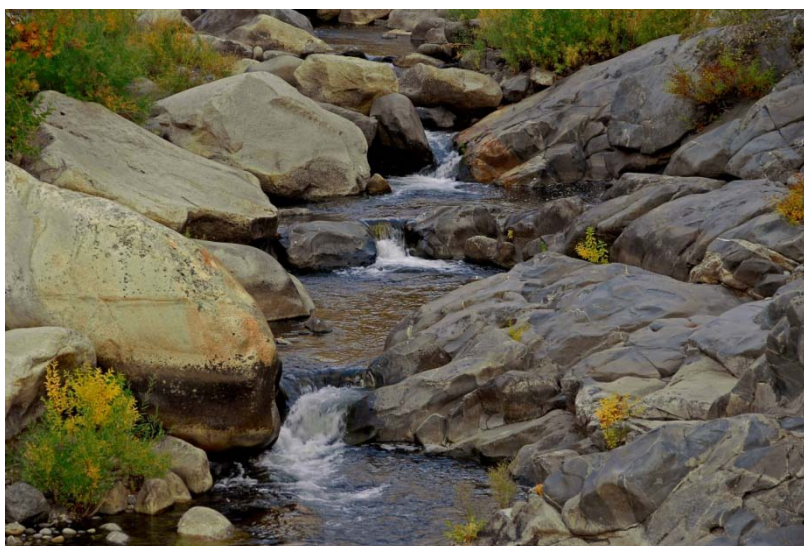


Tools for Healthy Watersheds

Final Participants Report



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Introduction

The Ecology Action Centre (EAC), in partnership with the Bay of Fundy Ecosystem Partnership (BoFEP), hosted three workshops for the Bay of Fundy planning community in March 2011. The 'Tools for Healthy Watersheds' workshops took place on March 16th (Digby, NS), March 23rd (Saint John, NB) and March 24th (Sackville, NB). The purpose of the workshops was to increase municipal and regional planners' awareness of the many complex linkages between land-based activities within their municipalities and the health of coastal habitats and watersheds, as well as to provide information on appropriate tools for watershed protection. The workshop objectives were to:

- Identify priority issues related to land-based activities impacting water quality within the Bay of Fundy watershed;
- Inform planners of information resources, support tools and best management practices that are currently available to help planners minimize impacts of these issues in their region;
- Identify information requirements such as data gaps and planning tools required by the planning community to effectively manage impacts of pollutants, sewage, climate change and other land-based activities on coastal ecosystems and water quality; and
- Assess how groups like BoFEP can work to develop support tools and information resources to better meet the needs of planners.

Workshop Overview

The workshops were designed to provide content and new information as well as to allow organizers to conduct a needs assessment. The content focused on understanding water and its circulation in watersheds and coastal areas, as well as how land-based activities could affect water quality and quantity.

Each day-long workshop was designed to focus on local water issues during the morning session and to explore practical tools to deal with these issues in the afternoon session. The workshops followed a similar format in each location, but the specific topics and speakers were adjusted to each local context.

Each workshop began with a presentation called 'The Bay of Fundy and Its Water' by Ashley Sprague (EAC). This presentation was developed specifically for this project to help land-use planners understand the basics of water movement through a landscape, and to learn more about the specific characteristics of the Bay of Fundy. The presentation explored the connections between land, water and the coast and demonstrated the importance of healthy watersheds to communities and coastal marine ecosystems. The rest of the morning was

devoted to understanding local water issues, with a presentation on water quality and ecotoxicology. This was done through an issue identification activity and small group discussion.

The afternoon sessions began with a presentation entitled 'Introduction to Tools' by Jennifer Graham (EAC) that outlined different types of tools available to land-use planners to reduce impact of land-based activities on the Bay of Fundy. The presentation included examples of useful legislative, monitoring, mapping and educational tools. Other presentations expanded on the use of specific tools and included case studies municipalities could use to deal with the impacts of land-based activities. All presentations can be found at (http://www.bofep.org/bofep_workshops.htm#Other). The afternoon session also included an assessment of current tools, small group discussion, and a confirming needs discussion.

A total of thirty participants from around the Bay of Fundy attended the 'Tools for Healthy Watersheds' workshops. Seven members of the planning community attended the Digby workshop, thirteen attended the Saint John workshop and ten attended the Sackville workshop. There were eighteen participants from New Brunswick and twelve from Nova Scotia. Participants included Planners, Development Officers and Chief Administration Officers from cities, towns, municipalities and District Planning Commissions.

The first workshop was held in Digby, NS, on March 16th at the Digby Municipal Office. Presentations were given by:

- Levi Cliche (Manager Program Delivery, Clean Annapolis River Project) – Riparian Zone Restoration
- Dale Hebb (Consulting Engineer/Researcher, Agriculture Canada) – Monitoring of Thomas Brook
- Kate Greene (Consultant/Planner, Stantec) – Tools for Municipalities
- Leanne Jennings (Planner, Municipality of Kings) – Lake Monitoring Program

On March 23rd, the second workshop was held in Saint John, NB, at the Rockwood Interpretive Centre. Presentations were given by:

- Thijs Bosker (Post-doctoral Fellow, UNBSJ) – Toxins in the Environment
- Tim Arciszewski (Environmental Monitoring Manager, Canadian Rivers Institute) – Saint John Water Consortium
- Rob Capozzi (Coastal Planner, New Brunswick Environment) – New Brunswick Coastal Areas Policy

The final workshop was held on March 24th in Sackville, NB, at Mount Allison University. Presentations were given by:

- Les Burrige (Research Scientist, Department of Fisheries and Oceans) – Toxins in the Environment
- Tim Arciszewski (Environmental Monitoring Manager, Canadian Rivers Institute) – Saint John Water Consortium
- Rob Capozzi (Coastal Planner, New Brunswick Environment) – New Brunswick Coastal Areas Policy
- Jeff Ollerhead (Dean of Science, Mount Allison University) – Salt Marsh Restoration

Workshop Findings

The workshops were set up as a needs assessment to determine which local issues are of most concern, and what are the existing tools and needs of the planning community.

Local Water Issues

In order to better understand the local water issues, each workshop participant was asked to share with the group the three most pressing water issues their communities are facing. This exercise allowed participants to get a sense of what issues others are dealing with and allowed for commonalities to be identified. Many common themes were brought up at all three workshops, while some issues were area specific, such as mink-farming (Digby workshop) and shale- gas exploration (Sackville workshop). Climate change was mentioned by over half of the participants at the Saint John and Sackville workshops, but was only mentioned by 2 of 10 participants at the Digby workshop.

Common Water Issue: Digby Workshop

Issue	Said by (x/of 10) people
Land-based Practices: mink farms, agricultural run-off, aquaculture	6 (60%)
Water Quality/Quantity: identification and protection of water supplies, sewage treatment issues, onsite septic malfunctions	5 (50%)
Leadership: lack of consistent Provincial regulations, lack of cooperation b/w levels of government and b/w municipalities (ie. for protection of source water), lack of enforcement, need for Province-wide water quality monitoring program, lack of adequate watercourse buffers, better regulations and monitoring of municipal treatment plants	5 (50%)
Insufficient Planning: coastal access, living too close to the coast, poor planning decisions	4 (40%)
Climate Change: coastal erosion, flooding, sea level rise	2 (20%)

Water Flow: infilling, drainage, amount of impervious surfaces	1 (10%)
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Common Water Issues: Saint John Workshop

Issue	Said by (x/16) people
Leadership: lack of enforcement of existing regulations, Provincial leadership, need for coastal areas policy to become regulation, lack of inspection, lack of watershed plans, lack of coastal zone planning, too many layers of government involved, poor communication and guidance, no coordination of stakeholders, poor linkages between municipalities and other programs	10 (62.5 %)
Climate Change: need for long range planning, sea level rise, flooding, erosion, storm surges, stormwater controls, impacts on infrastructure	9 (56.25 %)
Water Quality/Quantity: solid wastes, gravel pits, arsenic, industrial effluents, sewage, well water quality/quantity	8 (50 %)
Insufficient Planning: riparian zone destruction, development of flood plains/ flood prone areas, settlement patterns of communities, shoreline development, need to rebuild sewage plants existing in low-lying areas	7 (43.5%)
Education and Awareness: increased awareness of severity of problems (climate change/subsidence), lack of available information, education of land developers, need to concentrate on advantages and be positive to get buy-in	5 (31.5%)
Land-based Practices: forestry, clearcutting, aquaculture, development and construction activities, food production	5 (31.5%)
Wetlands protection: conflicts b/w wetland protection and economic development, uncertainty about direction of wetland protection in NB	3 (18.75%)

Common Water Issues: Sackville Workshop

Issue	Said by (x/10) people
Climate Change: flooding, sealevel rise, storm surges, erosion	8 (80%)
Land-based Practices: shale gas exploration ("fracking"), clear-cutting, agricultural runoff	6 (60%)
Leadership: salt marshes, wetland and dykeland protection, lack of information on water quality/quantity in rural areas, educating people	5 (50%)
Water Quality/Quantity: sedimentation, E. coli, blue green algae blooms, salt water infiltration	3 (30%)
Armouring of shoreline: problems with using rock for protection against coastal erosion	3 (30%)

The top three common issues at each workshop:

Top Issues	Digby	Saint John	Sackville
1	Land-based practices	Leadership	Climate change
2	Water quality/quantity	Climate change	Land-based practices
3	Leadership	Water quality/quantity	Leadership

Assessment of Tools

The participants were asked to complete a worksheet designed to gather information on what tools planners are currently using, what the limitations of the tools are, what other tools would be useful and where they presently access information on water quality. This exercise revealed significant differences in resources, capacity and expertise between municipalities. Some municipalities have limited to no mapping and monitoring capabilities while others have teams of highly trained staff using state-of-the-art tools to inform their decision making processes.

The municipalities in attendance at the Digby workshop tended to have much stronger partnerships with community groups and local NGOs than was evident at the other workshops. Municipalities with these partnerships were further ahead with water quality data collection, monitoring and mapping. Several of the participants at the Digby workshop had the capacity to monitor larger systems such as rivers and lakes, where as in the Saint John workshop, only monitoring of septic systems and wells was mentioned. Participants at the Sackville workshop said they were doing limited to no water quality monitoring.

Assessment of Different Tools Currently Used by the Planning Community:

Type of Tool	Digby (said by # of people)	Saint John	Sackville
Regulatory	<ul style="list-style-type: none"> • Municipal planning strategy (4) • Land use by-law (3) • Subdivision bylaw • Proposing to implement watercourse buffers restricting intensive livestock operations • Protection of coastal wetlands 	<ul style="list-style-type: none"> • Watercourse alteration permit (3) • Community Planning Act (2) • Municipal plan • Dept of Health regulations (2) • Zoning and subdivision bylaws (2) • Rural plans (2) • Coastal Policy (2) • Clean Water Act • Clean Environment Act • Building permits 	<ul style="list-style-type: none"> • 30 m buffer from areas prone to flooding (3) • Watercourse and Wetlands Alteration (2) • Community Planning Act • Health Act

Mapping	<ul style="list-style-type: none"> • GIS (3) • All provincial mapping (2) • DNR datasets to overlay on zoning maps to protect/setback from sensitive/vulnerable areas • In house planning technicians and mapping capabilities • Orthophotos • Topographic/Soils/hydrology/geology • Wetlands • None 	<ul style="list-style-type: none"> • GeoNB (3) • GIS • Flood plain mapping (2) • DoE/DNR maps (wetlands, watercourses) • DNR • Municipal plan and zoning plan • Wetlands predictive layer • DoT road book/maps • Service New Brunswick 	<ul style="list-style-type: none"> • Coastal features mappings • LIDAR coming soon • RAC • GeoNB • Limited to none (2)
Monitoring	<ul style="list-style-type: none"> • Mostly done through community or local programs (3) • Lake monitoring program • Coastline erosion monitoring program • None (2) 	<ul style="list-style-type: none"> • Contractor • Water and sewer testing at treatment plants (2) • Testing domestic water supply • Building inspection • Approvals to operate 	<ul style="list-style-type: none"> • No watershed group • Very little baseline information • Only when there is a storm • None (2) •
Best Management Practices	<ul style="list-style-type: none"> • Stormwater management • Incorporating agriculture BMPs into Municipal Planning Strategy and Land Use By-Law requirements (Argyle) • None 	<ul style="list-style-type: none"> • Certified water and sewer operator • Sustainable development BMPs • Learning and listening • Building practices (build above flood plain, no foundations in flood plains) 	<ul style="list-style-type: none"> • ICSPs recommendations • Under development/not much (2)
Education (for public)	<ul style="list-style-type: none"> • Public meetings • Consultation • Public involvement in by-law review process • Issue focused groups involved in planning • ICSP public engagement process • Brochures on proper shoreline management (Kings) • Shoreline tours through lake monitoring program 	<ul style="list-style-type: none"> • Public presentations • Information sessions • Open houses for rural plans • Workshops • Brochures • Guide to stormwater management 	<ul style="list-style-type: none"> • Public presentations • Hearings for regulations • Brochures • Under development • None (2)
Web sites and Web-based tools	<ul style="list-style-type: none"> • NS Environment (2) • Maryland • Researching Provincial Strategy initiatives 	<ul style="list-style-type: none"> • GNB • Rural Planning District Commission • GeoNB 	<ul style="list-style-type: none"> • By-laws online • GeoNB • Spatialfusion • None (2)

	<ul style="list-style-type: none"> • Various NGO/environmental groups, other municipalities • List-serves • Municipal websites • None 	<ul style="list-style-type: none"> • Open City • Webinars 	
Other	<ul style="list-style-type: none"> • Ecosystem-based management • Citizen research offerings • ICSP (not yet regulation) • Partnerships with NGOs 		

The Assessing Tools worksheet also asked the following questions. The answers are summarized from all three workshops.

What are the limitations of these tools?

- Limited resources/capacity
- Time
- Political Will – need stronger regulations than can be enforced (Need floodplain and coastal regulations; better wetland protection framework)
- Requires cooperation between different levels of government
- Need more training
- Data available is incomplete, out of date, too general or hard to access

What other tools would allow you to better manage impacts of land-based activities on water quality and the coastal environment?

- Research data from research groups/universities
- Better data identifying sensitive lands and erosion susceptibility
- Public education
- More information on BMPs for coastal development (what else besides setbacks?)
- Additional regulatory and mapping tools
- Stronger regulations for agriculture and forestry
- LIDAR (mentioned several times)
- Having a GIS mapping system

Where do you access data or information on local water quality?

- Through the Province (Department of Environment or Department of Health)

- Provincial Water Portal
- Municipality (in-house)
- NGOs
- Local citizens
- Local media

How do you learn about new tools and BMPs?

- Workshops/conferences
- Online/Email list serves
- Networking with other municipal planners
- Webinars
- Government
- Professional publications
- School projects

How do you consult with others (municipalities, towns, community groups, universities, Province?)

- Phone/Email/List serves
- Networking at conferences/meetings/focus groups/workshops
- Lake Monitoring Program Technical Advisory Committee (Kings)
- Webinars
- Networking with Provincial Government

Confirming Needs

Each workshop ended with a ‘Confirming Needs’ exercise to establish priorities and identify what participants need to more effectively manage impacts of land-based activities on water quality and the coastal environment. The need for more political will, accessible data and mapping information, LIDAR maps, educational materials, funding and stronger partnerships with community groups were mentioned at all three workshops.

	Digby	Saint John	Sackville
Government/ Regulatory	<ul style="list-style-type: none"> • Water quality standards • Standards in statements of provincial interest • Provincially protected water supply areas. • Enforcement • Cooperation between 	<ul style="list-style-type: none"> • Political will • People to become champions and provide backing • Statement of Provincial Interest around floodplains • District and municipal plans 	<ul style="list-style-type: none"> • Political will

	municipalities and different levels of government • Statement of Provincial Interest		
Monitoring	• Encourage more volunteer involvement • Setting targets and goals for the watersheds	• Community groups/partnerships	• Funding for monitoring is limited and specific • Lack of capacity for monitoring • More joint activities between municipalities and community groups with committed volunteer base
Mapping	• Accessible mapping information from Federal and Provincial sources • Watershed maps • Orthophotos • LIDAR	• Accessible information • Geology layer • Information sharing • Consistent and compatible systems and layers • Information on NB Water Classification Systems • Flood plains • LIDAR	• need more information on the geological layers • Accessible information on water quality • LIDAR
Education	• Better communications tools • Need community buy-in	• Public materials and presentations specific to issues • More information on BMPs	• Public materials on septic systems, shoreline development
Other	• Funds to deal with problems (Feds – infrastructure) • NGOs play role of pressing governments to move on issues/watchdog • Enhance networking and bringing different groups together on issues • Academics/Researchers can be advisory Bodies	• Funding/Capacity • Better consultation	

Conclusions

The workshops provided an excellent opportunity to bring people together to network, talk about local issues, share information on available resources and tools and discuss what is needed to help planners deal more effectively with water and watershed issues. Feedback from the workshops has indicated that there would be strong support for future workshops for the planning community. There is a particular interest in workshops that are small, local, allow

planners from different communities to connect with each other, and help connect local watershed groups, planners, and other government and academic institutions.

Valuable information was collected from and shared among members of the planning community. It is important to try and bring the planning community together with government, researchers and community groups to facilitate information sharing and identify opportunities for collaboration. Results from this workshop will be shared with government departments mandated to deal with water and coastal issues. Keeping regulatory authorities informed facilitate better information exchange and allow for exploration of opportunities to build upon what has been done.

Upcoming Items of Interest

There are several upcoming government and non-government initiatives that are closely related to the themes from the 'Tools for Healthy Watersheds' workshop.

The 9th BoFEP Science Workshop "Protecting the Watersheds and Estuaries of the Bay of Fundy: Issues, Science and Management" will be held September 27 - 30, 2011 at the Delta Brunswick, in Saint John. For more information or to register for the workshop visit: www.bofep.org/workshop2011.htm or email: workshop@bofep.org. This workshop will be an excellent opportunity to bring together members of the planning community, community groups, researchers and government to further discuss water issues in the Saint John River watershed.

COINAtlantic is a free, online mapping tool that was included in Jen Graham's 'Introduction to Tools' presentation. A 3-page, quick start tutorial for the COINAtlantic Geocontent Generator (CGG) is now available on-line at: <http://tinyurl.com/3f9zgj2>. Give the CGG a try and send along any comments to COINAtlantic@dal.ca.

Further information regarding watersheds, water quality and coastal ecosystems can be found at www.ecologyaction.ca and www.bofep.org.

Participant List and Contact Information

Digby Participant List:

Name	Affiliation	Role
Brad Fulton	Yarmouth Argyle Barrington Planning Commission	Participant
Karen Dempsey	Yarmouth Argyle Barrington Planning Commission	Participant
Tom Ossinger	Town of Digby	Participant
Arnold Comeau	Municipality of Clare	Participant
Dale Smith	Municipality of East Hants	Participant
Madelyn LeMay	Kings County	Participant
Ridge Hiltz	Digby/Clare	Participant
Leanne Jennings	Municipality of Kings	Participant and presenter
Dale Hebb	Agriculture Canada	Presenter
Levi Cliche	Clean Annapolis River Project	Presenter
Kate Greene	Stantec	Presenter
Jon Percy	BoFEP	Rapporteur
Jennifer Graham	Ecology Action Centre	Facilitator
Ashley Sprague	Ecology Action Centre	Facilitator

Saint John Workshop participants:

Name	Affiliation	Role
Frederick Hackett	Town of Oromocto	Participant
Michael O'Connell	Town of St. Stephen	Participant
John Ferguson	Town of St. Stephen	Participant
Tim Henderson	Town of St. Andrews	Participant
Dallas Gillis	Rural Planning District Commission	Participant
Robin Tapley	Rural Planning District Commission	Participant
Don Leachman	Rural Planning District Commission	Participant
Kelly Brewer	Rural Planning District Commission	Participant
Stephen McAlinden	Rural Planning District Commission	Participant
Marcel Thibodeau- Hennigar	Rural Planning District Commission	Participant

Miles Dibble	Royal Planning District Commission	Participant
David Taylor	Town of Grand Bay-Westfield	participant
Dwight Colbourne	Town of Quispamsis	Participant
Thijs Bosker	UNBSJ	Presenter
Tim Arciszewski	Canadian Rivers Institute	Presenter
Robert Capozzi	New Brunswick Environment	Presenter
Ted Bremner	UNB	Observer
Peter Wells	BoFEP	Rapporteur
Jennifer Graham	Ecology Action Centre	Facilitator
Ashley Sprague	Ecology Action Centre	Facilitator

Sackville Participants List:

Name	Affiliation	Role
Jean-Pierre Charron	Greater Moncton Planning Commission	Participant
Thomas Trenholm	Cumberland County	Participant
Maggie Pitts	Cumberland County	Participant
Steve Ferguson	Cumberland County	Participant
Penny Henneberry	Cumberland County	Participant
Tracey Wade	Tantramar Planning District Commission	Participant
Lori Bickford	Tantramar Planning District Commission	Participant
Melissa Lee	City of Moncton	Participant
Ron Corbett	Tantramar Planning District Commission	Participant
Les Burrige	Department of Fisheries and Oceans	Presenter
Tim Arciszewski	Canadian Rivers Institute	Presenter
Robert Capozzi	New Brunswick Environment	Presenter
Jeff Ollerhead	Mount Allison University	Presenter
Peter Wells	BoFEP	Rapporteur
Jon Percy	BoFEP	Observer
Jennifer Graham	Ecology Action Centre	Facilitator
Ashley Sprague	Ecology Action Centre	Facilitator