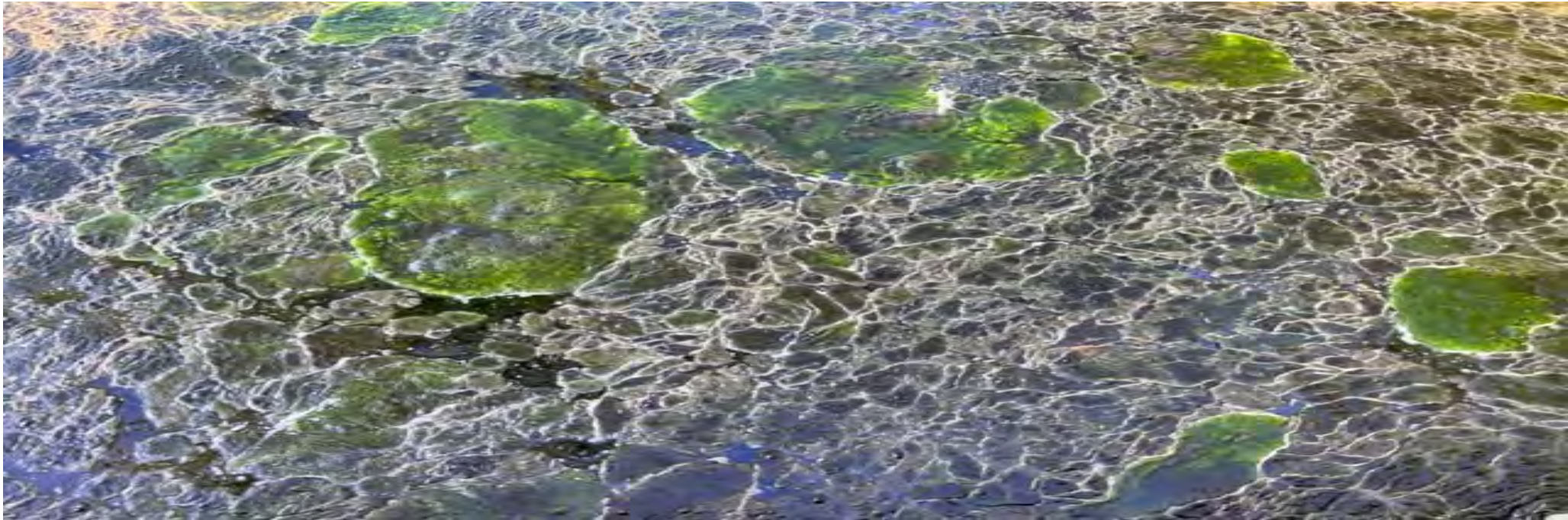


We Got Trouble!
With a capital T, and that rhymes with P,
and that stands for Phosphorous!
We Got Trouble!



One pound of phosphorous grows 300 – 500 pounds of algae by wet weight!

- Phosphorus is the largest contributing factor leading to algal blooms.
- We now have concrete scientific evidence to prove that reducing phosphorus runoff is necessary for cleaner lakes.
- This evidence now guides policy-making and shapes the way we view our relationship with lakes.

Clean Lakes Alliance:

<https://www.cleanlakesalliance.org/phosphorus/>



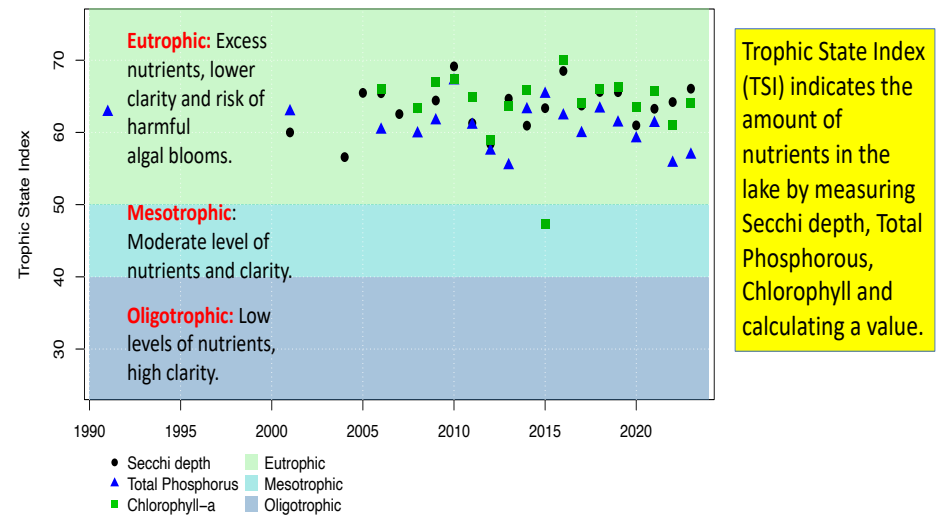
Lake Mallalieu filamentous algal bloom

How long has Lake Mallalieu had high phosphorous and nuisance algal blooms?

For many decades, going back to at least 1990.

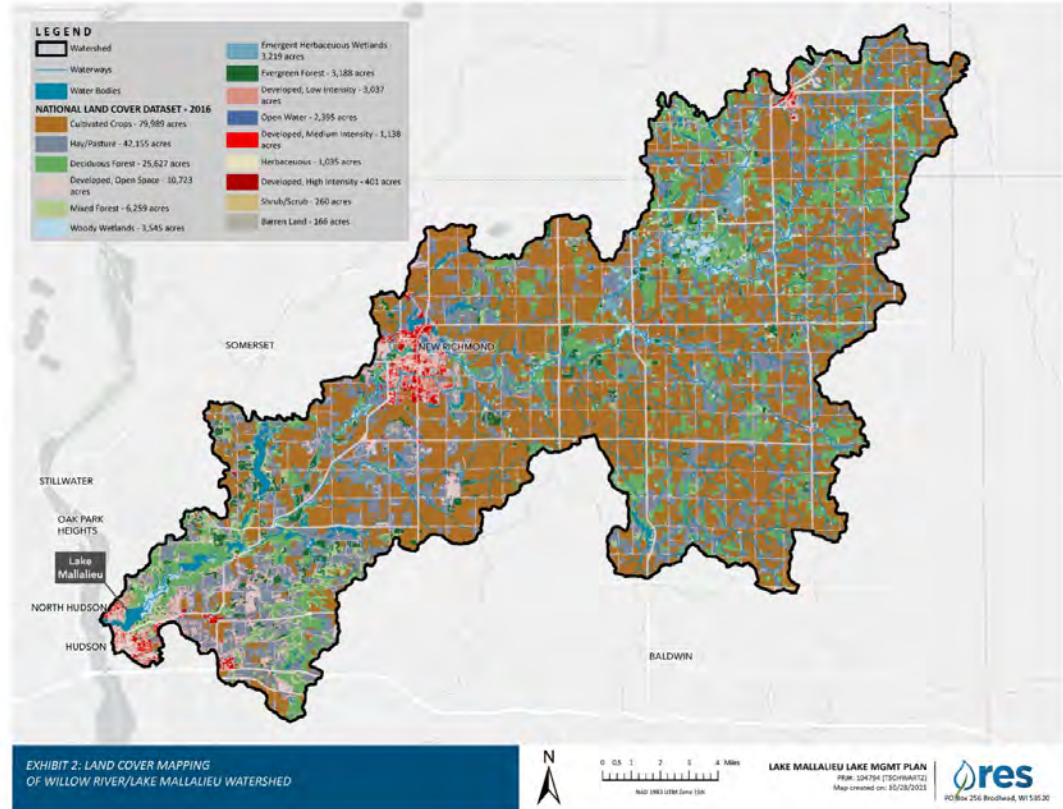
- In **1990**, the City of Hudson got a WDNR grant to assess Lake Mallalieu's water quality. Lake Mallalieu had poor water clarity and high levels of nutrients and algae.
- In **1999**, the LMA partnered with the WDNR on a Lake Mallalieu water quality study. Lake Mallalieu's water quality was poor, with elevated phosphorous and nitrogen, low oxygen, and algal blooms.
- **Since 2004**, the WDNR has listed Lake Mallalieu as impaired by excess total phosphorous, with eutrophication, excess algal growth, and elevated pH.
- **From 2012 - 2024**, Lake Mallalieu was evaluated for phosphorous and algae every two years. Total phosphorous and chlorophyll-a values continued to be too high, as evidenced by summer algal blooms.

Trophic State Summary (1991-2023)



How does phosphorous get into Lake Mallalieu?

- Lake Mallalieu is the last impoundment of the 70-mile-long Willow River, with its 182,000-acre watershed dominated by agricultural land uses.
- The Willow River continuously delivers sediment carrying phosphorous and nitrogen to Lake Mallalieu.
- The Willow River replaces Lake Mallalieu waters about every 3 to 7 days, depending on precipitation rates.



Is the phosphorous in Lake Mallalieu all from upstream agricultural lands?

No.

What we do along the lakeshore and in the lakeshed adds phosphorous, too.

Our lakeshore landscaping choices are factors:

- Removing native shoreline vegetation, installing unvegetated rock rip-rap, fertilizing spans of mowed grass lawns sloping toward the lake, and increasing impervious surface areas all increase phosphorous loading to Lake Mallalieu.
- Maintaining and enhancing native shoreline vegetation, choosing softer methods of shoreline stabilization, growing pollinator-friendly buffer strips between the lake and lawn areas, installing rain gardens, and reducing impervious surface areas all reduce phosphorous loading to Lake Mallalieu.



Stormwater drainage systems deliver phosphorous and other pollutants to Lake Mallalieu, too.

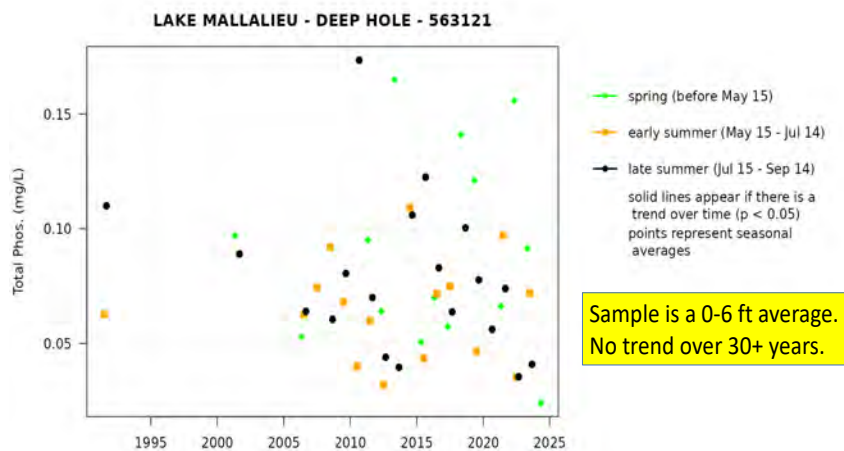
- Dozens of storm sewer outlets in the City of Hudson and Village of North Hudson dump runoff from streets, parking lots, sidewalks, businesses, and residences into Lake Mallalieu.



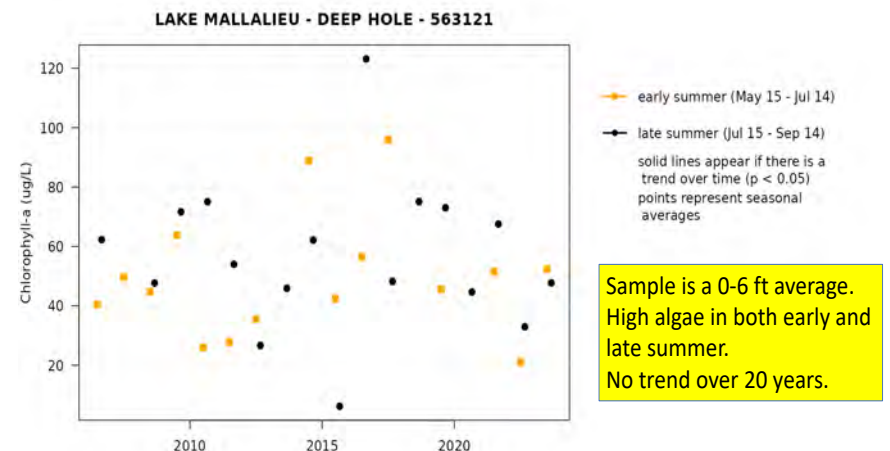
Did Lake Mallalieu's phosphorous load and algal blooms increase because of the upstream 2015-19 Little Falls Dam project?

Water quality sampling data for Lake Mallalieu show no changes that correlate with the Little Falls Dam project.

Total Phosphorous Data (1991-2024)



Chlorophyll-a (2005-2023)



Would an over-Winter drawdown of Lake Mallalieu reduce phosphorous loads and algal blooms in Lake Mallalieu?

A drawdown doesn't change the quality of inflowing Willow River water, so it doesn't reduce the delivery of sediments and excess nutrients to Lake Mallalieu.



2004-05 3-foot over-Winter drawdown



What agricultural Best Management Practices will reduce phosphorous loads and algal blooms in Lake Mallalieu?

- The water quality of the Willow River largely determines the water quality of Lake Mallalieu.
- WDNR and the LMA consultant, Stantec, both advise that upstream interventions to reduce runoff of sediments carrying phosphorous and nitrogen into the Willow River are necessary to reduce phosphorous loads to and algal blooms in Lake Mallalieu.
- The *Dry Run Creek Farmer-Led Watershed Council*, in the eastern portion of the Willow River watershed, promotes adoption of soil and water conservation practices by farmers that reduce nutrient-loaded runoff from fields to the Willow River, including:
 - Soil Testing
 - Reduced Tillage
 - Cover Crops
 - Grassed Waterways
 - Field Borders



What lakeshore Best Management Practices will reduce phosphorous loads and algal blooms in Lake Mallalieu?

- Lake Mallalieu's water quality is largely determined by the effects of upstream land uses within the Willow River watershed, but land uses along Lake Mallalieu's shoreline also affect its water quality.
- Choose lakeshore landscaping designs that reduce runoff into Lake Mallalieu. Raingardens retain and infiltrate runoff. Buffers of native vegetation along the shoreline reduce and filter runoff, provide fish and wildlife habitat, and create natural beauty.
- Choose lakeshore erosion control designs that use native trees, shrubs, and groundcover, along with natural and biodegradable materials, to reduce erosion and improve aquatic and wildlife habitat quality.
- The *2022 Lake Mallalieu Lake Management Plan* outlines lakeshore BMPs to effectively reduce runoff of sediments, phosphorous, and nitrogen into Lake Mallalieu.

See: 2022 Lake Mallalieu Lake Management Plan:
<https://lakemallalieu dredging.info/2022-lake-mallalieu-plan>



What lakeshed Best Management Practices will reduce phosphorous loads and algal blooms in Lake Mallalieu?

- The *2022 Lake Mallalieu Lake Management Plan* outlines lakeshed BMPs to effectively reduce runoff of sediments, phosphorous, and nitrogen into Lake Mallalieu.
- Keep everything but water out of storm drains.
- Install raingardens to retain and infiltrate stormwaters.
- Plant buffers of native and pollinator-friendly vegetation to filter stormwaters.
- Capture, filter, and infiltrate stormwaters throughout the lakeshed, rather than dump stormwaters directly into Lake Mallalieu, to reduce the flow of phosphorous and other pollutants to the lake.



Have over-Winter drawdowns of Lake Mallalieu reduced algal blooms in the lake?

No.

Instead, the occurrence and extent of filamentous algae increased.

- **Over-Winter drawdowns caused Lake Mallalieu's aquatic plant community to decline, then caused filamentous algae in the lake to increase—because more nutrients became available to grow algae.**
- **After the 1998-99 6-foot over-Winter drawdown of Lake Mallalieu, filamentous algae increased nearly three-fold in the lake's shallow zone, and filamentous algae continued to increase in following years.**

See: *1991 – 2005 Changes in the Aquatic Plant Community and the Long-term Impact of Winter Drawdown on Eurasian Watermilfoil and the Native Plant Community of Lake Mallalieu*, WDNR, Deborah Konkel, Aquatic Plant Botanist:

https://apps.dnr.wi.gov/doclink/lakes_fish-plant_reports/stcroixmallalieulakeapm1991-2005.pdf



What effects did the 6-foot 1998-99 and 3-foot 2004-05 over-Winter drawdowns have on Lake Mallalieu?

- **WDNR studies of Lake Mallalieu before and after over-Winter drawdowns found that the drawdowns did more harm than good for the lake's natural resources and ecosystem.**
- **WDNR aquatic plant studies found over-Winter drawdowns had significant and long-lasting negative impacts on Lake Mallalieu's native aquatic plant communities.**
 - Harms to desirable native aquatic plants were disproportionately greater than any benefits from reducing undesirable non-native aquatic plants.
 - Harms to desirable native aquatic plants were increased by over-Winter drawdowns that were deeper, longer, and repeated.
 - Repeated over-Winter drawdowns increased aquatic plant recovery time, caused many species to disappear, and significantly changed the aquatic plant community.
 - Now, the diversity and abundance of aquatic plants is in the bottom 25% of Wisconsin lakes.

See: *1991 – 2005 Changes in the Aquatic Plant Community and the Long-term Impact of Winter Drawdown on Eurasian Watermilfoil and the Native Plant Community of Lake Mallalieu*, WDNR, Deborah Konkel, Aquatic Plant Botanist

Harms to Lake Mallalieu's aquatic plant community from over-Winter drawdowns harm the lake's fishery.

- **Lake Mallalieu's poor and declining aquatic plant community has caused continued declines in Lake Mallalieu's panfish populations, although the small and large mouth bass populations are stable and still moderate to abundant.**
- **WDNR resource management experts recommend strictly limiting the depth, duration, and frequency of Lake Mallalieu drawdowns to protect the lake's aquatic plant community and fishery from cumulative and increasing negative impacts.**
- **WDNR fisheries experts advise any over-Winter drawdown greater than 5-feet will significantly harm Lake Mallalieu's fishery, and it will take at least 3 to 5 years for the fishery to recover, during which time fishing in the lake will be marginal at best.**

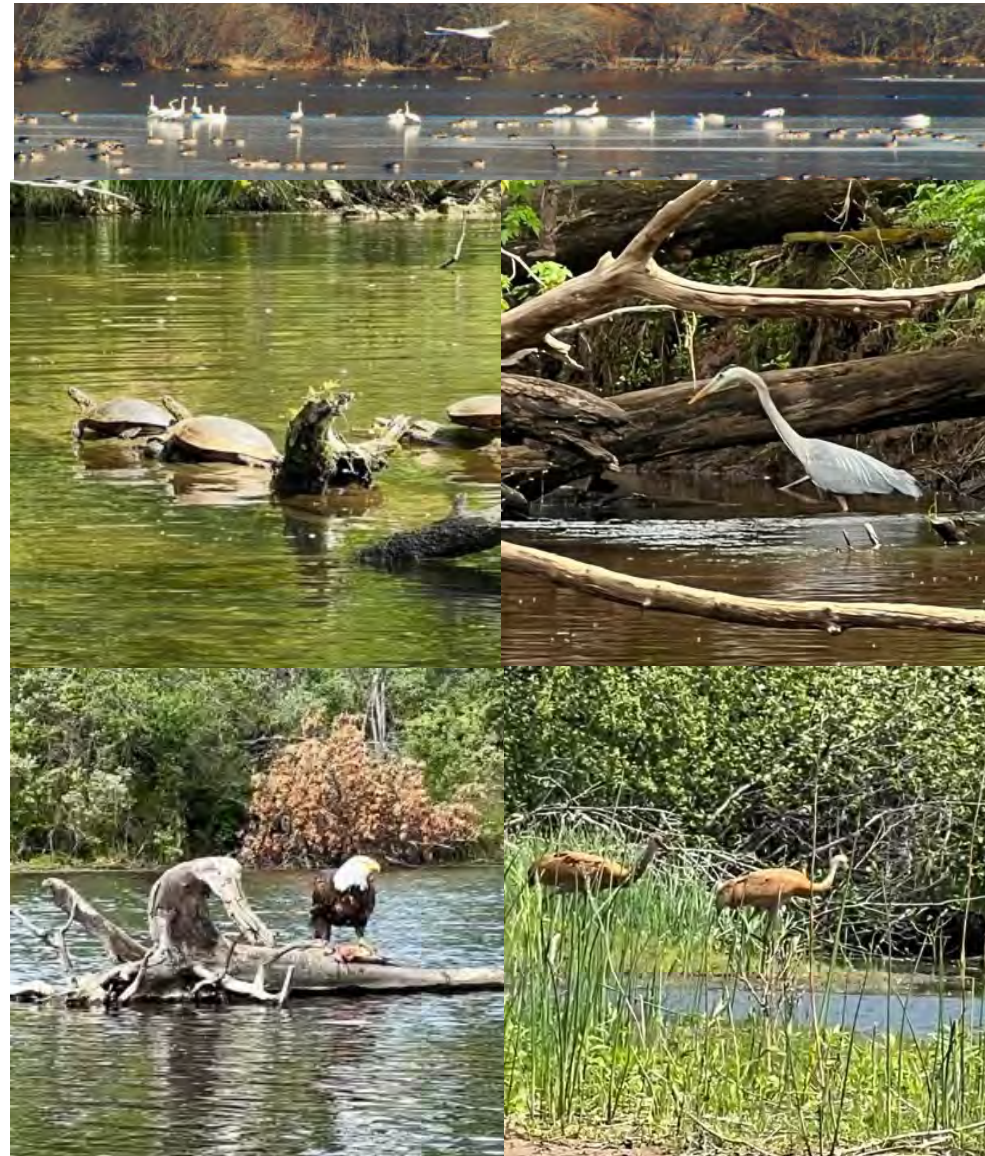
See: WDNR Application Files for LMA Drawdown Proposal at

<https://permits.dnr.wi.gov/water/SitePages/DocSetView.aspx?DocSet=IP-WC-2025-56-01948&Loc=undefined>

- *2021 Fisheries Survey Report for Lake Mallalieu*, Kasey Yallaly, WDNR Fisheries Biologist;
- *July 7, 2025, initial assessment of adverse impacts on fisheries from 2025 – 26 drawdown*, Heath Benike, WDNR Fisheries Area Supervisor;
- *July 7, 2025, initial assessment of adverse impacts on aquatic plant communities from 2025 – 26 drawdown*, Alex Smith, WDNR Lake Biologist; and
- *July 10, 2025, Correspondence Memorandum* from Ben Koch, WDNR Water Management Engineer, to Crystal VonHoldt, WDNR Waterways Policy Coordinator

WDNR resource managers advise that any future over-Winter drawdown of Lake Mallalieu would have the same or greater negative impacts on the lake's natural resources and ecosystem as did the 6-foot 1998-99 and the 3-foot 2004-05 over-Winter drawdowns.

- A drawdown will harm the WDNR identified “**Designated Sensitive Area Site #1: 83.79 Acres**” that extends to the 2-foot water depth in upper Lake Mallalieu and is supposed to be protected and preserved.
- A drawdown will kill desirable native aquatic plants now present, and will harm critical habitats supporting the lake's invertebrates, amphibians, turtles, fishery, birds, and wildlife.
- A drawdown will disrupt the established colony of over-wintering protected Trumpeter Swans in upper Lake Mallalieu, and will kill the aquatic plants they need to eat to survive.



What effects would an over-Winter drawdown of Lake Mallalieu have on public rights to navigation and recreation?



1998-99 6-foot over-Winter drawdown

- **A drawdown of Lake Mallalieu by 7.5-feet for nine months, from September 1, 2026, through May 2027, would have significant negative impacts on the quality of life and on the navigation and recreational rights of all Lake Mallalieu residents, people in the larger community, and the general public.**
- During the 1998-99 and 2004-05 over-Winter drawdowns, no one could boat and fish during the drawdown durations, and because of the nauseatingly strong stench of rotting biological materials on the exposed lakebed, people also could not enjoy being outside in their yards and could not get fresh air into their homes by opening the windows.

What might be accomplished in Lake Mallalieu by a 7.5-foot over-Winter drawdown of the lake?

- The proposed drawdown is based on strongly held beliefs that the 2015-19 Little Falls Dam project deposited large amounts of soft sediment in upper Lake Mallalieu and greatly reduced water depths.
- **Stantec's August 2024 report to the WDNR on data from its 2024 surveys of upper Lake Mallalieu's water depths and soft sediment deposits shows that from 1970 to 2024:**
 - **Over 54-years, water depths were unchanged in most of upper Lake Mallalieu, some areas were from 1-inch to 6-inches shallower, and a very few areas were up to 2-feet shallower;**
 - **Soft sediment accumulation in upper Lake Mallalieu was highly spatially variable and not very deep; and**
 - **It was not possible to determine either when during the 54-years soft sediments were deposited, or what were the sources of soft sediment deposits.**
- **Stantec's sediment transport modeling shows the drawdown may slightly increase water depths in the upper lake area but may reduce water depths in the middle and deep lake areas.** The drawdown would allow large rain events in Spring 2027 to erode the exposed lakebed, relocate sediments within the lake, and transfer sediments to the St. Croix River. Exposed lakebed sediments may also somewhat compact.

Increases in Lake Mallalieu water depths resulting from a drawdown would be temporary.

- Stantec estimates **the drawdown may relocate from 14,000 to 33,000 cubic yards of lakebed from the upper and middle areas of the lake.**
- St. Croix County Land and Water Conservation staff report **the Willow River below the Little Falls Dam annually delivers 6,000 to 9,000 cubic yards of sediment to Lake Mallalieu.**
- St. Croix County Land and Water Conservation staff calculate that **any increases in lake water depths may be reversed in as few as four to five years after the drawdown ends**, unless sediment amounts delivered to Lake Mallalieu by the Willow River are reduced.



What downstream effects would a 7.5-foot over-Winter drawdown of Lake Mallalieu have on the St. Croix River and Lake St. Croix?

- Stantec estimates a 7.5-foot over-Winter drawdown of Lake Mallalieu would **deliver 6,676 to 13,352 pounds of phosphorous with sediments transported from Lake Mallalieu to the St. Croix River.**
- St. Croix County Land and Water Conservation staff calculate that 9,500 to 24,500 cubic yards of sediment would be transported from Lake Mallalieu to Lake St. Croix, and that the sediment would **deliver from 5,536 to 14,280 pounds of phosphorous to the already phosphorous-impaired Lake St. Croix.**
- St. Croix County Land and Water Conservation staff report this phosphorous loading from Lake Mallalieu to Lake St. Croix would **significantly set back progress St. Croix County has made since 2013 toward reaching TMDL phosphorous-reduction goals for Lake St. Croix, through 373 conservation contracts and at a cost of \$4.4-million.**



Flushing sediments and phosphorous from Lake Mallalieu to the St. Croix River and Lake St. Croix would cause downstream harms.

- **Downstream ecological harms** include: increased pollution of a nationally designated waterway under the Wild and Scenic Rivers Act, adverse impacts on protected freshwater mussels, adverse impacts on water quality measures, and increased algal blooms.
- **Downstream health harms** include: waters unsafe for swimming by people or pets, and fish unsafe for people to eat.
- **Downstream economic harms** include: more frequent and longer swimming beach closures, and damage to Hudson's brand as a clean water recreational destination on the St. Croix River.



Who decides whether a 7.5-foot drawdown of Lake Mallalieu for nine months, from September 1, 2026, through May 2027, may be done or not?

Before any drawdown may begin, a permit must be obtained from the WDNR.

- Wisconsin law requires that drawdowns must minimize adverse impacts on natural resources and public rights.
- The WDNR evaluates impacts of a drawdown primarily under Wis. Stat. Ch. 31.02 and the Public Trust Doctrine.
- The WDNR requires that drawdowns for sediment management minimize adverse impacts on fish, native plants and wildlife habitat, water quality, and public rights to navigation and recreation.

Before the WDNR may consider a drawdown permit application, all four local governments that own the large dam creating the Lake Mallalieu impoundment of the Willow River first must allow the application to the WDNR.

- St. Croix County, Town of Hudson, City of Hudson, and Village of North Hudson have both authority and responsibility to consider and evaluate the probable impacts of a proposed Lake Mallalieu drawdown on our community's natural resources and our public rights before deciding whether to allow an application to the WDNR for a drawdown permit.
- **Our local governments should exercise their powers to best protect our community's natural resources and our public rights, rather than hope the WDNR will do the job for us later.**

Implement BMPs in the Willow River watershed, along Lake Mallalieu shorelines, and throughout the lakeshed to reduce runoff of sediments and nutrients.

Protect and serve our public rights in our public waters and natural resources.

Do not conditionally allow a drawdown application to the WDNR until AFTER the applicant has proven the proposed drawdown will not degrade the quality of our public waters or have adverse impacts on public resources of fish, native plants, and wildlife habitats.

- Few people complain about Lake Mallalieu's water depths, other than some lake residents. In mid-2019, following the replacement of the Little Falls Dam, the Lake Mallalieu Association began surveying people using the public boat ramp on Lake Mallalieu. The *June 2021 LMA Newsletter* reported the survey data:
 - 59% of those completing surveys used non-motorized crafts on the lake (canoes/kayaks/paddleboards);
 - 41% came to fish;
 - 39% commented on the lake water quality; but
 - only 7% complained about sedimentation/lake depth.
- Comparisons of 1970 and 2024 data on Lake Mallalieu's water depths and bottom materials show there is not a new and urgent need to increase water depths in upper Lake Mallalieu.
- WDNR studies show previous over-Winter drawdowns of Lake Mallalieu have done more harm than good for the lake's natural resources and ecosystem.
- Most people most want improvements to Lake Mallalieu's water quality. Public users of Lake Mallalieu and lake residents alike complain about low water clarity and mats of filamentous algae.
- A drawdown will not improve Lake Mallalieu's water quality, but it will harm water quality in the St. Croix River and Lake St. Croix.
- Decisions about our public waters and natural resources should be based on sound environmental science, expert analyses and reports, and relevant data, and should serve the interests of all stakeholders.