

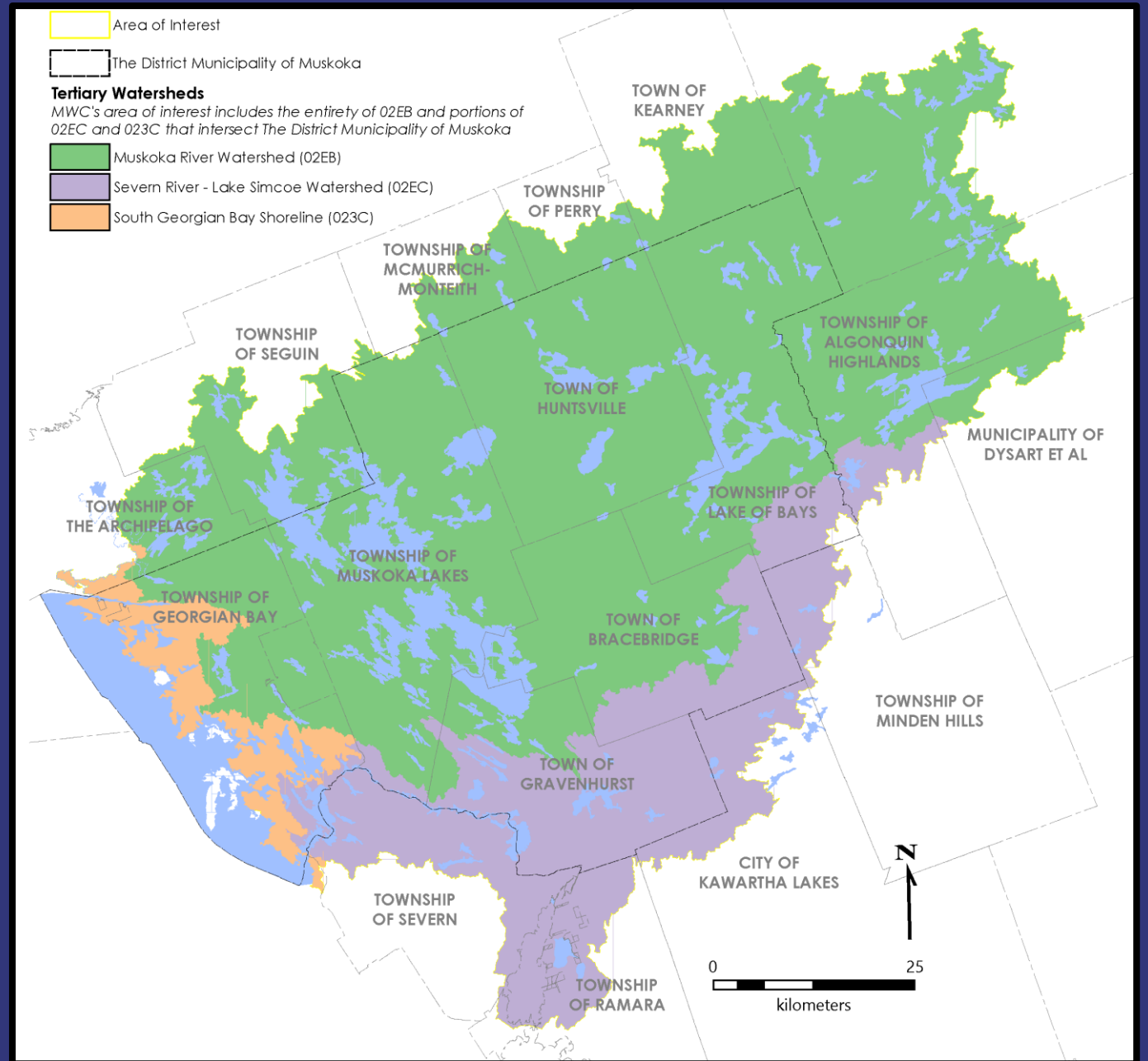


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# Why the Status Quo is Inadequate for Future Environmental Management

Peter F Sale  
Chair, Muskoka Watershed Council

A watershed  
An ecosystem  
“all the organisms  
within the  
boundaries of a  
drainage system  
and the resources  
that sustain them”



# Life Used To Be Simple...

- Ecosystems are complex systems
- Interactions among components create a dynamic stability
- As a consequence, ecosystems remain stable in form and function over many years
- Unless we disturb them by inappropriate development or other actions





# Ecosystems were so stable that...

- Environmental management focused on effects of our actions in resource extraction and development
- Chiefly local, simple, and immediate effects
- Ecosystems stayed the way they were unless we disturbed them



© P Sale



# 20<sup>th</sup> Century Environmental Management

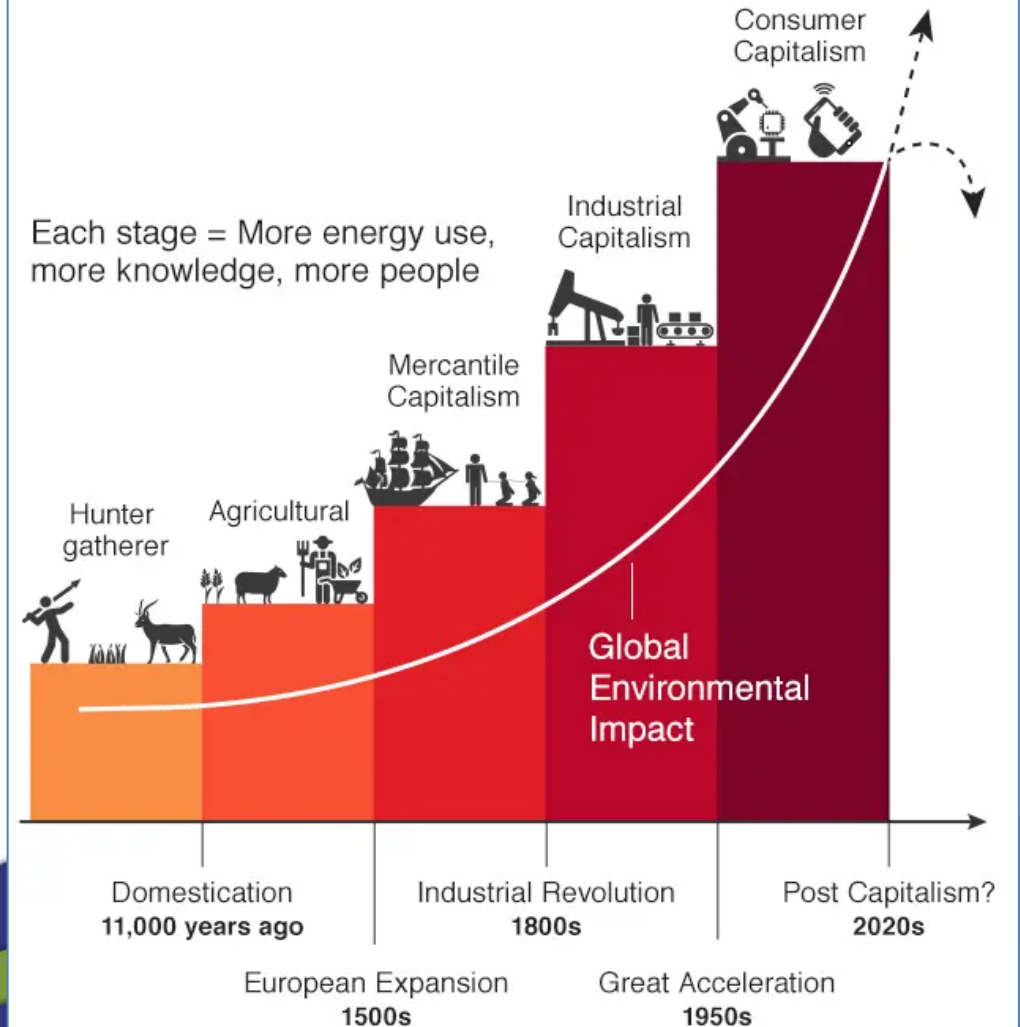
- Event- or problem-oriented
- *“Regulate human actions that cause problems and the environment will heal itself”*
- *“Avoid causing problems and the environment will endure”*
- We assumed ecosystem resilience



# Life IS No Longer So Simple...

- ~1950 – The Great Acceleration
- Massive diversion of resources
- Global changes like climate change and biodiversity loss
- Ecosystems are stressed and responding by changing
- No longer stay the way they were unless we disturb them

## Human societies and their increasing environmental impact



Source: Lewis & Maslin

BBC



# Life IS No Longer So Simple...

- If we wish to sustain watersheds...
- Manage changes that **are not caused** by our local actions
- **As well as** changes we cause by our local activities
- Must manage this dynamic complex system



# 21<sup>st</sup> Century Environmental Management

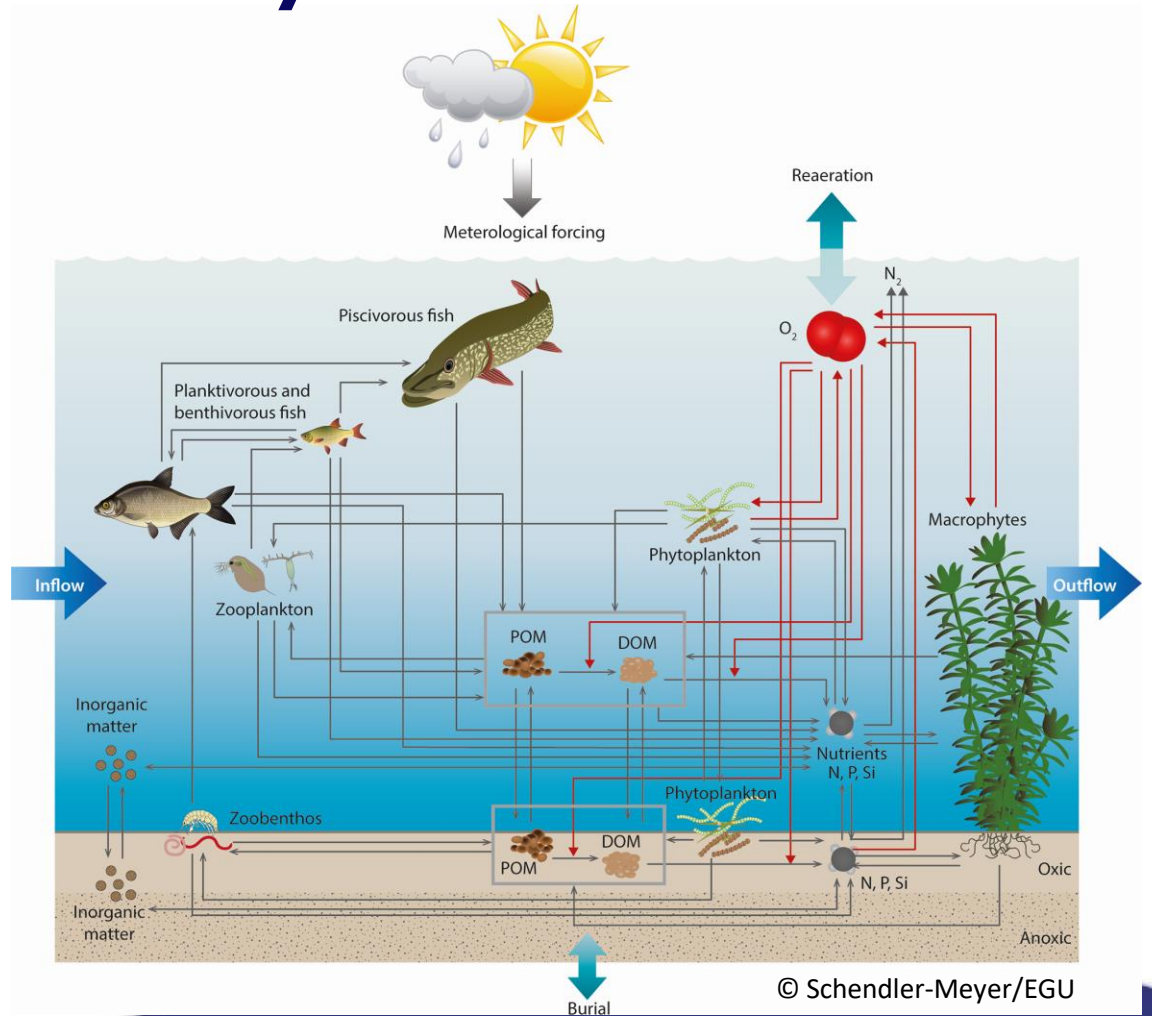
- Recognize environments will be changing rather than enduring
- Managing to sustain becomes more difficult
- Manage the complex, dynamic system, not the individual problems





# Reminder: Complex dynamic systems

- A complex system with numerous interactions among components
- Multiple causes and multiple effects
- Local causes lead to distant effects



# Reminder: Complex dynamic systems

- A complex system with numerous interactions among components
- Multiple causes and multiple effects
- Local causes lead to distant effects
- ONE EXAMPLE: Blue-green algal blooms are becoming more frequent
- Science is unclear; there may be multiple causes interacting synergistically
- Need scientific study before we can plan for management



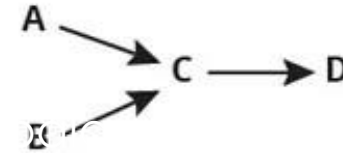


# The Status Quo is...

- No longer effective
- Event- or problem-oriented
- Locally oriented
- Apply best practices to avoid causing local problems caused by local activities

## Event Oriented Thinking

Thinks in straight lines

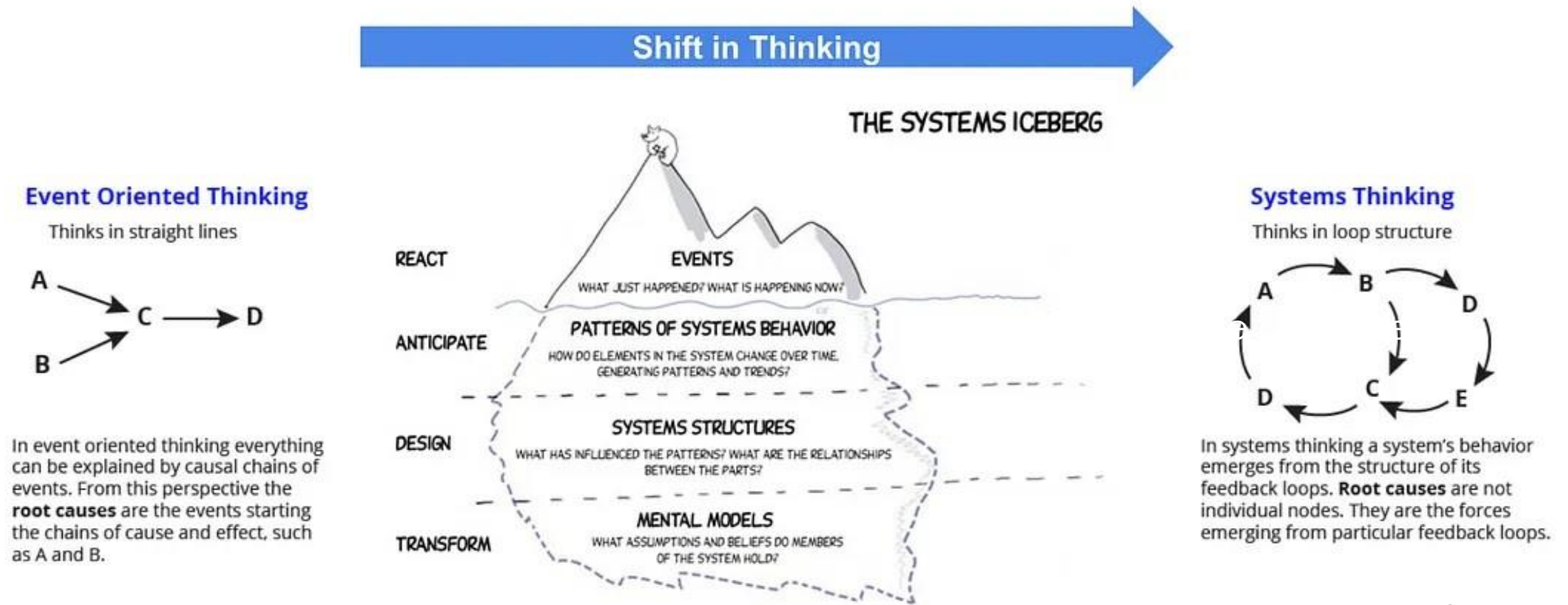


In event oriented thinking everything can be explained by causal chains of events. From this perspective the **root causes** are the events starting the chains of cause and effect, such as A and B.



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# The Status Quo is...



© R Madrigal

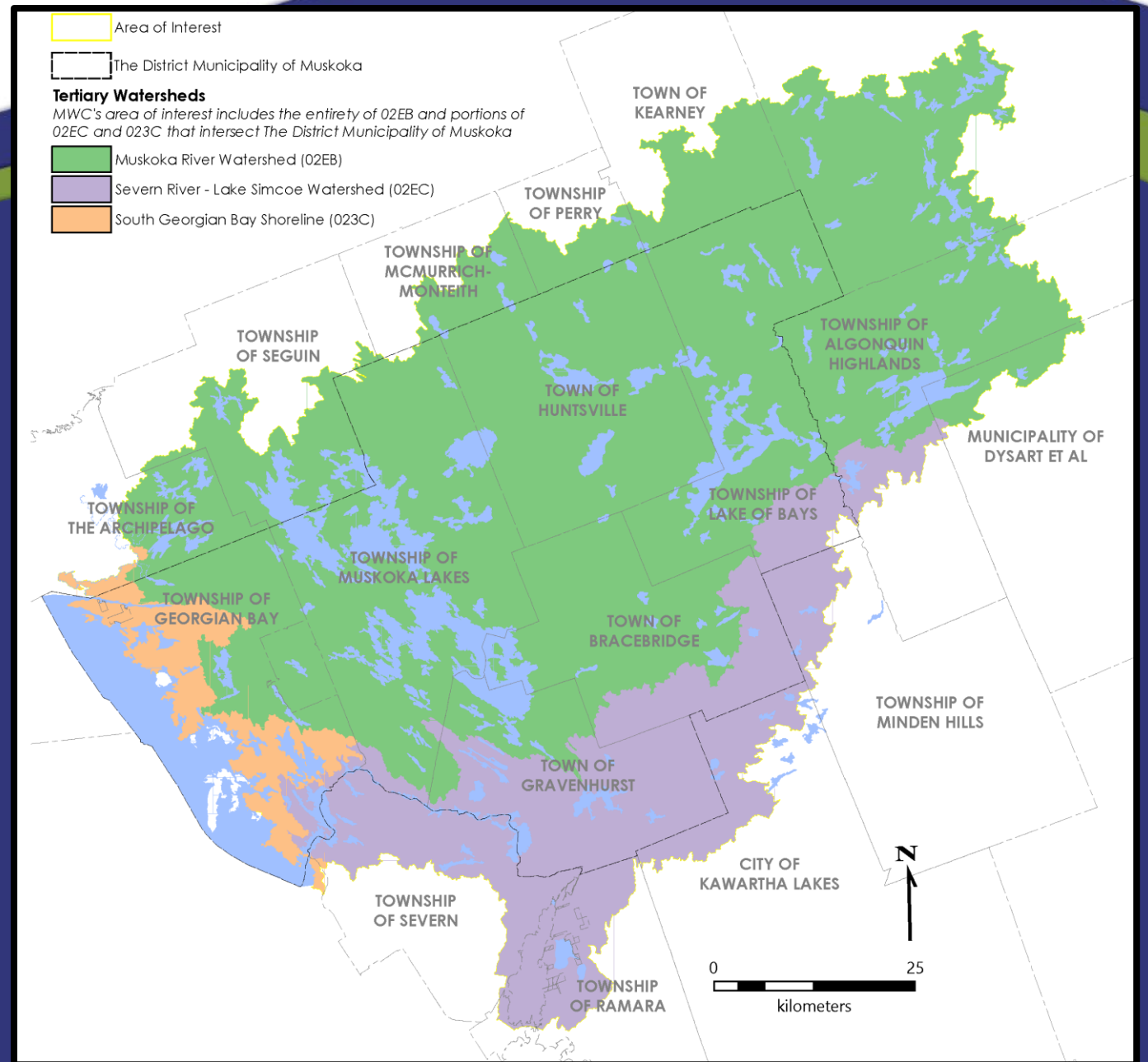


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# Our watershed

- A lot of information exists
- Recent significant additions
- The Muskoka Watershed Conservation & Management Initiative (15 projects)
- Build a knowledge baseline to prepare for IWM



# Project 8: Land Use Policy Review...

(Muskoka Watershed Conservation and Management Initiative)

- Numerous conflicting policies among municipalities
- Few mechanisms for integration across boundaries
- Complexity of system not recognized
- Work to be done to shift towards a 21<sup>st</sup> century management style

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# Project 8: Land Use Policy Review...

(Muskoka Watershed Conservation and Management Initiative)

Recommendations include:

- Establish watershed-wide working group including all municipalities
- Build a watershed management plan
- Establish a watershed-wide, accessible database of available environmental data
- Seek funding for a coordinating organization to set shared goals and priorities



Image © A Eisenstein & A Kihlstedt/Candid



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# Integrated Watershed Management





# Digging deeper...

- Ontario's Muskoka Watershed Conservation and Management Initiative, 2021, funded 15 projects 2021-23
- Project 8, Review of land use policies, Final Report:  
<https://www.muskoka.on.ca/en/Environment/Documents-and-Forms/8.pdf>
- Muskoka Watershed Council, 2020 White Paper: The Case for Integrated Watershed Management in Muskoka:  
<https://www.muskokawatershed.org/wp-content/uploads/IWMP-WhitePaper-Jan2020.pdf>
- 2023 Muskoka Watershed Report Card:  
<https://www.muskokawatershed.org/programs/report-card/>





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**Thank you.**

**Learn more at  
[www.muskokawatershed.org](http://www.muskokawatershed.org)**