Lake Morris

Summary Report 2013

University of Wisconsin–Stevens Point
and
Waushara County Staff and Citizens
To protect the lake we must protect the "watershed," the land that drains or sheds its water into the lake.
Lake Morris – Location

Lake Morris
Northeast of Wautoma
East of Highway 22
West of County Highway G
Township of Mt. Morris

Surface Area: 117 acres
Maximum Depth: 40 feet

Water Flow

- Lake Morris is an impoundment; most water enters via inlet streams from Norwegian Lake, Porters Lake, a small pond to the southwest, and Willow Creek. Surface water runoff, direct precipitation and groundwater also contribute water to Lake Morris.
- Most water exits Lake Morris through Willow Creek and via groundwater.

WAUSHARA COUNTY
LAKE STU DY –

1 Pine (Springwater) 18 W. Branch Mill Pond
2 Twin 19 Porters
3 Gilbert 20 Pearl
4 Long (Saxe ville) 21 Johns
5 Long (Oasis) 22 Bugh s
6 Huron 23 Irogami
7 Wilson 24 Alpine
8 Kusel 25 Silver (Wautoma)
9 Silver (Springwater) 26 Deer
10 Round 27 Little Hills
11 Big Hills 28 White Riv. Flowage
12 Napowan 29 Witters
13 Beans 30 Lucerne
14 Morris 31 Spring
15 Pine (Hancock) 32 Curtis
16 Fish 33 Pleasant
17 Marl

Waushara County Lakes Study - Summary Report 2013
Land uses and land management practices occurring in a watershed can affect the water quality in a lake. Land uses and land management also play major roles in how water moves across the landscape and how much water soaks into the ground (for long-term storage) or quickly runs off the land. The surface watershed of Lake Morris is 10,485 acres. Forests, agriculture, and wetlands are the primary land uses within the watershed. Developed land surrounds much of Lake Morris. Generally, the land closest to the lake will have the greatest immediate impact on its water quality.
Groundwater provides water to lakes in Waushara County throughout the entire year. Hard surfaces on the landscape prevent water from soaking into the ground and becoming groundwater. This results in less water flowing to the lake during the winter and between rains. Groundwater pumping can also reduce the amount of water entering lakes.

The quality of groundwater reflects what is happening on the land surface. Precipitation falling on forested land produces clean groundwater, whereas precipitation falling on lands that have chemical use can leach contaminants to groundwater. Groundwater contamination in central Wisconsin may include nitrogen, pesticides, herbicides and other soluble chemicals originating from septic systems, crops, barnyards, road maintenance, etc. Once in the groundwater, these chemicals slowly move towards a lake or river.

On the map below, arrows indicate the direction of groundwater flow to Lake Morris.
Shoreland vegetation is critical to a healthy lake’s ecosystem. It provides habitat for many aquatic and terrestrial animals including birds, frogs, turtles, and many small and large mammals. It also helps to improve the quality of the runoff that is flowing across the landscape towards the lake. Healthy shoreland vegetation includes a mix of tall grasses/flowers, shrubs and trees.

Some stretches of the shoreland around Lake Morris have healthy shoreland vegetation (displayed in green); however, many stretches could benefit the lake by being restored.
Aquatic plants are the forest landscape within a lake. They provide food and habitat for terrestrial and aquatic creatures such as fish, ducks, turtles, invertebrates and other animals. They increase oxygen in the water and utilize nutrients that would otherwise be used by algae. A healthy lake typically has a variety of aquatic plants creating diversity that can help to prevent the establishment of aquatic invasive species.

The aquatic plant community in Lake Morris is characterized by above-average diversity of plant species when compared to other lakes in the Waushara County Lakes Study, with a total of twenty species documented in the 2013 aquatic plant survey.

Three species had a C-value of 8 or greater, indicating good health in the aquatic plant community. C-values range from 0-10; higher C-values indicate fewer disturbances and may be a sign of a high-quality water body.
Species Richness is a count of the number of plant species found at a survey point. A greater number of species in a lake helps to make the aquatic plant community more resilient to year-to-year changes and aquatic invasive species. More plant species means more diverse habitat and food sources are available.

Bladderworts are carnivorous plants. They use special trigger hairs to sense an insect—which is then drawn into digestive “bladders” in the plant. Common bladderwort is found in Lake Morris.
Lakes go through a natural aging process that results in increased aquatic plant growth, fish, and wildlife over time. Within a lake’s watershed, human activity on the land, in a wetland, or in the lake can dramatically accelerate this process. Depending on land management practices, changes in a lake that may have normally taken centuries to occur may take place in decades or even years. The amounts of nutrients, algal growth, and water clarity measurements help to define the age of a lake. Based on these measures, lakes can be classified for comparison to one another.

**Oligotrophic Lakes**

*Common uses:*
- Swimming
- Skiing
- Boating

*Vegetation of oligotrophic lakes:*
- Very little vegetation

**Mesotrophic Lakes**

*Common uses:*
- Boating
- Fishing

*Vegetation of mesotrophic lakes:*
- Increased vegetation
- Occasional algal blooms

**Eutrophic Lakes**

*Common uses:*
- Fishing
- Wildlife watching

*Vegetation of eutrophic lakes:*
- Lots of aquatic plants
- Frequent algal blooms

Winter fish kills can occur in shallow lakes due to low oxygen levels.
Phosphorus is a major nutrient that can lead to excessive algae and rooted aquatic plant growth in lakes. In fact, one pound of phosphorus entering a lake can result in 500 pounds of algal growth. All Waushara County lakes have either sufficient or excessive nutrients for aquatic plant growth, so these lakes will benefit from limiting the addition of more nutrients. Sources of phosphorus include septic systems, animal waste, storm water runoff, soil erosion, and fertilizers for lawns, gardens and agriculture.

- Total phosphorus levels measured when the lake was well-mixed during spring and fall are displayed in the graph to the left.
- During fall and spring 2010-2012, the average total phosphorus level was very similar to earlier measurements. Lake Morris is classified as a mesotrophic lake.

Water clarity is a measure of how deep light can penetrate (secchi depth). Clarity is affected by water color, turbidity (suspended sediment), and algae. Water clarity helps determine where rooted aquatic plants can grow.

- The graph to the left shows water clarity measurements taken between March and November. It is typical for water clarity to vary throughout the year.
- During the summers of 2011 and 2012, the poorest average water clarity in Lake Morris was 9.8 feet in July and the best was 12.7 feet in June. In comparison to measurements prior to 2011, water clarity has decreased throughout the summer.
Lake Morris – What can you do to help?

Lake Users:
✓ Run boat engines efficiently
✓ Observe no/low wake zones
✓ Refuel away from water
✓ Dispose of trash properly
✓ Remove all aquatic plants from boats and trailers
✓ Respect wildlife and other lake users

Land Owners:
✓ Control soil erosion
✓ Keep livestock out of lakes and streams
✓ Control manure runoff
✓ Carefully manage nutrients and pesticides
✓ Leave natural shoreland vegetation in place or restore if it has been removed
✓ Learn to identify and look for invasive species

Home Owners:
✓ Leave natural shoreland vegetation in place or restore if it has been removed
✓ Leave woody habitat for young fish, turtles and frogs
✓ Eliminate the use of fertilizer or use no phosphorus fertilizer
✓ Eliminate or minimize use of pesticides
✓ Control soil erosion
✓ Control runoff from rooftops and hard surfaces
✓ Clean up after pets
✓ Learn to identify and look for invasive species

Stop the Spread of Aquatic Invasive Species!

Wetlands and Shorelands:
♦ LEARN how to identify invasive plants and animals, and know who to contact if found.
♦ DO NOT PURCHASE prohibited and restricted species! Whenever possible purchase native plants.
♦ NEVER transplant water garden plants or aquarium plants into lakes, streams, wetlands, or storm water ponds. Properly dispose of unwanted plants and animals!
♦ REMOVE invasive exotic plants from your landscape and replace them with native plants or non-invasive exotic plants. Scout annually for new invasive plants.
♦ AVOID using garden plants from other regions whose invasive potential is poorly understood.

Lakes and Rivers:
♦ LEARN what Wisconsin invasive plants and animals look like and who to contact if seen in a lake or river.
♦ INSPECT your boat, trailer and equipment when traveling to different water bodies and REMOVE any attached aquatic plants or animals (before launching, after loading, and before transporting on a public highway).
♦ DRAIN all water from boats, motors, and all equipment after use at a lake.
♦ NEVER release live fish, bait or pets into a wetland or water body.
♦ BUY minnows from a Wisconsin bait dealer. Only use leftover minnows at that same water body.
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