

Watershed Health Indicators – Boating Activity

This project is part of the extended **Integrated Watershed Management (IWM)** initiative, focusing on reducing flooding impacts and enhancing Muskoka River Watershed (MRW) health. It's one of seven chosen for expansion from the original twelve projects. This initiative supports and advances the implementation for an IWM approach for the entire MRW.

You can find more information on the **Phase One Report** and the accompanying **Summary Factsheet** on the District of Muskoka Website at: www.muskoka.on.ca/iwmprojects

Purpose

The Watershed Health Indicators Project aims to define environmental and ecological metrics for monitoring the Muskoka River Watershed's health, building upon existing data. Phase One established 29 health indicators in two categories: Ecological Status and Threats to Ecological Status.

At Issue

Recreational boating, despite its popularity, has received less environmental attention than shoreline development. Short-term research limits our understanding of its long-term impact on watershed health, despite documented physical, chemical, and biological effects.

Scope

This report synthesizes a literature review assessing the impact of recreational boating on watershed health, covering physical, chemical, and biological effects, as well as boating impact studies, indicators, and management tools.

Fun Fact:

More than 12 million people enjoy boating in Canada, with the Muskoka River Watershed being a popular spot for various water activities.

Measuring Watershed Health:

Watershed health involves monitoring the ecosystem's ability to sustain natural features and processes. Indicators simplify complex data, measuring physical, chemical, biological, and socio-economic aspects. Effective indicators are measurable, consistent, relevant, understandable, reliable, comprehensive, and cost-effective. Indicators typically represent:

Condition:

Assessing attributes like water quality and biodiversity.

Pressure:

Addressing natural processes and human activities impacting the environment.

Response:

Focusing on actions taken to manage or prevent environmental damage.

Physical Impacts of Boating:

- Boating, especially in shallow waters, causes disturbances like turbulence, propeller damage, and waves.
- Shallow waters (less than about 3 meters deep) are most affected, leading to issues like sediment resuspension and reduced water clarity.
- Boat activity can introduce pollutants and nutrients into the water, impacting the ecosystem.
- Boat waves can contribute to shoreline erosion, even in areas with heavy boat traffic.
- Different boat types produce varying wave sizes, with wake-boats and personal watercraft often creating larger waves due to their use and design.

Boating Studies

- Boating impact studies assess recreational carrying capacity, focusing on space standards for different boating activities.
- These studies address challenges in quantifying capacity due to factors like boat types, speed, lake attributes, and user perceptions.
- In Muskoka, studies have applied space standards to assess capacity and recommend measures for managing boat traffic, especially in areas with concentrated boating, such as marinas or boat launches.
- The goal is to sustain the recreational boating experience while minimizing its impact on the environment.

Boating Indicators

Recreational boating has diverse environmental impacts, including damage to aquatic plants, changes in water quality, and erosion. Indicators such as water clarity, boat docks, and parked vehicles provide insights into boating activity. Yet, linking these changes directly to boating is challenging due to multiple influencing factors, making it hard to measure the precise impact on watershed health.

Fun Fact:

In 2021, a survey found that almost everyone near Muskoka and Georgian Bay owned boats, with 91% having motorized boats and 95% having non-motorized ones.

Potential Indicators

Water Quality

Submerged Aquatic Vegetation

Visible Garbage Along Shorelines

Dissolved Oxygen

Water Turbidity

Turbidity

Bank Erosion

Loss of Wildlife Habitat

Introduction & Spread of Invasive Species

Shoreline Erosion Assessment

Damage to Rooted Vegetation

Submerged Plant Biomass

Population Abundance & Distribution Trends of Wildlife Species

Boat Traffic

In-Water Decibels

Biological Oxygen Demand (BOD)

Boat Density

Number of Vehicles Parked At Boat Ramps, Marinas, & Residential Community Docks

Sedimentation Rates in Shallow Waters

Aquatic Grasses Throughout Lake

See page Appendix A in the Technical Report the complete listing including impact and targets.

There are no precise indicators to reliably monitor boating's influence on watershed health, requiring further study to establish baseline conditions and ecological carrying capacity for Muskoka's lakes and rivers. In the meantime, employing management tools on a site-specific basis remains crucial.



Policy Example:

The Township of Seguin has incorporated a recreational carrying capacity policy, aiming to balance ecological integrity, public safety, and recreational opportunities. These efforts highlight the importance of considering both ecological and sociological carrying capacity in managing recreational boating impacts to ensure the sustained well-being of the environment and the quality of life for all users.

Management of Boating Impacts

Management of recreational boating impacts is crucial for protecting watershed health. Measures focus on sensitive areas, including shallow nearshore habitats and calm shorelines. These approaches include:

- no-wake zones in specific water depths and distance from shore.
- restricted areas or periods to safeguard critical wildlife habitats.
- speed limits near shores and in sensitive areas.
- size thresholds for motorized boats.
- limiting public access and implementing land use zoning.
- enforcement, education, and technological improvements in boat motors also play a role in managing boating impacts.
- Various policies, organizations, and regulations in the Muskoka area address these issues, with a focus on environmental stewardship and the preservation of natural lakeside ecosystems while allowing recreational enjoyment.



Did you know?

In a recent survey of Muskoka and Georgian Bay lake enthusiasts...

- 66% noted increased boat traffic, noise, and boat wake impacts over the past five years.
- 70% supported the establishment of no-wake zones to protect sensitive areas.
- 90% expressed a strong commitment to conserving the lakes' natural beauty for future generations.



For the complete report and further information on Integrated Watershed Management (IWM), the twelve projects (including the seven extended ones), and efforts towards an Integrated Watershed Management approach for the Muskoka River Watershed, please visit www.muskoka.on.ca/iwmprojects.

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