Preparing for climate change in Muskoka: strengthening Watershed monitoring and reporting in a changing future

MWC Report Cards review: a walkthrough

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Introduction (Bio on p.3)

- PhD Student, Social and Ecological Sustainability (Integrated Water Management)
  - Masters and Hons. Bachelor of Environmental Studies at University of Waterloo
- Sustainability Officer and Marketing Manager, HC Group
- Variety of volunteer positions from science advisory to international development (Kenya)

Why did we do this study?

- Water and climate change are big issues moving forward; opportunity to connect both with an existing foundation of knowledge and practice

- Explore options for my research: interest in water quality and convergence between science and policy; Muskoka Watershed Council (MWC) has been so receptive to feedback and ideas!

- Opportunity to make a real, lasting difference

What did we do?

- Elaine reviewed the Report Cards and Background Reports (monitoring lens/perspective)

- Sondra attended a meeting of the Canadian Water Network's (CWN) Canadian Watershed Research Consortium (CWRC) to learn more about existing and soon-to-be implemented monitoring programs across Canada

- Both reviewed other case studies and delved into the literature for further learning and examples

Vocabulary

Cumulative Effects: changes to all aspects of the environment by past, present and reasonably foreseeable future actions (both natural and human).

Cumulative Effects Assessment and Monitoring (CEAM): process of monitoring, tracking and predicting accumulating change relative to established limits.

- Goal is to act (prevent and respond)

Vocabulary

Trigger: the point at which some action is required; an indication that a predefined course of action (a response) is needed.

Threshold: a tipping point outside of which the state of a system or organisms changes.

Resilience: ability to function in a healthy or normal way despite a disturbance.

Monitoring in the Muskoka Watershed

- Past focus: lake water quality, phosphorous, calcium, E.coli, dissolved organic matter, species composition or biodiversity, shoreline development, road salt runoff, and the amount of recreational and industrial development (Eimers, 2016).

- Understanding long-term trends and identifying upcoming issues (climate change): CEAM widely considered

Source: Eimers, C. (2016). *Cumulative effects assessment and monitoring in the Muskoka Watershed*. Report to the Canadian Water Network.

Lessons from the CWRC

- Integrated monitoring: multiple forms of data to be considered; iterative approach should be used
- Data management: reduce number of indicators and locations; standardize approaches and methods
- Leadership capacity: administrative responsibility remains a challenge
- Use of results: develop triggers and inform management; adjust resource management, develop indicators and goals; connect locally

CWRC summary

- Stakeholder engagement is important to developing, implementing and maintaining a healthy monitoring program
  - Must agree on what and how to measure
- Administrative challenges remain (who owns and manages data)
- Monitoring results should be compared to some limit or benchmark to help understand progress
- ALSO: see page 5 of the Brief for learnings from Ontario case studies

MWC Report Cards Conclusions and Challenges

- New or improved approaches and measures needed to decrease vulnerabilities (climate change) and improve resiliency

- Not enough congruence or continuity in Report Card expression of indicators, symbols and measurement units to infer temporal or spatial trends

- Background Reports showed more consistency than Report Cards, but are likely overwhelming/unappealing to average citizen

Report Cards Recommendations

- Easily understood, consistent units and fewer indicators would make information more publicly digestible and trends easier to infer

- Regarding ‘What Can I Do’ sections, concrete action items are more useful than longer lists of general attitudes (perhaps one or two challenges per Report Card, especially if gamified)

- Use of web or other tech communication strategies (e.g. improving Water Web) my increase interaction

Component of robust monitoring program

- Triggers and thresholds (actionable monitoring)
  - Implies response
- Data management (standardized collection and accessible storage)
- Communication and dissemination (publicly accessible way)
- Evaluation of program is important

Final recommendations

- Adopting climate change adaptation strategies is key; monitoring needs to support this goal (impacts from climate change are cumulative)

- Communication to public can be improved/more engaging; consistency in indicator reporting is one example, an online presence is another (e.g. options for researchers vs lay public)

- Data management is an issue to address (research continuity, access to data post-study, etc)

Summary points

- **Iterative processes** are best for addressing change (e.g. CEAM)
- **Data management** needs to be improved (collection and storage; knowledge map may help)
- **Report Cards indicators** should be fewer and more consistent
- **Evaluating** program is important

Thank you!

Session 1

- Review the summary of past indicators, considering the following:
  - What is the story we want to tell?
  - Do the indicators contribute to a coherent, relevant story moving forward (are we missing any, and are any not as relevant to the story we want to tell)?
  - How might climate change impacts affect what each indicator can tell us, or how we can monitor it?
  - Which indicators are the best ‘snapshot’ or ‘summary’ indicators?
  - Can we monitor indicators in a consistent way despite fluctuating resources and potentially changing environments (or new technology)?
- Highlight up to 10 ‘priority’ items

Some case study indicators

- **Lake Simcoe**: hydrology, aquatic habitat, wildlife, insects, species at risk, invasive species, vegetation cover, natural heritage areas, agriculture, tourism and recreation, and infrastructure.

- **Lake Superior**: pollution, invasive species and habitat degradation (nutrient loading), habitat health, habitat connectivity, adaptive capacity

Break time!

Please make sure Elaine has your indicator list!

See you at **10:55am**!

Session 2

- Using the flip chart paper and the ‘questions to consider’ in your booklets (p.6), discuss existing areas to strengthen and gaps to be addressed. Turn these into a set of goals.

- Format:
  - 10 minutes: break-out group discussion
  - 5 minutes: pick someone to summarize your discussion (you can use your flip chart)
  - 15 minutes: whole-group discussion (open floor)

Session 3

We have 15 minutes to discuss – preferably in NEW break-out groups (different people) – what the next steps are and what needs exist in in order to move towards achieving the goals generated in Session 2.

- Max. 5 steps and 5 needs.
- See p.6 in booklet for guiding questions.
- If you have time, start brainstorming what success would look like

You will receive a survey link sometime today as a follow up to this workshop. In it you will be able to see and select preferences (and comment) on the next steps/needs generated by each group.

- This survey will also have space for general feedback

Wrap-up

- Thank you for your participation!

- If you are willing to share your notes with Elaine for compilation in a workshop report, your contributions will be credited and also greatly appreciated ☺

- Please fill out the survey you will receive via web link today!
  - Indicator ranking (~5 minutes)
  - Selection and commenting on next steps (~3 minutes)
  - General feedback (~2 minutes)

Thank you!

UNIVERSITY OF WATERLOO

Muskoka WATERSHED COUNCIL

CANADIAN WATER NETWORK
RÉSEAU CANADIEN DE L'EAU