduced shoreline damage, clearer water, fewer algal blooms, and decreased AIS infestation, thus reducing the tax burden of off-lake property owners.

- Enforcement will be less costly because:
  - For smaller lakes not allowing wake boat operation, there is no need to patrol these lakes as user conflicts are eliminated.
  - For the larger lakes where wake boats can operate, there will be fewer user conflicts between traditional users and wake boaters as a result of the greater space available.
- Fewer individual lakes and ponds may petition the ANR to opt-in—or out—of the new rule. The result will be a reduction in ANR personnel time and effort.



**Figure 4.** Vermont’s green, environmental-friendly, robust tourist economy depends heavily on its clean, clear, safe lakes and ponds. Here kayakers, sailors, and a water skier safely share the lake

## PUBLIC SUPPORT

**There is strong and growing public support for restricting wake boat activities to a distance of at least 1,000 feet from shore.**

- 35 private and public organizations support our RWVL petition’s recommended 1,000-foot minimum distance from shore for the operation of wake boats and wake sports (**Figure 5**). These supporters are non-profit organizations and groups focused on environmental and conservation issues, Vermont town selectboards and conservation and planning commissions, and county conservation districts. Notably, among these is the [Federation of Vermont Lakes and Ponds](#).



**Figure 5.** Public & private organizations supporting RWVL’s 1,000-foot minimum operating distance

- Seventeen lake associations have taken a position on the DEC's proposed rule. All 17 support regulation of wake boats. Fifteen of the lake associations (representing 16 lakes) support a stronger rule with the 1,000-foot minimum distance from shore (**Figure 6**). Since the DEC announced its weaker recommendation of 500-foot minimum distance in January 2022, the number of lake associations supporting the stronger 1,000-foot distance has grown from 4 to 15.



**Figure 6.** VT lake associations supporting wake boat regulation

- Proposed changes to the Use of Public Waters Rule have been the subject of three DEC public pre-rulemaking hearings, at which comments and testimony from Vermonters supported the 1,000-foot distance by more than four to one.
- On July 29, 2022, the DEC received a letter signed by 1, 187people supporting the RWVL's petition that included the 1,000-foot distance.
- In July 2023, Caspian Lake filed an ANR petition to ban all wake boats; seven other lakes are prepared to do the same if the DEC's 500-foot minimum distance from shore is adopted.

**Public support in firsthand testimony has centered around the following:**

- Public Safety.** There is growing awareness of the magnitude of potential danger and disruption for other traditional lake users (see [RWVL's Testimony website tab](#)).
- Fragile Natural Resources.** Vermonters deeply treasure their lakes, forests, and mountains. This is embedded in the Vermont ANR's Mission Statement which is "to preserve, enhance, restore, and conserve Vermont's natural resources, and protect human health for the benefit of this and future generations." Wake boats are antithetical to Vermonters' support for stewardship and protection of the natural environment.
- Vermont's green legacy.** Historically, Vermont has held a leadership role in responding to environmental challenges with clarity and integrity. Examples include the Billboard Law, Act 250, the recent banning of single-use plastic bags, and the Bottle Bill. Maintaining clean lakes preserves and enhances the state's well-earned reputation as a leader in promoting green tourism and environmental-friendly practices.
- Equity and Accessibility.** Based on firsthand testimony, one wake boat on a lake can deprive access to many wishing to enjoy traditional water recreation activities. With a 1,000-foot minimum distance from shore, the number of Vermont lakes with wake sport zones would be only 15, leaving an additional 16 fully available for access for users other than wake boaters. Vermont's ANR is committed to "ensuring that everyone living in and visiting Vermont has meaningful access and equal opportunity to participate in Agency programs, services, and activities and that everyone feels safe and welcome on Vermont's public lands." A 1,000-foot minimum distance from shore allows the tiny subset of wake boaters to dominate fewer Vermont inland lakes to the exclusion of many.