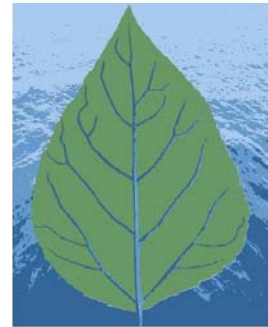


Wading In: Watershed Management in Nova Scotia
March 26 & 27, 2009
Old Orchard Inn, Wolfville



Presented in Partnership with:

Acadia Centre for Social and Business Entrepreneurship
Adopt-a-Stream
Clean Annapolis River Project
Clean Nova Scotia
Ecology Action Centre
Environment Canada
Nova Scotia Department of Environment
Nova Scotia Environment Network
Rural Secretariat – Rural Partnership Development Prog.



REPORT OF WORKSHOP OUTCOMES

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The Wading In workshop was organized by the following individuals, many of whom also took the time to prepare a presentation: Amy Weston (NS Salmon Association/Adopt-A-Stream), Andy Sharpe (Clean Annapolis River Project), Anna McCarron (Clean Nova Scotia), Dawn MacNeill (NS Department of Environment), Jocelyne Rankin (Ecology Action Centre), Katherine Dugas (Clean Annapolis River Project), Kathryn Parlee (Environment Canada) and Tamara Lorincz (NS Environmental Network).



A special thanks to Genevieve Hachey from NSCAD
For designing the logo for our event!

Introduction

Water resources are becoming highly sought after. Numerous authors have suggested that water maybe the next limiting resource after oil. Climate change will have a significant effect on water resources in the province, and proper management is needed in order to prepare our communities for this future. Strong leadership is needed from the Province to achieve this goal.

Watershed management does not deal solely with the issue of drinking water, but water for irrigation, industrial development, recreation and wastewater treatment as well. Watershed management is not only the management of water, but also of human activity, because human activities, development, agriculture, and recreation, have an impact on water quality and quantity. All of these things must be considered when structuring policy to address these issues.

Watersheds are currently recognized globally as the best level at which to manage water resources. Watershed management offers a cohesive structure to manage natural resources, human activity and to promote the sustainable use of resources while encouraging economic viability in rural and urban communities. Watersheds are ideal units in which to undertake management because:

1. Water links other biophysical processes in land, air and water
 - For example, acid rain is caused by particulates from industrial sources (air pollution), the effects of which can be seen in our watersheds through water chemistry (pH)
2. Watersheds exist as a nested hierarchy of landscape units that can be managed at different scales
 - Scale can be altered depending on the level of cooperation amongst communities and community identify. For example, the Annapolis River Watershed includes the communities of Middleton, Annapolis Royal and Berwick, which see themselves collectively as “the Valley”, the agricultural hub of the Province.)
 - Allows application of local knowledge at the same time as providing provincial implementation and oversight.
 - Problems and issues can be logically and intuitively subdivided into sub-watersheds
3. Watershed systems demonstrate cumulative impacts.
 - Using water quality as an indicator of ecosystem health can help target issues that negatively impact the entire ecosystem (link activities to impacts).
4. Watersheds provide a common planning focus.
5. A watershed is a logical, tangible unit for engaging the public.
 - Public is not hampered by an elusive concept. Rather they can have a concrete view of the area of influence with physical boundaries that can be solidly defined. This allows them to take ownership of the area and the issues within it.

A water management structure will compliment existing businesses like NewPage Port Hawkesbury, already taking steps to ensure their long-term viability and ecological sensitivity. Watershed management also has the potential to create new jobs within a self-sustaining sector that benefits everyone in the province in terms of health, opportunities for recreation and quality of life.

The Province has undertaken an important step towards ensuring our water future. With the passing of the 2020 Vision for Nova Scotia, the Community Development Policy and the recent undertaking

of the development of a water resources management strategy, Nova Scotia is well on it's way to becoming a province that supports environmentally sustainable initiatives and that is able to adapt to the coming changes and weather the economic downturn. The incorporation of a watershed-based approach for the management of surface and groundwater resources will ensure that Nova Scotia remains a desired place to live and do business into the future.

Workshop Format

On March 26th and 27th a workshop entitled Wading In: Watershed Management in Nova Scotia took place at the Old Orchard Inn in Wolfville, Nova Scotia. This workshop was organized with the purpose of gathering a cross-section of stakeholders in water management together and initiating discussions beyond the consultations completed by the Province. The main focus was to explore options for water management structures in Nova Scotia, the vision for this structure and its role in the province.

The two-day workshop featured 17 presentations. Perspectives on watershed management in other provinces were presented by Barbara Veale, Coordinator of Policy Planning and Partnerships for the Grand River Conservation Authority in Ontario, and Sean Ledgerwood, Watershed Monitoring Specialist from the PEI Department of Environment, Energy and Forestry. Participants were drawn from across the province, and from all sectors: government (provincial, federal, municipal), industry (agriculture, forestry, power) and community groups. Professional facilitators (Centre for Social and Business Entrepreneurship (ACSBE)) were retained to aid the discussion around the four questions (below).

Both days of the Wading In workshop combined informative plenary sessions with facilitated breakout sessions. The large group was split into three for these sessions. These smaller groups were chosen by the steering committee, with their composition remaining constant for the entire workshop. To make the most effective use of limited time allocated for each breakout session, they were jointly planned (by steering committee and workshop facilitators) in advance to address specific questions. These questions were:

1. What forms of watershed-scale integrated management would work best for Nova Scotia?
2. Who should be involved in this and how?
3. Should the same approach be applied to all Nova Scotia watersheds?
4. How do we get from here to there?

The plenary sessions consisted of presentations that were given for participants to share and learn about what types of watershed work occurs in the province, possibilities for watershed management in Nova Scotia, and the identification the needs of different facets of the population.

This report is arranged according to the chronological timeline of the workshop. A complete schedule of events follows in Appendix A (page 36).

The individual workshop presentations are available as pdf documents at http://www.annapolisriver.ca/projects_watershed.php

Day 1 Thursday March 26, 2009

Morning Theme: Background Information

Dr. Tom Herman, VP-Academic of Acadia University, gave the welcome. He spoke on the importance of collaboration in the face of globalization and the way governance issues have changed because of it. He expressed his approval of the initiative, highlighting the importance of water in the large picture of Nova Scotia's economy and congratulated all those assembled for stepping up to be part of the solution.

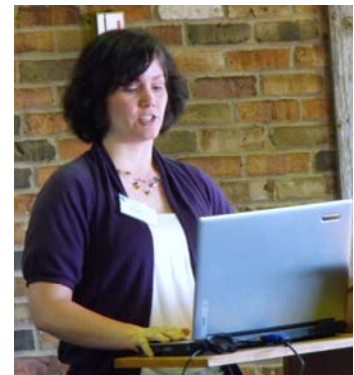
Andy Sharpe (Clean Annapolis River Project) opened the presentations by introducing the workshop; how it came to be, who was participating, the goals and the format of the sessions. The facilitators were introduced and directions given to the breakout rooms.

Our feature speaker, Barbara Veale (Grand River Conservation Authority), covered the basic concepts of watershed management, reviewed the development of such organizations in North America, and explained how watershed management was more a management of human activities than of natural resources. She explored the pros and cons of watershed management as well as challenges that her organization has faced, such as volunteer burnout, projects being dictated by funding, and an overall lack of long-term funding for crucial monitoring and evaluation. She explained the concept of the adaptive management cycle and outlined factors that she has identified as necessary for success, including the presence of enabling legislation, political endorsement, sustainable funding, a coordinating body at the watershed level, dynamic leadership, public involvement and partner collaboration.



Dawn MacNeill and Jessica Paterson (pictured) (both of Nova Scotia Environment) highlighted the physical facts about waters in Nova Scotia, giving figures for the number of lakes, length of the coastline and a breakdown of water service in the province. This included an explanation of the difference between designated and non-designated water protected areas. The presentation highlighted the work done to the date on changing policy with regards to water management in the province of Nova Scotia, focusing on the water strategy consultation process and what came out of it. The presentation wrapped up with a discussion of the challenges that face the province in terms of implementing a water strategy (changing demographics, small tax base, climate change).

Questions raised at this point indicated that: the Department of Natural Resources has been working with the Department of Environment on this project; there are no firm options in terms of funding as of yet; and, the committee responsible for the strategy has not yet completed defining the watersheds in the province.



Breakout Session : Introductions

The first breakout session was an introduction of participants and getting to know each other's motives and role in the world of watershed management. Group members were broken up into pairs and each had to prepare an introduction of the other for the group.

Afternoon Theme: Nova Scotian Perspectives on Water

Debbie Nielsen (Union of Nova Scotia Municipalities, UNSM) and Britt Roscoe (Cape Breton Regional Municipality - pictured) delivered a joint presentation on municipal water supplies in the province and the related challenges. Debbie focused on the municipal strategy to mitigate climate change, giving an overview of potential effects of climate change on water supplies in the province, and the UNSM's goal of assisting communities to become leaders in sustainability. Britt gave a synopsis of the Cape Breton Regional Municipality's water supply, emphasizing the complexity of the system and the need for monitoring water chemistry parameters to gain a better understanding of the system. Questions directed at these two presenters were about the number of dams within the CBRM and the nature of the public education about climate change in the province.



Sean Ledgerwood, Watershed Monitoring Specialist for the PEI Department of Environment, Energy and Forestry focused on the state of community watershed groups in Prince Edward Island. He informed the participants that as most of PEI is privately owned, the change that has happened in the province has come mostly from grassroots initiatives. He indicated that the current state of watershed groups in the province is not ideal; with the area of their watersheds ranging in size from less than 1,000 ha to 62,000 ha. He suggested that a more equitable balance in terms of responsibility would be preferred, with an ideal number of watershed groups being in the range of 10-15. PEI's watershed groups have found that traditional educational programs do not work, but have had much more success with direct engagement of farmers.



This presentation was followed by a brief look at watershed and river groups in the province by Jocelyne Rankin (Ecology Action Centre) and Amy Weston (Adopt-A-Stream). Jocelyne spoke of the needs that watershed groups are identifying, for example lack of collected data being used in planning and policy decisions, the call for a provincial framework as well as standardized collection and recording methods. Amy offered reasons why having a local component is so important when considering watershed management – local leadership, vested interest and long term commitment being a select few.

Anna McCarron (Clean Nova Scotia) gave examples of the potential for watershed groups to become a valued part of the planning process by explaining the role of the watershed advisory boards in Halifax Regional Municipality. She explained how they link the community (stakeholders) cooperatively with the government, provide advice and expertise and fill gaps where roles are not assigned by legislation. In response to a participant query, Anna indicated that there are cases where watershed advisory boards have influenced governments beyond the municipal level.

Breakout Session 2: Envisioning the Future and “What’s in it for me?”

1. Imagine that twenty years in the future Nova Scotia is recognized as a worldwide leader in collaborative watershed management. What does that look like? What would outsiders observe about Nova Scotia’s system that sets it apart from other regions?

The groups came up with many common themes in this activity:

Public Engagement

- Informed, actively engaged communities that practice stewardship and are informed – no one takes water for granted
- Watercourses are readily accessible to the public
- Well-accepted citizen science programs in place
- Value of ecological goods and services is universally understood
- Stakeholders are keenly enthusiastic about their watersheds
- Google Earth type public access of watershed data
- Self-regulation with less enforcement of water use – citizens are concerned and understand their role in the water cycle, water conservation has become a part of Nova Scotian culture
- Enough water for everyone
- Improved lifestyle as a result of healthier water supply

Organization

- Use words to describe: Interdisciplinary, collaborative and interactive, grassroots management
- Every watershed is being managed – 46 watersheds are too many to have a watershed group for each. Watershed management plans or groups should be based on existing community organizations – regional watershed allocation
- Good communication between NGOs results in less fragmentation and isolation between watershed groups (problems are likely due to funding issues – groups with little funding have a limited focus). This would allow for practices to be shared so new groups are not reinventing the wheel – can adopt a model of an existing, working system. This would also promote cooperation and social capital as well as reduce unhealthy conflict between groups
- Good communication between different levels of government
- Framework brings all parties together to work toward a common goal
- Effective co-ordinating body, operate by majority consensus
- Independent enforcement agency avoiding conflicts of interest and adhering to timelines

- All organizations have core funding, ensuring consistency from year to year (unpaid or underpaid positions often cause burnout) which leads to watershed groups being able to secure sustainable staffing
- Cost recovery – follows successful business model
- Can take our cues from PEI's goals:
 - In 5 years: each watershed is covered by a watershed group with a comprehensive watershed management plan approved and in place
 - In 10 years: these watershed groups have become regional planning authorities and use government funding to carry out their plans
 - Province currently has three coordinators hired by the province for watershed groups
- Community based decisions (issues that cause problems in a watershed are not covered by regulations, rather by personal decisions and actions; therefore there is a need for a change in the culture)
- Have become leaders in developing unique models for natural systems – sediment balance, nutrient balance, water balance (unify models)
- Google-Earth type of interface with standardized data structure, monitoring and collection methods with ranking of data

Policies

Participants emphasized that Nova Scotia is unique in terms of watershed sizes, population, governance, etc. and there is need for a made in Nova Scotia solution that involves regulation.

- Create watershed visions and plans with penalties for non-compliance - Self-regulation is preferred, but an enforcement system needs to be in place
- Participants wanted policy created that would allow for decision-making at a watershed level, for both surface and groundwater, that encourages innovation, allows for green practices in engineering, building and business that respect watershed capacities.
- Includes land-use planning
- Proactive rather than reactive, including legislation
- More support for assistance and incentive programs
- Priority list for work at a provincial level
- Province-wide system, for consistency across province (e.g. similar to existing recycling system)
- Grandfather clauses are de-listed
- Engineering, building and business standards (codes) revised so they are green and respect watershed capacities and encourage innovation
- Manage the demand; sustain the supply rather than finding a new water supply. Use what we have wisely (sustain the environment, not just water). Ensure that the pace of development is within our current water supply, not exceeding.
- Need to be based on knowledge gathered about the baseline; need to know how much water we have, recharge rates, and fill in any gaps for effective management

Policies that result in:

- Better municipal planning (houses can be moved but flooding cannot be stopped – building in floodplains does not make sense environmentally, socially or fiscally)
- Established level of commitment from all parties
- Formalized best management practise guidelines and regulations

- Transparent processes
- Enough water for everyone

Healthy Ecosystems

Participants pointed out that ecosystem health is closely tied with human health.

- Healthy riparian zones on all watercourses (with a designated protected area along each shore: for example 20 m)
- Re-establishment of healthy species; return of species of concern
- Healthy and diverse ecosystems in general
- Every watershed has potable and swim-safe waters
- Sustainable, clean water, enough to meet our needs and protected water habitats
- No net wetland loss

2. Continuing with the same assumptions from #1 (above) how would you and/or your organization be better off, or how would you benefit? What would be the benefit to the cause?

- Reduced stress for both individuals and organizations. Less volunteer burnout because of increased numbers of volunteers
- Our organizations would no longer be needed or would take on a different role i.e. switch from watchdog to applying expertise
- Properly operating system in place – watershed groups do not need to spend time on trying to change the system but be in a better position to monitor and report
- Communication between groups means less redundancy in data-collecting allowing a redirect of effort toward analytical processing
- Less wasted time in trying to implement unsuccessful tactics; groups can learn from previous acts and have an adaptive approach
- Consistent and sustained financial support means longevity of groups is more secure and allowed them to become goal-oriented rather than project based. Creates continuity and makes them proactive rather than reactive (enables them to meet stakeholders' needs) and groups are not forced to pick between priorities
- Increased valuation of work and services done by NGO's; raise profile and capacity of education and organizations
- Increased sustainability and resiliency of communities because of better planning and prevention with enhanced local capacity
- Increased quality of life from safe drinking water, food (i.e. shellfish and fish) and recreational opportunities and healthy aquatic habitats that are capable of supporting vital natural systems as well as our own
- Save money by allowing natural systems to function as they should and reduce need for new infrastructure from expanding water sources.
- Smart marketing could increase Nova Scotia's profile in terms of attracting business to the province, for example tourism, ecologically minded companies and talent.
- Less need of enforcement because private landowners behave in an ecologically friendly manner, which is easy for them to do because they are educated and have ready access to alternatives to damaging practices and products
- Government staff are available province-wide to support work of local/regional groups

3. If you were outside Nova Scotia looking in, what elements of its watershed management approach would most impress you?

Participants used Nova Scotia's exemplary waste diversion process as an example for how they would like Nova Scotia to be viewed as industry leaders in watershed management by outsiders.

- Obvious determination within NGOs; interested in collaboration and able to compromise
- Impressed by grassroots groups with core funding and the number of engaged elected officials
- Nova Scotians would have hydrology based understanding – no one would take water for granted; it would be second nature to take care of our water resources
- No need to buy bottled water
- Adaptive management used successfully – targets, goals, priorities, informed decision-making, review, monitor, changing tactics including the ability to incorporate new groups
- Open communication of information/data/projects/goals between/with citizens, organizations and government, with web-based, real-time monitoring results readily available
- Watershed-specific plans and actions achieved through local control and supported by all three levels of government through beneficial management practises, standards and legislation, with recognition of shared responsibility by all
- Water of sufficient quality and quantity is available to support ecosystem and human needs (and a few wants)
- Watershed management has become a revenue generator – selling expertise and specializations as well as promoting Nova Scotia as a place to do green business

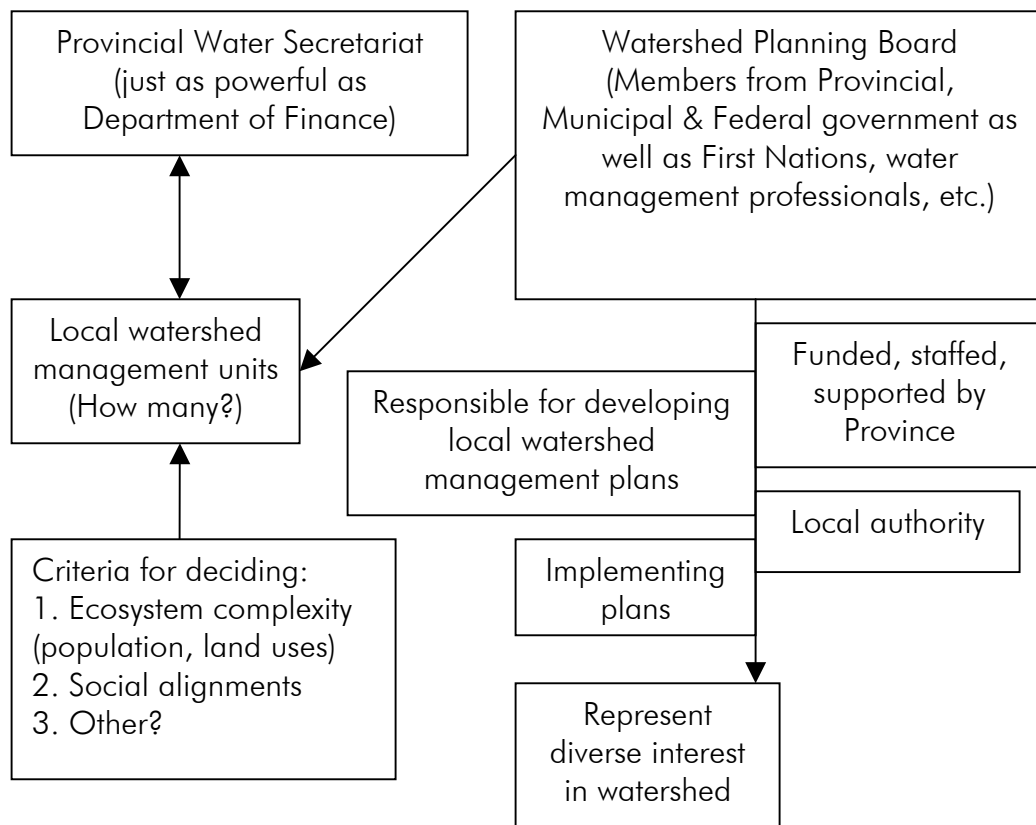
4. Imagine for a moment that there were paid staff, and a board of directors whose mandate it was to be actively working towards the vision you have set out above. (a) What need would they be fulfilling? (b) What activities would they be engaged in? (c) Who would they be doing it for?

There was a lot of division on this question. There was seen to be a need for two types of groups, and the discussion generated ideas for both. One was a provincial body responsible for coordinating watershed efforts in the province; the second was regional bodies responsible for groups/regions of watersheds (e.g. Cape Breton, Valley, South Shore).

- Who are they/how do they work?
 - A provincial aggregate group, or possibly on a regional scale
 - Provincial watershed advisory group with a provincial (government) link
 - Part of a nested governance structure
 - River groups
 - Regional groups
 - Provincial groups
 - National groups
- What do they do?
 - Make sure work is consistently and correctly done
 - Organize watershed groups – help define roles and responsibilities
 - They are accountable for the implementation of a watershed plan

- Provide training
- Reduce redundancy
- Maintain a website acting as a repository of data and reporting from all groups province-wide
- Grant allocation
 - Keep an inventory of where good grant writers are
 - Organize more general grants
- Create broader-scale reports on the state of water in NS
- Identify and motivate champions
- Prioritize goals/projects
- Identify and gather resources
- Work toward the protection of water in Nova Scotia for both people and wildlife
- They become a conduit for sharing resources between watershed groups, or even between similar organizations in other provinces and countries

One of the breakout groups designed a flowchart diagramming a possible structure for this Watershed Planning Board, or some type of watershed body.



5. What would be the key success factors for the paid staff/board (#3, above) if they set out to realize the vision? Another way to think of this would be to answer the question: “*creating and sustaining a collaborative, watershed-based management system would work only if...*”

Key Successes for this organization?

- It has a library of experience, expertise, tools and data available to it
- There is equal representation of all sectors geographically – Does not focus on HRM or CBRM
- It has a strong leader/advocate
- Is brings knowledge to both government and grassroots groups while replacing neither
- There is transparency and it does not increase red tape. Processes need to be streamlined by having an upper level of expertise available to coordinate effort
- The leading political organization is clearly identified, responsibility clearly established (i.e. has a provincial secretariat that is just as important as finance department)
- It has political buy-in and support from all levels, enshrined (written) in policy with a political framework, has proven credibility as well as community commitment
- Each local watershed group has a member sitting on this board (Watershed groups are integral to the process)
- It addresses conflict of interest
- It increases knowledge and leads to better decision-making
- It is able to be evaluated and adapt to meet new challenges (not stagnate)
- It has proper long term funding and resources
- An education process for coordinators/key people in each group is developed to learn how to move planning forward and implement it (3C’s – collaborate, continuity, consistency)
- Policy and enforcement are separate
- Is set at a manageable scale

6. What barriers do you foresee on the road to achieving the vision? (No solutions at this point, just barriers). Be as specific as possible i.e. lack of money = too broad.

Potential barriers to the success of this organization

- Baseline/knowledge –
 - We need time and resources to collect information
 - Inconsistent collection methods
- Cultural –
 - Overcoming the “this is the way we’ve always done it” attitude (apathy)
 - Overcoming inter-municipal disputes
 - Aversion to risk/change – uncertainty
 - Lack of co-operation or common goals
 - Social habits and behaviours
- Territorial – between government departments, industries, etc.
- Funding –
 - Small tax base – changing demographics makes it hard to predict/support initiatives through taxation
 - Cost of getting well water tested

- Education
 - Volunteer burnout
 - Involvement does not exist in some regions
 - Lack of knowledge
- Political –
 - Low priority
 - Politicians' self-interest
 - Trouble matching power and data with those who make the day-to-day decisions
- Conflicting timeline expectations
- The scale of the management must match the scale of the desired ecological change
- Organization –
 - Accountability and trust issues
 - Who sits/doesn't sit, how long, representation, jurisdiction, conflict resolution mechanism that is accepted by all
 - Disagreement between stakeholders
 - Capacity/availability of staff
- Silo thinking
- Established infrastructure
- Lack of a designated responsibility for all water resources

Other comments/areas of discussion

Regarding this possible umbrella group, these were topics that came up during the discussion that the participants agreed would need to be revisited and addressed:

- Are they a resource body, or do they have power? Do they set priorities?
 - Power would be set out in terms of reference – but terms of reference would be flexible – 'living document' (in order to capture the adaptable nature desired)
- Regional development groups are possible models
- Group is started from the grassroots or top-down?
 - Common issue with environmental groups: often tackling such big picture issues but need to define what can be done realistically (learn to walk before you crawl)
- Can this group distribute funding?
 - Could be a repository for information on available funding
 - Smaller groups might want to undertake projects that might be in conflict with higher level priorities or other geographic priorities – need some way to resolve local and provincial priorities

Public perception of an "unlimited" water supply (is this in fact true or is it a false assumption?)

- Manage the demand, sustain the supply (not utilize new water resources)
 - Ensure current pace of development does not exceed available water supply
 - Determine current water use rates, recharge rates and current water supply: establish a baseline
- Would only work if:
 - We know how much water is currently available for use
 - We know current consumption rates
 - Quality and quantity monitoring programs are in place
 - Determine how land use affects water supply and quality

- Establish and meet goals
- Communities are engaged in drafting plans

Evening Session & Summary of Day 1

Dessert was accompanied by a presentation by the facilitators recapping the outcomes from the day's sessions. As participants had broken up into three groups, it was a chance for everyone to hear what other groups had said. The facilitators presented our "Vision 2030", Nova Scotia as a place known for healthy, diverse ecosystems, safe drinking water and water of sufficient quantity and quality to preserve a sustainable lifestyle. The facilitators spoke about the fact that the group had the potential to be a catalyst for change and continue the active engagement in creating a more sustainable water use plan encouraged the participants.

A presentation by Dr. Sheila Forsyth (Friends of the Earth) covered the topic of Water Soft Path and how it applies to watershed management. Water Soft Path is a term used to describe water management that seeks to reduce strain on water resources by using "soft" methods of conservation; managing demand and matching quality to need (using gray water for washing cars or flushing toilets instead of potable water) instead of "hard" methods like expanding water supplies, which often requires new infrastructure such as dams and pipelines. The concept of backcasting was introduced, a method that identifies what we want the water future to look like and work backwards to identify targets and actions that will allow achievement of that goal, and the sessions we had taken part in were identified as using this technique. The Friends of the Earth is looking into providing a province-wide analysis of the potential to implement an intensive Water Soft Path strategy to feed into the provincial water strategy.

Day 2 Friday March 27, 2009

Morning Theme: Industry Perspectives on Water

Brad McCallum gave participants a look at the role of the Federation of Agriculture in the province and how it supports efforts of farmers who want to be more ecologically sound. He explained that the mission of the organization is to “ensure a competitive and sustainable future for agriculture and increase the quality of rural life in Nova Scotia”. Their membership is comprised of approximately 95% of the agricultural producers in the province. He introduced the federation’s Transition model, designed to move the industry into a competitive, profitable and sustainable sector. Three pillars, transitional support, strategic public investment and ecological goods and services support the model. The opportunity exists in Nova Scotia for farmers to be reimbursed for providing ecological services (i.e. protection of riparian zones), as is being done in either provinces.

Brian McCulloch (Nova Scotia Department of Agriculture) introduced the process of Riparian Health Assessment that has been developed as a tool for farmers, watershed groups and the Federation of Agriculture to identify riparian areas that need remediation attention. Farmers access this program by participating in the Farm Investment Fund, to which they can then apply for grants to do work on water-related projects. Examples of previous project types are wastewater recovery, manure management, ditching, irrigation and wetland restoration. Emphasis was placed on farmers having access to good information, knowing the problem and having the money available to address the problem. To wrap up the presentation he gave lessons learned through the Riparian Health Assessment Program: patience is needed, involve farmers, use technology (especially maps) and focus on the solution.

Kari Easthouse (NewPage Port Hawkesbury) gave a thorough overview of his company’s history in the province as well as operating methodologies as they apply to water. It became clear that NewPage carefully calculates its impact on the environment. They participate in certification processes that ensure their compliance with guidelines designed to enhance the ecological sustainability of tree harvesting. Watershed-level management includes a cap on clearcuts within watersheds and special consideration for high conservation forest value areas, which contain species-at-risk or significant habitats e.g., cold-water refugia. Stand-level practices also are in place to protect the environment; biodegradable chain oil, road planning and laying brush to decrease erosion and rutting are just some of the policies used by NewPage. NewPage also employs sophisticated mapping tools to plan cutting and access points. Public consultation is employed by the company as well to direct it, and tips Kari passed along were that broad participation is a good beginning and end point, but that focused advisory groups are essential. Questions at the end of the presentation were on how the company manages old access roads, and how the clearcutting cap of <20% was obtained. NewPage has a policy of managing harvested sites for 50 years, and is looking into decommissioning old roads. Kari mentioned that the new practices also reduce the need for as many roads to be established. The <20% cap was chosen out of a desire by the company to set the bar higher than what was found in literature.



Mac Barkhouse of the Nova Forest Alliance gave a presentation on the importance of forests in the province, their cyclic nature, the importance of knowing the characteristics in a watershed's forest, and emphasized a need for 'avoiding traps'. When asked about this, he talked about planning to avoid large stands of even-aged trees susceptible to widespread disturbance. The emphasis of his talk was the fact that forests are not static; tree species combine in different ways to create a variety of forests that will change annually. During his talk he mentioned a 20-200 year time frame for optimal conditions for the hydrological cycle, and when

questioned for the source of this number he explained that it was based on the species composition of stands and the life span of those species. Trees in Nova Scotia have a wide range of life spans which relates to forest health, as well as the fact that forest health relies on factors like cover type and slope, which differs on a stand-by-stand basis.

Dan Thompson (Nova Scotia Power Inc., NSPI) took us through their hydro-electric generating station re-licensing program. Nova Scotia Power's hydro sector comprises 18% of their generation capacity and 8% of their actual generation. The majority of dams were installed in the 1950-1960's, when very little was done in terms of stakeholder consultation and environmental impact assessment. Dams have to go through relicensing every ten years, which includes consultation and environmental studies. Issues that they commonly examine are fish passage and flow releases. Participants asked him about whether NSPI was planning on installing any new hydro projects, which he answered that the Province is at capacity for the number of dams it can support. When asked if a dam that has gone up for relicensing has ever not been approved, he said no, but that it was very rare that it went through without amendments. He told us that NSPI helps fund hatcheries, but does not provide free electricity to them. There was a discussion of how floods and droughts are important for river health, and how NSPI is trying to incorporate those into their flow releases.

Jason Naug (Department of Fisheries and Oceans) talked about the Collaborative Environmental Planning Initiative (CEPI) in the Bras d'Or Lakes in Cape Breton. He explained the structure of the organization and the management model, which undertakes management at two levels, the entire Bras d'Or system and then individual sub-watersheds (nested approach). A charter signed by the partners is the basis for cooperation.

Management is accomplished through various groups; First Nations Elder Advisory, a steering committee, input from the community at large and task teams. He used the Denys Basin sub-watershed as an example of how the watershed planning is progressing to date. In reviewing the accomplishments of the Initiative he listed advantages and disadvantages of the CEPI approach for the province. Advantages were its inclusiveness, nesting and the ability to adapt/adopt to other areas, the main disadvantage being the high demand on time and resources. During the question period there was discussion on how to reduce the cumbersomeness and how the right scope for each issue has to be identified (i.e. some problems cannot be left for smaller groups to deal with but should be a regional initiative).



The Unima'ki Institute of Natural Resources was created out of a realization by chiefs in Cape Breton that natural resource issues needed to be tackled collaboratively. Lauri Suiter gave a presentation on the needs of Mi'kmaq communities in Cape Breton with regards to water management. First she reviewed what is happening with the current water management regime, emphasizing that there is responsibility but no regulation, as well a lack of funding for aboriginal communities and there is a general lack of recognition for Mi'kmaq water rights in the province. This includes the fact that off-reserve developments can have a large impact on reserve water resources, but there is no way to address these problems within the current environmental assessment process. She reviewed six community case studies, as well as three historical water crises on reserves. Laurie listed common challenges to water management, for example lack of enforcement capacity, no treatment systems, rising populations and lack of joint planning. To end the presentation, she outlined some requirements for watershed management for aboriginal communities; mandatory joint planning with municipalities, protection of water rights, community based planning and adequate funding to name a few.



Breakout Session 3: Go-Forward Strategy

Participants were given a list of issues and barriers that were gathered from the previous breakout session, and then asked to come up with ideas on how to address them, as well as identify key players to head the effort. Each breakout group was subdivided into three sub-groups, each of which were assigned one issue.

Issues (in no particular order, but with ranking in brackets 1 = most important)

1. Lack of political support (2)
 2. The community's lack of understanding of watershed issues (5)
 3. Destructive social habits and behaviors of citizens (4)
 4. Lack of leadership (3)
 5. Limited/no forum for sharing of best practices (6)
 6. Lack of sharing and access to existing data (7)
 7. Lack of a formal, written integrated watershed management plan with goals (1)
 8. Limited technical expertise/limited number of technical experts in the field (8)
-
1. Lack of political support
 - a. Potential Solutions
 - Establish mechanism for cooperation and common vision between different levels of government
 - Projects evaluated within the context of watersheds rather than political boundaries
 - All levels of government operate on watershed basis
 - b. Who would/could be the champion of these efforts?
 - At the NGO level – possibly the Water Caucus

-
- Have representatives of government networking with the caucus
 - Vision: Simplify and streamline government responses
 - c. Time is good now – there are currently more opportunities to accomplish these goals
2. The community's lack of understanding of watershed issues
- a. Potential Solutions
 - Develop a Communication Strategy
 - "Waterland who's who" (like Hinterland's Who's Who)
 - Education – both formal and informal for schools, businesses and industry
 - Use media – find a high priority/profile person
 - One-on-one
 - Raise awareness and appreciation of water usage
 - Have custom treatment for each community, each issue and each individual on the corporate level
 - Change attitudes; have enforcement through peer pressure
 - Promote beneficial management practises and establish a reward system (eg.- "staying well" – health and safety well water focus)
 - b. Who would/could be the champion of these efforts?
 - A steering committee comprised of a cross-section of stakeholders working together using a holistic approach
 - Local champions with specific concerns and interests brought to the committee (e.g. – designated watersheds mandate)
 - c. There is a lack of baseline data to understand the problems
3. Destructive social habits and behaviors of citizens
- a. Potential Solutions
 - Province requires enforcement of floodplain development regulations (Extend provincial statement of interest)
 - Change management building code
 - Make it easy to make good choices – e.g., - easy disposal of waste from developments
 - Green legislation and policies
 - Improve antiquated standards
 - Harmonize wastewater management – may include municipal wastewater out of districts
 - Government must work out sewage/waste handling with First Nations
 - Ask people what is possible, not what is realistic – less limiting
 - Inspire through art/music/sports
 - Increase focus on what goes down the drain
 - Total Maximum Daily Limits (TMDL)
 - Local depots for waste to remove them from the landfill stream
 - Construction (e.g. from projects like home renovations)
 - Electronics
 - Companies should not be allowed to transform lakes into tailings ponds

b. Who would/could be the champion of these efforts?

- Government- especially provincial and municipal, but include federal and First Nations as well

4. Lack of leadership

a. Potential Solutions

- How do you address this problem without already establishing a group structure? Possible structure below:
 - Done from grassroots
 - Done with government assistance
 - Avoid dictating from above
 - Does NSEN already do this?
- Reduce redundancy – Natural outcome of an overarching structure – reveals redundancy and frees up human resources
- Make a well-paid, competitive position
- Identify those with leadership skills, possibly using the business model of a search committee. This committee would include government and watershed group representatives
- Develop environmental leadership programs – groom a leader for this position

5. Limited/no forum for sharing of best practices

a. Potential Solutions

- Identify knowledgeable people who could serve as ‘champions’
- Identify which people and organizations employ beneficial management practises
- Consider new technologies
- Identify what is needed
- Don’t reinvent the wheel – if some organizations are already using beneficial management practises, use them as a model
- Have all beneficial management practises together in one place (agriculture, forestry)
- Solution must be current, appropriate and thoroughly evaluated
- Proper forum might be available through Dept. of Agriculture, Dept. of Natural Resources or an academic organization

b. Who would/could be the champion of these efforts?

- A standalone body with a Nova Scotia identity
 - Using science-based beneficial management practises
 - Housing information and staff
 - Housing beneficial management practises
 - Having all information available online as well as in hardcopy
 - Able to compile resources
 - Assisting smaller watersheds in getting established and working toward goals
 - That could become a true ‘agent’

- Working with all levels of government, but not being a government led body itself
- Using government as a facilitator, bringing all groups together. Government will be important in getting the group established and then will step back
- Industry will act as advisors, but can also serve as champions
- Providing demonstrations and initiating pilot projects
- If Union of Nova Scotia Municipalities (UNSM) can 'get their house in order,' these goals are within their reach.
- Have best management practices constantly evaluated and updated – do not allow organization to become stagnant or too set in its ways

6. Lack of sharing and access to existing data

a. Potential Solutions

- Look for win-win data sharing
- Need to make people share data
- Match up people who have data with those who have the ability to host it
- Must address data sharing protocols and individual concerns (e.g., Privacy)
- Aggregate all data to minimize privacy breaches
- Shift away from thinking that data is 'owned'
- Data analysis can be done jointly – increased opportunity for interaction and co-operation between groups
- Send data automatically to decision makers
 - Government departments that regulate should be moving into the current electronic world – have them submit things online – cut out a paper step (and all things be public? – all those who need it can access it)
- Standardization of data
 - Formatting
 - QA/QC
 - Methods
 - Flag different levels of data quality e.g., – well identification
 - Central database - one portal to access all data

b. Who

- Dept of Natural Resources already has a system in place to do this
- NS Geomatics Centre: Portal data managers, hydrogeologists
- GeoPortal? (Dalhousie)

7. Lack of an integrated watershed management plan (a formal, written plan with goals)

a. Potential Solutions

- 'Who' must be developed before solutions can come
- Province should provide funding for the formation of a multi-stakeholder body, which will then develop the plan
- Plan must be innovative – cannot live by indictment or grant

b. Who would/could be the champion of these efforts?

- Possibly NSEN – the potential is there. However it is a poorly funded organization. It could be much more than it is and possibly fill the required role or be a potential vehicle to solve this problem
8. Limited technical expertise
- a. Potential Solutions
- Hire outside help
 - Establish relationships/maintain them using tools like the internet
 - Focus on recruiting
 - Mentoring of students/young professionals
 - Exposure to career possibilities to students - Career start
 - Young conservation professionals – fast track to leadership (management skills, leadership skills)
 - Scholarships
 - Make it a sexy field to get into
 - Marketing
 - Increase awareness of opportunities and value
 - Tree-hugger bad connotation – people who are in natural resource management – need positive marketing to change profile of these position – social marketing
 - Regulator needs to be seen as someone who helps, not someone who is going to stick it to you
 - Sharing of expertise across watershed boundaries
 - Inter-provincial movement
 - Training
 - Need more internet training
 - Communication training for those in technical fields so there is better dissemination of technical findings
 - Training policy-makers in science
 - More specialized training for generalists
 - Wetland delineation as a program for inspectors and interested individuals
 - Incorporating local knowledge
 - Standards development
- b. Who would/could be the champion of these efforts?
- Provincial curriculum?
 - High school Envirothon
 - Partnership between province and private sector to develop skills
 - Polluter pays for funding positions

The issue that stands out in this list is addressing culture in the province, both that of urban/rural and native/non-native. This would suggest that sensitivity in dealing with these issues is needed, and that this (equality) must be built in to any strategy for it to be successful and well received by all communities across the province.

Wrap-up Session

The last session of the workshop was a plenary discussion centered on potential sources for funding as well as next recommendations for the steering committee. The ideas that came out of this session are listed below.

Overcoming Financial Barriers

Numerous options for overcoming financial barriers were suggested.

- Ontario's Conservation Authorities were cited as one possible model, as they have successfully adapted to a reduction in funding from government at one point in their history.
- Taxation system for water users – possibly a tiered taxation system
- Hire group or company that specializes in communications and fundraising to figure out the best strategy to find stable funding
 - Perhaps each group contributes funding matched by the government to hire this person
 - Make a joint proposal as a large group so as to command more attention
- Resource recovery fund
 - Deposit on water bottles go to water management
 - Introduce a tax on litter? (For example, Tim Horton's cups, add a five-cent tax and the money goes is used to establish an environmental fund)
- Non-grant funding (predictable, reliable annual funding that can be distributed where needed)
 - Engage Superstore, who is adding a fee to plastic bags and are making a profit at it. Ask them to commit to improving our environment by giving half of the profits they make on bags to environmental fund. NSLC is saving money by not offering plastic bags, rumours of developing some sort of fund → approach them with the idea of an environmental fund
 - Temporary area tax – waterfront properties
 - Carbon tax – 1 cent/L gas, \$1 /cubic meter storage
 - Surcharge on water rates for water management
 - Recreational tax on recreational items like bathing suits, boats, to go to support water resource management
 - Creative financing (the legal kind) – e.g. Adopt-a-Stream is funded by a 5\$ tax on recreational fishing licenses (although this is redirected into a general fund before being parcelled out subjecting it to budget cuts).
 - Increase water charges for water withdrawals; fees for water licenses need to be directed back into the programs not into general revenue streams (as is the existing practice)
- Form academic partnerships, which will enable access to funding not normally available i.e. National Sciences and Engineering Research Council (NSERC) (The Mersey Tobeatic Research Institute (MTRI) already does this, perhaps work from their example?)
- Government sourcing
 - Environment Canada – dismantled to the point of not being able to do any work, therefore not a reliable source of funding
 - Take advantage of underused government programs – watershed could fall under other project categories

- Bigger percentage of government revenue to water/environment – federal support needed for water management because it is a shared responsibility
- New ideas don't always mean we need to look for more money. We need to be more creative about making there project happen, using the resources we already have.
- Need allocation of funds to lead off the initiative (i.e. initial investment)

Immediate Recommendations for the Steering Committee

- Keep contact and distribution lists
- Distil proposals of vision and water strategy from the discussion into a draft report or solicited proposal ready before water strategy comes out
 - Show people that this will support NS economy and industry. If watershed is managed properly then more jobs can be created/sustained. Need to show how watershed management supports the economy
 - Distribute summary/steering committee report for group to critique
 - Present a united voice
- Follow-up meeting in 3-6 months
- Plan another roundtable ASAP
- Strike a committee to organize next meeting – not necessarily the same groups
- Eventually see real watershed management groups develop and evolve
- Recognize what has been achieved to date: make these successes more efficient by sharing them province wide.
- Develop a provincial framework for all watershed groups to contribute to receive support from and work towards a larger, far reaching goal
 - Sufficient funding needed for strategy to go forward.
 - Strategy based on vision and goals, not funds available
 - PEI watershed groups are asking for money, not just going to bureaucrats
- Time-bounded. Groups are ready to go today. They don't want to wait for government.
- Develop a strategy that includes industry, woodlot owners to protect and achieve our watershed goals
- Engage Water Caucus groups that may not be aware
- Formation of a Watershed Management Advisory Group
 - Need support of the feds and municipalities but also need the premier. There should be a representative to inform and advise premier about water issues in the province
- Lack of access to data is a big issue for most groups. There needs to be a plan developed to increase accessibility.

Next Steps

A follow-up meeting was one of the suggestions made for next steps. A number of individuals who participated in the workshop volunteered to organize a subsequent meeting in 3-6 months (they proposed a retreat during the summer months) to work on the concepts captured at the workshop and nail down what actions will allow achievement of the goal. Volunteers included Dr. Sean Mitchell, Larry Bell, Anna McCarron, Nicole Oliver, Joel Goodfellow and Walter Regan. Kari Eastwood and Andrew Fedora agreed to recruit someone to represent the forestry industry. It was suggested that the larger group (i.e., the workshop participants) would act as an advisory committee.

Dr. Edith Callaghan (Irving Academy for the Environment) offered to introduce what was discussed at the workshop to a committee she sits on regarding safe food and food security. She felt that similar issues were heading in the same direction and that groups with similar intentions should be made aware of each other and have overlap. She also volunteered to take it to the Academy to see if there was interest, but cautioned that members were extremely busy already.

Other suggestions for next steps were soliciting interest on the subject of housing data; training for people, CoinAtlantic led by Paul Boudreau was mentioned, as well as NS Geomatics. Lack of access to data was raised as a large issue for most groups and there was consensus about the need for a plan to increase accessibility.

A template for identifying important characteristics of watershed groups was mentioned as a project for the near future. This would become a complete list of groups involved in watershed work in the province, what their scope of influence is geographically (GIS), the work they do; hosting it online so they can fill it out themselves. It was suggested that creating a template would be a good project for an information management student to undertake. Members of the NSEN Water Caucus indicated they would put it on their agenda for the next conference call.

The workshop participants recognized the contribution of watershed management in supporting Nova Scotia's economy and industry. If watersheds are managed properly then more jobs can be created and sustained. With the current economic situation and the trend towards greening products, having integrated watershed management will support the economy as well as the lifestyle and allow us to enter into more sustainable practices, preserving Nova Scotia's ecological heritage. It was suggested that this conclusion needed to be better communicated.

Ideally, participants wanted to see short-term facilitation by the provincial government to get this initiative on track and have preliminary funding established. The NSEN Water Caucus representatives present agreed to discuss what had taken place at the workshop.

Workshop Synthesis

Of the many ideas discussed at the workshop, a number of key themes emerged. There was consensus among the participants in the workshop concerning the following issues.

1. Watershed Planning in Nova Scotia

There need for surface and ground water resources in Nova Scotia to be managed in an integrated manner, based on the watershed scale. Watershed management should occur at a number of levels: (a) a provincial body responsible for coordinating watershed efforts in the province, (b) regional bodies responsible for watershed units (clustered watersheds i.e. Cape Breton, Valley, South Shore) (b) local organizations working at the scale of individual catchments and river systems.

2. Delineation of the province into manageable watershed units

The province currently has approximately 45 to 50 watersheds – a number that is arguably too many for systematic management. There is a need to consolidate these catchments into larger, more manageable units. This consolidation could be based on geographic regions of the province (e.g. the Annapolis Valley) and the major river basins (e.g. the Mersey River), taking into account the scope of existing watershed groups. Within these management units, a nested catchment approach could be used to facilitate local action and engagement. This is a task that must be addressed in coordination with the design of the organizational structures to oversee watershed management in the province.

3. Provincial leadership – Joint responsibility

Under law and in practice, the Province has primary responsibility for the management of Nova Scotia's water resources. The provincial government must take on a leadership role in the implementation of integrated watershed management, providing support and guidance on its structure and implementation. The province, with all segments of society, shares in the responsibility for the sound management of water resources. Aboriginal peoples, industries (e.g. agriculture, forestry), municipalities and community watershed groups all have key roles to play.

Watershed groups are ready to support watershed management in the province, however leadership from the provincial government is needed to chart the overall direction and provide the framework. Watershed groups have spent years building relationships with communities, businesses and individual citizens and know the needs, wants and values of the communities they work in.

4. Sustainable support through alternate funding models

Currently, funding mechanisms to support water management activities are sparse, fragmented and inconsistent, resulting in organizations dedicating considerable staff resources to grant writing. The irregular funding pattern results in high turnover rates among staff, precluding the retention of those with experience and expertise in Nova Scotia.

Integrated management of Nova Scotia's water resources will require dedicated, sustained resources for coordination. The province does not need to be the sole entity supporting watershed management though. As the benefits of well-managed water resources will flow to all levels of government, industries and society as a whole, it is logical that support for this be shared. Numerous opportunities exist for alternative funding and cost-sharing mechanisms. Many of these are based on the notion that individuals, agencies and businesses that benefit from water quality and quantity should contribute to the maintenance and management of these water resources.

Appendix A Workshop Agenda

Wading In: Watershed Management in Nova Scotia

Day 1 – Thursday March 26, 2009
Blomidon Room, Old Orchard Inn, Wolfville

8:45	15 min	Registration
9:00	15 min	Introductions Andy Sharpe, Science Advisor, Clean Annapolis River Project
9:15	15min	Welcome Address Dr. Tom Herman, Vice-President Academic, Acadia University
Morning Theme: Background Information		
9:30	10min	Watershed Planning in Nova Scotia: Past, Present and Future Andy Sharpe, Science Coordinator, Clean Annapolis River Project
9:40	40min	A Comparison of Watershed Approaches in Canada Barbara Veale, Coordinator of Policy Planning and Partnerships Grand River Conservation Authority
10:20	20min	Coffee Break
10:40	30min	Challenges and Realities of Watershed Management in Nova Scotia Dawn MacNeill, Watershed Planner, NS Environment Jessica Paterson, Water Strategy Coordinator, NS Environment
11:10	60min	Break-Out Session 1 Laying the Groundwork – Introductions, Current Roles and Activities ACSBE
12:10	50min	Lunch
Afternoon Theme: Nova Scotian Perspectives on Water		
1:00	30min	Preparing for Change: Watershed Planning as a Sustainability Tool Britt Roscoe, Watershed Coordinator, CBRM Water Utility Debbie Nielsen, Municipal Sustainability Coordinator, UNSM
1:30	20min	Community Based Watershed Planning on PEI Sean Ledgerwood, Watershed Monitoring Specialist PEI Department of Environment, Energy and Forestry
1:50	20min	Community Perspectives: River Associations and Watershed Groups Jocelyne Rankin, Water Coordinator, Ecology Action Centre Amy Weston, Program Manager, Adopt-A-Stream
2:10	20min	Water Advisory Boards and their Role in Watershed Management Anna McCarron, Coordinator of Water Programs Clean Nova Scotia
2:30	20min	Coffee Break
2:50	Approx. 1hr 45min	Break-Out Session 2 Watershed Planning – What's in it For Me?
		Free Time
6:00	60min	Dinner
7:00		Feedback from Break-out Sessions 1 and 2 (ACSBE) Open Discussion Optional Discussion: Water Soft Path Philosophy – Dr. Sheila Forsyth

Wading In: Watershed Management in Nova Scotia

Day 2 – Friday March 27, 2009
Blomidon Room, Old Orchard Inn, Wolfville

7:30	30min	Breakfast
8:00		Report from Day 1, Overview for Day 2 Anna McCarron
Morning Theme: Industry Perspectives on Water		
8:10	20min	NSFA's Approach to Water Management Brad McCallum, Policy Analyst Nova Scotia Federation of Agriculture
8:30	20min	Water: Farmers' Friend and Foe Brian McCulloch, Agricultural Resource Coordinator Nova Scotia Department of Agriculture
8:50	20min	Managing for Water Quality at NewPage Port Hawkesbury Kari Easthouse, Forest Resources Manager NewPage Port Hawkesbury
9:10	20min	Forests Grow, Forests Die, Don't They? Mac Barkhouse Nova Forestry Alliance
9:30	20min	Coffee Break
9:50	20min	Hydro Relicensing Program Overview Dan Thompson, Environmental Specialist Nova Scotia Power Inc.
10:10	20min	Watershed Management in the Bras d'Or Lakes: A Nested Approach for Nova Scotia? Jason Naug, Biologist Department of Fisheries and Oceans
10:30	20min	Mi'kmaq and Water: A Sacred Trust Lauri Suiter, Intergovernmental Relations and Partnership Advisor Unima'ki Institute of Natural Resources
10:50	1 hr 20min	Break-Out Session 3 Getting From Here to There
12:20	60min	Lunch
1:20	40min	Workshop Synthesis and Next Steps ACSBE
2:00		Close

Appendix B Participants

Name	Organization	Position	Contact
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Dr. Sheila Forsyth	Friends of the Earth Canada	Staff Scientist	sheilaf@foecanada.org
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Appendix C Pre-Workshop Survey

An online survey was distributed in advance of the workshop. The objectives of the survey were (a) to encourage the participants to begin considering watershed issues in advance of the workshop, (b) to gather information on the issues and barriers to moving ahead with integrated watershed management in Nova Scotia, and (c) to aid the facilitators in preparing for the workshop. Thirty-two participants completed the survey. Numbers of responses for individual questions varied as participants were given the option to skip questions they did not feel comfortable answering. The responses to questions pertaining to personal information of the respondent (e.g. name, address, organization) are not included here.

2. Please indicate the geographic region(s) of Nova Scotia encompassed by your organization's work (choose all that apply)

Answer Options	Response Count
Annapolis Valley (Annapolis, Kings)	13
Cape Breton (Cape Breton, Inverness, Richmond, Victoria)	14
Central and North (Colchester, Cumberland, Hants)	15
Eastern (Antigonish, Guysborough, Pictou)	13
Halifax (Halifax)	16
South Shore (Lunenburg, Queens)	13
South West (Digby, Shelburne, Yarmouth)	10
Province-wide	5
Other (please specify)	5
<i>Answered question</i>	<i>32</i>
<i>Skipped question</i>	<i>1</i>

Other (please specify)
British Columbia, South America
Cape Breton watershed to Eastern Scotian Shelf
I am personally working in the Upper Mersey River
The work of the university extends beyond these regions
"head of the Annapolis valley"

3. Which of the following best describes the organization you work for?

Answer Options	Response Count
Federal Government	3
Provincial Government	2
Municipal Government	3
Aboriginal Peoples	1
Academic Institute (University or College)	2
Private Sector (please specify below)	1
Consultant	5
Non-Government Organization	14
Individual	0
Other (please specify - see below)	3
<i>Answered question</i>	<i>32</i>
<i>Skipped question</i>	<i>1</i>

Other (please specify)
Forest Management
Provincial lobby organization
We are a not-for-profit organization mandated to represent the Provincial interests of municipal governments across Nova Scotia

4. If you chose 'Non-Government Organization' in the previous question, please indicate which type you feel best applies to you.

All respondents said environmental, one mentioned conservation in addition to that, and one wrote that all of the choices (environmental, social and business/economic) applied to them.

5. Which of the following best describe the focus of your organization's water-related work (choose all that apply)

Answer Options	Response Count
Monitoring water quality and quantity	18
Promoting water conservation	13
Promoting best management practices	23
Land use planning	14
Source water planning and protection	13
Integrated water resource planning	11
Aquatic habitat/species protection and enhancement	20
Managing run-off and contaminant inputs to watercourses	10
Other (please specify)	9

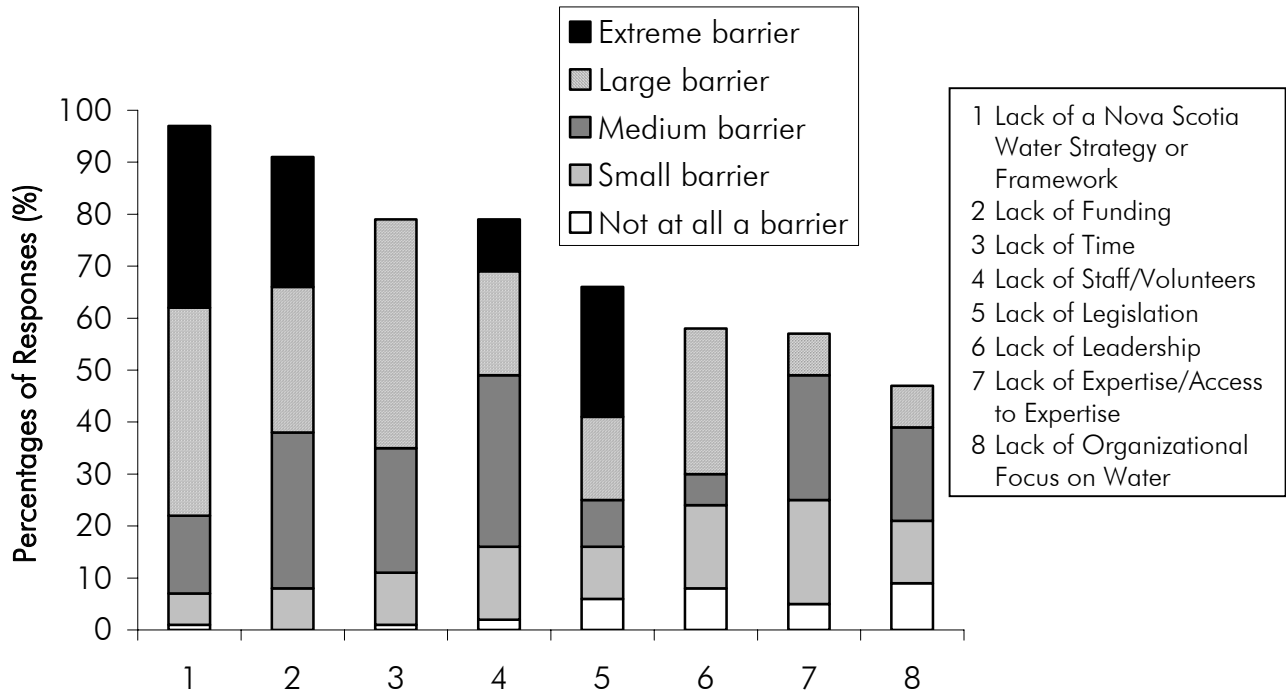
Other (please specify)
Halifax Water is responsible for source water planning and protection, and the promotion of water conservation. They have a separate corporate identity from HRM.
Watershed Impact Assessments, Watershed Restoration Prescriptions, Watershed Monitoring, Flooding, Impact of land cover change on water quality and quantity
Collaborative research with various universities.
Regulatory reviews of development projects
We are moving toward land use planning, water quality and water quantity monitoring water-related work.
Partnership development for increased competitiveness, innovation and enhanced rural amenities.
Watershed Stewardship and aquatic habitat restoration
Coastal and water policy change, advocacy, environmental watchdog
Current limited capacity is focused on source water planning and protection

Most respondents selected promoting best management practices (BMP's) and protecting and enhancing aquatic species and habitats. This was followed by monitoring water quality/quantity, land use planning, promoting water conservation, source water planning and protection, integrated water resource management and managing run-off and contaminant inputs to water. Also mentioned were roles in research, policy and regulatory review of development.

6. Which area(s) does your organization's water-related work focus on (choose all that apply)

Surface water was the most common response. Second place was tied between groundwater and estuaries/coastal; storm drainage and sanitary/sewer also had the same number of respondents (probably because of the link in responsibilities between the two). Other responses included impacted sites, wetlands (both natural and bio-engineered) and bottled water.

7. To what extent are the following barriers preventing your organization from improving the integrated management of water resources?



The two barriers seen as the greatest threat to the improvement of integrated water management were lack of a provincial strategy/framework and lack of funding closely followed by lack of time and staff/volunteers. Legislation, leadership, expertise and organizational focus were also identified as areas that would provide barriers to integrated management. Enforcement and communication between organizations was mentioned as well.

8. In your opinion, to what extent does each of the following represent a gap that limits your organization's ability to carry out integrated water management work in Nova Scotia?

Opinion on this was spread very equally between three choices; intra-agency coordination, general lack of public awareness and political will/interest were seen as having the largest gap present that limits ability to carry out integrated water management, with not having specific NS research on water following a very close fourth. All choices were rated as having a medium-or-greater gap existing (the last being availability/accessibility of information).

9. What do you feel are the top two (2) water priorities that need to be addressed in Nova Scotia?

Reporting was broken into two choices, first priority and second priority. Participants were invited to write their own responses. When the results were compiled, five areas of concern emerged; establishing integrated watershed management, monitoring and research, changing policies, conservation activities and public outreach. Top priorities were seen as integrated watershed management, policy changes and monitoring and outreach, respectively. The answers dealt with many facets of these concerns, for example in monitoring and research coordinated data gathering, taking an inventory of freshwater ecosystems and their health and the importance of third-party monitoring were raised as important issues.

10. Do you think that watershed-scale groups could support/enhance your activities? If you wish to explain your response, you may do so below.

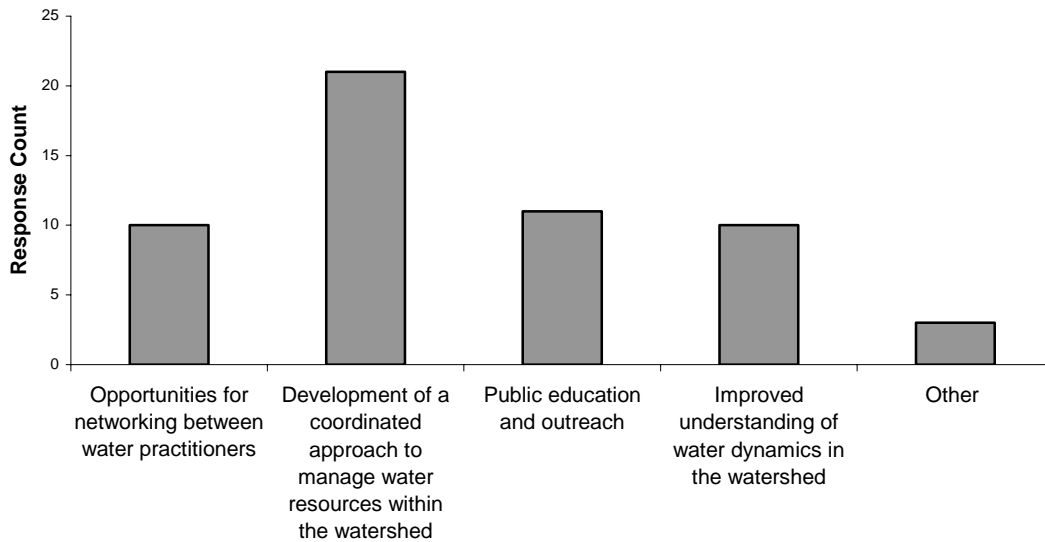
All respondents agreed that watershed-scale groups could support/enhance their activities but that their role was seen as including monitoring, education and awareness. There were many comments accompanying this question.

A common theme was that their role would have to be clearly defined but that watershed groups would contribute to local knowledge. Suggestions included:

- Water quality monitoring
- Collaboration between water groups (network)
- Support, enhance, maintain efforts of community groups
- Coordinate effort
- Education and awareness around conservation
- Engage community and support develop/implement local plans
- Meaningful and coordinated monitoring as citizen scientists

Those who are already engaged in working with watershed groups are utilizing them for student project work. One respondent commented that government involvement is needed.

11. If you answered YES to the previous question, please identify the TWO (2) activities of a watershed-scale group that would best support/enhance your activities? (Choose a maximum of TWO responses)



Those who checked “other” mentioned the groups’ role in monitoring and having a clear legislated role and funding.

12. If you answered NO to question 3, please explain why

The solitary comment for this question was because of timelines in decision-making. It is the experience of many that decisions are made in too short of a time-span for proper consultation and discussion.

13. How do you think a watershed group/council could be funded (if you are in favor)?

Suggestions from this question were:

- Some form of joint government funding, whether all three, provincial and municipal or solely provincial/municipal, backed by funding from other donors/programs
 - 3 part funding – NSDE/municipalities pay for activities/services – through NS Environment fund (money from recyclables/lotto/fines) for doing broad planning – money from other funders
 - The government would provide seed funding that would be used for basic operation, and municipal taxes would be used for operating and program costs, while grants from other funders could be used for supplemental projects.
- Funding from introducing new water usage fees
- Redirecting or adding to the deposit on water bottles, and cans
- Introducing royalties on exports such as aggregates
- Taxes for environmental benefit to Province
- Restoration fees on developments, fines levied for damages to wetlands/water resources, consultation services, etc.

Members of community organizations voiced the opinion that existing funding is available in the form of grants and programs, but a lot of time and effort is spent on getting that funding. Lack of funding that is ongoing and not fragmented (long-term) and up front is vital for the longevity of any organization.

14. Would you be interested in being a member of such a group within a specific watershed?

Answer Options	Response Count
Yes	19
No	1
Uncertain	7
Other (please specify)	5

Uncertainty from respondents was due to the fact that the role of the watershed group has yet to be clearly defined, and that such a group would need to have the ability to effect real change and not become just another level of bureaucracy. There was concern that a province-wide organization would need to be formed, not merely watershed groups.