

BONE LAKE MANAGEMENT DISTRICT

Comprehensive Lake Management Plan Summary 2015



2015 - 2024

**BONE LAKE MANAGEMENT DISTRICT
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Bone Lake Comprehensive Lake Management Plan committees, chairs and contact information are listed on page 14 of this booklet.

Please visit our website bonelakewi.com

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The Bone Lake Comprehensive Lake Management Plan

The Bone Lake Comprehensive Lake Management Plan directs Lake District activities. It was first developed in 2008, then updated in 2014 with considerable input from lake volunteers. The current plan update will be effective from 2015 – 2024.



Plan Mission Statement

Bone Lake is a precious resource and one of the premier recreational lakes in this area. The overall mission of this comprehensive lake management plan is to maintain the health of Bone Lake to support clean water, natural beauty, recreation, and sport fishing for decades to come.



THE COMPLETE PLAN IS AVAILABLE AT OUR WEBSITE, BONELAKEWI.COM.



PLAN GOAL:

Improve Bone Lake water clarity

BONE LAKE WATER CLARITY is most influenced by algae growth in the lake.

Phosphorus is the nutrient which governs how much algae will grow, so water clarity improvement focuses on managing phosphorus inputs. Phosphorus is found in manure, wastewater, is attached to soil particles, and is even carried in rainfall from dust particles in the air. While phosphorus is limited in fertilizer and detergents in Wisconsin, it still may turn up in some products. In addition, phosphorus attached to sediments at the bottom of the lake can be released by natural processes and boat traffic to fuel algae growth.

As a result of careful investment of volunteer time and resources, the Bone Lake Management District has a better understanding of the most important influences to lake water clarity. Monitoring of the lake and water that flows to the lake helps to identify the sources of phosphorus and related algae blooms. These sources include the land that drains to the lake (both waterfront property and the larger watershed), the streams flowing to the lake, the die-back of curly leaf pondweed, the rainfall on the lake, discharge from septic systems, and release of phosphorus from the lake sediments.

Clear water is something we can all appreciate. The ability to share gorgeous views of clear, still water and fresh air with our families is, indeed, priceless. At the same time, clear water increases the monetary value of our lake property investment.

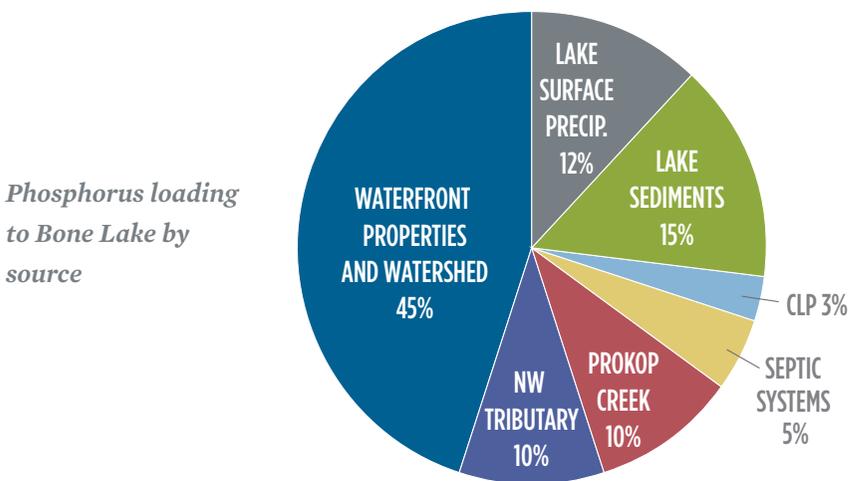


Release of phosphorus from the lake sediments (also known as the internal load) is perhaps the least understood aspect of phosphorus loading to Bone Lake. Phosphorus is generally strongly attached to soil particles. However, in conditions where oxygen is low, phosphorus is released. Low oxygen conditions occur each summer at the bottom of deeper portions of many lakes.

In some lakes, the released phosphorus is held in cold, bottom waters until in the fall when the lakes mix. This mixing is called fall turnover. However, in shallower lakes the phosphorus can be brought to the surface to fuel algae growth with mixing from strong summer winds. Poor water clarity in some years may be most influenced by lake mixing in Bone Lake. A study of Bone Lake internal load is underway to better understand the best methods to improve water clarity.

One thing we do know is that we don't have the ability to influence all sources of phosphorus (think rainfall) so we focus on those sources we can manage.

Water flowing from properties surrounding the lake and those further back in the watershed provide some of the best opportunities for reducing the phosphorus inputs and reducing algae growth in the lake. While algae blooms will not be eliminated, they can be delayed and/or reduced in severity as phosphorus inputs are reduced.



WATERFRONT MAKING A DIFFERENCE - LOT BY LOT

OVER NINETY-SIX PERCENT OF THE SHORELINE OF BONE LAKE IS IN PRIVATE OWNERSHIP, and how we manage our properties matters. Projects such as rain gardens and native plantings that capture and slow the flow of water to the lake really do help keep our lake clear. Replacing nonconforming septic systems is also a helpful step toward clean water. Over the past five years, the District has completed 17 septic system upgrades and 27 waterfront runoff projects, and funds are now available to complete more.

The time is right for you to make changes at your property. Native plantings are funded at 70 percent of the total cost, up to \$1000. Other projects like rain gardens and rock infiltration have higher allowances for lake district funding. The District provides incentives of \$1000 for upgrading a non-conforming septic system.

WATERFRONT RUNOFF COMMITTEE

Reducing runoff from lakeshore properties

Mary Chorewycz | 715-857-6733 | amchorewycz@yahoo.com



A garden of native plants provides year round beauty while helping improve Bone Lake's water clarity.

WATERSHED PROJECTS - A BIG BANG FOR THE BUCK

WATERSHED PROJECTS capture water from larger areas, and are generally installed on private property. These projects include basins to allow water to settle, correctly sizing and positioning culverts, and using vegetation and sometimes rock to prevent erosion where water flows.

Projects like these are 100 percent funded with District and grant funds. If you have a stream or waterway coming through your property, ask the Lake District Watershed Committee to review it for potential improvements.

WATERSHED COMMITTEE

Reducing phosphorus and nutrient loading from the watershed, the land beyond lakeshore properties

Ann Miller | 612-867-7872 | ann.russ.miller3@gmail.com



The check dam is a small dam with an overflow pipe connected to a culvert beneath the dam. These check dams will slow down the flow of the water and allow sediment to collect in the basin of the check dam versus flowing directly to the lake. Sediment like this has phosphorus attached to it, the nutrient that fuels algae blooms in the lake.



THE LAKE DISTRICT COMMISSIONED A CORE SAMPLE STUDY OF BONE LAKE SEDIMENTS IN THE FALL OF 2013. The purpose of the study was to assess historical water quality and sediment accumulation from the watershed.

The results show that Bone Lake was a rather nutrient rich lake even back in the early 1800s before development occurred. However, nutrient levels increased, and algae composition shifted in the 1930s and 1940s with highest nutrient levels and lowest water clarity from the 1920s to the 1990s. Water quality improvements are evident beginning in the mid-1990s. The rate of deposition of soil from the watershed has also recently slowed.

So, for Bone Lake, nostalgia for earlier times is not our emphasis. We want to move forward to even clearer water in the future. The alternative of higher nutrient loading and greater algae blooms may well be a point of no return! Additional analysis of algae pigments from lake sediments will give us a better handle on how long potentially toxin-forming blue green algae have been present in the lake.



Clean water versus heavy algae blooms – which result do you want for Bone Lake?

PLAN GOAL:

Maintain safe navigation in Bone Lake

THE LAKE DISTRICT MAINTAINS BUOYS which mark navigational hazards such as rocks and shallow areas.

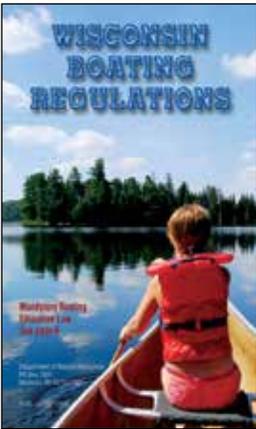
Personal flotation devices are provided at the North Landing to keep families safe in cooperation with the Wisconsin Department of Natural Resources.

We share information about how we can all get around on the lake safely. Observing rules for slow, no-wake speeds within 100 feet from shore (200 feet for personal watercraft) helps ensure safety for everyone around the lake.

BOATING AND NAVIGATION SAFETY COMMITTEE

Maintaining safe navigation

Mike Musial | 612-207-5254 | mbmusial@lakeland.ws



PLAN GOAL:

Protect and improve the Bone Lake fishery

SPAWNING AREAS ARE PROVIDED WITH THE INSTALLATION OF WOOD STRUCTURES CALLED HALF LOGS. Eighty half log structures were installed in recent years, and eighty more are planned. Full trees or “fish sticks” anchored to the lake bottom or shore were also installed to provide structure for fish and the critters that feed them.

The Lake District Fishery Committee works with the Wisconsin Department of Natural Resources to better understand the Bone Lake fishery. Upcoming studies will assess the impact of several years of stocking smallmouth bass and help to better understand black crappie sores which are present on fish in the lake. The committee also provides input to WNDR and the Tribes on fisheries management – especially related to muskies.

FISHERY COMMITTEE

Maintaining desirable levels of game fish, assess and improve fish habitat

Bob Boyd and Mike Belich | 715-857-5495 | boydsnest@lakeland.ws

This 47-inch Muskie was an exciting catch for a young angler at the north end of Bone Lake.



Upcoming studies will assess the impact of several years of stocking smallmouth bass.



PLAN GOAL:

Maintain and enhance natural beauty

THERE'S LIKELY ONE THING ALL BONE LAKERS CAN AGREE ON — IT'S BEAUTIFUL HERE.

The ever changing light and reflection over the lake, brilliant sunsets, big views of the sky and water, the sounds of waves and calling birds all provide respite from daily cares. Is this beauty? What is natural beauty to you? What will you do to preserve and protect the lake's natural beauty at your property?

The size, visibility and colors of our homes and lakeshore structures can blend in with the landscape or intrude on it. Our landscape practices can enhance the views of the shore, solve, or contribute to water clarity problems. Our lakeshore lighting can let the night sky shine or conflict with our view of stars. Our celebrations in the fresh air can bring joy, as well as trump the peace and quiet for others.

It's up to every Bone Lake property owner to create, maintain and protect the priceless beauty they seek while respecting the desires of others around the lake. The Lake District Wildlife and Natural Beauty Committee provides education, information and support for your efforts.

WILDLIFE AND NATURAL BEAUTY COMMITTEE

Protecting and enhancing natural beauty, restoring wildlife populations and habitat

Karen Engelbretson | 651-395-0969 | karen@kje.com



PLAN GOAL:

Maintain and enhance wildlife and habitat

MOST PROPERTY OWNERS FIND OBSERVING WILDLIFE A FAVORITE ACTIVITY AROUND BONE LAKE. Recent bird and frog surveys have provided a scientific inventory of populations and their habitat around the lake, along with recommendations for protection tactics being planned for the coming years.

The Wildlife and Natural Beauty Committee provides information and education to property owners about protecting and enhancing wildlife and habitat. Leaving native plants in place on land and in the water, adding native plants, trees and shrubs at the shore, maintaining woody debris in the water and protected areas away from swimming and boating can assure a safe place for wildlife to nest, live and grow.

Eliminating the use of fertilizer, pesticides, insecticides and household poisons around your lake home helps ensure our birds and animals will stay healthy. Using non-toxic fishing tackle and ammunition reduces the threats from lead poisoning.

WILDLIFE AND NATURAL BEAUTY COMMITTEE

Protecting and enhancing natural beauty, restoring wildlife populations and habitat

Karen Engelbretson | 651-395-0969 | karen@kje.com



Nothing is more important to lakeshore wildlife than a habitat of native plants. Ninety percent of all lake life is born, raised and fed in the area where land and water meet. Eighty percent of plants and animals on the endangered species list in Wisconsin live all or part of their lives near the shore. Ninety-six percent of lakeshore around Bone Lake is privately owned. Clearly, it is up to property owners to make a place at their shore in order for wildlife to thrive here. How will you help?



PART OF THE PLAN:

Aquatic Plant Management Plan

WHILE THE AQUATIC PLANT MANAGEMENT PLAN IS A SEPARATE DOCUMENT UPDATED IN 2013, ITS GOALS AND ACTIVITIES ARE INCLUDED IN OVERALL LAKE MANAGEMENT.

Invasive species like Eurasian water milfoil, zebra mussels, and other non-native plants and animals are a threat to Bone Lake. Education efforts such as Clean Boats, Clean Waters staffing and cameras at the landings encourage residents and visitors to clean boats, trailers and equipment and to drain live wells to prevent invasive species introduction. Regular volunteer and professional monitoring are in place to catch AIS introductions early when management will likely be more feasible and less expensive.

Curly leaf pondweed is an aquatic invasive species already present in Bone Lake. Early season herbicide treatments target the curly leaf pondweed before native plants are growing. Recent year treatments of about 30 acres each year have reduced curly leaf pondweed and the reproductive structures which sprout new plants in future years.

Native aquatic plants keep the water clean by stabilizing lake sediments and taking up nutrients. They provide habitat for fish and wildlife, and help keep additional aquatic species at bay. Our plant management efforts strive to protect the benefits these native plants provide to Bone Lake.

AQUATIC PLANT MANAGEMENT COMMITTEE

Safeguards the lake from new invasive species and controls our curly leaf pondweed

Bob Boyd | 715-857-5495 | boydsnest@lakeland.ws



White water lily and pickerel weed provide shade and a nursery for fish, and habitat for frogs, turtles, and invertebrates. Protecting native plants ensures that invasives won't move in to take their place.

BONE LAKERS MAKE A DIFFERENCE:

Share your skills as a volunteer

BONE LAKE VOLUNTEERS PROVIDE BOTH THE BRAINS AND BRAWN TO PLAN AND CARRY OUT LAKE MANAGEMENT ACTIVITIES. Your skills and knowledge are needed. You can make real, positive impacts for Bone Lake by participating in one or more of the Lake Management Committees. We all have different skills and availability. There is a role for you here!

Read about the committees' work in this booklet and consider what you can do. Also go to our website, bonelakewi.com for a detailed list of volunteer opportunities matched by skills, time commitment, and time of year. You are invited to contact any of the committee chairs for more information.

BONE LAKE COMMITTEES

Waterfront Runoff

Reduce runoff from lakeshore properties

Alex Chorewyc
612-868-2947
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Watershed

Reduce phosphorus and nutrient loading from the watershed, the land beyond lakeshore properties

Ann Miller
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Fisheries

Maintain desirable levels of game fish, assess and improve fish habitat

Bob Boyd and Mike Belich
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Wildlife and Natural Beauty

Protect and enhance natural beauty, restore wildlife populations and habitat

Karen Engelbretson
651-395-0969
karen@kje.com

Boat and Navigation Safety

Maintain safe navigation

Mike Musial
612-207-5254
mbrmusial@lakeland.ws

Aquatic Plant Management

Safeguard the lake from new invasive species; control our curly leaf pondweed

Bob Boyd
715-857-5495
boydsnest@lakeland.ws

Richard and Sally Mackie in their Bone Lake garden with their volunteer recognition plaque.



WHAT YOU CAN DO TO KEEP BONE LAKE CLEAN AND SAFE FOR PEOPLE AND WILDLIFE

WATERFRONT

- Plant vegetation to cover areas of bare soil. During construction, cover with temporary vegetation like annual rye until permanent vegetation can be established. Keep native plants in place. Do not add sand to your shore.
- Allow natural vegetation to grow or plant a 10X35 foot native planting next to the water. You will reduce runoff; provide habitat for birds, butterflies, and wildlife; and keep geese away!
- Do not blow grass and leaves into the lake.
- Replace septic systems that do not conform to current standards.
- Maintain your septic system properly.
- Have your septic tank pumped regularly.
- Conserve water and spread out water usage.
- Keep potentially hazardous materials out of wastewater.
- Protect the drainfield (don't add extra water, don't drive over, do cut trees and shrubs).
- If you fertilize your lawn, use zero phosphorus fertilizer (middle number is 0).
- Consider installing a project to capture and infiltrate runoff water from hard surfaces on your property.

WATERSHED

- Contact the lake district if you have runoff water flowing through your property to the lake. You can benefit the lake greatly if you are willing to capture this water to slow its flow!

BOATING SAFETY

- Be aware of boating regulations and follow them! They are in place to protect everyone's safety.
- Anyone born on or after January 1, 1989 is required to complete a boating safety course to legally operate a motorized boat or personal watercraft (PWC) on Wisconsin lakes. The course is available online at dnr.wi.gov/topic/boat.

LAKE USE

- Observe slow, no wake rules within 100 feet of the shore, 200 feet for personal watercraft. This prevents lake sediments from being stirred up and suspending nutrients to grow algae in the water. Slow, no wake travel also protects critical shoreline habitats and provides for safe boating.

FISHERY

- Don't clean up trees that fall into the lake. They provide important fish habitat.

WILDLIFE AND NATURAL BEAUTY

- Share your shore with wildlife.
- Protect and preserve near shore aquatic plant communities.
- Choose native plants for landscaping over horticultural varieties; reduce area of lawn.
- Preserve vernal (temporary) pools and ponds.
- Reforest edges of developed properties adjacent to undeveloped forest parcels.
- Shield lakeshore lighting.
- Use non-toxic tackle. Lead kills birds!
- Keep the volume down! Sound travels well over water!

Bone Lake Management District
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