WHAT DO YOU LOVE ABOUT LAKE MALLALIEU?

We each may love these public waters for different reasons.

We each may have differing values and priorities about what is important to preserve or change about Lake Mallalieu.

But Lake Mallalieu is important to our whole community, and all our voices should be included in decisions about our lake:

- All LMA Members
- People living or owning property within one mile of Lake Mallalieu who are eligible to be LMA Members
- Public users of Lake Mallalieu and the Willow River
- Other interested members of the public

WHAT DO WE ALL NOT LOVE ABOUT LAKE MALLALIEU?

POOR WATER QUALITY!

LOW WATER CLARTIY!

ALGAE BLOOMS!

WE ALL WANT CLEAN WATER!

HOW LONG HAS LAKE MALLALIEU HAD POOR WATER QUALITY?

FOR DECADES.

- **1990:** WDNR and City of Hudson water quality study found Lake Mallalieu had excess nutrients, low clarity, and algae blooms.
- **1998:** WDNR listed the Willow River as impaired by excess total phosphorous.
- **1999:** WDNR and Lake Mallalieu Association water quality study found Lake Mallalieu had poor water quality, with elevated phosphorous and nitrogen, low clarity, and algae blooms.
- **2004:** WDNR listed the Lake Mallalieu impoundment of the Willow River as impaired by excess total phosphorous, with eutrophication, excess algae growth, and elevated pH.
- **2012 – 2024:** Lake Mallalieu has been evaluated for phosphorous and algae every two years; total phosphorous and chlorophyll-*a* values have continued to be too high, as evidenced by algae blooms.

WHY DOES LAKE MALLALIEU HAVE LOW WATER CLARITY AND ALGAE BLOOMS?

Lake Mallalieu is an impoundment at the end of the 70-mile-long Willow River with its 182,000-acre watershed.

Lake Mallalieu's waters are replaced about every three to seven days by the flow of the Willow River, depending on precipitation amounts.

Sediments and excess nutrients—phosphorous and nitrogen—in runoff into the Willow River flow downstream to Lake Mallalieu to reduce the impoundment's water clarity and feed algae blooms.

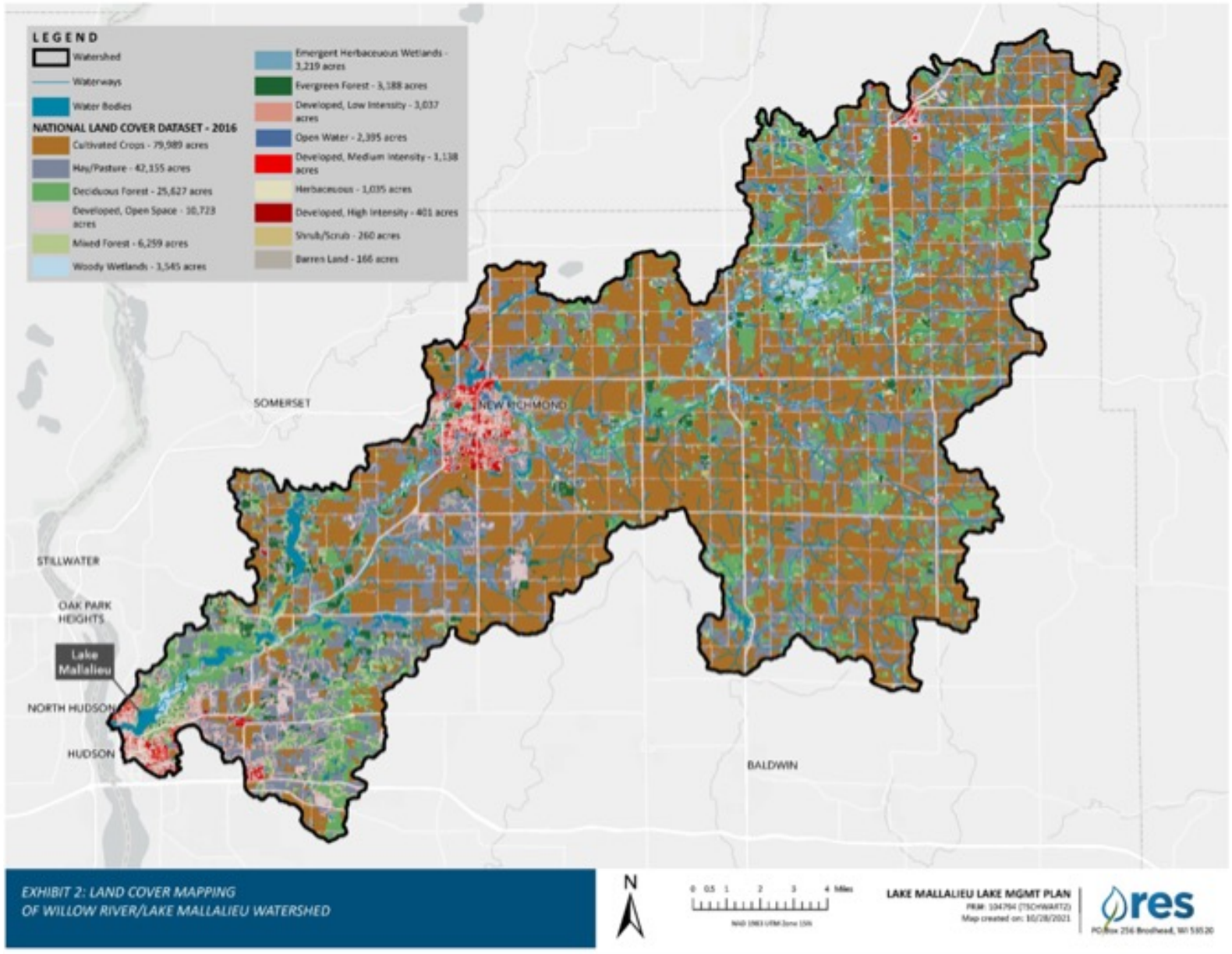


EXHIBIT 2: LAND COVER MAPPING OF WILLOW RIVER/LAKE MALLALIEU WATERSHED

IT'S GETTING WORSE. HOW DO LAND USES AFFECT LAKE MALLALIEU'S WATER QUALITY?

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 shorelines also affect our water quality.

Changes in upstream land uses within the Willow River watershed, since 1990:

- Emerald Sky Dairy CAFO
- Less grassland
- Less crop land in perennial cover, like hay
- More annually cultivated crop land
- Increased fertilizer applications
- Dry Run Creek Farmer-Led Watershed Council
- Stillwater Bridge/St. Croix River Crossing
- Conversions of farmlands to rural residential
- 2015 – 2019 Little Falls Dam replacement

Changes in land uses near and along Lake Mallalieu's shorelines since 1990:

- Conversions of woodland acreages to housing developments
- Infill development on vacant lots
- Intensified redevelopment, with smaller structure footprints and impervious areas replaced by larger structure footprints and impervious areas
- Removals of native shoreline vegetation
- Additions of lawns along shorelines
- Removals of woody debris along shorelines
- Additions of unvegetated riprap
- More and larger docks/piers

WHAT DO PUBLIC USERS OF LAKE MALLALIEU WANT?

In mid-2019, following replacement of the upstream Little Falls Dam, the LMA began surveying people using the public boat ramp on Lake Mallalieu.

More than five times as many complaints were about water quality than about lake depth.

As reported in the June 2021 LMA Newsletter, that survey data showed:

- 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**
- **only 7% complained about sedimentation/lake depth**.

WHAT IS REQUIRED TO RESTORE LAKE MALLALIEU?

UPSTREAM INTERVENTIONS TO REDUCE NUTRIENT-LOADED RUNOFF INTO THE WILLOW RIVER

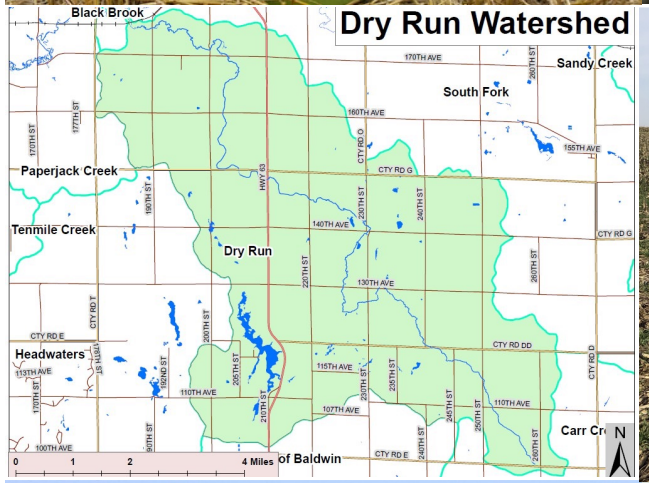
2022 Lake Mallalieu Lake Management Plan:

- **Collaborative Process & Stakeholder Involvement – Watershed Scale**
- Land and water quality improvement projects require all of us in the watershed to do our parts to be successful over the long-term.
- Farmers benefit from preventing loss of topsoil, improved revenues, and reduced costs.
- Public lake users and homeowners benefit from improved water quality, healthy and safe lake recreational opportunities, and more attractive and predictable aesthetics.
- **By all working together we can address watershed-scale problems**.

FARMER-LED WATERSHED COUNCIL:

The Dry Run Farmer-Led Watershed Council is a group of farmers working to improve soil and water conservation in the Willow River watershed.

- **Soil Testing**
- **Reduced Tillage**
- **Cover Crops**
- **Grassed Waterways**
- **Field Borders**



LAKESHED INTERVENTIONS TO REDUCE NUTRIENT-LOADED RUNOFF INTO LAKE MALLALIEU

2022 Lake Mallalieu Lake Management Plan:

- **Collaborative Process & Stakeholder Involvement - Shoreland/Riparian Scale and Waterbody/In-Lake Scale**

- Land and water quality improvement projects require the support and participation of waterfront property owners, along with owners of properties within the larger lakeshed area.

- Public lake users and homeowners benefit from improved water quality, healthy and safe lake recreational opportunities, and more attractive and predictable aesthetics.

- **By all working together we can address lakeshed-scale problems**.

SHORELINE INTERVENTIONS TO REDUCE EROSION AND RESTORE NATIVE HABITAT

Use native trees, shrubs, and groundcover, along with natural and biodegradable materials, to reduce lakeshore erosion and improve aquatic and wildlife habitat quality.

LAKESIDE LANDSCAPING TO REDUCE RUNOFF INTO THE LAKE

Raingardens & Buffer Plantings

Use native plants. Raingardens retain and infiltrate runoff. A buffer of native vegetation along the shoreline reduces and filters runoff, provides fish and wildlife habitat, and creates natural beauty.

PROTECT, RESTORE, AND ENHANCE HABITATS FOR FISH, WATERFOWL, AND WILDLIFE

Over-developed shorelands do not support fish, waterfowl, wildlife, and clean water.

Sand trucked in for swimming beaches covers underwater gravel or silt used by:

- fish for spawning
- frogs for laying eggs.

Aquatic vegetation removed to create swimming and boating areas eliminates shoreline-stabilizing plants that also are habitat for:

- bass and other fish that hide among the plants and spawn in areas protected from waves
- waterfowl that feed on underwater plants
- insects that live among underwater vegetation.

Shoreline shrubs and fallen trees removed to create lawns eliminate habitat for wildlife:

- songbirds that use these shrubs for nesting
- ducks that lay eggs in native shoreline grasses
- turtles that sun on fallen logs
- bass and panfish that hide in the shade under toppled trees.

WHAT ABOUT DREDGING? WOULDN'T DREDGING FIX WHAT'S WRONG WITH LAKE MALLALIEU?

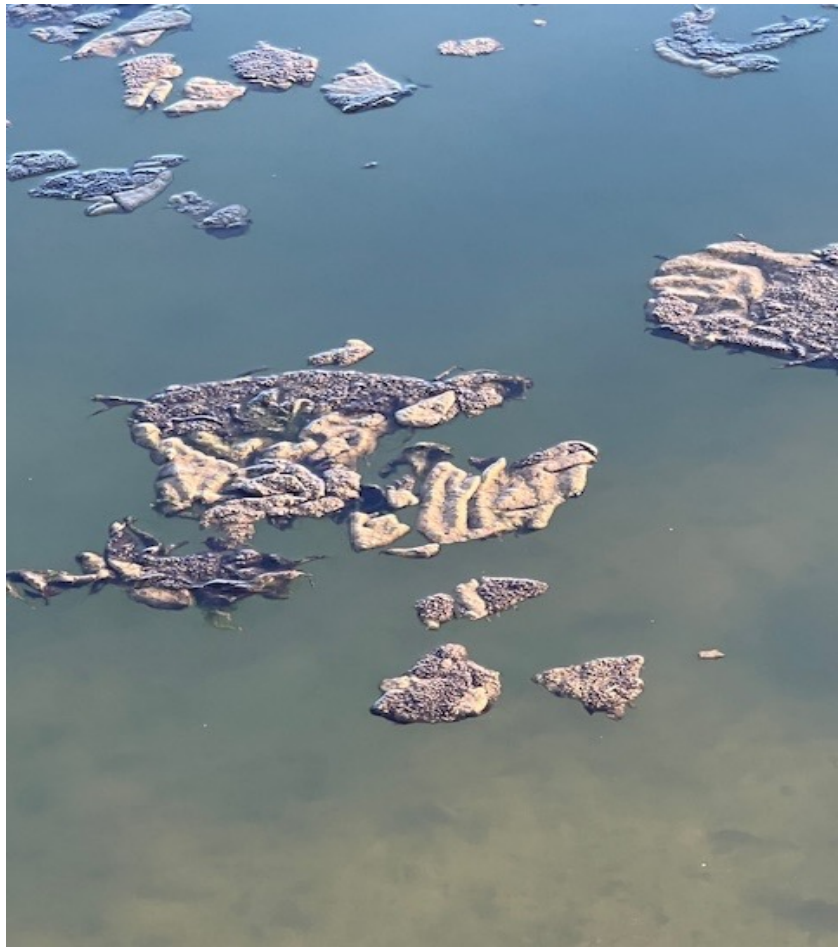
Dredging would make some parts of Lake Mallalieu deeper.

But dredging won't cure the causes of Lake Mallalieu's poor water quality, low clarity, and algae blooms.

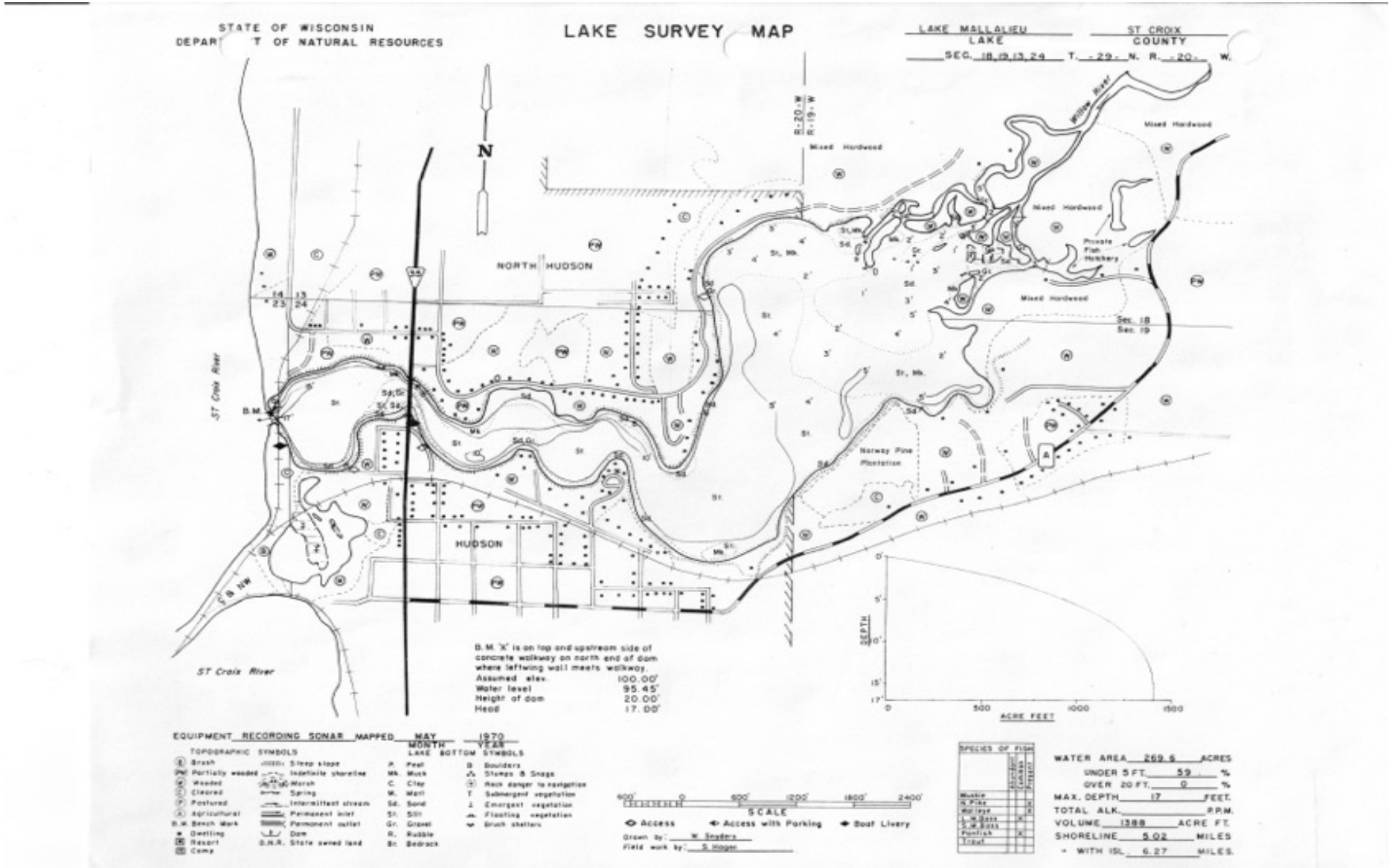
Dendy Lofton with Stantec advises us that:

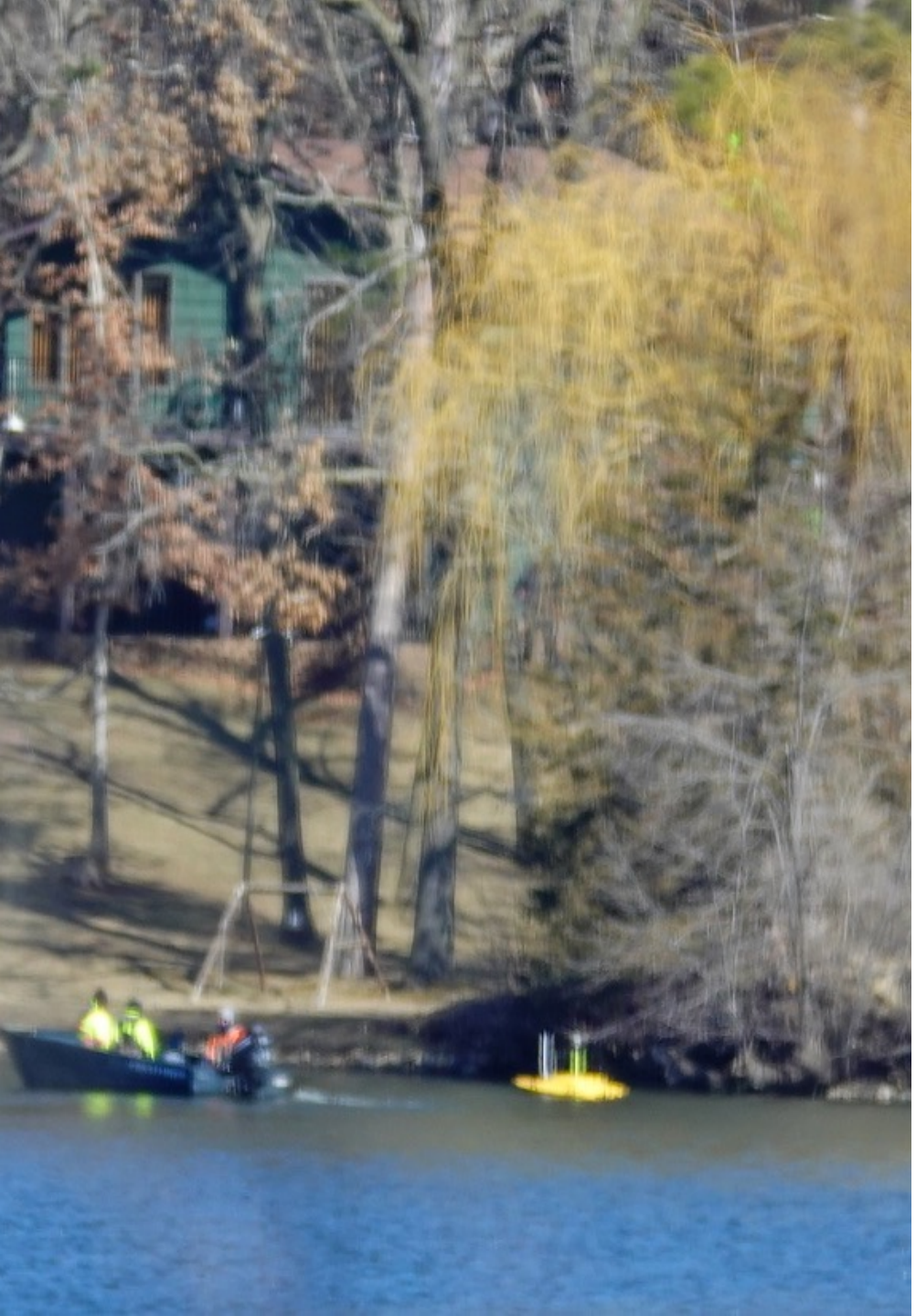
"Ultimately, the water quality of Lake Mallalieu depends on the quality of water inflowing from the Willow River, so continued efforts with watershed partners to improve the quality of water entering Lake Mallalieu is highly recommended."

FAQ for May 6



BUT HASN'T THE LAKE GOTTEN SHALLOWER? ISN'T IT MUCKIER, TOO?





SOON, WE'LL HAVE DATA-INFORMED ANSWERS

The most recent WDNR lake survey map of Lake Mallalieu is dated May 1970, and it shows:

- 60% of the lake was less than 5-feet deep
- Where the Willow River enters, water depths were 1-foot, 2-feet, 3-feet, or 4-feet
- Most lake bottom was muck and/or silt
- Where the Willow River enters, the lake bottom was sand and gravel

In early April 2024, Stantec conducted a bathymetric survey in portions of Lake Mallalieu.

In mid-May 2024, Stantec will identify, measure, and map lake bottom materials in portions of Lake Mallalieu.

Stantec's water depth and bottom material data will be used to create an updated lake survey map of some Lake Mallalieu areas.

DIDN'T THE LAKE MALLALIEU ASSOCIATION GET A STATE GRANT OF $2-MILLION, SPECIFICALLY FOR A DREDGING PROJECT?

Governor Evers used his line-item veto to strike the word "dredging" from 2023 Senate Bill 70, Section 20.370(4)(jf); hence, the "Environmental Management" budget category in the final 2023 Wisconsin budget included a grant of $2-million to the LMA for Lake Mallalieu as a continuing appropriation from the general fund (2023 Wisconsin Act 19, Section 78, at page 47).

As a result of Governor Evers striking the word "dredging", **the $2-million state grant to the LMA for Lake Mallalieu is not restricted to being spent on only a dredging project**.

Now, the LMA is in the extremely fortunate position of having received **an unrestricted $2-million state grant for environmental management of Lake Mallalieu**!

In October 2023, the LMA Board contracted with Stantec Consulting Services (Stantec) for a "Dredging Feasibility Study and Preliminary Design" to be completed by the end of 2024.

During 2024, Stantec will collect data on and map Lake Mallalieu's depths and sediments within a100-acre dredging study area in northeast Lake Mallalieu and the adjacent Willow River channels; take sediment sample cores to be analyzed for toxic contaminants embedded in sediments; collect data on and map the adjacent Willow River channels and sediments; create a preliminary design for a proposed dredging project; and prepare an NR347 Preliminary Application filing with the WDNR.

WHAT IS THE LAKE MALLALIEU ASSOCIATION'S ROLE IN PROPOSED DREDGING?

The Lake Mallalieu Association is a "**qualified lake association**" incorporated and organized under Wis. Stat. Ch. 181 and 281. A qualified lake association is **a voluntary membership group**.

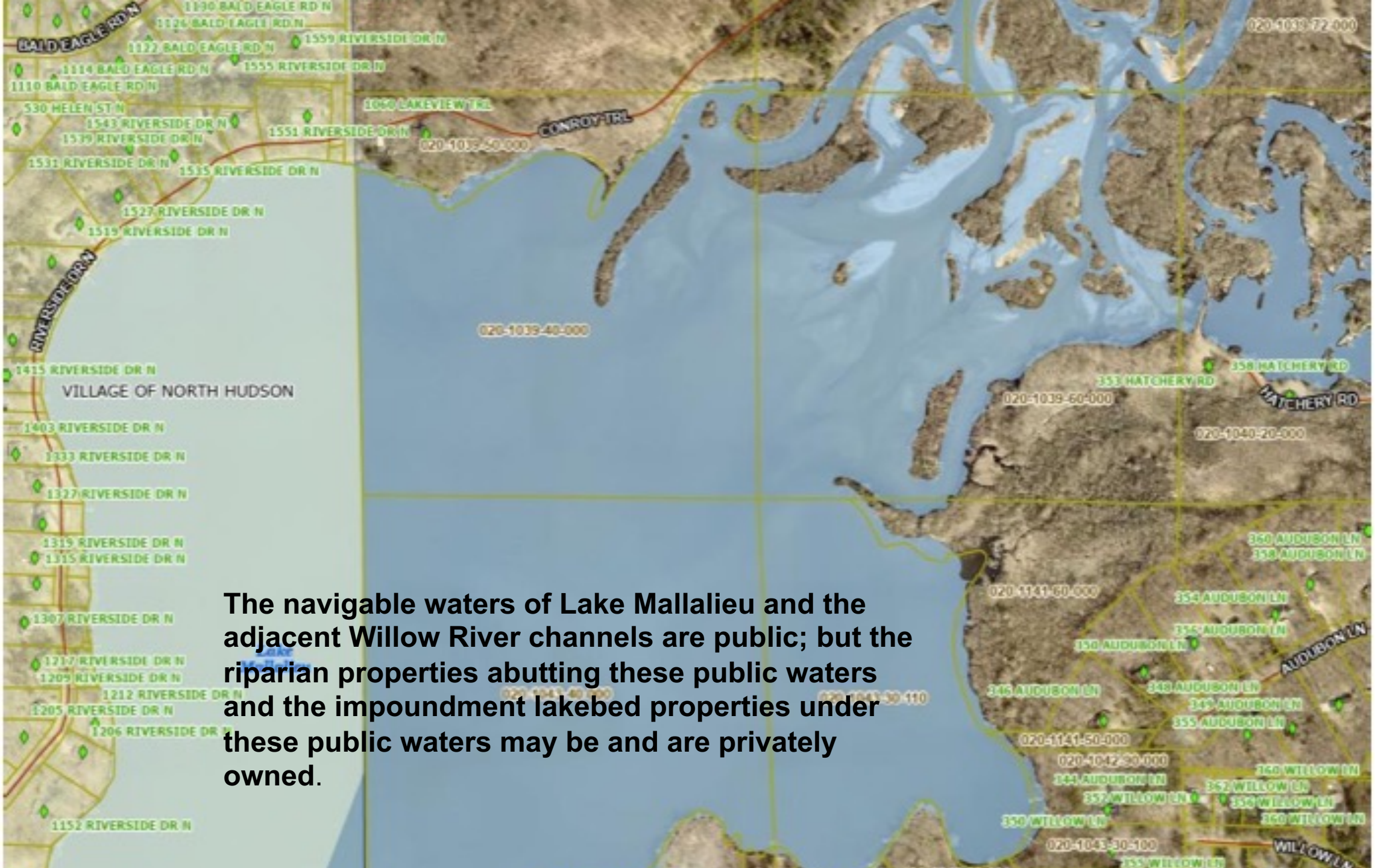
Unlike a "lake district", the LMA possesses no legal authority over public waters, or over lake community members, or over lake properties owned by anyone other than the LMA itself.

While the navigable waters of Lake Mallalieu and the adjacent Willow River channels are public, both the riparian properties abutting these public waters and the impoundment lakebed properties under these public waters may be and are privately owned.

The LMA does not own any riparian and/or lakebed impoundment property.

The LMA may initiate WDNR permitting processes for the proposed dredging project because Wis. Stat. section 30.20(2) does not require the applicant for a proposed dredging project to be the riparian or lakebed impoundment property owner.

If the WDNR issues a permit for the LMA's proposed dredging project, the LMA may not commence the dredging project without first obtaining authorizations from the owners of the riparian and/or impoundment lakebed properties within the dredging area, **and without also obtaining all other required federal, state, and local approvals and permits**.

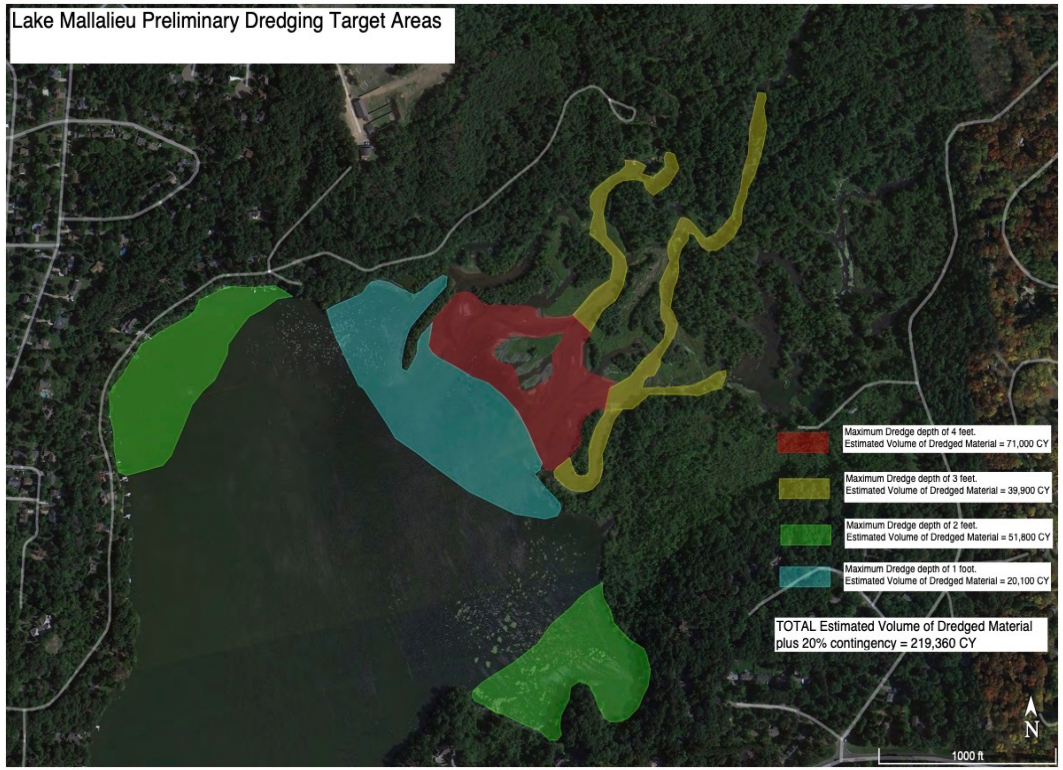


The navigable waters of Lake Mallalieu and the adjacent Willow River channels are public; but the riparian properties abutting these public waters and the impoundment lakebed properties under these public waters may be and are privately owned.

IF PERMITTED, AND IF AUTHORIZED BY PRIVATE PROPERTY OWNERS, WHERE IS DREDGING PROPOSED TO BE DONE?

As now proposed, dredging would remove up to 220,000 cubic yards of bottom material, with dredging depths up to 4-feet, from northeast Lake Mallalieu and the adjacent Willow River channels.

Most proposed dredging is within the WDNR "Designated Sensitive Areas, Site #1: 83.79 Acres" in northeast Lake Mallalieu and the adjacent Willow River channels.



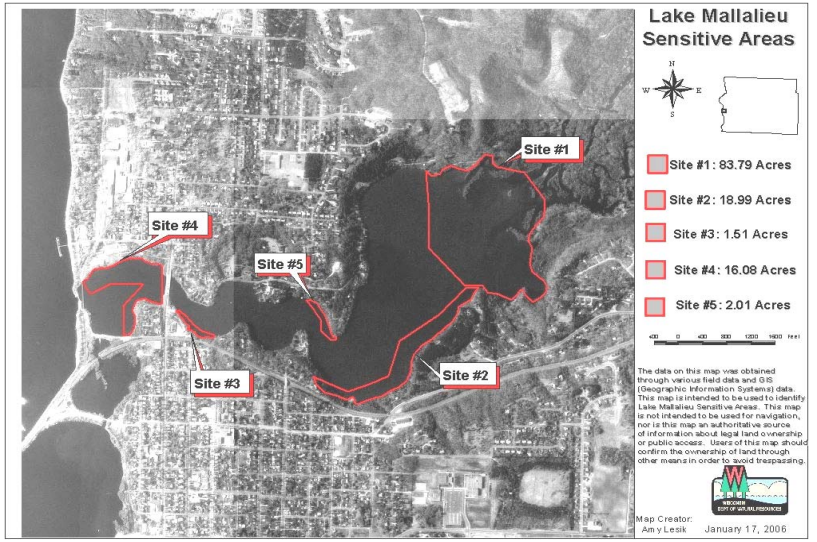


Figure 2. Location of Designated Sensitive Areas on Lake Mallalieu.

WHAT IS LAKE MALLALIEU'S "DESIGNATED SENSTIVE AREAS, SITE #1: 83.79 ACRES"?

Sensitive Areas provide critical or unique fish and wildlife habitat, including habitat for seasonal or life stage requirements, and/or provide water quality or erosion control benefits.

WDNR recommendations regarding Site #1 in 2006 were that there be no dredging or other lakebed removal or modifications within Site #1.

Following the WDNR's September 2023 field inspection of Site #1, the WDNR did not change either its designation of Site #1 as a Sensitive Area or its recommendations against dredging or other lakebed removal or modifications within Site #1.

SENSITIVE AREAS PROVIDE WATER QUALITY OR EROSION CONTROL BENEFITS:

Site #1 supports at least **twenty-four documented species of aquatic plants**.

- **Emergent vegetation** protects the shoreline and provides important food sources, cover, and fish spawning habitat.
- **Floating-leaf vegetation** dampens wave action and provides fish cover.
- The diverse **submerged plant community** provides habitat for fish and wildlife, and food sources for fish and waterfowl.

SENSITIVE AREAS PROVIDE CRITICAL OR UNIQUE FISH AND WILDLIFE HABITAT:

Site #1 provides **critical habitat for endangered, protected, or of concern species, as well as for a wide variety of other invertebrates, fish, amphibians, waterfowl, and wildlife**, including:

- An established annual over-wintering location for a growing population of **trumpeter swans**, who feed on the abundant aquatic vegetation in the shallow ice-free waters where the Willow River flows into Lake Mallalieu;
- Critical habitat for **Blanding's turtles**, **bald eagles**, and **ospreys**;
- Critical habitat for **herons** and **egrets**; many varieties of ducks, including: **wood ducks**, **teal**, **northern shovelers**, **mergansers**, **mallards**, **golden eyes**, and **buffalo heads**; **cormorants**; **geese**; **grebes**; **gulls** and **terns**; **kingfishers**; **owls**; **pelicans**; **frogs** and **toads**; **turtles**; **otters** and **minks**; **racoons**; and **deer**; and
- Important **fish habitat**, including: spring spawning and nursery areas for **northern pike** and **crappie**; and spring spawning and nursery areas, feeding areas, and cover for **small-mouth bass** and **large-mouth bass**.

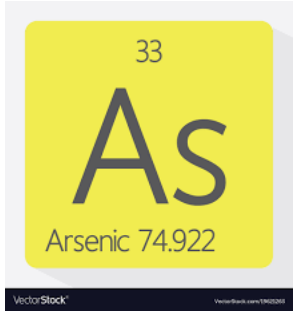




HOW CAN WE KNOW IF DREDGING WOULD RELEASE TOXIC CHEMICALS INTO LAKE MALLALIEU?

WDNR records and reports show past chemical treatments for aquatic plant control in northeast Lake Mallalieu have deposited toxic chemicals in lake sediments, including, at least:

- **Arsenic** (7,240 pounds or 3.62 tons)
- **Endothall** (3.6 pounds, plus 4 gallons)
- **Diquat** (14 gallons)
- **2, 4 – D** (95 ounces or 1.48 gallons) and
- **Silvex** (5 pounds).



Arsenic is a broad-spectrum and non-specific herbicide that will kill any aquatic plant. Arsenic is a toxic chemical that does not break down. Previous sediment sampling has found arsenic to be present.

Arsenic remains "safe" only so long as it is remains embedded in undisturbed lake sediments.

Stantec submitted a Preliminary Application for proposed dredging to the WDNR in early February 2024 so that WDNR staff could formally determine that sediment sampling would be required.

WDNR and Stantec staff are in ongoing communications about Stantec's data collection and the proposed dredging project, including: mapping of existing water depths and of existing soft sediment deposits; collecting and analyzing sediment sample cores; and revising the proposed dredging areas and depths.

As Stantec gathers further data, the preapplication information will be refined and resubmitted to the WDNR for review and further guidance on sediment sampling requirements.

IF PERMITTED,
AND IF AUTHORIZED BY PRIVATE PROPERTY OWNERS,
HOW WOULD DREDGING BE DONE?

Hydraulic dredging is proposed.

Watch a video overview of a hydraulic dredging project in another Wisconsin impoundment, done by the Upper Nemahbin Lake Management District in Summit WI.

Hydraulic dredging in Lake Mallalieu and the adjacent Willow River channels would require:

- Water depths sufficient to float a dredging barge
- Equipment storage and laydown yards
- Construction access routes
- Hydraulic dredge hose routes
- Setups for dewatering the projected 220,000 cubic yards of dredge materials
- Disposal sites for 220,000 cubic yards of dredge materials
- Roadways to handle approximately 22,000 roundtrips by large 10-yard dump trucks transporting the 220,000 cubic yards of dredge materials to disposal sites
- Compliance with St. Croix County's shoreland zoning ordinance for land-based activities in the Town of Hudson

HOW BIG IS THE NOW PROPOSED DREDGE AMOUNT OF UP TO 220,000 CUBIC YARDS?

The mass of 220,000 cubic yards

is equivalent to a 10-story building

covering a regulation size football field

including the end zones and the sidelines:

120-yards long, by 53.3-yards wide, and 103-feet high.

WOW — THAT'S A LOT OF DREDGE MATERIAL! WHAT WOULD BE DONE WITH IT?

First, all dredge materials must be dewatered.

- Geobags likely would need to be placed on private properties along the shorelines of the dredging areas.
- Geobags could remain in place into the year following dredging.

View photos and videos of dewatering using geobags for another Wisconsin impoundment dredging project, the Upper Nemahbin Lake Dredging Project.

After dewatering, dredge materials would be transported to disposal sites.

- The proposed disposal method and sites are to spread dewatered dredge materials on nearby farm fields.
- The farm fields closest to Lake Mallalieu and the adjacent Willow River channels are several miles distant.

Moving 220,000 cubic yards of dredge materials would require 22,000 roundtrips by large 10-yard dump trucks on the roadways from the dewatering sites to the disposal sites.

HOW LONG WOULD THE PROPOSED DREDGING PROJECT GO ON?

WHAT WOULD IT COST?

Hard to say for certain just yet, but the timelines and dollar costs for other dredging projects in Wisconsin impoundments strongly suggest it would take much more than one year and $2-million.

A dredging project to remove **about one-twentieth of the proposed quantity** of dredge material from the Upper Nemahbin Lake and the Middle Bark River took the Upper Nemahbin Lake Management District **from 2011 into 2024** to mostly accomplish, and the bids for **hydraulic dredging** of only about **11,000 cubic yards** of sediment ranged **from $632,360 to $1,312,870**.

All costs of the proposed dredging project must be calculated and considered—**expenditures of time and money**, **plus community and environmental impacts**.

Community impacts include odors, noise, lighting, traffic, and other issues.

Environmental impacts include damage to and loss of valued natural habitats and biodiversity.

WHAT ELSE COULD THE LMA DO WITH $2-MILLION FOR LAKE MALLALIEU, OTHER THAN SPEND THE MONEY ON THE PROPOSED DREDGING PROJECT?

The 2022 Lake Mallalieu Lake Management Plan sets ranked priority goals to achieve for the public benefit:

1. Improve water quality;
2. Improve aquatic habitat; and
3. Address sediment that has been deposited in the Lake.

The 2022 Lake Mallalieu Lake Management Plan identifies many interventions that should be made along Lake Mallalieu's shores or upstream in the Willow River watershed to help improve Lake Mallalieu's water quality and aquatic habitat.

We all must consider whether dredging as now proposed would do more harm than good.

We also should consider whether the $2-million state grant for environmental management of Lake Mallalieu would be better spent on other projects that would better serve our public interests in our public waters.