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CCROA To Study Hazardous Wakes
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Eugene Clark, CCROA President has asked Board members to review a September, 2022 report issued by the Michigan DNR entitled *Wake boats: concerns and recommendations related to natural resource management in Michigan waters*. Eugene asked that Board members familiarize themselves with this report as the Board will be discussing the issues raised, and will be forming positions on those issues, when the Board reconvenes this coming spring. A link to the Michigan DNR report can be found below.

Here, I will attempt to raise everyone's awareness about this issue by presenting a survey of local developments and by providing excerpts and links to the Michigan DNR report and to other related media articles and research papers.

Wake enhancing watercraft (WEW), also known as wake/surf boats create a wake from two to five feet high behind which an individual may, surf, ski, wake-board, or wake jump. WEW create this large wave in a number of ways: 1) a ballast system in the back of the boat that pumps lake water into a bladder to increase the boat's water displacement, 2) a mechanical hydro foil, and 3) by operating the boat very slowly, off plane, with a bow high attitude.

Four towns in Sawyer county and the City of Mequon have enacted ordinances regulating the operation of WEW. The Town of Presque Isle has drafted a proposed ordinance that has not yet been adopted, and the Town of Winchester is working on an ordinance.

The four Sawyer County ordinances are all similar. They attempt to protect the shoreline from erosion caused by powerful waves by prohibiting the operation of a motorboat to create an enhanced wave within 700' of shore. (700' from shore effectively bans WEW from smaller lakes). The proposed Presque Isle ordinance takes a different approach. Here is an excerpt from the proposed PI ordinance:

THE OPERATION OF A BOAT IN A MANNER THAT INTENTIONALLY MAGNIFIES ITS WAKE FOR RECREATIONAL PURPOSES SUCH AS WAKE BOARDING, WAKE SURFING OR WAKE JUMPING IS PROHIBITED ON ANY LAKE OR RIVER WITHIN THE TOWNSHIP BOUNDARIES.

To see the proposed Presque Isle Ordinance, click on this link:

https://static1.squarespace.com/static/60cbf64f0c7c872f03a0a897/t/610c484549629e3435eb310a/1628194885541/PIOrdinance+2020-04_Hazardous+Wakes_+SC+507.pdf

The proposed Presque Isle Ordinance is accompanied by a 30 page "Condition Report" that spells out the concerns of those promoting the ordinance. Those concerns include water quality, water clarity, loss of aquatic plants, shoreline erosion, the personal safety of other boaters, threats to property, and the risk of the introduction or spread of Aquatic Invasive Species (AIS). Follow this link to see the "Condition Report":

https://static1.squarespace.com/static/60cbf64f0c7c872f03a0a897/t/610c477551eee17cdeb835cc/1628194688004/Condition+Report_+Presque+Isle+Hazardous+Wake+Ordinance.pdf

To gauge public sentiment, the Presque Isle Ordinance Committee conducted a survey of town residents. One hundred fifty-nine individuals responded to the Ordinance Committee survey. One hundred and nine respondents indicated “strong support” to the question “Do you support a local ordinance?”.

The Last Wilderness Alliance (LWA) is a Presque Isle citizen advocacy group. LWA is strongly in favor of the proposed ordinance and publishes a blog which frequently provides their views on this issue. If you would like to read their many posts on this topic I recommend you start with this one:

<https://lastwildernessalliance.org/updates/wisconsin-communities-speak-out-against-hazardous-wakes>

The following link is to an article that appeared in a Minnesota news publication, the MinnPost on March 9, 2020. This article is a good overview of the WEW issues presented in a balanced non-technical readable format. It is a good first read before you dive in to the more technical articles. The MinnPost article highlights the large difference between possible solutions advocated by the boating industry (no wave creation closer than 200' from shore) vs. the research communities' belief that a buffer of at least 500' and as much as 700' to 1,000' is required. <https://www.minnpost.com/environment/2020/03/the-battle-over-wake-surfing-has-made-its-way-to-the-minnesota-legislature/>.

The Michigan DNR report is a review of existing technical research regarding the effects of wake board activity on natural resources. This report, prepared by the Fisheries Division, presents guidance to regulatory authorities responsible for writing and implementing policies that protect aquatic resources held in public trust. The report concludes that “the waves and propeller turbulence created by wake boats can damage aquatic environments.....the cumulative effect of damages will lead to loss of habitat and resulting declines in aquatic ecosystems...”

The*concerns and recommendations*..... report has extensive sections on shoreline erosion, sediment resuspension, aquatic plants, and aquatic invasive species. Here are important excerpts on sediment resuspension:

“Sediment resuspension decreases water clarity in lakes, subsequently reducing the ability of fish to find food and the depth to which aquatic plants can grow....as sediments are resuspended and nutrients become available in the water column, excessive **algae growth** can occur. Boat wakes resuspend sediments, especially fine substrates such as silt or sand, in shallow waters and this resuspension increases with wave energy.....Wake boats have greater potential to exacerbate sediment resuspension through increased wave energy and propeller turbulence....two studies of WEW's ability to resuspend bottom sediments were reviewed. One study concluded that resuspension can occur to depths of 15 feet, the other study concluded resuspension can cause sediment resuspension in water up to 33 feet deep.

The*concerns and recommendations* report recommended that WEW should operate at least 500 feet from shore and in at least 15 feet of water. The full report can be found at <https://mymlsa.org/wp-content/uploads/2022/09/DNR-Wake-Boat-Report.pdf>.

St. Anthony Falls Study, February, 2022. This study was conducted by the University of Minnesota. Are wake/surf boat waves any worse than ski boat waves? This study compares the wakes generated by WEW to regular ski boats and concludes that the WEW boats had 2 to 3 X maximum wave height, 3 to 9 X total wave energy and 6 to 12 X maximum wave power. <https://conservancy.umn.edu/handle/11299/226190>

Boat Wake Impact Analysis, January, 2021. This is an exhaustive technical study of wakes and how larger more powerful wakes impact safety considerations for other lake users.

<https://img1.wsimg.com/blobby/go/cf65b112-4ce9-4da9-a066-f09ac53fad63/Boat%20Wake%20Impact%20Analysis%20-%20Final%20Report%20-%202022.pdf>

Kezar Lake, 2021. <https://kezarwatershed.org/reports> Another study with a conclusion that WEW operations should be at least 500' from shore and in water greater than 20' deep.

Payette Lake, Idaho, August 2020. This study concludes that the downwardly angled propellers of WEW can resuspend sediments up to 33 feet below the lake surface.

<https://img1.wsimg.com/blobby/go/85358067-828e-4c41-ad0f-54d479c3e5fb/Final%20Report-%20Environmetal%20Threat%20Analysis%20.pdf>

Vermont Study, March, 2022. This detailed report calls for changes in Vermont law such that WEW must operate 1,000 feet from shore and a minimum of 20 feet of water. The stated justifications for the proposed changes include an expectation that wake/surf boats will continue to increase in both size and power.

https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/RWVL_ANR%20Petition%20to%20Manage%20Wake%20Boats_Revised_6132022.pdf

Numerical Study of the Impact of Wake Surfing on Inland Bodies of Water, March 2022. Using a Computational Fluid Dynamics simulation, this study concludes "that if a wake surf boat is operated 200 feet from shore and in at least 10 feet of water, the environmental impact is minimal." This study was funded by the National Marine Manufacturers Association (NMMA). Two of the three authors are employed by Mercury Marine.

<https://www.scirp.org/journal/paperinformation.aspx?paperid=116094>

Mid Lake, Minocqua chain: Wake surfing impact on weeds in a shallow lake. This is not a scientific study but a local story and interesting nonetheless.

https://www.oclw.org/uploads/3/1/6/2/31627513/8_wake_surfing_boats_johnson.pdf

Please review as much of the above information as you can. Share your thoughts with Board Members and consider the CCROA mission of "Promoting Safe Fun on Clean Lakes".

