

MULLETT LAKE SHORELINE SURVEY 2008: SUMMARY

During the summer of 2008, the Tip of the Mitt Watershed Council conducted a comprehensive shoreline survey on Mullett Lake to document conditions that have the potential to impact water quality. Funding for this project was provided by the Mullet Lake Area Preservation Society (MAPS) and the National Fish and Wildlife Foundation. This survey was performed because shoreline property is the first and most important line of defense for protecting the lake ecosystem. Of all the land in the Mullett Lake watershed, shoreline properties have the greatest potential to impact water quality. Therefore, Watershed Council staff traveled all 30 miles of Mullett Lake's shoreline in kayak to survey the following parameters that pose a threat to the lake's health:

1. Nutrient pollution. Nutrients are necessary to sustain a healthy aquatic ecosystem, but excess nutrients as well as other contaminants associated with nutrient pollution, such as bacteria and pharmaceuticals from septic systems, automotive fluids and metals in stormwater runoff, and chemicals in lawn-care products, can degrade the lake's water quality. Cladophora algae occurring on the shoreline was noted because it is a reliable biological indicator of nutrient pollution.
2. Greenbelt health. Greenbelts are the vegetated areas along the shoreline. A greenbelt consisting of a variety of native woody and herbaceous plant species provides habitat for near-shore aquatic life, as well as birds, turtles, and amphibians. Deep-rooted plants help to control erosion while stabilizing the shoreline and providing protection against wave action and ice. The canopy of the greenbelt provides shade to near-shore areas, which is particularly important for lakes with cold-water fisheries. In addition, greenbelts provide a mechanism to reduce overland surface runoff and absorb pollutants carried by the flow during rainstorms and snowmelt. Thus, greenbelts provide many benefits to the lake ecosystem, but these benefits are lost when shoreline vegetation is removed
3. Shoreline alterations. Shoreline development often includes the installation of seawalls, rip-rap, or other structures to stabilize the shoreline, but these structures have negative impacts on the lake ecosystem. These impacts stem primarily from the loss of natural vegetation and the many benefits associated with this vegetation, such as the loss of habitat and food sources for aquatic and terrestrial life in nearshore areas

4. Shoreline erosion. Erosion commonly occurs in nearshore areas followed by greenbelt removal, but is also caused by other factors such as recreational access. Eroding shorelines results in sediments washing into and impacting the lake ecosystem. Sediments clog fish and insect gills, smother spawning beds and habitat in nearshore areas, and increase water temperatures. Furthermore, nutrients adhere to sediment particles and lead to nutrient pollution.

The 2008 survey examined these stressors at all 1292 properties on Mullett Lake and found that shoreline property management is undoubtedly impacting the lake ecosystem and water quality. Some sign of nutrient pollution was noted at nearly 60% of shoreline properties; 64% had greenbelts in poor condition; 58% had altered shorelines; and erosion was present at 12%. Relative to other lakes in Northern Michigan, Mullett Lake had a high percentage of shoreline properties with signs of nutrient pollution, poor greenbelts, and altered shorelines. Properties with strong signs of nutrient pollution and those with poor greenbelts were scattered throughout the lake, but also concentrated in certain areas.

On a positive note, there are many properties that still have healthy greenbelts. Approximately 10% of properties had greenbelts in excellent condition during the 2008 survey and another 18% of properties were rated as good. Considering recent reports of problems in the Mullett Lake fishery, having nearly 30% of greenbelts in good condition is great news because shoreline vegetation is critical for maintaining a healthy, diverse lake ecosystem and a strong fishery.

In spite of problems in nearshore areas exposed during this survey, data collected by Watershed Council staff and MAPS volunteers show that the water quality of Mullett Lake remains high. Great progress has been achieved during the last decade through the joint efforts of MAPS and Tip of the Mitt Watershed Council to document and address problems in Mullett Lake and its watershed. However, the Mullett Lake ecosystem will benefit most if those living around the lake make improvements in managing their properties. Each and every shoreline property owner can help protect and improve the lake ecosystem by doing simple things like properly maintaining septic systems, eliminating or reducing fertilizer use, properly managing stormwater, improving greenbelts, controlling erosion, and encouraging shorelines to revert to a more natural state.