



# MUSKOKA WATERSHED COUNCIL

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## Agenda

Date: **Friday, March 25, 2022**

Time: **1:00 – 3:00 pm**

Location: **Zoom**

<https://us02web.zoom.us/j/84415906608?pwd=bW02RHJhUkExKzd0dzE5V1pHQWkwUT09> Meeting ID: 844 1590 6608 Passcode: 772103

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1. **Welcome and Opening Remarks** – *Interim Chair Peter Sale (5 min)*

1.1. Indigenous Land Acknowledgement

1.2. Approval of Minutes (by consent)

THAT the Minutes of the Muskoka Watershed Council meeting dated February 25, 2022 be approved.

2. **Presentation (45 min)**

2.1. **Climate Change as a Stress Multiplier Governing Algal Blooms in Oligotrophic Lakes** –  
*Dr. Neil Hutchinson (Hutchinson Environmental Sciences Ltd.) and Dr. Norman Yan (Friends of the Muskoka Watershed)*

Presentation abstract available [below](#).

3. **Muskoka Watershed Report Card** – *Christy Doyle & Rebecca Willison (30 min)*

4. **Project Updates (3-5 min each)**

4.1. MWC Governance – *Interim Chair Peter Sale*

4.2. Community Roundtable Update – *Kevin Trimble*

4.3. Algae Monitoring Program – *Interim Chair Peter Sale*

4.4. Love Your Lake Program – *Rebecca Willison*

4.5. Communications – *Pete LeMoine*

5. **Partner Updates (5 min each)**

5.1. Government Updates – *Open to elected municipal representatives and staff*

5.2. Partner Updates (e.g., Province, Health Unit, Lake Associations, Community Organizations) – *Open to All*

6. **New Business**

7. **Adjournment**

## Upcoming Meetings

- **Working Group:** Thursday, March 31<sup>st</sup> at 2:00 pm through Zoom.
- **Muskoka Watershed Council:** Friday, April 22<sup>nd</sup> at 1 pm through Zoom. This meeting will be MWC's Annual General Meeting.

## Presentation Abstract

**Climate Change as a Stress Multiplier Governing Algal Blooms in Oligotrophic Lakes** – Dr. Neil Hutchinson (*Hutchinson Environmental Sciences Ltd.*) and Dr. Norman Yan (*Friends of the Muskoka Watershed*)

The classic management approach to cyanobacterial blooms in fresh water is based on reducing surplus phosphorus loading from human activities to maintain total phosphorus concentrations below thresholds that increase the probability of blooms.

This paradigm has been challenged recently by the increasing number of cyanobacterial blooms in lakes with low phosphorus levels and lakes with no human phosphorus sources. Although the increasing risk of blooms can be driven by more phosphorus loading and greater algal growth; more suitable cyanobacterial habitat and decreased algal grazing by zooplankton may also increase the risk of blooms.

Warmer waters and increasing thermal stability of lakes in response to climate change favour cyanobacterial habitat and reduce grazing by heat sensitive zooplankton. Internal loading of phosphorus is increased as greater stability increases hypolimnetic anoxia in a warmer climate. More severe storms mobilize more phosphorus from the watershed, where tree health has been reduced through acid-rain – induced calcium loss. Zooplankton populations are reduced in lakes where calcium has declined while increased road salt application in a warmer winter climate increases chloride toxicity to zooplankton to reduce filter feeding.

Multiple stressors of temperature, chloride, low calcium and invasive zooplankton predators therefore interact to reduce zooplankton grazing of algae while climate change increases phosphorus loading and favours cyanobacteria habitat. Examples of all of these mechanisms will be presented using case studies from south-central Ontario lakes.