Working Together to Build a Water Strategy for New Brunswick

Summary of Comments

Prepared by

Environment and Local Government

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New Nouveau Brunswick CANADA

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A Message from the Minister

I wish to thank everyone who took the time to offer well-considered feedback during the engagement process held last spring on how we can best manage New Brunswick's surface and groundwater resources to ensure quality and availability for all New Brunswickers now and into the future.

During the engagement sessions, we garnered feedback from a wide range of stakeholders including First Nations, industry, non-profit organizations and individuals. This initial step was aimed at gathering opinions, ideas, and engaging in respectful discussion and we were pleased to receive an incredible response from thoughtful and passionate New Brunswickers.

In collating the responses, it became clear that we share common objectives and we universally recognize the need to move forward with a comprehensive approach to managing this tremendous and highly important resource.

While there are many opinions on what needs to be done next, there is a common goal to have a shared vision for the future and I want to thank everyone who brought forth their ideas on how to bring this vision to fruition.

Our government takes its responsibility to protect water sources and the environment seriously. In order for our existing water resources to provide us clean and safe water now and for many generations to come, these resources need to be protected and managed responsibly and a water strategy will help us do just that.

Our next step will be to use the opinions and ideas, as summarized from what we heard during the engagement process, to develop, in concert with our stakeholders and First Nations, a provincial water strategy that will be an integrated, publicly visible plan that will guide us as we work collaboratively to protect and manage our water.

This is just the beginning.

Serge Rousselle, Q.C.

Minister, Environment and Local Government

Executive Summary

This document is a summary of what New Brunswick's water strategy working group members heard during a stakeholder engagement period that commenced in February 2016. The purpose of the engagement was to help government prepare a provincial water strategy for New Brunswick. During the stakeholder engagement period, a total of 252 respondents submitted comments in a variety of formats. This number includes all respondents who participated in workshops or open houses, as well as those who submitted comments electronically, and in writing.

A discussion document called: Working Together to Build a Water Strategy for New Brunswick (February 2016) was made available in support of the engagement process. It contains a draft vision statement, accompanied by a set of draft principles and draft goals to help generate comments.

Comments received during the subsequent public engagement have been organized according to the draft vision statement, principles and goals contained in the discussion document and are presented in the following pages. To help make the information more accessible, comments on the draft goals were grouped according to a set of themes (sub-headings) that emerged as the input was reviewed.

Given the importance of moving forward to develop a provincial water strategy in a transparent way, it was essential to present the full range of comments received, both positive and negative. This information will assist in identifying what is working well and where improvements are needed. In order to provide additional clarity, a question and answer document has been developed including links to some government programs and services. This can be found in Appendix 2 of this document and online at Working Together to Build a Water Strategy for New Brunswick.

The Province has also been engaging with First Nations since February of 2016 and this engagement will continue throughout the process of creating a Water Strategy. This document does not reflect the results of this on-going engagement with First Nations.

All comments are valued and will be taken into consideration during the development of a Water Strategy.

The Engagement Process and Next Steps

In February 2016, the Department of Environment and Local Government initiated an engagement process with stakeholders, the public and other New Brunswick Government departments to share information about how water is currently protected and managed in the province and to hear New Brunswickers' views on how we can improve and plan for the future. A separate engagement with First Nations was also initiated by reaching out to all First Nations Chiefs; this engagement process is currently underway.

A discussion paper entitled Working Together to Build a Water Strategy for New Brunswick was created in order to spark conversation about what water related topics are of most importance to New Brunswickers.

Following the release of the discussion paper, a series of workshops and open houses were held in the following communities: Grand Falls, Bathurst, Miramichi, Moncton, Saint John and Fredericton. Online submissions were also accepted through the department's website. A workshop was also held with technical experts from the Department of Environment and Local Government and another was held with technical experts from other N.B. government departments such as the Department of Energy and Resource Development and the Department of Health, who have knowledge and experience in water-related programs. Comments collected during the workshops, open houses and those submitted in writing are reflected in this summary of public engagement which is available on the department's website. These comments will be used to inform the development of a provincial water strategy for New Brunswick.

Once a draft strategy has been developed, there will be additional opportunity for public input.

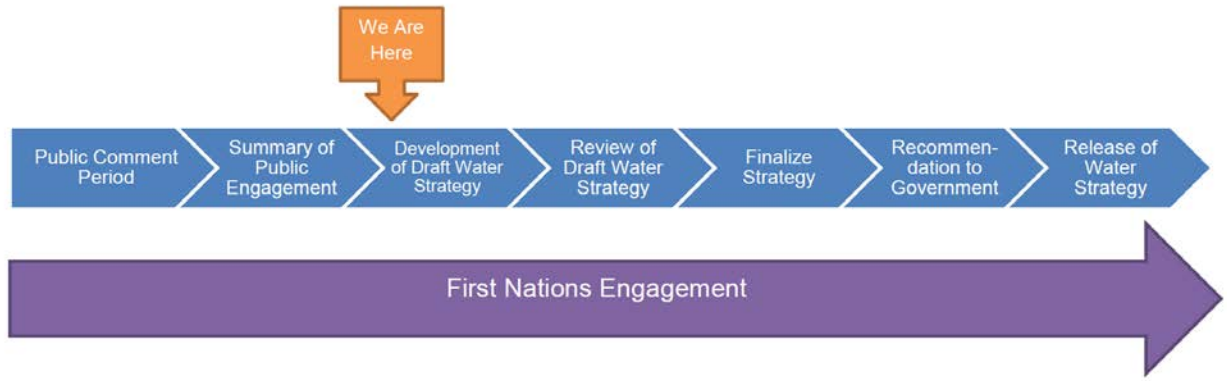

Figure 1: Water Strategy development process.

Profile of Respondents

During the stakeholder engagement period, a total of 252 respondents submitted their feedback in a variety of formats. This number includes all respondents who participated in workshops as well as those who submitted comments electronically and in writing.

In order to better understand the different feedback perspectives, the respondents were grouped into a number of categories as represented below.

Respondent Categories *	Submissions per Category
Business/Industry	12
Non-Governmental Organization (NGO)	50
Member of the Public	101
Consultant Firm	9
Communities (Municipalities, Local Service Districts and Regional Service Commissions)	29
Government of N.B.	48
Institutions (Colleges and Universities)	2
Federal Government	1
Total # of Respondents	252

Figure 2: Respondents by Category

* The Province has also been engaging separately with First Nations. This Figure does not include First Nation respondents.

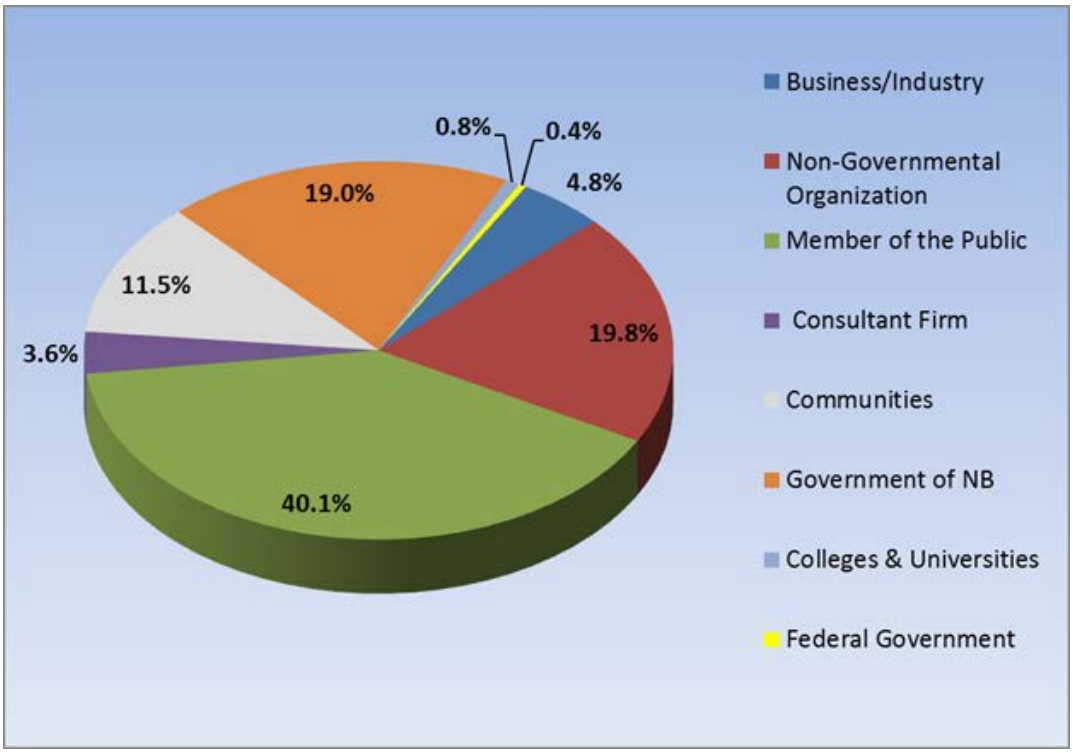

Figure 3: Percentage of Respondents by Category

* The Province has also been engaging separately with First Nations. This Figure does not include First Nation respondents.

What We Heard

The following sections summarize the feedback received during the public engagement period, which included a series of workshops, open houses, and submissions. This feedback represents the concerns and ideas expressed by New Brunswickers with respect to water.

Given the importance of moving forward to develop a provincial water strategy in a transparent way, it was important to capture the full range of comments received, both positive and negative. This information will assist in identifying what is working well and where improvements are needed.

This summary does not include proposed government responses to the information received during the consultation, nor have the comments on specific existing programs or issues been vetted for factual accuracy. The comments are summarized as received. In order to provide additional clarity, a question and answer document has been developed including links to some government programs and services. This can be found in Appendix 2 of this document and online at Working Together to Build a Water Strategy for New Brunswick.

All feedback is valued and will be taken into consideration during the future development of a water strategy for New Brunswick.

Conceptual Comments about a Provincial Water Strategy

Some of the main themes revealed in the feedback about the general concept of a water strategy are summarized in the following "word cloud" diagram and highlighted in **bold** font throughout the text of this section.

Figure 4: Some key themes extracted from ideas about the general concept of a water strategy.

- Advice was received concerning the general concept of a provincial water strategy and approaches to its preparation. In particular, it was stated that: 1) The strategy should result in a **truly long range, proactive, protectionist policy** on managing the use of water; 2) in developing the strategy reference should be made to **historic records** so that recurring themes and issues can be identified and addressed; 3) the potential for stalled or incomplete implementation of actions should be avoided by: a) employing **clear goals, objectives and quantifiable (measurable) targets**, b) **addressing financial and other resource implications** (including consideration of the necessary resources, cost recovery via fees, etc.), c) setting **clear roles and responsibilities** (including specific objectives and timelines) , d) developing **an implementation (delivery) plan,** e) allowing for **additional public engagement** in the course of strategy development and **communication about the strategy**, and f) **reporting to the public** (transparency and accountability); 4) **climate change mitigation and adaptation measures** should be considered; 5) the strategy should include a glossary of key terms; 6) the strategy should **address a wider variety of issues** (poaching, invasive species, protection of wild Atlantic salmon); 7) **timelines and responsibilities** associated with the strategy should be made part of a regulation and the strategy should deliver a legal authority that creates a commitment to its guiding principles; 8) **a lead "owner" of the strategy should be identified** (either a single agency or an umbrella organization to coordinate priorities actions and funding); and 9) the **actions contained in the strategy should be prioritized** (e.g. they could be prioritized by watershed).

- It was suggested that government should ensure that the water strategy incorporates **ecosystem based management principles** to ensure consistent progress towards sustainability goals that link water management with land use planning processes (e.g., to prevent continued wetland loss).

- Government should ensure that the strategy is **developed in a timely manner** (e.g. within one year) with **additional public consultation** and with the on-going assistance of watershed groups. There should be a **communication strategy** so stakeholders will be made aware of further progress related to the water strategy and its implementation. The engagement and conversation that has been commenced should continue beyond the strategy.

- Concerns about the discussion paper used in support of the public engagement included: lack of explanation as to why a water strategy is necessary; use of vague language; **the term water "resource" should be defined**; and the goals included in the discussion paper may be a statement of what government would like to achieve rather than what will actually be accomplished.

- Concerns were expressed about the timing and purpose of the strategy (Why now? What problems is it trying to address?). The opinion was expressed that the strategy development process is rushed (short time between the release of the discussion paper and the public engagement activities). The suggestion was also made that the water

strategy may be intended to replace the existing water classification process that has yet to be implemented, against the advice of the provincial Ombudsman. In that sense the strategy was seen as fixing a problem that does not exist and also wasting resources that have already been put into work previously completed in support of the *Water Classification Regulation*.

- It was suggested that in making reference to economic issues, the discussion document gave the impression that the province is paving the way for large scale industrial development such as pipelines, mines and oil and gas development and laying a foundation that would allow bulk transport of water between watersheds and exports of water out of the province. It was requested that there should be a statement that such **water transfers will never be allowed** to happen (See also additional comments under Goal 2 - Export or Sale of Water subheading).

- The opinion was expressed that the vison, guiding principles and goals look good on paper but in absence of a **commitment from government** to implement it, the strategy will not lead to anything real. It was stated that the goals do not include the concept of a **governance structure** to help identify the authority to act and to assign the **accountability** for getting things done. It was further stated that as part of the final strategy, **specific, measurable objectives** should be identified for each goal.

Comments on the Draft Vison Statement

A variety of comments were received regarding the draft vision statement and guiding principles as contained in the Working Together to Build a Water Strategy for New Brunswick - Discussion Paper (February, 2016). These are summarized in the following paragraphs.

> Draft Vision: New Brunswick's water is managed and protected to ensure its quality and availability for people, for nature, and for the economy, now and in the future.

Some comments expressed an apprehension about the mention of "the economy" in the vision statement. There was a fear that water for the economy would take priority over water for nature and human needs. It was stated that the needs of nature and humans should not be compromised and that the environment should not take a back seat to development and that when environmental and economic goals are in conflict, the environment should have prime importance. It was suggested that reference to the economy should be removed from the vision. Another suggestion was that the wording could be revised to include: "an ecologically sustainable economy". It was further stated that a priority should be placed on economic development that supports and encourages good stewardship of our water by local people.

The view was expressed that the importance of sustainable use of water should be acknowledged; appropriate wording should be included in the vision statement, acknowledging

that the province's water should be managed in a way that will allow future needs to be satisfied in the long-term.
It was suggested that the vision statement should incorporate the idea that a priority will be placed on good science as a basis for making decisions.

Some support for the vison was expressed in that it expresses the importance of water quality and quantity for nature and ecosystem processes.

Comments on the Draft Principles

General Comments:

Some felt that overall, the principles place too much emphasis on preserving watersheds for human needs including economic development and that too little emphasis was placed on natural users of water (i.e. fish and wildlife).

It was suggested that there should be an additional guiding principle: the precautionary principle. Water management decisions should be based on science; however, water is a vast and broad resource to understand and manage. Its interactions with other elements of the ecosystem cannot be fully understood, and the precautionary principle should be employed in acknowledgement of the unknowns.

The view was also expressed that the principles collectively capture what is important and address the key areas of sustainability, stewardship, partnerships, innovation and communication.

Comments on Specific Principles:

Principle - Conservation and Accountability: Water will be recognized as a valuable resource and conservation and responsible water use will be encouraged.

It was stated that instead of being "encouraged", the principle should indicate that conservation and responsible water use will be regulated (i.e. required). Accountability implies that there will be regulations and that they will be enforced. Conservation and responsible use of water must be mandatory. It was also stated that the principles of conservation and accountability are long-standing guiding principles of watershed groups. These groups stand ready to help the government deliver on these principles.

Principle - Sustainability: Goals will be informed by science and take a long-term view of preserving healthy ecosystems.

For the principle of sustainability, it was stated that: its application requires that the definition of a healthy ecosystem be determined (baseline conditions); watershed groups can help determine the baseline conditions that define a healthy ecosystem; "sustainability" is a broad concept and

it is therefore desirable that the Department of Environment and Local Government indicate how this term would be employed in terms of preserving healthy ecosystems.

Principle - Stewardship: Consideration will be given to how everyone plays a role in watershed protection and management.

For the stewardship principle, it was stated that watershed groups act as stewards of water and encourage others to do the same. They can therefore be an important means of building trust and they offer excellent local knowledge of watersheds.

Principle - Partnerships and Innovation: Opportunities for partnerships and innovative water management will be pursued.

One commenter suggested that "partnerships" should not be included in the list of principles. It was suggested that there is no problem applying the partnership principle to watershed management groups or other non-governmental organizations but partnerships with industry could be problematic (i.e. due to a lack of trust on the part of some partners regarding industry's motives for participating).

It was suggested that "partnerships and innovation" might be "code" for privatization of the waters of the province.

It was also stated that watershed groups want the Government of New Brunswick to consider them as current and future partners that can greatly assist in tasks such as monitoring, restoration, conservation and education.

Principle - Transparency and Accountability: Progress will be reported publicly and more water-related information will be shared.

It was stated that as publicly operated non-profits, watershed groups already operate in a transparent manner. These groups have a strong model that can be adapted to many jurisdictions across the province. Their function could be improved with greater resource availability.

Agreement was expressed with the idea that "progress will be reported publicly and more water-related information will be shared". The opinion was expressed that this principle could be further elaborated on to express the importance of an interactive consultative approach to problem solving, and that this should at least be put forward as an action item under this principle.

Comments on the Draft Goals

The following pages contain an overview of the main themes that emerged from the concerns, comments and observations expressed about the draft goals. Comments on the draft goals are listed in greater detail in Appendix 1.
Within each goal, feedback has been organized according to general themes and subject matter. These themes are not mutually exclusive and there is some overlap in the responses they contain. Some key ideas about how to address the challenges associated with each goal are highlighted in **bold font** and summarized in a "word cloud" diagram at the start of each section.

The order in which the information is presented is not intended to indicate a prioritization of issues or ideas.

Draft Goal 1

Draft Goal Number 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources

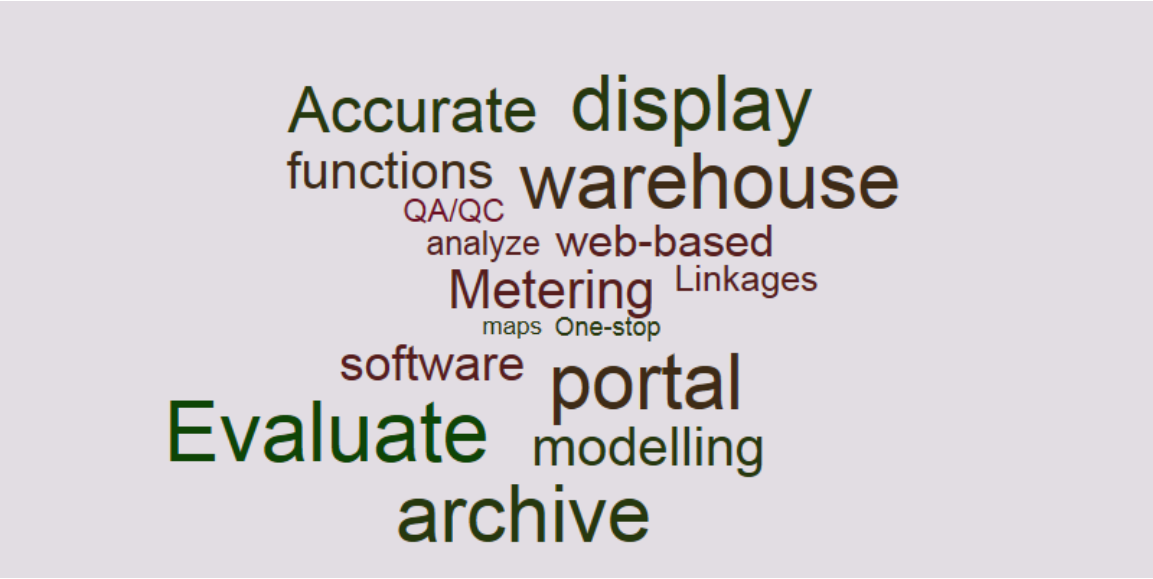

Figure 5: Some key themes extracted from ideas about draft Goal 1.

General Comments:

- This goal should include the concept of improving opportunities for information sharing.

Information and Data (Note that additional comments on this theme are provided under Goal 4):

- Many of the comments about Goal 1 focused on the variety of data required for effective management of ground and surface water, the availability of the data that has already been collected, and the challenges associated with data interpretation and management. Uncertainty was expressed over the ability of current water monitoring systems to meet the water management challenges facing the province.

- Other challenges described under this goal included: lack of information, gaps in available data, e.g. lack of wetland monitoring and mapping; temporal and geographic gaps in the existing water monitoring networks; lack of baseline data against which to measure change; lack of water consumption data, lack of information about quality and distribution of groundwater; lack of information about river geomorphology; use of different (non-standard) monitoring parameters across different watersheds; lack of localized ecosystem information (such as biological diversity and locations of cold water refuges for fish) and lack of access to information. There was a call for efforts to **better share and disseminate** water quality and quantity data as well as for **more consistent, user friendly data**. It was stated that potential users of data are not always aware of who has it and how to obtain it.

- There were numerous suggestions aimed at obtaining **better information** (i.e. more accessible, more accurate, longer term and more timely data). Regarding <u>how to collect information</u> suggestions included: conducting an evaluation of available data to identify gaps (i.e. a **data gap analysis** to ensure the data will answer all the relevant questions); linkage of monitoring sites operated by industry directly into the government of New Brunswick's monitoring network; use of **permanent sampling sites**; **constant monitoring** of all watersheds; and use of opportunities offered by the *Environmental Impact Assessment* (EIA) *Regulation* to ensure that monitoring data is collected in a **standard format** so it can be used for other purposes.

- Other suggestions about obtaining better information include: Environmental Trust Fund (ETF) **funding directed toward filling information gaps**; use of **cost effective ways to close data gaps** (e.g. use of abandoned water wells for groundwater monitoring); **more funding and training** to watershed groups and Regional Service Commissions to collect data and giving them a formal mandate to collect this information; **improvements to hydrometric and groundwater monitoring station density** (e.g. in headwater streams and smaller drainage systems); **more frequent sampling** of private water wells (i.e. routine monitoring on a regular basis); **better mapping** for improved wetland and watershed delineation and water management (e.g. using LiDAR); and more attention to **standardized, scientifically rigorous monitoring and reporting protocols** and standards (standard field sheets, training etc.).

- Regarding <u>what information to collect</u> suggestions included: solid **baseline monitoring** at an improved resolution and frequency; **identification of long-term trends** in water quality and quantity data; focusing monitoring efforts on **answering specific questions** (e.g. how much water we have, how much we use and how much is available); collection

of **biological information** (insects, frogs, etc.) as indicators of water quality anomalies; collection of information that will help identify development limits (**watershed carrying capacity**); more water use, flow and precipitation data; provision of more **"real time" data**; creation of a thermal inventory (stream temperature data), etc.; **information in support of water classification**; information to evaluate the current state of aquatic biodiversity and water quality.

- Regarding who should be involved suggestions included: **partnerships** for monitoring and information sharing involving both government and non-government agencies (including academia and industry); more **labs for analysis** (shorter lab turn-around times for sample analysis); and greater collaboration between government departments to **share data** (e.g. Department of Environment and Local Government and the Department of Energy and Resource Development (geological information).

- Regarding how to share information it was stated that there should be a commitment for **better transfer of knowledge**, especially with projects that are government funded. The issue of information sharing should be addressed as part of the funding application process (i.e. prior to the provision of funding by government).

- It was stated that some data being collected may not be useful. Data collection should focus on the **information that is actually useful** and necessary for water protection.

- **Better reporting** of water information was another common theme. See Goal 4 - Reporting (Format of Information and Timing of Reporting subheading).

Information Management Tools:

- Various examples of tools to assist in water management in general and management of information about water in particular were brought forward including: **GIS technologies** (e.g. GeoNB); **water metering**; centralized, public, electronic data sources (e.g. a **one stop, web-based water "data portal" or "data warehouse**" like the one established in support of the *Clean Air Act*); a robust set of web-based databases containing water quality and quantity information within the province, with **proper geo-referencing**; an **updated N.B. Groundwater Chemistry Atlas**; enhanced **IT services**; more **maps** and more accurate mapping (watercourses, wetlands, floodplains and groundwater); increased use of **LiDAR** for mapping; use of **modelling** including industry-funded modelling to better predict and understand changes in our water resources (while ensuring they are properly used and understood); and use of other **specialized software** to display, analyze and archive water data.

- It was stated that **data quality control and assurance** are important to ensure that it can be used with confidence to make water management decisions.

- Other comments directed toward tools that would assist in reporting of water-related information are presented under Goal 4 - Reporting (See Format of Information and Timing of Reporting subheading).

Climate Change:

- It was stated that climate change adds to the challenges associated with interpretation of water data because past trends cannot be relied on for future prediction. In short, there is greater uncertainty. There is also difficulty in identifying the impacts of climate change. This suggests that there is a greater need for **timely, accurate information** about our water resources so we can better understand the impact of climate change on our water and prepare for the changes that the future will bring. It was also stated that **conservation and management of watersheds** have a role to play in addressing some of the negative impacts of climate change including flooding and droughts. It will be important to work closely with organizations such as Environment and Climate Change Canada that are already looking at climate change in an Atlantic Canada context.

Other Research Priorities:

- In addition to the above comments, other research priorities were identified. It was stated that there should be greater efforts to: **evaluate the impacts of industrial activities** (e.g. forestry and mining) on water quality; **understand wetland functions**; identify the **location of groundwater resources**; and **better understand linkages** between surface water and groundwater.

Draft Goal 2

Draft Goal Number 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities.

Figure 6: Some key themes extracted from ideas about draft goal 2.

General Comments:

A number of general comments regarding the wording of Goal 2 were received and these are summarized below.

- Concerns were expressed regarding the inclusion of the term "…while allowing economic opportunities." It was felt by some commenters that the wording should be amended to make it clear that protecting drinking water and ecosystem health have a higher priority than economic development. It was suggested that in fact, it is the economic opportunities that should be managed based on a vision of water protection. It was further stated that management of water as an economic resource differs greatly from managing it as an ecosystem. Additional comments touching on the above theme are provided under the Balancing Water Uses subheading below.

- It was suggested that the concept of making the **highest and best use of water** should be incorporated in this Goal.

- Proposed alternative wording suggested for inclusion in Goal 2 includes: "bringing human activities in line with ecological limits", "swimmable, fishable, drinkable water", or "restoration of fish habitats and restoring damaged ecosystems".

Governance: Regulatory Framework and Decision-making:

- Respondents expressed concerns about the adequacy of New Brunswick's existing regulatory framework for water management. The ability of current regulatory tools to manage water resources was questioned and existing regulations were seen by some as too weak to protect water from contamination. It was suggested that successive New Brunswick governments have prioritized jobs and economic development at the expense of water protection. A tendency to rely on guidelines rather than legislation was also noted and a lack of opportunity for public input into regulatory decisions was expressed.

- Various comments were also received that address the current institutional arrangements for water management. As an example, it was suggested that there are currently too many agencies responsible for water management and that there is currently a fragmented government approach to management (divided among a number of government departments). This makes it hard for New Brunswickers to know who to contact (to notify or request help) regarding specific issues.

- Impatience and frustration were expressed concerning successive failures to implement New Brunswick's *Water Classification Regulation*; legislation that some see as vital for both water quality protection and ensuring a healthy, vibrant economy. The opinion was expressed that delays in implementation are actually intended to pave the way for industrial development. It was stated that there is a need to **re-build public trust** in government's delivery of water protection. It was also stated that renewed water classification regulations should more fully address the issue of **maintaining sufficient water quantity for ecosystem health** (environmental flows). Additional comments about water classification are provided under the Managing on a Watershed Basis subheading under Goal 2.

- Various issues associated with other specific areas of legislation were raised including: 1) wetland legislation (lack of sufficient wetland protection); 2) the *Potable Water Regulation* and the *Water Well Regulation* (**well logs should be made public**, and **grouting of water wells** should be mandatory); legislation related to sewage treatment, water treatment and rainwater use (should **allow innovation** in water conservation and domestic sewage treatment); wastewater treatment legislation (should contain **clearer authority** to require water use monitoring and reporting); 3) the *Environmental Impact Assessment* (EIA) *Regulation* (should contain clearer authority to require water use monitoring and reporting, revisit the 50 cubic metre per day EIA trigger to ensure a flexible (case-specific) trigger based on water availability, create a **stronger EIA regime** to better protect the environment, review water-related issues under the EIA Regulation for all industrial development proposals; use of stakeholder representatives and service providers on panels established for comprehensive Environmental Impact Assessments, fix the Environmental Impact Assessment (EIA) process, which is ineffective in preventing disasters like the LNG bird kill; require **cumulative effects assessments**; keep EIA as a separate stand-alone process; a more comprehensive and independent

'**Health Impact Assessment** (HIA) should be adopted in lieu of the current Environmental Impact Assessment (EIA) process; and 4) the *Watershed Protected Area Designation Order* should **provide more stringent drinking water protection**; and mining legislation should ensure that **securities** are in place to reflect the full cost of clean-up of abandoned, contaminated sites.

- Concerns were also expressed over changes to federal legislation under the *Fisheries Act* that were seen as weakening protection of water resources.

- It was stated that the use of **financial incentives** could have a role to play in encouraging the use of best management practices by those who affect or use water.

- Other comments focused on how current regulations are applied. It was stated by some that the ministerial discretion and discretionary language inherent in some legislation has led to inconsistent decisions and political interference in decision-making. It was suggested that there is a lack of political will to enforce current legislation and that openness and transparency is lacking in the decision-making process. In addition, it was suggested that there are inconsistences with how water is regulated across different government departments and between different projects and that the responsibility for managing resource development in the province is divided among too many different jurisdictions. It was further suggested that there is a resistance to input concerning new ideas and technologies concerning water regulation and that the short intervals between elections create challenges for effective water governance. In a related comment, it was suggested that existing regulations may stifle innovation (new technologies and approaches to addressing environmental problems). It was also suggested that there is no point in looking at new regulations until the current ones are fully implemented and enforced.

- A concern was expressed that new regulations might impact private land and that existing "red tape" is restricting future development. There should be: **fairer application fees** set according to the value of the property or the project; a shorter time frame for acquiring permits; a **"one-stop shop"** for obtaining development approvals and permits; integration of the various permit requirements across government; improved documentation and **educational materials** associated with watercourse and wetland alteration permit applications and the on-line application process (to help people understand the requirements and to make the process more user-friendly); **clearer information about the timing restrictions** and other conditions attached to permits; and **better access to professionals** such as surveyors who can assist in the application process. At the same time it was noted that there is an absence of planning, especially in rural areas.

- It was stated that there should be no legislative change that would degrade, reduce or deregulate water.

- Ideas put forward to address fragmented governance include: the **identification of a lead department** (e.g. a single Department or Secretariat of Water Management); **clarification of government mandates and responsibilities**; more publicity regarding the different government responsibilities; **improved coordination** among agencies and other partners (e.g. by means of **inter-agency teams** to address environmental issues); and **interdepartmental regulation** of water issues.

- Other suggestions for improving water governance in New Brunswick included: **Clarity**: ensuring that requirements for industrial proponents are clear and enforceable; **public involvement**: public participation in regulatory decisions based on the model of the *Clean Air Act* (e.g. a public participation regulation that would apply to *Approvals to Construct* and other permits pertaining to water); **Regulations oriented toward outcomes**: a focus on sustainable development and maintaining ecosystem functions in regulations; regulations that apply the principles of **cumulative effects assessment**; an emphasis on clear, **science-based requirements** that exclude "permits to pollute"; use of a **"risk based"** approach to development approvals so that regulatory efforts are focused on the projects having the greatest potential to cause impacts; a greater weight on environmental values in decision-making; **Continuous improvement**: learning from good legislative examples from other jurisdictions; and a process for stakeholders to bring new and innovative ideas to the attention of government;
- Further suggestions about water governance include **removal of regulatory barriers to innovation** in water protection; **Greater certainty**: legislative reform to remove discretionary language; **Improved effectiveness**: transparent decisions based on **sound science and expert advice**; increased emphasis on determining which companies are currently causing pollution; regulatory requirements for baseline water testing; application of the **precautionary principle** with respect to water issues; more weight should be placed on environmental issues for all proposed projects; **Conflict resolution**: an appeal mechanism for project approvals (especially for projects that do not occur on a frequent basis); and use of a forum, process, agency or pathway for resolving issues (i.e. an expert panel); **Proactivity**: government should be more proactive about directing development to appropriate locations; **Planning**: Regional Service Commissions should be encouraged to implement rural (regional) plans.

Resources and Funding for Water-Related Regulations:

- The concern was expressed that there are insufficient government resources for full management of water and as a result water management and planning are not always taking place in New Brunswick. In addition, water is not always considered in planning decisions. Tools should be established for the financing of water management in which all sectors (industry, the public, etc.) pay their fair share. It was suggested that in accordance with the **"polluter pays" principle**, water-related permits should have **higher fees** and the revenue should be used by the Department of Environment and Local Government for increased staff. The *Air Quality Approval* fees for Class 1A facilities provide an example (although it was suggested that even these are not high

enough). It was felt that there should be a transition period for increased fees for industrial approvals to minimize any financial burden on industry.

- It was suggested that there is a lack of financial resources at the municipal level to strengthen water quality standards. There is a need for **more financing for municipalities**, scaled to each municipality.

- As stated elsewhere in this summary, it was suggested that financial implications of other aspects of a water strategy could also be addressed using fees (e.g. to fund infrastructure, and encourage water conservation).

Enforcement:

- Issues raised under the general area of enforcement included: inconsistent enforcement; not enough enforcement; limited enforcement capacity (e.g. some geographic areas are too big for existing staff to cover); lack of enforcement when concentrations of industrial waste water exceed the criteria; lack of inspection resources at the municipal level; penalties are insufficient to deter violators; lack of rigorous enforcement of restrictions on activities within wetland buffers; and lack of auditing and enforcement of conditions attached to approvals (e.g. permits issued under the *Watercourse and Wetland Alteration Regulation*).

- Ideas for improving enforcement of the province's water protection regime included**: increasing the capacity of government staff in the areas of monitoring and enforcement** (e.g. more inspectors, inspector training, more "feet on the ground", more effort to determine who is responsible for pollution); **shared enforcement** and **greater cooperation** with agencies outside the provincial government (e.g. partnerships with First Nations, non-government organizations, police, and federal agencies); provide **tools that allow staff to effectively enforce legislation**; increased **staffing for prosecutions** (i.e. so that environmental inspectors are not tied up in court cases); transfer all enforcement activities to the Department of Justice; **increasing the severity of penalties for violations** (i.e. to better reflect the importance of an infraction); use of legislation that specifies **clear requirements** that do not involve a reliance on tort law (common law); more local-based oversight inspection and enforcement; set priorities for enforcement (e.g. by geographic area); a greater emphasis on **public education and outreach** as part of an enforcement strategy including a strong public **communication plan** so people know what the rules are; more emphasis on **auditing** of permit and approval conditions as a complement to enforcement; and **annual reports** on the results of enforcement audits to increase accountability and build public knowledge about water-related legislation.

- It was suggested that the **enforcement options** provided under the *Clean Environment Act* should be reviewed and revised as required.

Balancing Water Uses:

- Concerns and issues expressed included: a need for greater **accountability** on the part of industries that use water (while at the same time not relying on industry to protect watersheds); a need for **prioritized allocation of water** between competing uses; a need to consider **sustainable use of water** when considering water allocations; and a need to properly identify ecosystem (environmental) flows as part of water allocation decisions.

- The view was also expressed that there should not be a balance between water for economic development and water for other uses. Instead, economic development should be a secondary principle after water is ensured for meeting ecological and basic human needs. It was noted that water protection and access to the natural environment will in fact lead to economic benefits (e.g. ecotourism) but the economy should not dictate environmental regulations and no concessions should be made to jeopardize watersheds for economic gain. Regulatory tools that make it more costly to develop or damage healthy water supplies should be employed. It was also stated that when it comes to economic development, activities that support and encourage good **water stewardship** by locals should be given higher priority.

- It was suggested that including the term "economic opportunities" in Goal 2 could mean that the strategy may have a "hidden agenda" to allow water exports and major industrial development and that the Province should always maintain ownership of water. Conversely, it was also stated that it is indeed necessary to find a balance between industrial development and protecting water quality and that potential economic opportunities for sale of water resources to areas were water is scarce should be explored.

- Solutions aimed at balancing competing water uses included: **royalties for water use** (water pricing, tax on water use) especially for large water users, with revenue dedicated to supporting water protection; a **hierarchy of water use priorities** based on good science (more research is needed); use of an **ecosystem approach** to maintaining environmental flows that includes consideration of groundwater; public **education** in relation to the importance of all aspects of water; development of an **operational definition of "sustainability**" for use in water allocation decisions; consideration of **timing of water withdrawals** (sensitive time periods); **assessing the cumulative effects** of development; and **involving all stakeholders** in decisions regarding proposed development.

Water Conservation:

- Concerns expressed under this heading included: impacts on water supplies due to wastage of water, climate change and leaking water distribution systems; lack of monitoring and water use measurement and reporting for major water users; and water

is viewed as a free good (not valued). It was stated that the issue of water conservation is important for both groundwater and surface water.

- It was suggested that one of the deliverables resulting from the water strategy should be a **water conservation plan** or another coordinated initiative aimed at water conservation.

- Ways suggested to promote water conservation included: more widespread use of **water meters** (to help people understand their water use and the value of water); water usage information on property tax bill to **document consumption** of water; **regulations** aimed at controlling water losses (along with required enforcement); promote water conservation through **education and water stewardship programs** (homeowners, schools, etc.) including the creation of local "water leaders"; municipal lawn watering **bylaws**; greater availability, promotion and use of enhanced or **new technologies** (waste water recycling, rainwater recovery, low flow toilets etc.) that allow for water re-use and water use efficiency (and **incentives** for their implementation); mandatory **water use reporting** for all major water users; recognition of **First Nation water rights and title** and their inclusion in water conservation and management; specific **water conservation targets** measured against a baseline so that progress can be measured; **location-specific water conservation measures** that vary from region to region (in accordance with regional conservation targets, seasonal variations in water availability, etc.); **water conservation plans for businesses**; and **funding for implementing water conservation strategies** (industrial and municipal); and the establishment of a **science-based economic value of water.**

- The idea of **water use fees and permits** was also brought forward as potential incentives for conservation, as well as a way to raise funds for supporting water conservation and monitoring activities. It was suggested that a **sliding fee structure** could be developed based on various classes of water use; permits could include standard conditions regarding **water use data** collection and reporting. It was also suggested that an **economic value of water** be established based on scientific principles.

- It was stated that any required water conservation solutions must not place an unnecessary burden on municipalities and responsible water users. The Strategy should outline **sustainable funding mechanisms and financial tools** to support those who will be responsible for its implementation.

Managing on a Watershed Basis:

- Strong support was expressed for using the **watershed as a focus for managing water**. This would allow water protection measures to use a **holistic, ecosystem-based approach** and acknowledge the interconnectedness of ecosystem components within watersheds. **Cumulative effects** could be better identified and addressed.

- As was described under the Current Regulatory Framework and Decision-Making heading, concern was expressed that the existing ***Water Classification Regulation*** has not been implemented. Questions were raised as to why not. It was suggested that lack of implementation represents a disregard of previous work associated with water classification and a poor use of resources. It was suggested that rivers and watersheds should be classified as a priority and that regulations should be put in place with the goals of maintaining pristine waters and improving the quality of waters that are not pristine. It was noted that experts are available both within and outside government who could act as consultants in the implementation of water classification. For example, the federal government (Department of Fisheries and Oceans) should be involved.

- Other advice about watershed-based management included: **Acknowledging natural variability:** there should be a **focus on greater knowledge** about individual watersheds (water flows, water users, etc.); one size does not fit all and science-based measures based on evaluation of individual streams and watersheds should be established (e.g. for set-back buffers, disturbance thresholds, water quality objectives, etc.); **Scientific management**: ensure that sufficient data is available to allow effective watershed management (e.g. river insect larvae sampling); focus on research aimed at an improved understanding of how to **manage watersheds holistically**; information databases should be developed for each main watershed in the province; predictive **water quality modelling** should be employed to test the results of proposed pollution prevention initiatives; and **mixing zone parameters** should be re-visited to improve their effectiveness.

- **Implementation planning**: a system should be developed to define how watershed plans will be developed, approved and implemented; better use could be made of existing research on inter-jurisdictional watershed management; a standard approach should be developed for evaluating management plans; **Implementation tools**: a system should be put in place that rewards good water management and includes penalties for poor water management; industrial dischargers should be required to undergo a **risk assessment** process as part of their approvals; agricultural or forestry best management practices should be implemented to reduce water impacts related to erosion and release of dissolved contaminants; a **water management secretariat** should be established within government; land use planning should be linked to watershed planning; **Understanding trends**: long-term management should make use of historic data (trends etc.); **Quantitative water quality targets** should be established for all lakes and rivers (e.g. based on the CCME *Guidelines for the Protection of Aquatic Life*, the *Canadian Recreational Water Quality Guidelines*, and guidelines prepared by the Department of Fisheries and Oceans for shellfish).

- **Public engagement and shared management**: watershed plans should be developed in consultation with watershed groups (workshops); use "**watershed commissions**" comprised of a variety of agencies, and stakeholders (including First Nations and the

established watershed groups) to make water management decisions within each watershed; legally recognize the importance of watershed groups; and **Goal-oriented management**: watershed management should involve setting goals for future water quality (improvements over time).

Protection of Potable Water Supplies:

- Issues brought forward concerning potable water included: the overall importance of drinking water protection and access to clean drinking water for all New Brunswickers; the heavy reliance of New Brunswickers on private water wells; the role of water classification for drinking water protection; the vulnerability of potable surface water sources to degradation due to sedimentation from recreational activities (All Terrain Vehicles etc.), fuel spills from vehicles (e.g. at boat launches); potential harm to private wells from spraying of herbicides and pesticides at Base Gagetown and by N.B. Power and private woodlot owners; salt water intrusion into coastal water wells (exacerbated by sea level rise); lack of water quality sampling by private well owners; poor maintenance of septic systems; a perception that government is willing to trade potable water quality for economic development and employment; and the potential danger to potable water supplies due to terrorist activities.

- It was suggested that all drinking water sources (including private wells) should be covered by **a comprehensive water quality protection system**

- Regarding potable groundwater, it was suggested that the strategy should include: **Groundwater protection**: identify, prioritize and protect areas containing large amounts of groundwater to **ensure future access to clean drinking water**; register all domestic and non-domestic use of groundwater wells; explore options for **strengthening existing regulations** such as the *Wellfield Protected Area Designation Order* to **better protect drinking water**; include aquifer protection and planning under the *Community Planning Act* for municipalities and rural areas; include legislation to **protect natural springs** from chemical or bacterial contamination; preparation and maintenance of a **database of abandoned wells** and their status (capped, plugged, open, etc.). **Private water wells**: address issues concerning private water wells (e.g. high lot density leading to pollution concerns and stress on the aquifer, a need for a routine, long-term **water well quality monitoring program** including **free water well testing** for homeowners and education for well owners).

- With respect to potable surface water, it was suggested that the water strategy should afford **additional protection to potable surface water supplies** (e.g. prevent activities that could adversely affect the water supply such as power boating, mining, etc.).

- Other suggestions for the strategy which could apply to both groundwater and surface water included: **Accountability for impairment**: incorporate the concept that industries

that harm water supplies should be made responsible for restoration; Human health: include actions to **address water quality issues that affect human health** (e.g. naturally-occurring arsenic); ban fluoride in water systems; Historic contamination: investigate the quality of water in locations that may have been affected by **historic land uses** (former mines, etc.) to determine whether or not potable water supplies have been contaminated; address the issue of urban sprawl (i.e. via land use planning policies); provide for **emergency preparedness** (back-up water supplies and storage for emergencies); call for **increased capital investment** in water supply infrastructure; **expand the current level of protection afforded to municipal water supplies** to cover private water supplies; and **increased buffer zones** to protect all water supplies.

Watercourses and Wetlands:

- Input received regarding impacts to watercourses and wetlands included the following concerns: potential over-use of water (resulting in dried out rivers, wetlands and aquifers); fill placement along river banks as part of residential construction; previous weakening of regulations aimed at protecting wetlands (i.e. revisions to wetland policy regarding regulated wetlands); lack of implementation of a wetland management strategy; incomplete watercourse and wetland identification (need complete and accurate mapping); an increased rate of development adjacent to watercourses and wetlands; placing of salt and sand on roads; lack of clarity in the *Watercourse and Wetland Alteration Permit* application process; impediments to fish passage; sedimentation and pollution due to spills and run-off; impacts on water quality (e.g. sedimentation) due to heavy All-Terrain Vehicle traffic; and a need to protect Atlantic salmon habitat. Solutions are needed to address impacts to water quality resulting from road maintenance (salt and sand).

- It was stated that acid rock drainage (ARD) is formed when sulfide minerals are exposed to the atmosphere (e.g. as a result of road construction, excavations, etc.). Such minerals are commonly present in New Brunswick rocks, and may therefore pose a risk to our water resources if not recognized, managed and monitored in a proper manner.

- Potential solutions brought forward in response to the concerns raised about watercourses and wetlands included: establish **regulations for water users** to ensure that water is used sustainably; better regulate land alteration and fill placement along river banks using the *Watercourse and Wetland Alteration Regulation* and/or the *Environmental Impact Assessment Regulation*; **reinstatement of previous wetland protection regime**; launch the **long-term wetland management strategy**; institution of **reporting by government on wetland losses and wetland compensation**; a **certification program** for those working with wetlands; **new wetland protection strategies** (e.g. consideration of cumulative effects, monitoring, incentives such as tax credits, requiring restoration wetlands damaged by illegal activities, use of a system similar to water classification); create **better watercourse and wetland mapping** (verified by field inspection); use of non-standard, **site specific, science-based buffer**

widths (e.g. wider riparian buffers for areas of steep slopes, areas of active erosion, etc.); **improved enforcement** of wetland buffers; **better monitoring** of potentially harmful activities (e.g. to determined what materials are being placed in construction and demolition landfills located near watercourse and wetlands); **regular inspection of culverts** to ensure that they continue to provide fish passage; and regulations aimed at **maintaining environmental flows**.

- It was suggested that more stringent **acid rock drainage (ARD) and metals leaching (ML) assessment and monitoring protocols** are probably warranted for New Brunswick, along with more research into delineating areas of risk.

- It was stated that a new wetlands strategy must tip the balance in favour of environmental protection as opposed to development.

Floodplains:

- Regarding floodplains, it was stated that continuing to provide flood assistance to homeowners to refurbish homes located in floodplains is not a sustainable approach and that this issue should be addressed using **solid community planning** that is also aimed at protecting the water retention and biodiversity functions of floodplains. Homes should only be built in areas that are not affected by floods. To protect against flooding, **watercourse and wetland buffers** should be based on height above the water level rather than only a standard horizontal distance. The concept of "**strategic retreat**" was also raised as a way of helping re-direct development away from locations that will be affected by sea level rise.

- Other commenters indicated that there is a need to better **control and mitigate flooding risks** to avoid repeated expenditures to repair flood damage (e.g. damage to roads). This is especially important in light of the effects of climate change on flooding. There should be more **public information** on how to prepare for and deal with storms and floods and the accuracy of **flood hazard maps** should be improved.

Managing Waste Water:

- It was stated that nutrients, pharmaceuticals, micro-beads, etc. are being introduced into watercourses in wastewater effluent.

- A number of comments and concerns were expressed about the design and use of septic systems such as: lack of innovation in domestic wastewater treatment; failed, aging, poorly-designed and improperly installed septic systems; lack of clarity in licensing and education requirements for installers; lack of clarity regarding who is responsible for different aspects of the industry; potentially significant consequences of improper waste water treatment; a trend toward privatization of infrastructure; and apparent discharge or residential sewage directly into a watercourse.

- Regarding governance and regulation of septic systems, it was stated that while the Department of Health is responsible for septic system regulation, the Department is not conducting its reviews from an environmental perspective. The need for information about the Health Department's future plans for septic system regulation was also expressed (e.g. there is a perception among wastewater professionals that the Department is leaning toward requiring all systems to be engineered). There is also a perception that the Department of Health does not uniformly apply inspection standards and is lax in communicating with septic system installers regarding administrative changes to licencing and other issues.

- Solutions put forward to address issues and concerns associated with septic systems include: Innovation: use of **updated and innovative ideas and technologies** such as re-use of grey water (including the provision of incentives and the **update of regulations** to allow innovation); promotion of the use of composting toilets; **Communication and clarification**: better communication about who has jurisdiction over aspects of design, installation and approval; clarification of educational requirements for installers (if engineered systems are to become the norm); **Incentives and funding**: provision of incentives to **update outdated, poorly-managed septic systems**; long-term, stable **funding** for the New Brunswick Association of On-Site Wastewater Professionals; **Regulations**: a review of existing septic system regulations; better enforcement of existing regulations; a legislated requirement that old septic systems be updated when buildings are renovated; the purchase of septic tanks should be tied to issued permits as a relatively inexpensive way of controlling illegal installations; and **Research**: a province-wide study of the impacts of septic systems on groundwater and well water.

- Other solutions identified in the general area of wastewater treatment include: **increased surveillance and monitoring** of wastewater treatment systems (including the use of environmental effects monitoring); an **upgrade of all wastewater treatment facilities** to provide tertiary treatment; a **crackdown on illegal sewage discharges** to watercourses; **access to information** on permit holders (waste oil and tank washing companies, hazardous waste treatment facilities, etc.) by municipalities for permit-holders within their boundaries; a requirement for permit-holders to abide by **municipal sewer use bylaws** should be included in the permit conditions; and use of cost-recovery models to fund storm water infrastructure.

Agriculture and Water:

- Concerns expressed in relation to this topic include: the potential for cumulative water quality effects of agriculture; agriculture is not subject to the same level of environmental regulation as are other industries; loss of topsoil due to soil erosion; impacts of fertilizer on nutrient levels in surface water (e.g. growth of algae); sedimentation of watercourses; lack of information about regulations regarding imported

soils and lack of enforcement of the *General Regulation* under the *Topsoil Preservation Act* leading to erosion and sedimentation; lack of sufficient protection of water quality from chemical spraying; the dependence of some agricultural sectors on irrigation using high quality reliable water sources; a lack of knowledge about how much water is used for irrigation; and a lack of understanding regarding the water impacts of blueberry farming and harvesting.

- Suggested solutions to the issues raised include: **closer cooperation** between the Department of Environment and Local Government and the Department of Agriculture and Aquaculture (i.e. regulatory actions, **information sharing** on water use and future water needs); **address spraying of pesticides and herbicides**; ensure that **nutrient management plans** are stringent enough to protect water quality; use of innovative solutions for nutrient management; a stronger emphasis on **organic agriculture and bio-pesticides**; **financial incentives and educational resources** for agricultural producers (water management, appropriate use of pesticides, erosion prevention, fertilizer use, manure handling and storage, new and emerging best practices, etc.); investigate the feasibility of an **agricultural ecological goods and practices program** to facilitate and encourage beneficial management practices; **increased buffers** around watercourses to protect them from watercourse sedimentation and application of fertilizers, herbicides and pesticides; a **ban or reduction on the use of toxic pesticides and herbicides** such as glyphosate; agricultural **land policies and regulations** should be guided by the notion that farmland has inherent value as part of a large ecosystem; and make **water protection regulations** apply uniformly to all industrial practices including agriculture (fair, "cost realistic" management "across the board").

- It was highlighted that there is a need to strike a balance between long-term water protection and the ability of agricultural producers to produce high quality, safe food.

Forestry and Water:

- Concerns expressed in relation to the impacts of forestry on water include: the need for **full disclosure** in relation to content and use of herbicides and pesticides (e.g. glyphosate, which has been identified by the World Health Organization as "a probable carcinogen"); clear cutting, including cutting old growth forest and other poor forest management practices (leading to: loss of topsoil, increased run-off, less groundwater recharge, rapid fluctuations in stream water levels, sedimentation of watercourses, early snow melt and the drying up of watersheds); and cutting trees too close to the watercourse (set-backs are insufficient).

- It was also suggested that the forest industry is not subject to the same level of environmental regulation as are other industries. An evaluation of the impacts of forestry on water quality should be conducted.

- Suggested approaches to addressing the above concerns include: a **ban on the use of toxic pesticides and herbicides** such as glyphosate; **ban clear cutting** and replace with a "checker boarding" or selective cutting approach to forest harvesting, including measures to reduce run-off from steep slopes; **increased buffer zones** between watercourses and forestry operations; when wood is cut outside buffer zones (but near watercourses), these areas should be replanted with **fast-growing tree species**; make **water protection regulations** apply uniformly to all industrial practices including forestry (fair, "cost realistic" management "across the board"); re-investment of forestry revenue into **sustainable forest management**; the introduction of **watershed-based management for forestry**; and better **surveillance, inspection and monitoring** of activities related to forestry (e.g. inspections, remote sensing, marking of areas to avoid, etc.).

Oil, Gas, Mining and Water:

- A number of comments and concerns were made in relation to extraction of shale gas, hydraulic fracturing and their potential to affect water quality, including potable water, especially in light of the high percentage of New Brunswickers that rely on private wells for their water supplies. Concerns were expressed regarding the potential long-term impacts on both water quality and quantity. Managing waste water and sludge is a significant issue. It was suggested that the issuing of licences for shale gas exploration and development in spite of potential impacts on health and the environment is evidence that the government of New Brunswick does not have a good track record on water protection in the area of resource development.

- Other concerns include a perception that government is willing to sacrifice potable water sources in exchange for the creation of temporary jobs associated with natural resource development. It was further stated that it is not clear how development of shale gas and other natural resources fits into a New Brunswick water strategy; given the highly divisive nature of recent, high profile projects, detailed discussion on natural resource development should take place within the context of the water strategy. Concerns were also expressed regarding the potential impacts of the proposed Energy East pipeline (e.g. the large number of water crossings that will be required); and the proposed Sisson Mine (tailings ponds, impacts on humans and wildlife). Concern was expressed about the potential impact of mining and orphaned (abandoned) industrial sites on water quality.

- Ideas aimed at addressing the foregoing issues include: **postpone major resource development projects** until sufficient regulations and enforcement processes are in place; **e**nsure that oil and gas development (e.g. shale gas wells, oil pipelines, etc.) **does not occur in locations such as wellfield protected areas and watershed protected areas** (potable water sources); **ban injection of chemicals into the ground** (i.e. continue the existing moratorium on hydraulic fracturing and make permanent); **use of petroleum extraction technologies that do not involve the use of chemicals**; use

health impact assessments in relation to proposed resource development projects; focus on developing **sources of energy that do not impact water** (wind, solar, etc.); require **financial securities** to ensure that funding is available for environmental clean-up; **contingency plans and emergency response plans** to be activated in the event of a major spill or environmental emergency. An **evaluation of the impacts of mining** on water quality should be conducted.

Hydroelectricity and Dams:

- Concerns were expressed about the level of management and oversight of hydro dams in the province. It was suggested that there should be a **formal, standardized, province-wide dam safety review process** supported by legislation. This could also include a system of licences or *Approvals to Operate* for dams that require regular renewals. It was also stated that there are challenges regarding abandoned dams due to potential liability and their impact of fish passage and that there is a need for **better regulation in relation to dams**. It was further stated that additional development of hydro and mini-hydroelectric installations represent both challenges and opportunities for New Brunswick and that there is potential revenue available if a **water use fee** was instituted in relation to the generation of hydroelectricity.

- It was stated that the removal of the Mactaquac dam would have a significant impact on the province's electricity supply and also on the ecosystem that has developed in the head pond in the years since the dam was constructed.

Export or Sale of Water:

- It was strongly stated that water is a vital, public resources and **should not be privatized or sold for economic gain**, especially if this would result in export of water to markets outside the province. The opinion was expressed that there should be a **ban on water exports**. Conversely, the idea was also put forward that since water is a renewable resource and there are shortages in other locations, some of **sustainable water exports** could be desirable and these exports would have to be properly managed (i.e. water allocation).

Other Issues:

A variety of other issues and ideas were brought forward in relation to the general theme of water use and water management. These are summarized below.

- Land use planning and land development **bylaws** are important water protection tools. Rural planning is also seen as a tool that should be encouraged as a means of providing water resource protection. Regional Service Commissions should be encouraged to develop **Rural Plans**.

- If new legislation is proposed that could have financial implications on municipalities, government should ensure that they are **consulted and engaged** as part of the development of the legislation.

- The **greenhouse gas** (**GHG) implications of water infrastructure** should be examined as part of a strategy to mitigate climate change.

- It was stated that beaver populations in New Brunswick are affecting water flows and water quality. Programs for **beaver dam removal** should be implemented. The **beaver population** should be assessed and controlled when necessary.

- The impact of illegal dumpsites on water quality was identified. **Education, enforcement and surveillance** are potential tools to address this issue.

- A **province-wide plan of environmental clean-up** should be implemented.

Draft Goal 3

Draft Goal Number 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships.

Figure 7: Some key themes extracted from ideas about draft goal 3.

Building Partnerships:

- Concerns expressed in relation to water management partnerships include a perceived decline in partnerships between watershed groups and the Department of Environment

and Local Government over time. It was also suggested that the potential of partnerships to address deficiencies in research and available resources is not being sufficiently exploited. Lack of knowledge about the various stakeholders, their expertise and the areas in which they operate may be hindering the formation of valuable partnerships.

- It was also suggested that there are too many watershed groups and that they are working in "silos." Even non-governmental agencies (non-governmental organizations) working within the same watershed are not coordinating their efforts. There should be **better coordination** between them.

- **Partnerships** were identified as necessary to meeting government's goal of better understanding surface and groundwater (shared financial burden, access to more information)

- Potential solutions that were identified include: preparation of a **public list (inventory) of non-governmental organizations and other expertise** (e.g. within various levels of government) in order to answer the question: "Who is doing what and where are they doing it?" to help facilitate increased partnerships between government and others; provision of **more resources** by government (funding, technical support etc.) along with **increased capacity** within the Department of Environment and Local Government; **formalized water management partnerships using legal instruments** (e.g. regulations); **regular meetings between the Province and other stakeholders** (e.g. an annual water management conference involving non-governmental organizations, Regional Service Commissions (RSCs), municipalities and government departments); development of **research partnerships** between researchers inside and outside of government; **strong communication plans** so New Brunswickers know about and understand the water management priorities; and a **greater role for the Department of Health** in water management.

- On the one hand it was stated that partnerships should include commercial and industrial water users, but on the other hand a lack of trust in industry was expressed. Some suggested that industry should not be involved in partnerships (e.g. due to a conflict of interest) while it was also suggested that industry should have more involvement with watershed groups.

Roles and Responsibilities of Partners:

- An overriding issue is one of defining roles in any partnerships and shared responsibilities. Otherwise, each partner will likely have a different idea about their roles and responsibilities. Various partners stand ready to assist government and various potential roles for these partners were suggested as summarized below.

- It was suggested that while non-governmental organizations such as **watershed groups have a role to play** in monitoring, **enforcement should remain the responsibility of**

government. In other words, government should partner with key watershed groups that are set up across the province and allow them to be monitors or watchdogs of water. They could also assist in data reporting. Provincial staff should be the enforcement arm of the strategy. It was also stated that while protection of water should be the responsibility of government they should **make decisions with input from strong partners**. Watershed groups can act as a partner with a proven history, strong data and science, good public relations, and sound guiding principles. Some watersheds could become "watershed authorities" and take on more responsibility within their watershed (provided that they have the desire to assume this role). It was further suggested that some watershed groups could be certified to perform specific functions on behalf of government.

- It was suggested that **Regional Service Commissions** should be the level at which stakeholders are brought together, provided they have the capacity to fulfill this role. Other commenters suggested that **Municipalities** are key partners in the protection of freshwater ecosystems and promoting sustainable water use. Ensuring municipalities are consulted and are provided with **sufficient funding and capacity** to participate in the strategy's development and implementation is therefore crucial.

- **Various departments of the provincial government have a shared role** in water protection. This shared role should be better defined. Departments include: the Department of Environment and Local Government, the Department of Health, the Department of Education, and the Department of Energy and Resource Development.

- The federal government offers **expertise and resources** (e.g. enforcement, field inspections).

- It was suggested that government should take the lead in **organizing and facilitating partnerships and providing the necessary resources**. This can best be done once the water strategy is finalized and specific action items are identified. **Formal contracts backed by auditing systems** should be put in place as part of partnerships to **ensure accountability for any roles and responsibilities** that have been delegated.

Resources for Partners:

- Concerns were expressed regarding limited funding, technical capacity and resources, and the resultant effects on the ability of groups and organizations to participate in partnerships. Specifically, it was stated that: a strengthened role of watershed groups and municipalities in water management will require that they receive more funding (current funding levels do not allow for efficient delivery of water management services); municipalities and Regional Service Commissions do not have many funds to share with other partners and need more funding for themselves; there is a lack of stable, core funding for non-governmental organizations involved in water-related issues; annual reviews of Environmental Trust Fund proposals consume a lot of staff time at the

Department of Environment and Local Government and consume a lot of time for those who make an application; and there is also a lack of resources available within the Government of New Brunswick.

- Ideas aimed at addressing the above concerns include: **longer term, stable, core funding** for non-governmental organizations (e.g. multi-year funding by the Environmental Trust Fund that avoids the need for annual applications); long-term **funding designated to specific watersheds**; and greater **sharing of available resources.** It was suggested that money from the Environmental Trust Fund could be made available for municipal water-related infrastructure in support of water management.

- There was also a call for **local access to water sampling kits and improved distribution of bottles** for collecting water samples.

Recognition of Partners:

- It was stated that the work done by non-governmental organizations, including watershed groups is not recognized by either government or the public. They contribute environmentally, socially and economically to the province. Government should **publically recognize the value and role of watershed groups**.

Draft Goal 4

Draft Goal Number 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions.

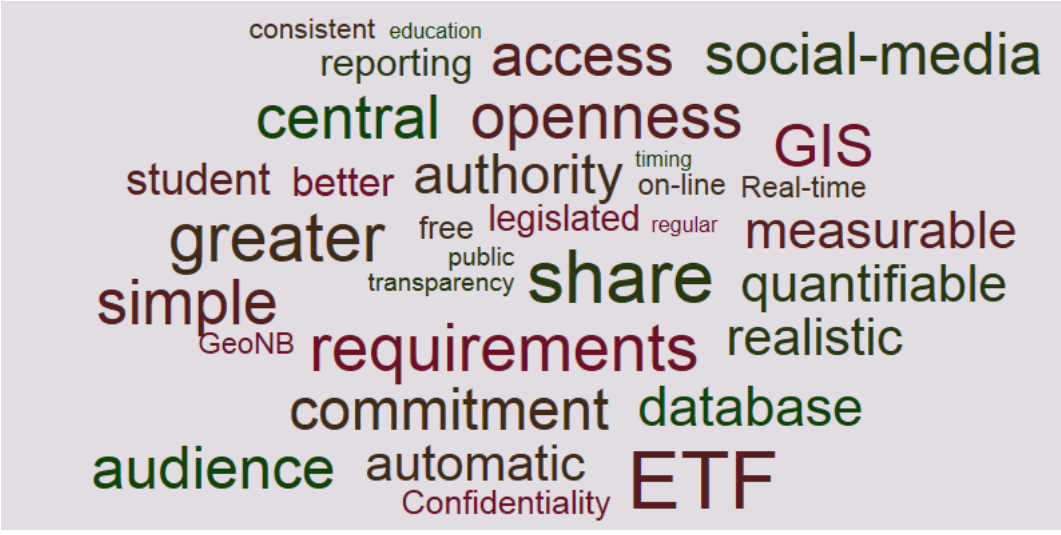

Figure 8: Some key themes extracted from ideas about draft goal 4.

General Comments:

- It was suggested that the phrase “more water-related information” should be changed to “all water-related information.”

Access to Information:

- Expressed concerns include: an apparent lack of political will or desire when it comes to reporting information; availability of some information (e.g. private well data) is restricted by privacy legislation; a lack of available resources for data analysis and reporting; lack of knowledge regarding how to obtain information (e.g. names of government contacts); and information does not always “trickle down” to the people who need it (e.g. Local Service Districts).
- It was pointed out that the strategy should go beyond evaluating opportunities for sharing information. Measures to **share information** should be implemented and these might involve using partnerships to help disseminate information.

- Ideas aimed at improving access to information include: **legislated requirements and authority for public reporting** of information (e.g. reporting to the legislature) including details of what, when and how the information must be shared; a government **commitment to openness and transparency**; **no fees for gaining access** to information; **make well water data public** (individuals do not own the water); **automatic municipal access to water quality data collected by the Province**; greater **public access to permits and approvals** that have been issued (e.g. permits issued under the *Watercourse and Wetland Alteration Regulation*); a condition attached to *Certificates of Determination* issued under the *Environmental Impact Assessment Regulation* that **require information sharing**; use of a **central, on-line database** (single access point for information, potentially funded by a water use fee); **better access to the data previously collected during government funded projects** such as work funded by the Environmental Trust Fund (e.g. post reports on-line or assembly of data by the Department of Environment and Local Government); and include a requirement for an **agreement on information sharing** that must be signed before funding is granted.

- **All data should be made available**, and not just because of a request made under the *Right to Information and Protection of Privacy Act*. It was also stated that there should be a **balance between confidentiality and access to information** and that a conscious decision will have to be made about what types of information are sharable.

Format of Information and Timing of Reporting:

- It was suggested that the water strategy should include **annual public reporting on both achievements and shortcomings** of the strategy’s implementation. Annual reporting should also **describe the success and challenges** of measuring and

reaching objectives defined within the strategy to maintain freshwater ecosystem health, protection and sustainable development; the strategy should also require **monitoring and public reporting** of surface and groundwater monitoring data, actual water use from all large water users and registration of all domestic and non-domestic use of groundwater wells. It was also pointed out that the **timing of reporting (the reporting cycle) should be set realistically** (i.e. it should be realistically within government's capacity to collect, analyzes, synthesize and publicize data). A five year reporting cycle with annual interim updates was suggested as an example. Methods for data collection and analysis should be **peer-reviewed**.

- It is thought to be extremely important to **set quantifiable and measurable objectives** in the water strategy. Objectives can help ease the burden of public reporting by focusing on clear statements about whether objectives are being met, are in the process of being met, or are not being met (failure). They can also help insulate decision-makers from political pressures.

- Information should be **reported in a simple and easy-to-access format** (e.g. on-line "report card") and use should be made of **social media** such as Facebook and Twitter, in sharing information. Reporting methods and formats being used in **other jurisdictions** should be reviewed for potential application in this province. When preparing reports and releasing data, emphasis should be placed on **the kind of information that the public wants to know** (e.g. trends in water quality and quantity) with **more detailed data available in the background for researchers** etc. It may be necessary to **get a better understanding of the "audience"** and package the data accordingly. A committee comprised of government, academia and Non-governmental organizations could be formed to help **oversee and manage the reporting process**.

- "**Real time" data reporting** should be used and the results should be **compared to a historical baseline** in order to help reveal changes and trends. Data collection and analysis should be peer-reviewed.

- It is also important that **information collected by non-government organizations** (non-governmental organizations) such as watershed groups should be reported publically. One way to help facilitate this would be an easy-to-use **on-line database** where these organizations could input their data. It would also be helpful if government could provide **feedback on the information that has been collected** and reported by non-governmental organizations.

- "Information dumps" of raw data should be avoided. **Data should be interpreted** to help people understand its meaning and significance.

- Advantage should be taken of **GIS technologies** so that georeferenced information can be mapped and shared publically as electronic maps (i.e. build on information already found on the GeoNB website;e.g. the **existing New Brunswick Groundwater Atlas**

should be linked to GeoNB). Problem areas or locations of special significance could be colour coded. At the same time, it was also stated by some that the current GeoNB platform is hard to use for those not familiar with GIS. Alternative **"click-on" watershed maps** are used in other jurisdictions.

- Environmental Trust Fund reports and all EIA registration **documents should be placed on-line** so the water data and information they contain is available to those who are interested.

Education:

- It was stated that there is a need to **educate New Brunswickers about a variety of water-related issues** such as: the importance of wetlands; the basics of the water cycle (where does water come from?); the results of research generated by the Environmental Trust Fund; the costs and benefits of proposed resource development projects; the importance of protected watersheds and wellfields; the interconnectivity of water; the value of water; the value of wetlands; water conservation methods; the ways in which land use affect water quality; the importance of riparian buffer zones; the importance of water conservation; and the importance of water quality sampling of private wells.

- The challenges associated with water-related education in New Brunswick are increased because at present, water is taken for granted and there is a perception that plenty of good quality water is readily available (an assumed water surplus, no sense of urgency). There is a need to create or instill a sense of individual responsibility and overcome a resistance to change.

- Ideas that address the education component of water management include: **student education** (schools and colleges); more water education in school curriculum (including out of the classroom field education); **an Environmental Trust Fund report database**; **better signage** of protected watersheds (and wellfields); use **multiple approaches** to education including new or revised websites and increased use of **social media**; use **plain language** and focus on **simple concepts** (especially for programs in schools); **partner with community groups** in educational programs; development of a good **communication plan** (e.g. about water-related regulations and who is responsible for them); and **signs and notices** that should inform people without scaring them (e.g. health warnings at public beaches).

- It was suggested that it is government's role to **deliver a consistent message** on water protection and the role of partners to disseminate that message.

- It is important to **publically share "success stories"** as well as information about problems.

APPENDIX 1: Detailed Summary of Representative Comments

Draft Goal 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources
General Comments
Should add the following to this goal: Make more information sharing opportunities available (decision makers, stakeholders, non-governmental organizations, etc.).
Information and Data (see also Goal 4 - Access to information and Format of Information subheadings)
Challenges
Are our current monitoring strategies sufficient to answer water management challenges? No data/information; not enough data exists for water management. Knowledge of the resource is lacking. Need to define the resource. Lack of information on water quality, water consumption. The available information is not constant and not available in real-time. Inconsistent data that is all over the place. Use of non-standard sampling methods. Reliability of source of data; each watershed may have different parameters. Data gaps - Need to identify and address them; review current systems to identify strengths and weaknesses. Many of Canada's watersheds do not have sufficient data to understand their health. How can we prioritize conservation, management and rehabilitation activities when we don't know the health of our waters? There are very few monitoring stations on Crown land, where many of the headwaters of the province's river systems are located. Lack of a monitoring program that is designed to incorporate all departmental requirements. Need better management of the Department of Environment and Local Government's water data. Need solid baseline monitoring with longer duration, higher resolution and greater frequency. Lack of resources to understand groundwater and surface water.

Draft Goal 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources

There's lots of data out there that we don't use. We should make use of it.

Some data is being collected that may not be necessary.

Limited data for evidence-based decision-making; especially for ground water. We have chemistry data (about water quality), but poor understanding of the quantity/hydrology.

Watershed groups don't really have the mandate or the resources or the capacity to collect water quality data.

Data is not user friendly; data consistency is an issue; cost of making data available may be significant.

Difficult to compare local data (inconsistency in sampling methodology.

Have not adequately identified the baseline conditions.

New Brunswick's current groundwater monitoring network is insufficient to adequately characterize groundwater conditions across the province. No monitoring wells are located in the upper Saint John River valley and monitoring wells in Maine that once provided supplementary observations are no longer in operation.

Ideas

Conduct a data gap analysis regarding use and availability of data; collect specific, meaningful data for an intended purpose and use it.

Information should be collected to enable a determination of the state of watercourses in terms of both water quality and biodiversity.

Define data objectives and ecosystem limits, along with associated timelines.

All municipal wells should have accurate GIS coordinates held in an appropriate database; well logs should be accessible through the same database; water use data should be reported electronically to the government of New Brunswick by clients; all industrial/municipal water sources (ground water or surface water) over 50 cubic metres/day should have flow meters installed and users should be required to report their use as a standard condition of their Approval s to Operate.

Evaluate the current groundwater monitoring network to determine if certain wells should be replaced or relocated and construct and install 2-3 additional groundwater monitoring network wells.

Establish a standard protocol for sampling and analysis.

Create standardized sampling field sheets; standardized, scientifically rigorous data collection protocols; make use of existing examples (e.g. Maine-USF and E4 – public website - click on any watershed to obtain data).

Draft Goal 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources

Establish permanent sampling sites for consistency.

Constant monitoring of all watersheds.

Industry-funded monitoring (e.g. groundwater).

Use abandoned wells for groundwater monitoring.

Conduct an exhaustive data inventory.

More dollars for Department of Environment and Local Government; more partnerships and stakeholder engagement.

There is other data available (outside of government) from academia, industry and non-governmental organizations.

Make full use of existing data sets collected by multiple organizations; consolidate, analyze, interpret and report.

Find what other useable data is available to build on our knowledge of what we have. Using non-government data is a strategic way to increase our knowledge.

Find strategic ways to increase data collection where gaps are identified (e.g. by using abandoned government-owned wells etc.) Develop partnerships with Non-governmental organizations, First Nations, etc.

All data collected and submitted by industry should be checked for accuracy. There should be a standard in place that industry should adhere to for collection and reporting.

Conduct a strategic analysis of monitoring needs, to maximize use of available sampling resources.

More funding should be given to watershed groups who are conducting water quality monitoring in the province.

Mandate water stakeholders to collect data; collaboration with Regional Service Commissions and increase resources; support organizations that collect and manage data.

Watershed organizations can facilitate data collection and with appropriate resources, can provide field staff to accomplish the needed work. Contracts such as the current “River Watch” Program could be extended to include water quality sampling and other activities. This can be done on a cost recovery basis.

Training; quality assurance; funding.
It is particularly important to collect data that will support a water classification program.

Need to know about all water users within a watershed (including quantity used, wastewater

discharges, etc.).

Improve hydrometric station resolution (to measure flow rates at more locations).

Creation of a thermal inventory (stream temperature data) to identify thermal refuges for fish.

Use the model that is used in support of the *Clean Air Act* (i.e. air quality monitoring report); all industrial monitoring stations must be tied directly into the government system to ensure comprehensive water quality data results.

Collect more precipitation and stream flow data.

Solid baseline and monitoring data has to be collected at an improved resolution and frequency.

Collect biological information (frogs, insects, etc.) to use as indicators of water quality.

Need details on how much development a watershed can support.

Use consistent methods in order to attain mapping/watershed delineation/elevations (i.e. LiDAR).

Task a government Department to lead water data collection and management of water. The province should take the lead.

Enhance existing monitoring programs and develop new programs where required, to fully inform water management and conservation decisions and help ensure that decisions are based on scientifically sound and publically available data; permanent funding for academic institutions and non-governmental organizations to assist in the monitoring and protection of water and the education of the public on environmental issues.

Discussion/collaboration between the Department of Environment and Local Government and the Department of Energy and Resource Development (DERD). DERD has access to geological information that could be beneficial. They should work together to get this information (this could also apply to other departments). Use the N.B. LiDAR dataset. This could assist in providing better data for water bodies, elevations, wetlands, etc.

More study and collection of data (e.g. vulnerability studies).

Information Management Tools (see also Goal 4 - Format of Information and Timing of Reporting subheading)

Challenges

Data management limitation (paper reports rather than electronic).
Need innovative tools for storage, retrieval and sharing of information.

Need to ensure the quality of information.

Ideas

Draft Goal 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources

Need to enhance information technology (IT) services.

Revamp the Department of Environment and Local Government website.

GIS mapping technologies; more maps and more accurate mapping (watercourses, wetlands, groundwater, floodplains, etc.).

Increased use of modern mapping technology (LiDAR) and specialized software for the display, analysis and storage of information.

Universal water metering.

Centralized databases in electronic format; create a “one stop shop” for water-related data (data portal).

Need a robust set of web-based databases containing water quality and quantity information within the province, with proper geo-referencing.

Update the province’s on-line groundwater atlas.

Quality assurance and quality control (QA/QC) will ensure that data can be used with confidence when making water management decisions.

Groundwater modelling (e.g. Arc Hydro).

Climate Change

Challenges

Need more data to better understand climate change impact on water.

Changing climate makes interpreting data and understanding ecosystems more difficult.

Climate change uncertainty is an issue.

It’s important that we learn as much as we can so we can plan ahead for the changes that are occurring.

Climate change impacts transcends water and affects many other areas, such as economic development, transportation, the environment more broadly, human health, etc. Understanding this and ensuring that the appropriate mechanisms can be employed to address fresh water within the context of a changing climate is crucial, and will need to be a strong component of New Brunswick’s water strategy.

Ideas

Plan ahead for potential impacts of climate change with a government incentive program for water conservation and energy efficiency programs.

Draft Goal 1 - Our Water Resources: To Better Understand our Surface and Groundwater Resources

Work closely with Environment and Climate Change Canada.

Plan for variability.

The strategy should include actions that address the role of watersheds and their conservation and management in preventing or mitigating flooding, risks form droughts, changes in healthy flows and other impacts that are associated with climate change.

Make a commitment to better understand the resource now, but also into the future (i.e. predicted effects of climate change).

Better monitoring of wetlands. More research on water systems in New Brunswick and how they are affected by climate change.

Other Research Priorities

A greater focus is needed on efforts to evaluate the impacts of industrial activities such as forestry and mining on water quality.

There is a need for more understanding of wetland functions.

There is a lack of information about groundwater including the location of groundwater and the connections between groundwater and surface water.

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

General Comments

Stop after ecosystem health; do not include “while allowing economic opportunities.”

Goal 2 sounds like economic activities will be given the same weight as drinking water and ecosystem health. They should not.

Reverse Goal 2. We should manage (regulate) economic opportunities based upon a modern vision of natural resource protection.

It is not ‘sustainable’ to sacrifice the environment for industry.

Government could instead choose to adopt the goals of N.B. citizens groups: ‘bringing human activities in line with ecological limits’, ‘swimmable, fishable, drinkable water’, or ‘restoration of fish habitats and restoring damaged ecosystems.

Governance: Current Regulatory Framework and Decision-Making

Challenges

Are existing water-related acts and regulations effective? Are they meeting our needs?

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Public has no input /no say regarding regulations.

Weak regulations that do not protect water from contamination. Current regulations and how they are applied do not adequately prevent industrial development from polluting rivers, streams, and groundwater. Throughout our history, governments have favored industrial development and jobs over protecting our water.

Governments have very little ability to resist the pressures placed upon them by corporations because they provide jobs and they use that as leverage in negotiations about resources.

There is a perceived lack of political will to enforce current legislation and this has led to a degradation of watershed health and a mistrust of government when it comes to watershed health.

The existing political system is a challenge (i.e. short time frames between elections).

Rules and regulations are not consistently applied.

The legal glitch with water classification has everything to do with paving the way for more industrial development and much less to do with protecting the environment.

We need laws instead of guidelines.

Federal Department of Fisheries and Oceans - Bill C36 is a concern. Freshwater contamination by hatcheries. Diverting water (determining minimum required ecological flows).

Insufficient regulation of water quantity and water use.

Inconsistencies in regulation across departments.

Use of expert panels for comprehensive environmental impact assessments is costly.

Private land will be impacted by new regulations; people are leaving N.B. because of the red tape that is in place to restrict future development.

There are too many regulatory jurisdictions for resource development (i.e. federal, provincial, municipal and First Nations); having multiple water authorities is complex and confusing. Absence of planning, especially in rural areas.

Need to include all ecosystem components, in other words, cumulative impacts.

Permits are not integrated; work is being done in silos.

Ideas

Need environmental regulations aimed at preventing water contamination before it occurs by

setting out clear and enforceable requirements for projects to proceed. Hold industrial proponents accountable to these regulations before, during, and after development.

Need water classification legislation (already in the books) that is enforceable and that will not be over-ridden by political expediency.

Work to undo the harmful changes that have been made to the current water protection legislation like the federal *Fisheries Act*, *Water Classification Regulation* (not enforced), and wetland conservation.

Revise acts and regulations regarding sewage treatment, water treatment and rain water use.

Concrete, science-based rules for clean water with no 'permits to pollute'; require habitat restoration and pollution cleanup.

Reform legislation. More weight should be placed on environmental values in regulations and decision-making.

Remove discretionary language that tends to weaken the enforceability of water laws and regulations; there should be no exemptions or 'deals' for companies or developers; the Minister should not use discretionary powers to avoid the law.

Place responsibility for protection and management of water with an independent agency outside of government and free from political interference.

The laws should apply to everyone. Take the politics out of decision-making.

Use science-based decision making.

Develop new standards for other water users (agriculture, golf courses, forestry, etc.).

Government should focus on implementation of the precautionary principle when deciding whether or not to allow projects such as Energy East which pose vast threats to our water resources.

Would like to see public participation opportunities similar to those available for Approvals under the *Clean Air Act*.
Become proactive in order to direct development to sustainable locations.

Provide transparency with existing regulations.

Develop stronger regulations that limit the type of activities that can occur within a watershed.

Scientific research reveals that using water quality as the only metric of freshwater ecosystem health can be insufficient. New environmental flow regulations must augment the *Water Classification Regulation* to include protection for all components of a healthy freshwater

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

ecosystem. Utilizing the Brisbane definition of environmental flows in regulation will allow decision-makers to enforce decisions that meet multiple criteria.

Encourage Regional Service Commissions to implement rural (regional) plans.

Strict regulations to ensure that major development projects always include surface and groundwater baseline testing.

Review existing laws. Require the best development plans. Establish regulations that will support an ecosystem approach.

Find and remove legislative barriers to innovation in water protection.

Approvals to Operate should include some kind of water quality criteria to follow (regulations) that take background levels into account.

Regulation should be amended or created to clearly grant authority for water use monitoring and reporting as part of Approvals to Operate for industrial facilities. Consideration should be given to requiring separate Approvals to Operate for water use, not only just for wastewater discharge, or the two could be combined (e.g. under the heading of single Water Approval to Operate).

Interdepartmental regulations focussed on water protection.

Laws that allow a project to be halted if it is affecting any water supply or watercourse (e.g. the way Penobsquis people lost their water due to industrial activity). Affected people should not have to prove that a business is culpable. The government should be on our side.

Change regulations to permit innovative ways for using less water (e.g. reuse of treated water); new innovative ways to deal with sewage (i.e. homeowners need to be able to keep some wastewater out of municipal treatment systems); may need changes to allowable septic systems and/or the *National Building Code*.

Public engagement when developing new regulations.

Fix the Environmental Impact Assessment (EIA) process, which is ineffective in preventing disasters like the LNG bird kill; require cumulative effects assessments; keep EIA as a separate stand-alone process; revisit the 50 cubic metre per day EIA trigger to ensure a flexible (case-specific) trigger based on water availability.

A more comprehensive and independent Health Impact Assessment (HIA) should be adopted in lieu of the current Environmental Impact Assessment process (EIA). The HIA approach is broader, offers superior protection for human and environmental health, and is inclusive of the EIA mandate.

Government should focus on the creation or amendment of regulations to allow for sustainable development to benefit N.B.'s population but also to ensure that future generations have clean

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

water to use. Regulations should consider the needs of the fauna and ecosystem functioning when considering water withdrawals.

A risk-based approach to reviewing permits would lessen government burden (e.g. smaller/less intense review for small or less impactful applications) and still allow larger or impactful applications to be reviewed diligently, while providing a record of all works across the landscape, no matter the ownership type.

The on-line service for permit applications (watercourse and wetland alteration) is too complicated for the general population.

An appeal board should be created to establish an appeal mechanism to evaluate government decisions.

Industry should pay their fair share of taxes to help finance water and air protection, climate change strategies, etc.

Fees based on class of water use similar to wastewater. Develop categories and a sliding fee structure; revenue could be used to establish a new water fund that could be used to directly support water conservation/monitoring activities .

Government should be required to purchase land that is impacted by new regulations.

Decisions should be based on the advice of experts with stakeholder input. We need more openness and transparency.

Should have one stop shopping (for development approvals); determine priority or sequence of regulatory authority.

Timeframe for acquiring permits is too long; timing and restrictions around permitted activity should be better communicated.

Amend the *Water Well Regulation* to make grouting the annular space along the casing mandatory.

Expert panels should be driven by government but should also involve stakeholder representatives; consideration should be given to the expertise of some service providers that may not be engineers but are long-time service providers with a much experience.

Rebuilding public trust on delivering good water protection policies will take meaningful communication and redeveloping relationships for mutually beneficial water protection capacity and outcomes.

Government should take a strong approach to protect our water resources and provide tools that allow staff to effectively and consistently enforce the laws that are or will be in place.

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Develop an interagency team to address environmental contamination.

Resources and Funding for Water-related Regulations

Challenges

Insufficient government resources for full management of water.

Water is not always considered in planning decisions.

Who pays for pollution? Tax payers should not carry this burden.

Lack of capacity at the municipal level.

Ideas

Use polluter pays principles. Water permits should have high fees and fees should be used by Department of Environment and Local Government for increased staff. The Air Quality Approval for Class 1A facilities is an example and even those fees are not high enough.

Recommend a transition period for industrial approvals (fees) to minimize any financial burden on industry.

Provide funding at municipal level scaled to each municipality.

Enforcement

Challenges

Good water protection is only possible with strong and consistent enforcement of solid legislation.

The penalties for some infractions are not severe enough.

The Department of Environment and Local Government is not strict enough in enforcing wetland buffers.

There is a lack of staff to deliver services.

Laws are not followed.

Application of rules involves a lot of players.

Lack of municipal resources to enforce standards concerning water in general.

Auditing of Watercourse and Wetland Alteration Permits and enforcement of conditions are almost non-existent.

Enforcement is non-existent; enforcement on the ground (people/human activity) is lacking; enforcement is deficient and not consistent; limited enforcement capacity.

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Enforcement practices to prevent the illegal disposal of waste are not sufficient in many areas and have caused the leaching of waste into groundwater.

Need enforcement of laws and regulations that are already in place to protect surface water; it's great that monitoring is mandatory, but it seems that no action is taken when concentrations are above the guidelines.

Currently, prosecution for pollution and other threats to water bodies (other than municipal supplies) would require a court case under Tort law which implies a lengthy, costly and often impractical way to try and address the problem on a case by case basis.

We need more severe punishment. Under the current process, it is often easier to beg forgiveness than to ask permission.

Inspection personnel are too few and the area they must cover is too big.

Ideas

Staff capacity should be increased in the area of monitoring and enforcement to enable the province to meet the goals of the strategy; hire more enforcement officers; more training for inspectors; better allocation of trained staff and more funding.

Put more effort into determining which companies are responsible for water pollution.

Revise the laws to provide more severe penalties, or use different approaches to resolving the problem of non-compliance.

Could request assistance from First Nations (their human resources and equipment).

Use public outreach/education as a component of enforcement.
Appropriate training; more local oversight/inspection/ protection / enforcement/ management; secure, stable funding; consider alternative oversight/enforcement options.

Use RCMP auxiliary officer model where members of public are given role in helping enforcement officers.

Citizen science. Auxiliary police officers for enforcement.

Review enforcement options contained in the *Clean Environment Act*. Revise as required.

Federal agencies (DFO, RCMP, Environment and Climate Change Canada) have demonstrated that combined effort can result in successful protection of a resource (e.g. in the Inner Bay of Fundy with regards to Atlantic salmon).

Follow current acts and regulations and make sure if someone breaks the law they are held responsible. Until this can be demonstrated, current water protection regulations should not be

modified.

Would like to see a transition to stronger ideals around enforcement of existing or new legislation and an improved approach to how these changes are communicated to the public.

If strong, clear legislation were in place, enforcement would become practical and efficient, and the likelihood of violations causing contamination would be much lower.

Better enforcement and reporting to the public on the effectiveness of enforcement should be a component of the water strategy.

Penalties need to reflect the severity of the infraction.

Turn court cases over to the Department of Justice and Public Safety rather than have field staff tied up; all enforcement activities should be transferred from Department of Environment and Local Government to the Attorney General's Office-Public Prosecutions Unit, who are specialized in these kinds of enforcement actions

Audits to check if permit conditions have been addressed.

Annual report on audits for accountability; public Information/education on enforcement measures.

Serious and consistent enforcement of existing regulations would improve over all watershed and aquifer health in N.B.; i.e. It is likely that if the current 5 metre agriculture setback was regularly and consistently enforced, it would greatly reduce nutrient loading and water temperature issues within many N.B. waterways.

Balancing Water Uses

Challenges

Will the Department of Environment and Local Government be developing a scenario of water allocation so there is enough for everyone forever?

Finding a balance between ecosystem needs, water quality, drinking water, and economic development.

Sustainable use of water in the face of competing interests.

The word balance is arbitrary and cannot be measured scientifically. It is subjective and can mean many things. For example, if a threatened species needs 100 acres of critical habitat to survive, a balance might be considered to be 50 acres. The result could very well be the loss of the species from a critical area.

Ideas

Economic development should be a secondary principle that results naturally from water being protected for ecological and human basic needs.

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Public education related to water. Have campaigns that show the importance of all aspects of water.

Development of a hierarchy of water uses and allocation. Pricing of water?

Disagree with the statement that there should be a balance between water quality, quantity, flow and economic development.

The new water strategy must not tip the balance to giving industry too much responsibility in the protection of our watersheds. They are primarily focused on profit, not the public interest.

Work towards sustainability, then decide how industry can fit into that picture. Economy shouldn't dictate environmental regulations; environmental protection and access to the natural environment pays off economically.

Ensure that protection of water resources comes before development (build trust).

Forget this balanced approach. The balance is on environment first and then economic interests.

Taxes/royalties on water use (large users and polluters). Redistribute money to water stewards.

Define a hierarchy for royalties and withdrawal priorities; develop an ecosystem approach for the regulation of environmental flows/temperature/quality/riparian status; improve communication between Department of Environment and Local Government and the Department of Fisheries and Oceans. Environmental flow concept should apply to both surface and groundwater.

Develop a process for prioritizing drinking water versus ecosystems versus industry and determining what trumps what, based on good science. More research is needed.

Develop sustainability definition; quantity/ quality/thresholds precautionary principle; determine environmental flows.

Prioritize.

Consider all water demands when developing the strategy i.e. forum of interest groups to feed into strategy.

When looking at balancing economic growth for the province, it is important to continue to look at a multiplicity of sectors, including fisheries and agriculture as mentioned many times in the discussion document. Our province was built by people stewarding our natural resources over many generations rather than large development or extractive projects. Economic development that supports and encourages good stewardship of our water, by our local people, should be prioritized.

Water Conservation

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Challenges

Wastage of water.

Climate change (e.g. droughts).

Over-consumption of water.

Not every water use is metered (measured).

Lack of knowledge/education about water conservation.

Leaks in water distribution systems (pipes) contribute to waste.

Water conservation fee/fund: consumptive use of water in N.B. is not currently large enough to generate significant financial revenues without prohibitive fees. Water use fees per unit of water (e.g. cubic metre) would be challenging to administer, even with a more stringent approach to water use reporting.

Water is seen as a free good (not valued).

Ideas

There should be a water conservation plan or initiative under this strategy.

Charge for water usage

Meters for all water users.
Water usage information printed on property tax bill.

Water conservation plans for businesses.

Funding for implementing water conservation strategies (industrial and municipal) .

User pays (water meters) for larger communities; leadership by province to mandate and promote a “user pays” system; water use permits and water use fees.

Mandatory flow meters and reporting for all major users (municipalities, aquaculture, processing, etc.).

Bylaws for watering lawns. Incentives for water-conserving technologies. Should have a baseline in order to measure the success of any such initiatives.

Water conservation should be based on different zones (locations), and specific targets, if any, should be fluid and dynamic from region to region if required. Include consideration of seasonal variations.

Draft Goal 2 - Management and Use: To manage and use water responsibly by protecting drinking water and ecosystem health while allowing economic opportunities

Requirement to adopt best practices for industry.

New water conservation solutions must not place unnecessary burden on municipalities and responsible organizations. The strategy must outline sustainable funding mechanisms and revenue generating/cost-recovery tools to support effective and achievable implementation.

Enhanced or new technology (e.g. for closed loop systems to allow for water recycling and water saving) should be made more easily accessible to both the public and industry.

Educate the public on water conservation and responsible use; provide opportunities to engage New Brunswickers in stewardship and education about water conservation and management with identified pathways to create local water leaders.

Recognize First Nation rights and title and provide for their inclusion in water conservation and management.

Legislated financial security requirement for industry to account for water usage and cleanup of spills, etc.

Establish a science-based economic value for water.

Regulatory requirements to control losses/waste.

Support and promote Innovative ways to conserve water.

Promote water conservation in households/businesses. Make sure New Brunswickers reduce their water consumption; fund initiatives for the recovery of rainwater and wastewater; programs for low-flow toilets, etc.

Managing on a Watershed Basis

Challenges

We need to manage water on a watershed basis. How much disturbance can each one withstand?

If we don't have healthy watersheds, then our overall public health and water quality will also begin to degrade.

As long ago as 2002, groups of volunteers collected data and found the Nashwaak River to be pristine. The provincial government has failed to enact the legislation needed to protect it.

The *Clean Water Act* and its seven regulations is a strong piece of legislation. The problem is that the province has not put into practice the *Water Class Regulation*; we still have no explanation as to why this is problematic. Why are you dismissing the findings of our Ombudsman? We can only assume the new classification will be an attempt to meet the needs of industrial development. A lack of willingness to take on the challenge of implementing and

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enforcing this system shows a lack of initiative on the part of government. Disregarding this work and creating a new strategy is also a poor use of government resources.

Water classification has never been tested and some watershed groups have expended a tremendous amount of resources on developing a solid classification within their watershed.

Water classification work also largely ignored. What is this legal flaw? Why don't we know what it is and why hasn't it been fixed? The years of work put into water classification should not have been ignored.

Why would we do away with river insect larvae sampling when this is a widely-used, scientifically accepted method, a community-based and cost-effective approach, to detect point-source and non-point source pollution?

Cumulative impacts.

Trans-boundary issues.

We need to better understand land use impacts on water.

Watershed groups (there are too many; not enough coordination between groups and many are working in silos).

Ideas

Watershed Classification should be the water-related priority for government; you need to re-establish lost citizen teams within a program known as outreach and partnering, which in the past, was funded by the Environmental Trust Fund. These groups completed watershed evaluations and built action plans to provide the Minister with proposals for classification of streams and rivers. If there is a resource problem, staff should be re-assigned to make implementation a priority.

Rivers and waterways should be classified and regulations should be put in place and enforced to maintain pristine waters and to improve the state of waters that are less than pristine.

We need a regulated approach (i.e. strong support from non-governmental organizations for classification). We should fix water class and implement it; if a legal issue is the cause of not implementing the *Water Classification Regulation*, watershed groups would be willing to assist in resolving the issue.

Experts are available within and outside government to act as consultants to implement water classification.

Include stakeholders (watershed groups) in developing a water strategy to resolve the issues including how to replace or fix the *Water Classification Regulation*.

Government should focus on: research for a better understanding on how to manage watersheds holistically; making better use of existing research on inter-jurisdictional watershed

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management.

Ecosystem-based, precautionary principle management. Buffer zones should be assessed and evaluated based on individual streams; one size does not fit all; regulations have to make sense for people working on the land. Use a science-based buffer zone.

Coordinate water management approaches across provincial and national boundaries.

Implement watershed-based planning; describe how watershed plans will be developed and how they will be approved and implemented.

Legally recognize the relevance of watershed groups (see model of basin organizations for Quebec watersheds).

Manage water resources using an integrated watershed management approach so they don't deteriorate; and correct problems involving unacceptable water quality.

Would like to see each watershed in the province spearheaded by a watershed commission that makes decisions for the watershed. The commission should be made up of shareholders that must include corporations, governments, municipalities, unincorporated areas, First Nations and non-governmental organizations that have knowledge of watershed issues.

Define management units; set goals/targets. Establish a consistent approach for evaluating management plans.

Involve the federal Department of Fisheries and Oceans (i.e. understanding tidal waters); evaluation of ecosystem in the context of water quality and quantity.

Use the time-proven and standard practice of river insect larvae sampling to detect point source and non-point source pollution.

Managing on a watershed basis and looking at all the impacts within that watershed.

Link land use planning to watershed hierarchy; establish a professional planning statement on water (long-term); time to manage is now while resource is still relatively pristine; manage comprehensively i.e. buffer zones, fertilizer, point sources (septic tanks); create a center of excellence at the Province to manage/coordinate (e.g. a water management secretariat); apply rules, i.e. legislate consistently and firmly to demonstrate seriousness.

Set surface water quality objectives with measurable bench marks based on science.

Ecosystem-based management with the watershed as the boundary.

Incorporate models into the management of watersheds (high and low flows). Use Québec model.

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Delineate level 4 and 5 watersheds.

Set quantitative minimum water quality targets for all rivers and lakes, and for all key parameters (dissolved oxygen, pH, ammonia, nitrogen, phosphorus, pathogens, heavy metals and any persistent contaminant of concern) based on the Canadian Council of Ministers of the Environment *Guidelines for the Protection of Aquatic Life*, the *Canadian Recreational Water Quality Guidelines*, and the Department of Fisheries and Oceans guidelines for shellfish.

Develop a database for each main watershed, with river flows (7 day- 10 year low flows, average flows, 100 year flood and climate change flows), point sources of contaminants, diffuse sources of contaminants (forestry, agriculture, sediments, etc.). Develop a watershed-scale water quality model using this information, to test the effect of reducing certain contaminant discharges (via the Approvals to Operate for example).

Protection of Potable Water Supplies

Challenges

Access to a source of good quality drinking water is the most important factor for our success and survival.

Why are over 50% of our drinking water sources (private wells and rivers) not covered by comprehensive water quality protection such as a water classification system?

Motorized boats are not permitted in designated watersheds, yet All Terrain Vehicles and Jeeps often go off trail and cross watercourses. Additionally, they often carry fuel with them.

A potential disaster in protected watersheds is from oil delivery trucks spilling oil into them.

Drinking water supplies should be protected from people who would inflict harm to them willfully.

Concerned that my government is too willing to give away and leave unprotected our fresh water sources in exchange for the short term and dirty profits of a few.

Pesticide/herbicide spraying impacting private wells.

40% of N.B. residents rely of private wells.

So many wells and septic systems, especially in areas of dense development, is a disaster of contamination waiting to happen.

There are many homes with undrinkable water in their drilled wells.

Private wells and small private drinking water systems: many small systems are operating without an agreement or a certified operator.

Many N.B. residences don't sample drinking water, and septic systems are poorly maintained.

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Naturally occurring arsenic in N.B. groundwater.

Signage is not sufficient to protected designated watersheds.

There is a need to invest in higher quality drinking water.

Salt water intrusion (water wells).

Buffer zones are not wide enough.

What concerns me the most is that my well will become contaminated or that it will run dry.

Ideas

Ban fluoride in drinking water systems.

Water-related priority areas for the government should be areas with large amounts of ground water, in order to ensure the future generations have access to clean drinking water.

The strategy should explore options for strengthening existing regulations, such as the *Wellfield Protected Area Designation Order* , to include requirements for protection or restoration of green spaces and permeable surfaces (to promote infiltration, recharge and water quality protection).

The water strategy should recognise potential threats to our drinking water supplies and protect them; all drinking water sources including private wells should be covered by a comprehensive water quality protection system.

There should be a high standard of protection across all municipal drinking water systems.

Create a database of abandoned wells. Ensure that they are capped to protect groundwater.

Industry should be responsible to correct the damage it causes to our water supplies.

There should be routine, long-term monitoring of private wells (e.g. every 5 years) and an education component for well owners.

Free well water testing should be offered to homeowners.

There should be a minimum lot size requirement for spacing wells to prevent stress on the aquifer and reduce number of pathways for contaminants to enter groundwater or there should be an EIA requirement in conjunction with a water supply source assessment to assess what the aquifer can handle.

Put laws and penalties in place; municipal Bylaws and laws to protect water from big industries.

Regional/rural planning; land use planning and education.

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Ensure everyone has access to a good water supply as well as a back-up supply.

Comprehensive water quality protection for all potable water supplies (public and private).

Strengthen rules for watershed protected areas for better protection of municipal drinking water (e.g. no motor boats, no mining) and provide more signage; identify and address other threats such as vehicle accidents leading to spills, ecoterrorism, etc.

Legislation to protect all natural springs from chemical or serious bacterial contamination would help assure their continued contribution towards low cost, sustainable solutions for the province. Springs do not rely on electricity for pumping and represent a sustainable water supply.

Securing and protecting groundwater resources for the percentage of the population that are dependent upon them, and security and protection of freshwater resources for wildlife and municipalities that depend upon them for drinking water have primary importance.
There may be economic opportunities for the sale of water resources to parts of the world where water is scarce that are even more important than shale gas development.

Identify possible sources of water; assist municipalities in exploring water resources.

Adequate aquifer protection and planning should be made a key part of the *Community Planning Act* for municipalities and rural areas.

Watercourses and Wetlands

Challenges

Water cannot be managed without sustainable management of the ecosystems it flows through.

What concerns me the most is the overuse and dehydration of wetlands, streams, rivers and aquifers.

Many home construction sites along the Saint John River that have been permitted to build large retaining walls which would allow their homes to be built over the water and/or large amounts of fill to be added to the river banks. Either the standards for WAWA/EIA are not considering this or this is a case of people quickly building illegally and not being fined or made to remediate the damages. In either case, as our population continues to urbanize and our cities and suburbs expand, this is an area that needs more consideration.

More mapping needed for watercourses and wetlands; watercourses and wetlands are not always correctly mapped.

Developers are able to build in wetlands and they are being destroyed before we even know they are there.

Beavers impacting quality of water and blocking flow (dams).

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Eutrophication, blue-green algae blooms; waterborne illness.

No provincial reporting on wetland area loss or wetland function loss.

Nothing is being done to educate or punish the people who are destroying our waterways.

Development around waterways and wetlands seems to be increasing.

Construction and demolition landfills near watercourses and wetlands – are they being monitored to ensure that only inert material is being disposed in them?

Protecting fish populations.

Wetlands management strategy not implemented; stop avoiding the release of a long-term wetland management strategy.

Watercourse and Wetland Alteration permit documentation/application is not user friendly for general public.

Watercourse and Wetland Alteration permit fees are not fair (under-priced in some cases).

Some culverts are not properly installed or become plugged and are in violation of the *Fisheries Act.*

A lot of run-off is happening because citizens are removing vegetation to close to the water's shorelines causing sediment erosion and banks to wash away. There is less groundwater recharge with increased run-off.

Road maintenance (salt and sand) impacts on water.

Acid rock drainage (ARD) is formed when sulfide minerals are exposed to the atmosphere (e.g. as a result of road construction, excavations, etc.) Such minerals are commonly present in New Brunswick rocks, and may therefore pose a risk to our water resources if not recognized, managed and monitored in a proper manner.

Cumulative impacts on watersheds/ecosystems are not considered in the Watercourse and Wetland Alteration Permit process.

Our wetland regulations were once considered world leading until diminished by the previous government; we recall that the government revised its wetlands policy in 2011 such that only wetlands arbitrarily designated 'provincially significant' were required to undergo an EIA.

Ideas

Verify maps on ground; delineation; cartography should reflect reality (e.g. watercourses and wetlands).

Must have proper regulations in place for users; reinstate wetland regulations

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Review of watershed management and monitoring strategies and incentives.

There should be a sustainable water certification program and stamp.

Public wetland reporting (loss and compensation).

Transition back to the methodology previously used to determine buffer zone widths based on scientific criteria (i.e., as set out in the previous edition of the *Forest Management Manual for New Brunswick Crown Land*); adopt a system similar to what they use in Ontario, whereby a geomorphic assessment is conducted to determine the meander belt width of a watercourse. This delineation shows where development can sustainably take place without risk to infrastructure.
Fines for the people who are disturbing the river bed and or polluting the water through run off or discharge.

Implement a wetlands strategy and the *Coastal Areas Protection Policy*.

Wetlands should be restored and protected, not filled in.

Inventory of significant wetlands.

Regulations should be put in place aimed at maintaining environmental flows.

Education programs to show people the current health of the river and ways to reduce pollution.

More monitoring of landfills.

Better enforcement of the current permitting process.

Culverts must be checked regularly to ensure fish can migrate to their habitats; replace improperly placed/damaged culverts.

Develop materials to assist various users and/or resource sector groups in understanding what steps to follow for Watercourse and Wetland Alteration permit application.

Fees should be based on property tax assessment value or the value of the project.

Conserving natural ecological functions (provided by wetlands and riparian areas); protecting and remediating riparian areas: should be the law; improve riparian buffer enforcement and extend buffer widths for steep slopes/heavily eroding areas.

Protect watercourses and wetlands by decreasing Watercourse and Wetland Alteration permit approvals and requiring restoration where a permit has not been given and where illegal destruction has occurred.

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Allocate the same mixing zone maximum limits to all effluent dischargers, including industries (maximum distance downstream, maximum fraction of river flow, maximum dilution factor) and require industries to undergo the same Environmental Risk Assessment process as municipalities. Also, review the mixing zone definitions in the current *Watershed Classification Regulation* and the Canadian Council of Ministers of Environment Strategy. The Quebec guidelines are quite detailed/less arbitrary and provide useful guidance.

More stringent acid rock drainage (ARD) and metals leaching (ML) assessment and monitoring protocols are probably warranted for New Brunswick. More research is needed about how to delineate areas of risk.

Floodplains

Challenges

Continuing to provide flood assistance to home owners to refurbish homes sitting in flood plains is not a sustainable approach.

Dealing with the effects of climate change; with increasing temperatures, New Brunswick is expecting more snow melt, more intense rainfall, storms, and a rising sea level. All of this will likely make floods much worse than what we are used to.

We keep building homes in floodplains, due to a fossilized setback that marks horizontal distance, rather than vertical displacement. All homes should be built significantly above wetland zones.

Control and mitigation of flooding risks. We're spending too much money after rainstorms (e.g. repair of roads).

Ideas

Additional regulations should be considered to ensure that, for example, flood plains and their water retention capacity as well as their biodiversity values are maintained.

Improve the accuracy of flood maps (e.g. using LiDAR).

Solid community planning that provides tools to better protect flood plains and riparian zones will be crucial to protect residents, our investments, and our water. Adequate flood plain protection and planning should be made a key part of the *Community Planning Act* for municipalities and rural areas.

Preventative planning for floods as well as strategies on how to deal with more intense flooding; public information on how to prepare for and deal with storms and floods.

An example (of what should not occur) is where a landowner was permitted to build a campground and install a septic system with exposed pipes on the floodplain and re-align the stream (improperly) in order to build a road to access the development site. A development like this should not be permitted on the floodplain, and alterations to a significant watercourse

should trigger a requirement for a geomorphic assessment and design.

More thought on where development (and impermeable surfaces) occur in relation to how they will impact flooding.

Strategic retreat from areas affected by sea level rise.

Managing Wastewater

Challenges

Regulation of septic systems is currently done by department of Health but their primary concern is the human health risk; they aren't looking at it from an environmental perspective. Outdated septic systems are causing increases in e-coli, blue-green algae, etc.

Not enough reuse of grey water.

Insufficient water and wastewater infrastructure funding.

Wastewater effluent is introducing nutrients, pharmaceuticals, and other contaminants (e.g., micro-beads) into surface water.

Some cottages are old and have poor septic systems; inadequate or poorly designed septic systems.

The idea that failed and improperly installed septic systems are causing widespread contamination of ground and well water should be assessed by scientific study.

Residential outfalls (pipes in watercourses) discharging what appears to be sewage directly to the watercourse.

Mismanagement of wastewater and liquid waste has potentially disastrous consequences.

There is a widespread perception within the industry (wastewater professionals) that inspection standards are not uniformly applied. Anecdotal evidence would suggest that this is a problem province -wide and should be addressed.

The Department of Health makes unilateral decisions in relation to the industry (wastewater professionals) and is lax in relaying the details of these changes to provincial installers.

We feel that we have been going in endless circles with government in part due to a lack of clarity regarding who is responsible for different aspects of the industry.

Ideas

Require updating of old, non-conforming septic systems. Provide incentives for upgrading outdated systems. Review septic system regulation in N.B. and properly enforce the rules that are currently in place.

Better control over wastewater treatment.

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Bring the *Plumbing Code* up to date.

We need incentives/support/ updates to regulations to allow for innovative conservation ideas and adoption of new technology.

Promote composting toilets; grand fathered septic systems should be upgraded when work is done on cottage (legislation).

Encourage re-use of water.

Get a better handle on waste water and liquid waste. More monitoring and follow-up.

Improvements to municipal wastewater treatment; upgrade all wastewater facilities to tertiary treatment; provide the necessary funding.

Crackdown on illegal sewage inputs to watercourses.

Federal programs (i.e. environmental effects monitoring) have been successful in encouraging improvement in wastewater and water use within pulp and paper and mining industries. Work towards similar successes with other industrial users.

Municipalities should have access to the data of provincial permit holders (i.e. waste oil and tank washing companies, hazardous waste treatment facilities, etc.) that are operating within their jurisdictions, as these facilities are often discharging their wastewater and stormwater into the municipal system. They should also be required to abide by municipal bylaws and their associated concentration limits (this should be incorporated into their permit conditions).

Having the purchase of tanks tied to issued permits would be an invaluable and relatively inexpensive means of controlling illegal installations.

There is no requirement in the regulations for engineers designing systems to have specific training in wastewater management. As a result of this, veteran installers must pay for engineering services that they have shepherded to completion.

It is the perception (wastewater professionals) that the Department of Health is leaning strongly towards having all systems engineered. We would like to see the department clarify its intent and outline for all stakeholders the direction it sees the industry moving in.

If engineered septic systems are to become the norm, then educational requirements must be more clearly defined; we believe that the creation of an organizational tree which clearly shows who has jurisdiction and where overlaps occur could help to reduce confusion and facilitate speedier resolution of problems.

Upgrade the Greater Moncton Wastewater Commission Treatment Facility to meet the required Federal Government standards.

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It is imperative that the association (N.B. Association of On-Site Wastewater Professionals Inc.) receive a source of funding which is long-term and sustainable.

Several cities across Canada, municipalities are utilizing cost-recovery models to manage stormwater and infrastructure through innovative impervious land-area based stormwater charges.

Agriculture and Water

Challenges

Water is an essential part of every farm business, as crops and livestock depend on regular access to clean water.

The need to strike a balance between water protection and enabling agricultural producers to continue to produce high quality and safe food for New Brunswick and other markets.

Suspended solids, fertilizers, and pesticides.

Severe bank degradation on streams adjacent to 5 metre buffer zones on agricultural land.

Agriculture could have as great an impact on water quality as some major industries such as hydroelectricity.

Lack of subsidies to help agricultural producers implement good agricultural practices.

The current regulation under the *Topsoil Preservation Act* is not being enforced. Uncontrolled topsoil removal will eventually end up in bank erosion and in widening the river at these locations and contributes to sediment being deposited into salmon egg rearing sites.

There's not enough being done to protect our water from agriculture (chemical spraying and sediment run-off etc.). The new water strategy must ensure we don't run into similar situation as Prince Edward Island. Are nutrient management plans stringent enough?

Nutrients: Government is not ready to approve innovative solutions that have already been used in other provinces and other countries.

The Department of Environment and Local Government has a poor understanding of current agricultural water use in the province. The irrigation needs of agricultural operations in the province have historically been quite low and are largely unmonitored by the Department. These needs may change in the future as warmer and drier summer conditions become more common under a changing climate.

Lack of studies on the impacts of blueberry fields.

Ideas

Organic agriculture; bio pesticides.

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Government staff should have more flexibility when making decisions on water alterations (e.g. irrigation) and work more closely with the Department of Agriculture, Aquaculture and Fisheries to gain a better understanding of agriculture related projects.

Products have been proven to be effective and safe and are National Sanitation Foundation (NSF) certified; therefore, they should be permitted for use in N.B.

Buffers are not stringent enough. Increase buffers around watercourses. Include agriculture as well as forestry when setting buffers.

Creation and review of environmental plans for farms.

Agro-environment clubs.

Evaluation of private woodlots.

Additional financial and educational resources should be made available to agricultural producers to implement beneficial management practices such as: better water management on farm, promoting rational use of water (irrigation, livestock operations, etc.), management practices favourable to maintaining water conservation and quality (sourcing groundwater by filtration, rational use of pesticides, chemical fertilizers, manure storage and handling, pasture management, etc.).

The feasibility of implementing an agricultural ecological goods and practices program should be explored in order to facilitate the implementation and maintenance of beneficial management practices.

Incentive programs for water saving technology and irrigation water assistance (especially during time sensitive situations such as drought).

Helping agricultural producers better understand and use fertilizers to prevent over application.

Additional resources for implementation of beneficial management practices.

Implementation of an ecological goods and services program for agriculture.

Better regulation of agriculture to protect water quality.

Department of Environment and Local Government should initiate better dialogue and partnerships with the Department of Agriculture, Aquaculture and Fisheries in order to better understand current water resource uses and anticipated future needs.

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Farmland has inherent value as part of a larger ecosystem, therefore the protection of farmland inherently includes the protection of surrounding forests and waterways. This overarching principle should guide agriculture and land policy and resulting regulations.

The work that farmers already undertake to conserve and protect water can be enhanced by government keeping current with new and best practices, including increased organic matter in the soil, promoting them to farmers and offering training and incentives to ensure that they are being properly implemented.

Implement agricultural and forestry best management practices to minimize erosion (e.g. ploughing along contours, planting hedges, increasing the width of vegetated buffers along streams, and minimize the release of dissolved contaminants (nitrates, pesticides, etc.).

Forestry and Water

Challenges

Poor forest management which leads to pollution of watercourses and potable water.

The best interests of the people have been sacrificed to appease corporations, especially in the forestry sector.

Clear cuts resulting in soil erosion.

Clearcutting increases rain runoff into streams, resulting in more rapid rise and falls in water levels and increased siltation of salmon streams.

Changed ecology of forest which impacts the rest of the environment.

Clear cutting is not just about the forest. It causes early snow melt and run off of water that would otherwise be available later in the season.

Forestry practices – with new laws that permit wood industry to cut old growth forests, forestry companies are clear cutting into brooks, swamps, and wherever they can go. This is drying up the watersheds.

Chemicals such as glyphosate are recognized as 'probably carcinogenic' and inevitably pollute groundwater.

Round Up/Glyphosate require full disclosure. Some safety documents are not available to public due to privacy issues for corporation.

Ideas

Ban glysophate and other toxins.

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Ban clearcuts (use “checker boarding”). Limit cutting to 25% of area over a 5 year period. Use forestry practices that reduce run-off especially on steep hills.

Helping agriculture and forestry industries minimize erosion.

Buffer zones need to be increased; stream and waterways must be protected from large forestry operations and industry.

When wood is cut outside buffer zones (but near watercourses), these areas should be replanted with fast-growing tree species (e.g. pine).

Stop spraying glyphosate on forests and work on reducing it in agriculture.

Conduct an evaluation of the impacts of forestry on water.

Stop spraying crown land and associated watercourses with Vision herbicides.

Make wetland and other water protection regulations applicable to all sectors. Consider the need for uniform, fair cost-realistic management across the board.

Increased buffer zones for watercourses and wetlands backed by inspection; stop clear cutting up to the edge of streams and rivers; powerful regulations to ban logging near streams.

More inspection and signage to protect watercourses; use technologies such as remote sensing.

Take a portion of revenue from forestry companies (beyond stumpage) to pay for replacing the trees. It maintains the water resources so the area doesn’t dry out and employs people. You can preserve seedlings and replant.

Use the concept of watershed management in forestry.

Oil, Gas, Mining and Water

Challenges

Hydraulic fracturing and oil pipelines could potentially contaminate groundwater; waste water and sludge from shale gas development is a significant issue.

Concerned about the planned route for the Energy East pipeline to travel through our watershed (Edmundston).

Potential of Energy East pipeline break impacting drinking water sources in Edmundston and Saint John (3 km from water supply).

The Sisson Brook mine and the enormous proposed tailing ponds. It poses too much of a threat to the environment, residents, streams, lakes and fishes for a profit of a few.

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Does responsible shale gas development (and other resource development) fit into the New Brunswick water strategy?

One (fracking) well will require a lot of water. One fracking well uses 19 million liters of water. How long would the river endure that? Will it be done around the clock? How will we sustain our rivers?

The Government of New Brunswick does not have a good record on environmental protection - Issuing licenses for shale gas exploration and development in 2010, without doing the research to determine if this was an environmentally sound activity; ignoring the many recommendations about the links between environmental matters and population health contained in the Chief medical Officer of Health's 2012 peer-acclaimed, awarded, report on the risks, hazards, and benefits of the shale gas industry for this province; revoking, in 2013, the very strong well water protection regulation that was passed in 2011, which required those doing seismic exploration for oil and gas to test every potable water well along the proposed route.

Government is eagerly and energetically promoting the development of the Energy East pipeline, which will cross approximately 300 waterways in the province.

Energy East Pipeline undergoing a federal EIA but not a provincial EIA.

Accidents happen with fossil fuel industry.

Problems with industries such as mining that leave the province after the resource is depleted and province is left with issue of contamination (including water).

Impact of orphaned (abandoned) industrial sites on water quality.

Concerned about what chemicals are in our water as a result of past mining. Is it really safe to drink? Finding what chemicals are in the water and in what percentages should be top priority.

Concerned about being downriver from the potential tailing pond of proposed Sisson Mine and the proposed Energy East pipeline.

Ideas

Responsible resource development has been highly divisive of late, particularly as it pertains to potential effects to water quality and availability. The time for detailed discussion is now.

Major development projects (e.g. shale gas) should be postponed until the regulations and satisfactory enforcement is in place.

Natural gas/shale gas development and pipelines: keep them out of protected areas and designated watersheds and wellfields.
Stop (ban) hydraulic fracking.

Conduct and evaluation of the impacts of mining on water.

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Given the number of households in New Brunswick with private water supplies, the importance of watersheds to the economy and natural habitat of the province, and the widespread drilling of (shale gas} wells should this industry proceed, the only logical decision would be to continue the moratorium.

Remove subsidies to fossil fuel industry.

Focus on developing sources of energy that do not affect water (e.g. wind, solar).

Need to ensure that securities are in place to address full cost of cleanup. Establish mandatory site reclamation funds/securities.

Health impact assessment ("big picture" evaluation).

Hydroelectricity and Dams

Challenges

Abandoned dams are a liability and fish migration barrier. Need better regulation of dams.

No New Brunswick legislation regarding dam safety. Each operator has their own process.

Challenges/opportunities in regards to in-line hydro and micro hydro.

The fate of the Mactaquac dam. The dam provides 20% of New Brunswick's power and its removal would have a huge impact on not only the energy source but on the ecosystem of the head pond.

Ideas

More formal safety review process.

License dams or require Approvals to Operate. To be renewed every 15-20 years.

Charge for water use.

Government should focus on assessing the effects of damming.

Bring in renewable energy. (e.g. mini hydro).

Export or Sale of Water

Challenges

In view of the province's difficult financial position, bulk shipment of water overseas will almost certainly be considered in the future by enterprising firms anxious to supply water to water starved regions of the world.

No clear message that water export permits will NOT be permitted; this new strategy may have a hidden agenda that would include water export permits being allowed or moving water from one part of the Province to another.

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Water is not a resource; it is a gift that makes all life possible.

Potential to allow large companies to sell our water for a profit; water should remain available to everyone and not become a private commodity.

Ideas

We need to ban water export. N.B. should not sell its water.

There may be economic opportunities for the sale of water resources to parts of the world where water is scarce.

We could build pipelines for water to export it. Water is a renewable resource. Places like California need it.

The most important thing to me is that government assures the public that none of our drinking water will ever be sold out of N.B.

Other Issues

Need a cultural shift and political will to address many of the issues with water (use education and incentive programs).

Ensure if new legislation is developed that could have financial implications on municipalities, that they are consulted and engaged in the process first.

Land use planning and land development bylaws are important tools.

Rural planning should be encouraged. Regional Service Commissions should be encouraged to develop rural plans.

The greenhouse gas (GHG) implications of water infrastructure should be considered as part of a strategy to mitigate climate change.

Beaver populations in New Brunswick are affecting water flows and water quality. Programs for beaver dam removal should be implemented. The beaver population should be assessed and controlled when necessary.
Illegal dumpsites may affect water quality; education, enforcement and surveillance are potential tools to address this issue.

Need a province-wide plan of environmental clean-up.

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Building Partnerships

Challenges

Lack of trust (non-governmental organizations and citizens versus government and industry).

Need more collaboration with government, non-governmental organizations and public.

There is a need for information sharing between different communities.

Limited on-the-ground partnerships with watershed organizations/decreased partnerships over the years.

Who should we partner with?

Lack of research.

People are working in silos (i.e. within government and across all water interests in province).

Low involvement of industry in watershed groups.

Non-governmental groups within same watershed are not working together.

Lack of communication between municipalities and provincial government departments.

Sharing the responsibility is a difficult statement when considering environmental and economic outcomes together. Management of water as an economic resource would differ greatly than if managed as an ecosystem.

Ideas

Increase partnerships with watershed organizations (also increase resources, expertise, technical support (Department of Environment and Local Government capacity increase); support through programs and expertise.

Strengthen partnerships in law.

Develop partnerships with researchers in and outside the government; increase capacity in government (i.e. through innovation or increase funding).

Partner with other non-governmental organizations (e.g. Ducks Unlimited).

Stronger partnerships with regional/local groups.

Capitalizing on partnerships to ensure the government meets its goal to better understand our surface and ground water resources by sharing the financial burden of monitoring while increasing its capacity to gain comprehensive data from across the province.

Share responsibilities.

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Develop plans to include all stakeholders.

Table of organizations by interests and affiliations to partner with and to disseminate information.

Take advantage of expertise wherever it is found.

Partnerships with watershed groups, municipalities, other locals etc.; sharing data between other government departments and stakeholders working in watershed.

Better communication (meetings, goals and agendas); support development and effectiveness of partnerships.

Include commercial/industrial users.

Partnerships and collaboration with water users, facility owners, municipalities.

Partnerships with authority to protect sources of drinking water.

Inter disciplinary panel (s).

Better use of Regional Service Commissions for water/watershed management.

Working with other jurisdictions (i.e. provinces, federal government and non-governmental organizations).

Work with partners on a regional basis.

Water management annual conference (all stakeholders).

Increased partnerships with user groups and municipalities.

Roles and Responsibilities of Partners

Challenges

Who should do what? Everyone has their own idea. Need clarification of responsibilities between levels of government and non-governmental organizations, etc.

Who should take the lead? Is Department of Environment and Local Government the right leader?

Difficult to identify the role stakeholders can play in implementing water strategy. No specific or clear goal on governance arrangements.

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Coordination/planning challenge; there's a need for a central hub.

Lack of government resources for full management of water; no one responsible for management of water at this point.

Variable capacity of possible partners; need for appropriate regulatory tools for each partner.

Government is responsible for our water resource. Once you share the responsibility for the management of water, you are looking for potential problems and confusion. Non-governmental organizations can help but keep industrial partners out of managing water as they would be in a conflict of interest.

There are too many government departments with water-related processes.

Need audit systems for existing and new partnerships.

Watershed groups could become watershed authorities and take on more responsibility within their watershed; some groups would love this, some may not want this.

Ideas

Clearly define roles and responsibilities.

Government should take lead; implement regular provincial/watershed group meetings, and the Department of Environment and Local Government should play a role in networking and communication among groups and among all stakeholders.

Government should partner with key watershed groups that are set up across the province and allow them to be monitors or watchdogs of water resource. Provincial staff should then, when required, be the enforcement arm of the strategy. This provides third party monitoring and an authority to carry out enforcement. Government should also look at strong planning bylaws and a communication strategy that insures our water resources are understood and protected.

The protection of the resource (authority, enforcement) should be the responsibility of government but they can make decisions with input from strong partners. Watershed groups can act as a partner with a proven history, strong data and science, good public relations, and sound guiding principles.

Some watershed groups make most of their data available publicly following a committee review. If they are engaged in the ongoing development of a water strategy, they could assist in updating the public and stakeholders through various avenues. They have been collecting data since 1994 and will continue to do so.

Stakeholders should support a strong strategy and continue to push for it but also be positive about it.

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Facilitate voluntary lake monitoring workshops (e.g. by lake associations).

Forming partnerships and defining roles and responsibilities of different organizations to divide work (e.g. non-governmental organizations collect data).

Greater role for watershed groups; this would reduce the need for Department of Environment and Local Government staff to review proposals and allow their time to be better spent doing enforcement and auditing.

Municipalities are key partners in the protection of freshwater ecosystems and promoting sustainable water use. Ensuring municipalities are consulted and are provided with funding and capacity to participate in the strategy's development and implementation is crucial.

Use Regional Service Commissions to bring stakeholders together but adjust their role according to their capacity.

The water strategy should enable the creation of an umbrella organization to coordinate priorities, actions and funding among associations. An umbrella organization would facilitate shared training, resources and capacity.

Must spell out the greater role and involvement with Department of Health. Refer to principles and roles in *Clean Air Act*.

Province should maintain ownership of resource.

Establish a water secretariat, department of water management or similar structure.

Consult with other jurisdictions. Use what works.

Better "on-the-ground" cooperation between the Department of Environment and Local Government and the Department of Health.
Establish regional committees (Regional Service Commissions, municipalities, Local Service Districts).

Collaboration with the Department of Fisheries and Oceans (field inspections, paperwork associated with program management).

Address regulatory barriers to decentralization of powers and authorities.

Engage watershed groups to monitor and educate; contractors can also do some monitoring on their own with audited and licensed system.

Clarify the roles and responsibilities of the various government departments.

Resources for Partners

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Challenges

Water management requires resources.

Limited capacity of some regions.

Lack of financial resources at the municipal level.

Local placement of sampling kits for small communities.

No core funding for community-based monitoring; lack of funding for non-governmental organizations to deliver programs efficiently.

Regional Service Commissions need more resources and capacity.

Ideas

Annual meeting of watershed users to network and become familiar with organizations.

Develop funding framework for new watershed strategy and include monitoring and enforcement; stable approach to funding (monitoring) of water.

Strengthen role of watershed groups; more funding; watershed groups could benefit from a core funding model without the need to apply to the Environmental Trust Fund every year.

Old Legislation should be updated to help non-governmental organizations with longer term funding

Designated funding for watershed planning and management (the Québec model).

Better distribution system for local communities to obtain water sample bottles.

Encourage resource sharing and partnerships.

Provincial revenue tools are also important to consider in order to address the water strategy implementation challenge. The Manitoba Water Strategy allowed for the creation of a riparian areas tax credit.

Make emergency funding available to help individuals.

Make Environmental Trust Fund available for municipal infrastructure related to water management.

Recognition of Partners

Challenges

Work done by non-governmental organizations, including watershed groups is not recognized by government and public.

Draft Goal 3 - Shared Responsibility: To share the responsibility for the management of water and build relationships

Non-governmental organizations are not recognized enough for their contributions (social and economic).

Ideas

Recognition (water/environmental award) both by communities and by government; government should publicly recognize value and role of watershed groups.

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

General Comments

Change “more water related information” to “all water-related information.”

Access to Information

Challenges

It is hard to find and access information and data.

Data that’s not known or publicly accessible.

Where to go for information (difficult to find info); who is the right contact person?

Need more transparency; user-friendly data.

Not all the information is available.

Information too vague.

Government reluctance to release and share data; political will is often lacking when it comes to reporting information.

Use of some data is restricted by privacy legislation (e.g. water well data).

Need to find a balance between access and confidentiality (personal information).

Information does not always “trickle down” to the people who need it (e.g. Local Service Districts).

Cost of getting tools and resources.

Building capacity in the public to understand the data.

Some First Nations, government agencies and stakeholders have data that is not used or accessible.

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

Ideas

Create partnerships for the purposes of spreading information.

There should be a one-stop shop for water quality concerns.

There is need for a centralized information database; all collected information should be available on-line.

Measures to enhance access to information should be provided. This should go further than evaluating opportunities. It should be implemented.

Need a corporate (Government) commitment to openness and transparency.

We need a portal like the one established for air quality in support of the *Clean Air Act,* to access information; public data in electronic format; data bank for surface and ground water.

Better transfer of information, especially for government-funded projects. The Department of Environment and Local Government should collect and assemble information generated by projects funded under the Environmental Trust Fund. There should be an agreement on information sharing prior to providing the funding.

Make water well quality records public.

Information collected by the Canadian Rivers Institute should be posted on-line.

Water well logs should not be private. Clarification on this issue should be sought from the Privacy Commissioner, or the regulation should be amended to specifically address any ambiguity and allow this data to be shared with other N.B. government departments and Federal and academic researchers if non-disclosure or confidentiality agreements are signed.

There should be public access to permits that have been issued (e.g. Watercourse and Wetland Alteration permits).

Pre-approvals and agreements regarding the sharing of information.

Data warehouse; funding for data management and documentation dissemination; a centralized data base for all water sampling results.

Data exists; we need to organize in one location and make it accessible.

Allow all stakeholders to access data on use, effluent quality etc.; make it publicly accessible; put it on web for sharing updates.

Conditions that require information sharing in a standard format should be attached to all Certificates of Determination.

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

Clear regulatory authority/requirement for posting and sharing data (e.g. permits and approvals); details of what, when and how data is shared should be mandated by law.

Any data collected should be open and accessible; not just available through *Right to Information and Protection of Privacy Act.*

Municipalities should have access to provincial sampling results for the municipal water supplies. This should be shared automatically and not have to be 'approved' to view the data.

Improved data warehousing capabilities; sharing information; open access.

More transparency around existing data.

Make information available at all levels.

Update the provincial groundwater atlas.

Create a system to access data from EIA documents and Environmental Trust Fund reports.

Watercourse And Wetland Alteration permits should be accessible to the public.

Information Format and Timing of Reporting

Challenges

Data storage in an accessible way.

How often to report? What to report?
Clear presentation of information.

The current GeoNB platform is hard to use for those not familiar with GIS.

Ideas

One central location; make tools and resources widely available at no fee.

Put things in a language everyone can read.

Environmental Trust Fund reports and all EIA registration documents should be placed on-line.

Annual public reporting of both successes and failures of the strategy's implementation. Annual reporting should also describe the success and challenges of measuring and reaching objectives defined within the strategy to maintain freshwater ecosystem health, protection and sustainable development.

Monitoring and public reporting of surface and groundwater monitoring data, actual water use from all large water users and registration of all domestic and non-domestic use of groundwater wells.

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

Data collection and analysis should be peer-reviewed.

Set reporting cycle in a realistic way (i.e. within government's capacity to collect, analyze, synthesize and publicize data).

Report in detail every 5 years with annual interim updates.

Compare current state of water with historical data.

Consistent, timely and targeted communications.

Data should be interpreted to help people understand its meaning and significance. "Dumps" of raw data should be avoided.

Have a summary available for general public and more detailed info available for those who may want it.

Take advantage of GIS technologies so that georeferenced information can be mapped and shared publically as electronic maps (i.e. build on information already found on the GeoNB website). Problem areas or locations of special significance could be colour coded.

Use of specific quantifiable, measurable objectives can help ease the burden of public reporting by focusing on clear statements about whether objectives are being met, are in the process of being met, or are not being met (failure). They can also help insulate decision-makers from political pressures.

Public reporting of information collected by non-government organizations such as watershed groups (i.e. an easy-to-use on-line database where these organizations could input their data). Government to provide feedback on the information that has been collected and reported by non-governmental organizations.

Use social media such as Facebook and Twitter, in sharing information; also make effective use of print, audio, visual.

Use simple and easy-to-access format (e.g. on-line "report card").

Get a better understanding of the "audience" and package the data accordingly; consider how information may be perceived or misinterpreted.

"Real time" data reporting should be used and the results should be compared to a baseline.

Reporting methods and formats being used in other jurisdictions should be reviewed for potential application in this province.

Emphasis should be placed on the kind of information that the public wants to know (e.g. trends in water quality and quantity) with more detailed data available in the background for

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

researchers.

A committee comprised of government, academia and non-governmental organizations could be formed to help oversee and manage the reporting process.

Education

Challenges

General lack of urgency with respect to water-related issues. Water is taken for granted.

Assumed surplus of water.

Lack of interest; indifference.

People need to realize the impact they have.

People resist change.

Lack of trust.

Not enough information about water conservation and the existing water protection laws.

How do we get people to understand that we all have a role?

Lack of knowledge about how to interpret data.

Getting correct information to different audiences.

Ideas

Build public awareness.

Sustained, well-funded, long-term water education program in N.B.

Partnerships with non-governmental organizations, add to school curriculum (water is important, let's teach our kids about it); partnership with Department of Education.

Develop effective tools for education and communication.

Public awareness campaigns and education (e.g. value of wetlands).

Share success stories, not just problems.

Lead by good example.

Make benefits and rewards of proper care and consideration obvious.

Create a network of community interest groups.

Draft Goal 4 - Reporting: To make more water-related information available to the public and report on the progress of water strategy actions

Practical field education should be provided to the younger generations in New Brunswick.

Student education (schools and colleges).

Government should deliver a consistent message on water protection. Partners can spread that message.

Use plain language and focus on simple concepts (especially for programs in schools).

Signage should inform people without scaring them (e.g. health warnings at public beaches).

Find ways to personalise the data (i.e. something relatable to all like the dripping faucet or other surprising facts).

Partner with community groups in educational programs.

Develop a good communication plan (e.g. about water-related regulations).

Educate public about the financial benefits of individual projects.

Better signage of protected watersheds (and wellfields).

Develop an Environmental Trust Fund report database (make the reports available).
Offer public information sessions.

Financial incentives based on public co-benefit; adopt a watercourse approach and education.

Do not rely on one educational approach being enough. Use multiple approach regularly and ongoing.

Educate New Brunswickers about: the importance of wetlands; the basics of the water cycle (where does water come from?); the results of research generated by the Environmental Trust Fund; the costs and benefits of proposed resource development projects; the importance of protected watersheds and wellfields; the interconnectivity of water; the value of water; the ways in which land use affect water quality; the importance of riparian buffer zones; the importance of water conservation; and the importance of water quality sampling of private wells.

General Water Strategy Comments

Why is a strategy being developed now? What problems is it trying to address? If the strategy is not meant to replace the existing water classification, what exactly is it meant to do?

Why the rush? Why engage in public consultation less than 2 weeks from the release of the water strategy discussion paper?

General Water Strategy Comments

Why are we spending all of this time and money on developing a water strategy when that work has already been done and has been recognized as a world class strategy? Why are you dismissing the findings of our Ombudsman regarding the *Water Classification Regulation*?

Are we fixing a problem that doesn't exist?

Adopt a truly long range protectionist policy toward managing the use of water as one of our two most vital resources (air being the other).

Ensure that the water strategy incorporates ecosystem based management principles to ensure consistent progress towards sustainability goals that link water management with land use planning processes (e.g., to prevent continued wetland loss and conversion).

Hope this strategy will be a pro-active approach to developing in good faith a long-term strategy to protect water quality and quantity with a major goal being to sustain a thriving aquatic environment in New Brunswick's rivers and lakes.

Refer to historic records and date to help identify recurring issues and see long-term trends.

Should aim to develop a truly long range, proactive, protectionist policy for water.

What's missing from this strategy is that there is no mention of playing a stewardship role in order to limit our impact on life supported by New Brunswick waterways.

You cannot manage anything unless you understand what your goal is for that particular watershed or waterbody. Set clear goals, objectives and quantifiable (measurable) targets.

Need ideas to address financial and other resource implications (including consideration of the necessary resources - cost recovery via fees, etc.).

Identify clear roles and responsibilities (including specific objectives and timelines) .

Important to develop an implementation (delivery) plan.

The vison, guiding principles and goals look good on paper but in absence of a commitment from government to implement it, the strategy will not lead to anything real.

Make allowance for additional public engagement in the course of strategy development and make it an on-going dialogue (e.g. for support in designing water monitoring programs).

Reporting progress to the public (transparency and accountability); timelines and responsibilities associated with the strategy should be made part of a regulation and the strategy should deliver a legal authority that creates a commitment to its guiding principles.

There should be a communication plan associated with the water strategy. It would be good to have a better understanding of the strategy. Keep this group together and give them an opportunity to review the draft strategy (follow-up engagement).

Consider including climate change mitigation and adaptation measures.

General Water Strategy Comments

Include a glossary of key terms.

Address a wider variety of issues (poaching, invasive species, protection of wild Atlantic salmon).

Action items should be prioritized (e.g. prioritized by watershed).

Important to identify a lead “owner” of the strategy (either a single agency or an umbrella organization) to coordinate priorities actions and funding).

Develop the strategy in a timely manner (i.e. within one year) with additional public consultation and with the on-going assistance of watershed groups.

There should be a communication strategy so stakeholders will know about further progress related to the water strategy and its implementation. The engagement and conversation that has been commenced should continue beyond the strategy.

Concern about the discussion paper used in support of the public engagement: i.e. lack of explanation as to why a water strategy is necessary; use of vague language; the term water “resource” should be defined; and the goals included in the discussion paper may be a statement of what government would like to achieve rather than what will actually be accomplished.

The goals do not include the concept of an explicit governance structure to help identify the authority to act and to assign the accountability for getting things done.

As part of the final strategy, specific, measurable objectives should be identified for each goal.

The discussion document gives the impression that the Province is paving the way for large scale industrial development such as pipelines, mines and oil and gas development and laying a foundation that would allow bulk transport of water between watersheds and exports of water out of the province. There should be a statement that such water transfers will never be allowed to happen.

APPENDIX 2: Answers to Frequently Asked Questions

Water Strategy

What is a water strategy?

A water strategy is a future-oriented vision for the quality, quantity, management and use of water. It typically establishes a set of goals and describes a set of specific actions aimed at achieving these goals.

Why does New Brunswick need a water strategy?

A strategy is needed so that the challenges associated with the management and use of water in New Brunswick can be addressed in a comprehensive and integrated manner. In the 2015 Speech from the Throne, the government indicated that work would begin this year in partnership with stakeholders and communities to develop a provincial water strategy. It is intended that New Brunswick's water strategy will be an integrated, publicly visible plan that will guide us as we work collectively to protect and manage our water now and into the future.

Are First Nations being engaged on the development of the new water strategy?

Yes. In February 2016, the department initiated an engagement process with First Nations by reaching out to all First Nations Chiefs. This engagement process is currently underway and the input received will be considered during the development of a draft strategy.

Who else is involved?

Stakeholders and the public were also engaged through a series of workshops and open houses that were held in March 2016 across the province. The input received will be considered during the development of a draft strategy.

Will there be additional opportunity for engagement?

Yes. Comments received to date are contained in this summary document which has been posted on the website of the Department of Environment and Local Government. This feedback will be used to inform the development of a draft provincial water strategy. The draft will then be made available for further comment.

Is New Brunswick properly managing its water now?

In New Brunswick we are fortunate to enjoy good water quality and have put in place effective protection and management programs. In fact, our Wellfield Protection Program has been recognized as being one of the best drinking water protection initiatives in the country. But there is always room for improvement. The strategy will examine current practices, identify what is working well and describe areas where improvements are needed.

How is government developing this strategy?

Government is engaging with stakeholders, the public and First Nations to share how water is currently protected and managed in the province and to hear New Brunswickers' views on how we can improve and plan for the future. A series of workshops and open houses were held in the following communities: Grand Falls, Bathurst, Miramichi, Moncton, Saint John and Fredericton. Online submissions were also accepted through the department's website.

The department also held one workshop with technical experts from the Department of Environment and Local Government and one workshop with technical experts from other New Brunswick government departments such as the Department of Energy and Resource Development and the Department of Health, who have knowledge and experience in water-related programs.

This feedback will be used to inform the development of a draft provincial water strategy that will then be made available for further comment.

Are you replacing the *Water Classification Regulation* with the water strategy?

No. Water classification is only one potential part of an overall water strategy. Although the water strategy will provide direction on improved integrated watershed management, we are looking to develop an all-encompassing water strategy that protects and manages our water now and into the future.

The strategy will be broad and all-encompassing and will address many aspects of water such as drinking water, watercourses, permits and approvals and wetlands.

Why can't we just fix the current water classification legislation?

As the Ombudsman stated in his report of August 15, 2014, successive governments and the Department of Environment and Local Government have faced many challenges in their efforts to implement a system of watershed-based management. The department received legal advice that suggested that fixing this regulation would require a rewrite of that entire part of the legislation.

Since 2002 New Brunswick has had a water classification regulation that is unenforceable, therefore despite the dedicated work of many watershed groups, no watersheds have been classified.

- Some of the challenges include:
    - the *Clean Water Act* does not provide sufficient authority to support the classification of surface waters;
    - the water quality standards in the regulation are vague and open to interpretation; and
    - the water quality standards present challenges in terms of enforcement.

Will the water Strategy address wetlands?

The water strategy will consider all aspects of water protection and management in the province, including the implementation of improved long-term wetland management practices and tools developed in collaboration with stakeholders.

Are you reducing the number of watersheds?

No. The discussion paper notes the Level 1 mapping of watersheds in the province, which consists of the 13 major watersheds in the province. A Level 2 mapping also exists and represents the rest of the major watercourses within the first level basins.

Is the discussion paper a draft of the new proposed water strategy?

No. The discussion paper entitled *Working Together to Build a Water Strategy for New Brunswick* was created in order to spark conversation about what water related topics are of most importance to New Brunswickers. The water strategy has not yet been developed.

Environment

Are Environmental Impact Assessment (EIA) registration documents available online?

Yes. The Department began posting environmental impact assessment registration documents online in 2014. To view available registration documents, please visit: http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/EIA-EIE/Registrations-Engegistrements/EIA.pdf

Why aren't there more prosecutions or fines for people that do not comply with environmental Acts and Regulations?

The primary goal of the department's *Compliance & Enforcement Policy* is to achieve compliance with the department's 31 Acts and Regulations and in so doing, protect and enhance the environment to enable a sustainable future for all New Brunswickers.

There are many different ways to achieve compliance. Enforcement options involving prosecutions or fines are often expensive and time consuming to conduct and are therefore a last resort when other forms of compliance fail. The Province wants to give violators every opportunity to comply and to do the right thing but will move to increasingly more punitive actions if people fail to comply. For more information on the Department's *Compliance and Enforcement Policy*, please visit:

http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Publications/ComplianceEnforcementPolicy.pdf

Is surface water quality information available online?

Yes. Surface water quality information is available online. To view this data, please visit http://www.elgegl.gnb.ca/WaterNB-NBEau/. An assessment of the water quality is also available through the Environment and Climate Change Canada Water Quality Index (WQI).

Water Quality Index, please visit:

https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=CB97D13E-1

Resources and Water

How do we protect our water sources from forestry industry activities in New Brunswick?

Forest operations on private and Crown lands must meet the standard legislated requirements to protect water quality and aquatic habitats. Government and the forest sector take this responsibility seriously and follows best management practices, monitoring forestry operations and conducting audits as part of assessing the performance of forest operations to achieve compliance. Current ISO Certification, independent third-party audits, sustainable forest management, as well as compliance reporting and tracking systems, are tools used for providing oversight for forest operations on Crown Land and Industrial Freehold land.

Some monitoring of private woodlot operations around water is conducted. The means of monitoring are third-party audits of certified mills, silviculture program audits and Watercourse and Wetland Alteration Permit (WAWA) program audits of activities near watercourses. Issues of non-compliance must be corrected immediately and continuous improvement measures put in place to prevent future issues of non-conformance. Forestry practitioners seek to abide by legislation, utilize current scientific research to inform decision-making and follow best management practices to ensure the forest continues to meet the diverse goals of providing habitat, water protection, jobs, revenue and opportunities for recreation. Information is available for Programs on the Department of Energy and Resource Development's website here:

NB Private Woodlot Silviculture Program - http://www2.gnb.ca/content/dam/gnb/Departments/nr-rn/pdf/en/ForestsCrownLands/WoodlotSilvicultureManual.pdf

Crown Lands Results-based Forestry Option - http://www2.gnb.ca/content/dam/gnb/Departments/nr-rn/pdf/en/ForestsCrownLands/ScheduleE_FMM_En.pdf

Crown Timber Licensee Performance Monitoring Program under Publications - http://www2.gnb.ca/content/gnb/en/departments/erd/Publications.html

Are beaver dams a nuisance to our watercourses?

Beavers are nature's engineers, often building elaborate structures that create diverse aquatic habitats for fish and other wildlife. These structures often last for many years and provide aquatic reserves during low stream flow periods. There are cases where beaver construction may become a nuisance, threatening damage to private and Crown property and road infrastructure. When this occurs, private landowners can access control methods on the Department of Energy and Resource Development's website here:http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/wildlife/content/NuisanceWildlifeDamagePreventionControl/beaver.html

If private landowners are unable to remove the beavers themselves, they can hire a licensed Nuisance Wildlife Control Operator (NWCO) who, for a fee, will remove the animals. A list of licensed NWCOs is available on the Department of Energy and Resource Development's website here: http://www2.gnb.ca/content/gnb/en/departments/erd/natural_resources/content/wildlife/content/NuisanceWildlifeControlOperatorsByRegion.html

Public Health

Why isn't fluoride banned from being in water systems?

The Office of the Chief Medical Officer of Health (OCMOH) fully supports fluoridation of public water systems. The OCMOH published a position statement on this matter which can be found on its website here: http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/HealthyEnvironments/FluorideStatement.pdf

Is government exploring ways to modernize the management of waste water in New Brunswick?

If deemed necessary, the Office of the Chief Medical Officer of Health would likely be supportive in exploring ways to modernize the Onsite sewage disposal system program, including training, licensing, treatment requirements, legislation and *regulations.

*It was previously proposed, as part of a Strategic Program Review, that the onsite sewage disposal system program be transferred to the Department of Environment and Local Government. OCMOH would continue to support this notion and agree with the previous assertion that the management of all wastewater would be better managed if it was under one agency. This would help address many concerns.

Agriculture and Water

Are agricultural activities such as cranberry farms and blueberry fields, subject to the same level of environmental and water regulation as are other industries?

The agricultural industry is subject to the same legislation by DELG, DFO and Environment Canada as other industries, although the *Clean Water Act* (CWA) does allow normal farming practices to be carried out beyond five metres of the bank of a watercourse in existing fields.

New and expanding cranberry farms are screened for registration in the environmental impact assessment (EIA) process. The Department of Agriculture, Aquaculture and Fisheries has required riparian buffers well in excess of the 30 metres specified in the CWA when pre-identifying blueberry fields for development on large tracts of Crown Land.

How is the *Topsoil Preservation Act* being enforced to prevent soil erosion and sedimentation of watercourses?

The intention of the *Topsoil Preservation Act* is to preserve farmland for future generations by controlling the removal of topsoil from farmland, rather than the prevention of soil erosion or sedimentation of watercourses.

The Act is administered by the Department of Environment and Local Government, with the Department of Agriculture, Aquaculture and Fisheries providing technical advice and financial funding on a cost-shared basis under the federal-provincial Growing Forward 2 (GF2) Agreement for the construction of erosion control structures and promotes the use of sustainable crop rotations. DAAF activities primarily target soil erosion caused by precipitation in active agricultural fields.

How does government ensure that water quality is protected from pesticide and herbicide spraying?

While pesticides are regulated by Health Canada and the Department of Environment and Local Government, pesticide awareness is promoted within the Department of Agriculture, Aquaculture and Fisheries' Environmental Farm Plan program and through presentations

directly to producer groups. The agriculture industry is required to follow Health Canada's pesticide use requirements and follow a simplified Pesticide Applicator's Certificate process as required by the Department of Environment and Local Government. However, the agriculture industry is not required to obtain Pesticide Use Permits for the use of non-domestic pesticides as is required in other sectors.

The Department of Agriculture, Aquaculture and Fisheries supports the use of Integrated Pest Management (IPM) techniques to apply the right control product, at the right rate and at the optimal time, in combination with crop scouting. Agrologists carry out research to determine the most effective control products and recommend these to producers as part of their IPM program and promote the choice of pest control products with the least effect on non-target or beneficial species. GF2 funding is also available to assist producers to install improved application technology to their sprayers.

How do we ensure that some agricultural sectors, such as blueberry and cranberry farming, use best irrigation practices in order to have minimal impact on quality reliable water sources?

The use of irrigation is very limited in New Brunswick. New and expanding cranberry farms are subject to registration in the EIA process and most trap precipitation and recycle all water on site using holding ponds. Other than rainwater, there is no widespread, consistent use of water in the production or harvesting of wild blueberries in New Brunswick.

How are the Department of Environment and Local Government and the Department of Agriculture, Aquaculture and Fisheries working together to protect our water sources?

Both departments support closer cooperation and share information on an ongoing basis, including for the development of a provincial Water Strategy. The two departments are also currently working on the development of a new provincial agriculture land policy.

How do we ensure that nutrient management plans are stringent enough to protect water quality?

Nutrient management plans recommend only the amount of nutrients required to achieve the targeted crop yield. Nutrient application above these levels is not economically or environmentally sustainable.

Has the feasibility of an agricultural ecological goods and practices program to facilitate and encourage beneficial management practices been investigated?

The Department of Agriculture, Aquaculture and Fisheries investigated Ecological Goods and Services a number of years ago but determined that continued funding of a strong suite of Beneficial Management Practices would be more effective in increasing environmental protection.

Are there any existing agricultural land policies and regulations allowing for water protection regulations to be applied uniformly to all industrial practices including agriculture in New Brunswick?

During the fall of 2015 and winter of 2016, the Department of Agriculture, Aquaculture and Fisheries carried out a public consultation on considerations for an Agricultural Land Policy. The resulting discussion paper can be found at: http://www2.gnb.ca/content/dam/gnb/Departments/10/pdf/Publications/Agr/AgriculturalLandPolicyConsultations_WhatWasSaid.pdf

The department promotes sustainable production in order to conserve the productive capability of the land and produce the low-environmental-impact food that society increasingly demands. The need to strike a balance between tong term water protection and the ability of agricultural producers to produce high quality, safe food continues to be a long-term goal of the department.