RCMC General Membership Meeting November 20, 2025
With Dr. Joe Ackerman - *Understanding the Complexity of the Western Basin of Lake Erie Through Physical Ecology*

The meeting was opened at 9:55 am with President Warren Gregg chairing. There were 62 members present. At the outset President Gregg called for a moments silence to think about relatives and friends who were suffering.

Activities Report – Ken Marchant
- The most important item is the Christmas Dinner on Thurs. December 11th. Members & spouses need to sign up urgently. You can pay cash to Ken Marchant or do an e-transfer to the club. We are asking anyone who could donate any item for a door prize to let someone on the Activities Committee know.
- Valentine's dinner is in the process of being planned probably at the Symposium Restaurant so, sign-up once the signup sheet appears.
- The VBA Cabaret starts tonight and it's a sold-out show.
- Of note: This past Tuesday, 25 people attended the Hammond Radio Museum which holds very interesting pieces of radio history right here in our community.

Membership Report – Martin Alderwick
- We had two guests attending today: Lloyd Longfield and Doug Brunton;
- A part-time member who has been a member for a long time has returned to Guelph: Don McFarlane.

Recognition – President Gregg
President Gregg recognized David Rowley as the Chairperson of the House Committee. He thanked David and all committee members who set up the tables and chairs for meetings and prepare the coffee and do the clean-up afterward.

Speaker Introduction -- Richard Rivkin
Richard introduced today's guest speaker, **Dr. Joe Ackerman** who is a physical ecologist who examines ecological relationships including feeding, sexual reproduction, and dispersal in rivers, lakes and the coastal ocean through the incorporation of hydrodynamic principles. Currently, he and his students are examining the effects of turbulence on: phytoplankton succession; fertilization success and development in dreissenid mussels; zooplankton grazing on phytoplankton; as well as swimming and feeding in larval fish.

<u>Presentation -- Dr. Joe Akerman</u>
Dr. Ackerman's presentation focussed on food webs and aquatic environments, particularly concerning Lake Erie. The discussion included the significance of various ecological factors affecting aquatic life and the impact of human activities on water quality.

Physical ecology or limnology is basically the interaction of ecological evolutionary concepts using fluid dynamics, and that's because organisms live in fluid environments and use fluid environments. It's about who's eating whom, that's what trophic means. It's about sexual reproduction and dispersal, how things move, and eco-physiology, how things work.

Main Topics Discussed:
The presentation covered several themes related to environmental science and particularly the ecological dynamics of Lake Erie and its challenges.

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Timeline of Major Events:
1950s-1980s - Heavy industrialization of Lake Erie - Declining water quality issues arise
1969 - Cuyahoga River fire - Led to the Clean Water Act and improved regulations
1980s-2000s - Pollution controls implemented - Improvement in water quality noted
2000s - Emergence of eutrophication concerns - Continued challenges in managing water quality.

Dr. Ackerman emphasized both historical change and contemporary environmental challenges. He explained how small-scale biological processes, such as the dispersal of freshwater mussels and the feeding behavior of invasive zebra mussels, influenced large-scale lake conditions. Native mussel populations had become the focus of conservation efforts.
He outlined Lake Erie's significance as part of the Great Lakes system, which held 20% of Earth's liquid fresh water and supported major fisheries serving millions. Lake Erie's shallow basins, rapid water turnover, and tendency toward daily stratification created conditions that amplified nutrient loading and eutrophication. Despite mid-20th-century pollution controls, harmful algal blooms re-emerged, likely driven by diffuse agricultural inputs and complex mixing patterns.
He further detailed research showing how zebra mussels altered particle concentrations, how thermal stratification and mixing governed oxygen levels, and how episodic hypoxia threatened sensitive species such as burrowing mayflies. He also highlighted physical processes—including seiches [oscillation of the surface of a landlocked body of water (such as a lake) that varies in period from a few minutes to several hours], storms, and Coriolis-driven upwelling—that transported cold, low-oxygen water into the western basin, influencing fish populations and management decisions.

Key Outcomes & Implications:
The presentation highlighted the importance of community engagement and environmental awareness. Decisions made include planning for future events and prioritizing environmental education. Key implications involve addressing the historical and ongoing challenges faced by aquatic ecosystems.

- Recognition of the need for continued environmental monitoring
- Importance of community events to foster engagement
- Highlighting the role of education in understanding ecological issues

Insights & Learnings:

- Community involvement is crucial for ecological awareness
- Historical context is important in understanding current environmental challenges
- Collaboration among scientists and local organizations can enhance research efforts

Following Dr. Ackerman's presentation, he answered questions from the membership.

President Gregg thanked Dr. Ackerman and gave him a token of our appreciation.

Adjournment: 11:05 am

Recording Secretary: Kerry Gennings