5 Measuring Success and Adapting

Measuring Environmental Action

Mari Veliz - Ausable Bayfield Conservation Authority
Plenary Presentation - Day 1

Mari Veliz, Healthy Watersheds Supervisor at Ausable Bayfield Conservation Authority referred to a model from the Lake Huron Georgian Bay Framework for

Community Action and explained that it identifies the various stages that are required to improve water quality in Lake Huron and Georgian Bay.

The approach of the Lake Huron Georgian Bay Framework can be adapted to various community scales. It can also be used by individuals. It is these individual efforts that come together to have a positive cumulative effect. Just as individual behaviours contributed to the degradation of watershed health in the first place. It is positive individual efforts that will improve and protect the environment in the future.

Community Action – Water Quality Monitoring Expectations and Limitations

Measuring or monitoring is an important component because the community interprets monitoring as taking environmental action. Monitoring is often what first engages a community member in environmental protection. Water quality monitoring provides important indicators that can be used to report on the state of a water body or watercourse. In the southern Lake Huron basin, watershed report cards use water quality indicators. The expectations and limitations around a water quality monitoring programs should be clear because the data collected produce immediate results, but must be used to determine long term trends.

Community Action - What are useful Water Quality Indicators?

There are at least 150 water quality indicators that could be used to describe ecosystem health. However, dirt (total suspended solids), bacteria and nutrients are three indicators relevant in a broader context. The United States Environmental Protection Agency has documented that for the water bodies listed as 'impaired' in the *National Water Quality Inventory*, the three top pollutants causing problems are dirt, bacteria and nutrients. (http://iaspub.epa.gov/waters10/attains_nation_cy.control).

These pollutants can be related to total phosphorus and *Escherichia coli* (E. coli) concentrations. Indicators have established objectives or guidelines. Monitoring data can be compared to those objectives to determine if the measured values are exceeding the guideline. The standards used are Total Phosphorus (0.03 mg/L) , E. coli (100 fecal colony forming units per 100 mL) and benthics (a number between 1 and 10 based on the abundance and distribution of the different species of benthic macroinvertebrates). Monitoring results should also be considered within their own context. For instance, while phosphorus may be measured above the objective, it may have improved over time and reflect a healthier water body.
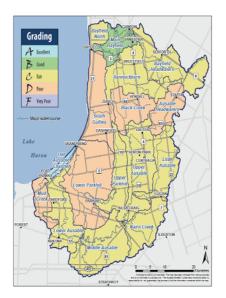
Communicating Monitoring Results

When communicating monitoring results, it is effective for the communication tools to show variation across space and time. While community members may have expectations for the monitoring results, it may not be possible to explain changes in water quality using those results. In addition, monitoring data collected during base flow conditions have limited value in evaluating the effectiveness of projects or programs that address land use activities.

Surface Water Quality - Ausable Bayfield

Watershed Report Card

A's – 1
B's – 1
C's – 9
D's – 5
F's – 0

Total Phosphorus
– typically above objective but has decreased from 2007 report card (0.07 mg/L from 0.08 mg/L)

E. coli
– typically above guideline but has decreased from 2007 report card (113 cfu/100 mL from 233 cfu/100mL)

Limitations
– evaluation tool??

Measuring Landscape Best Management Practices (BMPs)

Water quality issues are often related to storm water events. During these events, ephemeral channel flow in many locations across a watershed deliver nutrients and suspended sediment. Also, the increase in water from these ephemeral channels erodes the downstream channel contributing additional sediments and nutrients at the outlet to the Lake. To protect water quality, programs need to address this issue at the source through best management practices. Downstream monitoring at a stream outlet can be used to determine the effectiveness of those best management practices. However, a program of collecting storm event water samples may be difficult to implement using volunteers since the events are unpredictable and volunteer participation cannot be planned with much notice. At the downstream site, it will also be

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difficult to directly link changes in concentrations to specific activities that have occurred on the landscape.

Field edge and within field BMPs can be monitored. Mari explained the improved water quality that occurred with the use of a grassy vegetation strip (i.e., a grassed ditch) that separated a cropped field from a downstream channel.

Landscape and land use whether in an agricultural or an urban subdivision context can have an important impact on water quality and quantity. Mari provided an example in the agricultural landscape. When a land owner extended his hay field, it was difficult to measure that change in land use as there was no concentrated flow path and water sampling was not possible. While it is positive that there was little evidence of sediment and nutrient delivery or downstream erosion, a method of monitoring the land use change was not available. There are some activities that can be measured at the site scale and some that cannot. Watershed models can be used to monitoring landscape-level BMPs, but these models can be expensive.

Considerations for Community Group Monitoring

1. Surface water quality monitoring can initially engage community members but expectations should be managed since the results must be evaluated as long term trends.
2. Monitoring results should be considered within their own context. While the results may not meet an established standard, they may show environmental improvement in a watershed.
3. Non-point source pollution is important and it may not be possible to address this issue with routine monitoring.
4. Tracking landscape and land use indicators such as landscape cover, weather and variables particular to a regional economy are important.
5. Collaboration is necessary.
6. Wet weather monitoring and collecting supporting information takes considerable time/resources.

Measuring and Celebrating Success

Discussions from Lake Huron Cafe Discussions - Day 2

Measuring Success

Measuring the success of a program, policy or organization begins with setting goals and identifying effective indicators to determine whether those goals are being achieved. The indicators selected will depend on the goals and timeframe of the initiative. Measuring success is critical to the improvement of programs, policies and organizations so funds should be specifically budgeted for this purpose.

1. Defining Program Goals:
   · The challenge in measuring success is to clearly identify the expected benefit of the initiative so the desired action from a program should be defined up front. For example, is the goal to build

awareness or is it to develop follow up tools to ensure behavioural change. Success can then be measured against the original goal and indicators can be selected based on that target.

- The goal may be to initiate an idea or concept as a stepping stone for the future, especially when the ultimate goal is to accomplish changes in major policies.

2. <u>Identifying the Timeframe and Selecting Indicators</u>

- In the short term, the indicators of success in influencing people might include measures such as the number of attendees, number of volunteers, or number of landowner contacts. Social media measures such as the number of 'tweets' or 'Facebook likes' can also provide an indication of awareness. These measures provide an indication of awareness and interest.

- A different and more in depth approach is necessary in the medium to longer term to determine if the desired behaviour change or action has occurred . This may require further contact with the individuals involved in a program. This might also include the use of surveys, an assessment of conservation techniques implemented, the number of conservation agreements, the number of referrals, or the ability to leverage funds.

- In one case, a stewardship manual (environmental practices and self-evaluation book) was developed and explained at a workshop. Participants were contacted after six months to see if they had followed and implemented their 'action plan'. Program success could be measured by the actual action taken. The contact also served as a reminder for those that had not implemented their plan.

3. <u>Measuring Program and Project Success</u>

- At a strategic level, it is important to identify goals and implement a program to achieve those goals. Program success can then be measured by whether the goals were actually achieved.

- Measures such as the number of projects or positive media coverage can provide a short term indication of project success.

- Medium term indicators could include measures such as the number of trees planted, kilometers of fence line installed, number of acres affected, land owner participation, funding amounts, partnerships and positive media coverage.

- Land owner participation can be a key measure of success for some projects where it is required to run the project.

- A proactive project is often more effective than trying to battle major policy.

- Consider social based and project based measures of success.

- Measuring success can take time, especially for long term projects, so patience is important. In a long term project, progress can be measured on an incremental basis as well as at the conclusion of the initiative.

- Learn from others with successful approaches and measure success as a network of smaller initiatives. Try to assist and share knowledge about measuring.

4. <u>Measuring Environmental Conditions</u>

- Environmental indicators can be important in measuring long-term success. Carefully identify the purpose for measuring and what question is to be answered.

- Before a project is implemented a pre-assessment should be undertaken. A post-assessment can be taken later to measure the results. Local college or high school students or other community groups can assist with these assessments.

- Use a limited number of environmental measures (three is suggested), rather than trying to use a wide range of indicators. This may be difficult when dealing in a dynamic ecosystem. The range of measures can make it difficult to select what indicators to use, so consult with others to identify what has been successful in other similar circumstances.

- Involving the community in choosing the indicators can engage them in the project and assist in identifying pertinent research questions.

- Use indicators or measures from 'State of Lake Reports', 'Watershed Report Cards' or 'Remedial Action Plans'. The indicators provide a measure; the reports explain the issues; and the release of the report provides an opportunity to celebrate success.

- Consider identifying the amount of land that is protected such as the number of acres covered by municipal environmental protection land use policies or zoning, designed for protection by Provincial or Federal governments or owned by conservation organization.

5. Indicators Should Influence the Audience

- Identify the measures of success that will influence the target audience. For example, Manitoulin Streams Improvement Association conducted a socio-economic survey on hunting. The findings demonstrated that the hunters invested millions of dollars per year in the local economy. This identified the value of the resource for the community and encouraged local agencies to invest in associated environmental protection.

- Have those with influence in the target audience communicate the measures of success.

- Measures could centre on people influenced or taking action, funding secured or conservation land committed.

- The metric selected should be solid and enduring and could be socially based, project based or environmentally based.

6. Determining Organizational Success

- Measuring stability or sustainability can provide an indication of the potential long term success of an organization. The following are some indicators that can be considered when measuring organizational success:
    - Broad membership
    - Ability to leverage resources
    - Ability to achieve goals and targets
    - Ability to implement Best Management Practices (BMPs)
    - Ability to collaborate with other groups and initiatives
    - Success in project implementation (what you put on the ground – stays on the ground).
    - Ability or capacity of the organization to learn.

7. Resources for Measuring Success

- Project resources are often stretched and do not provide for robust measuring of the outcome. Measuring success is important to ensure goals are being achieved and initiatives are effective.

- The costs of measuring and celebrating success should be included in a project plan and budget.

8. Evaluating the Measures of Success

- Understand whether the cost of gaining the success was worth the benefit. This can be accomplished by undertaking a cost benefit analysis.

- Consider employing an evaluation tool. For example: the four levels of Kirkpatrick's evaluation model, which is used in the training and development of people, measures:

1) Reaction of the trainee - what they thought and felt about the training
2) What they have learned - the resulting increase in knowledge or capability
3) Behaviour change - extent of behaviour and capability improvement and implementation or application (this might result in the project being undertaken)
4) Results - the effects on the business or environment resulting from the trainee's performance (this might be what are the consequences for the watershed).

Common Measurements and Data for Lake Huron

1. Establishing Common Lake Huron Basin Indicators

   - There are a wide variety of approaches across the Lake Huron basin and data cannot always be aggregated or compared.
   - The Framework should consider encouraging groups to use three measures basin wide. A public data base is needed to establish a baseline. The goals, including changes that are desirable, should be identified. The measures to be used could be developed through a public engagement exercise**.**

Approaches to Celebrate Success

Recognizing individuals and partner organizations through a celebration provides them with profile in the community and builds awareness of programs. This reenergizes volunteers and attracts community interest. Recognition from other local, regional, national or bi-national groups also improves organizational credibility. Some approaches to celebrate success include:

- Annual ceremonies or awards night with plaques for good land stewardship.
- Annual gatherings such as receptions with partners and patrons.
- Nominate partner groups for awards and support partner projects as awards to and from outside organizations (such as Minister Awards) give legitimacy to local groups.
- Dinners to thank landowners or stakeholders.
- Hold community events such as the launch of a Conservation Plan.
- Host sources of knowledge forums.
- Get people out on the ground through guided hikes/visits to demonstration sites and bus tours.
- First Nations celebrate earth and water all the time. Have opening and closing ceremonies to celebrate life and success. Ask for First Nations to provide teachings.
- Host a design party and ask the community to redesign a community park, beach or even individual property.
- Recognize contributions by sending ideas to a college or university and having the experts explore the idea.
- Newsletters and mini weekly celebrations or raffles.
- Gain recognition through media and social media.

Advancing Environmental Action under the Framework

Plenary Discussion - Day 2

A plenary discussion was held to identify the future needs of the organizations in the Lake Huron watershed to advance environmental action. The following was suggested to assist the Steering Committee to enhance the work within the Lake Huron Georgian Bay Framework:

· Continue to hold lake wide Framework meetings.

· In the interim, hold regional workshops to share information relevant to that area and continue to build the Lake Huron network. Regional workshops should fill local gaps in knowledge.

· Engage municipalities and better understand how to work with them.

· Promote communication between organizations and improve the ability to share information (e.g., email, electronic, in person).

· Develop a tool kit that identifies funding agencies, deadlines, objectives available to undertake environmental action on Lake Huron.

· Identify who the 'thought' leaders are and provide engagement or information opportunities to hear about topics such as watershed stressors.

· Discuss a more holistic approach. Identify the economic value and value to society of environmental action. Consider social and cultural dynamics and the relationship with the environment. Consider the use of cost benefit analysis. Balance between science & traditional knowledge.

· Discuss resilience for organizations and community members. Identify how to engage youth, address organization and volunteer fatigue, improve recruitment approaches and gain greater organizational sustainability

· Promote better cooperation between government bodies and identify how to better deal with government systems.

· Guidance for connecting with First Nations and building trust

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Appendix 1 - List of Summit Participants

Name	Organization
Allen, Joanne	Environment Canada
Alexander, Karen	Lake Huron Coastal Centre
Anderson, Ellen	Mayor, Town of The Blue Mountains
Anderson, Janette	Environment Canada
Andreae, Muriel	Conservation Authorities
Avery, Donald	Blue Mountain Watershed Trust
Briggs, Ted	Ontario Ministry of Environment and Climate Change (Steering Committee)
Brock, Hope	Ausable Bayfield Conservation Authority
Brouse, Judi	Muskoka Watershed
Bunn, Deborah	Stop the Drop
Burcher, Robert	Beaver River Watershed Initiative
Bywater, David	Georgian Bay Biosphere Reserve
Campbell, Sara	Nottawasaga Valley Conservation Authority
Capreol, Marilyn	Shawanaga First Nation
Chiandet, Aisha	Severn Sound Environmental Association
Cooper, Sandra	Mayor, Town of Collingwood
Cornelisse, Ken	Ontario Ministry of Natural Resources and Forestry
Cottrill, John	Grey Sauble Conservation Authority
Crosskill, Debbie	Beaver River Watershed Initiative
Deschenes, Seija	Manitoulin Streams Improvement Association
Dobbs, Fred	Nottawasaga Valley Conservation Authority
Duncanson, Bob	Georgian Bay Forever
Elliot, Tanna	The Kensington Conservancy
Empson Laporte, Jacqui	Ontario Ministry of Agriculture, Food and Rural Affairs
Florean, Bob	Manitoulin Area Stewardship Council
French, Randy	Facilitator, French Planning Services Inc.
French, Marg	Facilitator, French Planning Services Inc.
Gibbons, Jesse	Beaver River Watershed Initiative
Gill, Ray	Canadian Freshwater Alliance
Gosselin, Rosemary	Blue Mountain Watershed Trust
Guyatt, Blanka	Blue Mountain Watershed Trust
Haelzle, Jeff	Ontario Ministry of Natural Resources and Forestry
Harbinson, Jo-Ann	Saugeen Valley Conservation Authority
Jamieson, Murray	Pine River Watershed Initiative Network
Jones, Terry	Magnetawan First Nation
Juhasz, Stella	Blue Mountain Watershed Trust
Kerr, Don	Blue Mountain Watershed Trust
Kraus, Dan	Nature Conservancy Canada (Steering Committee)
Leppard, Sally	Citizen Volunteer (Steering Committee)
Liipere, Sean	Bruce Peninsula Biosphere Association
Liskauskas, Arunas	Ontario Ministry of Natural Resources and Forestry (Steering Committee)
Logan, Trac	Federation of Ontario Cottagers
Longlade, Donna	Shawanaga First Nation
Luymes, Melissa	Maitland Valley Conservation Authority
Mahnke, Brittany	Georgian Bay Biosphere Reserve
Martin, Scott	Nottawasaga Watershed Improvement Program

Name	Organization
Mason, Greg	Georgian Bay Biosphere Reserve (Steering Committee Member)
Mayne, Greg	Environment Canada (Steering Committee Member)
McDonald, Peter	Blue Mountain Watershed Trust
Monig, Ryan	Magnetawan First Nation
Munck, Neils	Bruce Peninsula Six Streams Restoration Initiative
Orr, Edith	Central Algoma Freshwater Coalition
Osmok, John	Dufferin Simcoe Land Stewardship Network
Pedrazzi, Silvia	South Simcoe Streams Network
Philips, Kelly	Environment Canada
Powell, George	Blue Mountain Watershed Trust
Powell. Heather	Blue Mountain Watershed Trust
Ritchie, Jason	Ontario Ministry of Natural Resources and Forestry (Steering Committee)
Rodgers, Gord	Frontenac Stewardship Foundation
Service, Alexandra	Ducks Unlimited
Silver, Thea M.	Ontario Trillium Foundation
Sutton, Julia	East Georgian Bay Stewardship Council
Sweetnam, David	Georgian Bay Forever
Telfer, Lindsay	Canadian Freshwater Alliance
Thomas, Victoria	Central Algoma Freshwater Coalition
Thompson, Rob	Pine River Watershed Initiative Network
Thorn, Elizabeth	Bruce Peninsula Biosphere Association
Thorn, Jeremy	Bruce Peninsula Biosphere Association
Todd, Craig	Ontario Ministry of Natural Resources and Forestry
Van Zwol, Jessica	St. Clair Region Conservation Authority
Van Welter, Hilary	Rewilding Lake Simcoe / Ontario Water Centre
Vidler, Nancy	Lambton Shores Phragmites Community Group
Veliz , Mari	Ausable Bayfield Conservation Authority (Steering Committee)
Waind, Robert B.	Nottawasaga Watershed Improvement Program
Weatherhead, Shelden	Bruce Peninsula Biosphere Association
Weppler, April	Freshwater Future Canada
Williams, Mike	Ducks Unlimited
Wingrove, Norm	Blue Mountain Watershed Trust
Wood, Laurie	Environment Canada