CCNB Action, Canadian Rivers Institute and **WWF-Canada**

Making Connections on the St. John River

A River Tour Series Connecting the "State of the St. John" to Local Community Priorities for Actions on Our River

Summary Report

November 14-23, 2011

Prepared by
S. Merrill, CCNB Action
E. Hendriks, WWF-Canada
April, 2012

"We all want to leave a river that is better than what we found it"

"We need first an awakening then communication then change"

Action CCNB Action

Canadian Rivers Institute

WWF

About CCNB Action

CCNB Action is an independent, non profit citizens' action group that creates awareness of environmental problems and advocates solutions through research, education and interventions. CCNB believes the future of all life depends on bringing human activity in balance with ecological limits. Created in 1969, it was added to the United Nation's Global 500 Roll of Honour for outstanding environmental achievements. Our Freshwater Protection Program advocates for a holistic and integrated approach to water management in the face of increasing pressures on our freshwater ecosystems from pollution, ecological impoverishment, climate change and increased industrial demand. ccnbaction.ca

About WWF

WWF is creating solutions to the most serious conservation challenges facing our planet, helping people and nature thrive. WWF-Canada is working with governments, businesses, NGOs and communities on an innovative approach to freshwater conservation that aims to meet water needs of people and nature across the country. Through the Living Rivers Campaign, WWF aims to protect and restore the health of Canada's rivers and to secure a sustainable freshwater future for all Canadians. wwf.ca

About CRI

The Canadian Rivers Institute (CRI) was founded in 2000 as a collaboration of researchers at the University of New Brunswick at both the Fredericton and Saint John campuses. CRI's mandate is to develop the aquatic science needed to understand, protect, and sustain water resources. The CRI uses a multidisciplinary and cross-sector approach to focus its research on societal demands for water resources while addressing the challenges of sustaining, healthy aquatic ecosystems. This innovative model merges academic ideas-based and applied needs-based science and promotes the rapid transfer of new knowledge to regulatory agencies to create effective public policy for improving society and the quality of life in Canada and abroad. unb.ca/cri

Acknowledgements

We wish to thank the local organizations and communities who hosted tour stops. There is already incredible work being done to address local priorities along the St. John River and these groups and communities were instrumental in bringing their networks to the discussion on connecting us all:

Hammond River Angling Association

St. Mary's First Nation

Tobique First Nation

Nashwaak Watershed Association Inc.

Fredericton Area Watersheds Association

Meduxnekeag River Association Inc.

Société d'aménagement de la rivière Madawaska et du lac Témiscouta

1 Introduction

The environmental conditions of the St. John River have significantly improved since the 1960's, when the river was grossly polluted and seemingly on its deathbed. There are, however, challenges still ahead. Contemporary issues such as nutrient loading, changes to fish communities and changes to flow regimes have been identified in the recently released "State of the Environment"[1] report by the Canadian Rivers Institute (CRI). CRI's report, based on over 100 studies conducted on the St. John River, provided a starting point for connections and conversation.

The River Tour was an opportunity to: share CRI's findings; share community local knowledge and experiences; and to connect individuals on the river to continue making positive changes into the future. This River Tour report is intended to provide a synthesis of the discussions. This report provides a snapshot of the conversations in eight communities in key locations along the St. John River. The report summarizes the discussions of each community into two sections: Local Issues and Broader Water Policy Challenges. Local issues relate to a localized challenge being experienced by that community, while a broader water policy challenge speaks to challenges in addressing local issues in a broader policy context and often relates to a wider geographic region such as the entire watershed, the province or nationally. The Opportunities and Solutions section is a combination of prospects for planning and action across all the communities. In Section 3, the similarities and points of commonality for broader watershed management of the St. John River are identified in a table. The report concludes with a summary of ideas on how to stay connected, generating future discussions and implementing actions.

[1] Canadian Rivers Institute. 2011. The Saint John River: State of the Environment Report. Eds. Kidd, S., Curry, A., and Munkittrick, K. Canadian Rivers Institute, University of New Brunswick. http://www.unb.ca/research/institutes/cri/_resources/pdfs/criday2011/cri_sjr_soe_final.pdf.

2 Tour Stops

Eight communities along the St. John River were chosen as Tour Stops (Figure 1). These Tour Stops were chosen based on a number of characteristics, including areas of ecological concern as identified by the scientific conditions outlined in the CRI's State of the Environment Report; communities that have active water-based networks within watershed groups and other conservation organizations; locations that are representative of the different geographical reaches of the river system; and places that provide access to urban, rural, first nation and francophone people. Tour Stops included Hammond River (Reach 4), Gagetown (Reach 3), St. Mary's First Nation (Reach 3) , Fredericton (Reach 3), Woodstock (Reach 2), Florenceville-Bristol (Reach 2), Tobique First Nation (Reach 2) and Edmundston (Reach 1).

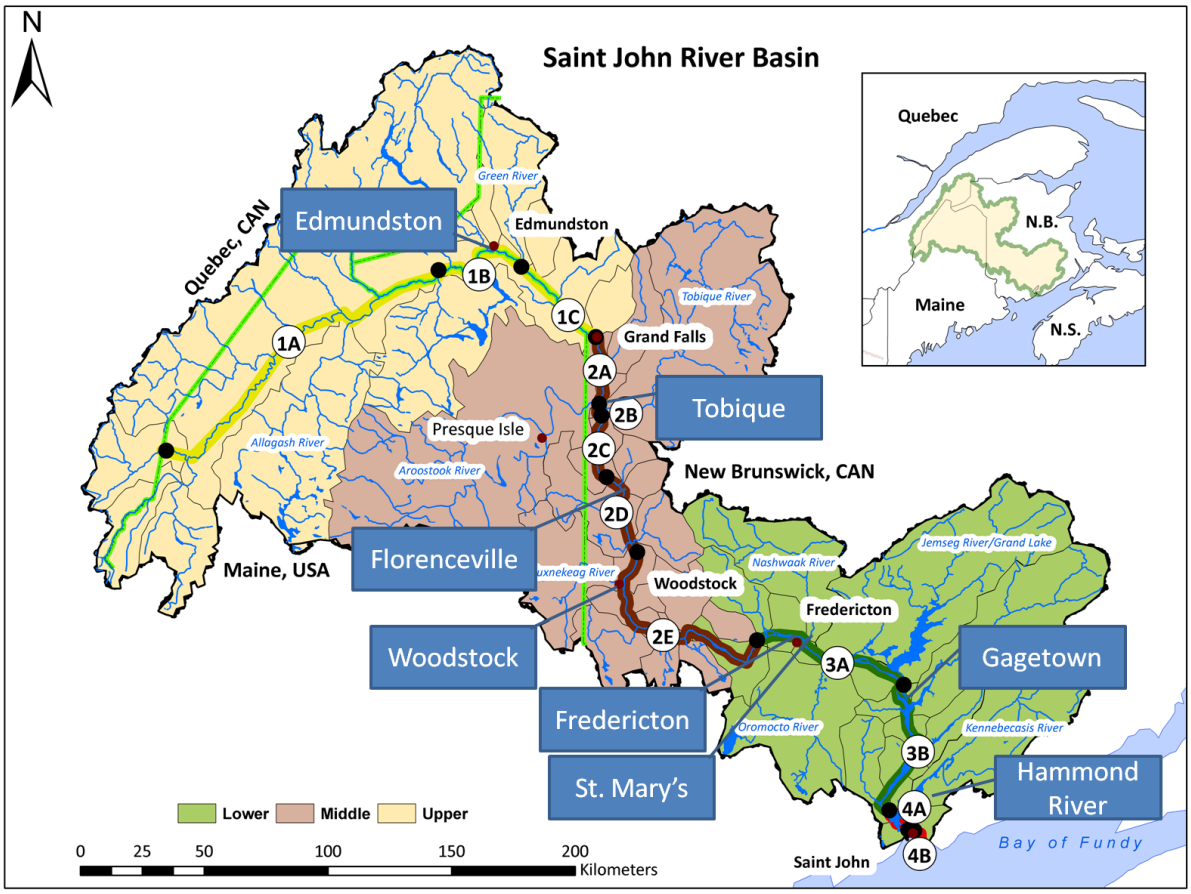

Figure 1. Map of the eight community Tour Stops along the St. John River. The map also shows each of the river reaches (1 though 4) as designated in the CRI State of the Environment Report.

Hammond River

Hammond River is a small community on the banks of the tributary of the same name, on the Kennebecasis River which is a major tributary of the St. John River. This location was chosen as a Tour Stop because of its central location between major communities of Saint John (the largest City along the St. John River) and Sussex (a booming industry town). It was hoped that this location would attract people from a wide radius including both urban and rural areas. Hammond River is best known as one of the more pristine tributaries that still has a run of Atlantic salmon. The Kennebecasis watershed is predominantly an agricultural setting but is also facing the growth of relatively new industries including potash mining and oil and gas. Hammond River also has a very active water community; the Hammond River Angling Association was our local host.

Hammond River is located in Reach 4 of CRI's State of the Environment Report.

Local Issues:

- There is a strong desire to maintain the fisheries and the local angling opportunities, and to restore what has been lost, particularly the salmon fishery due to an increase in habitat range of the smallmouth bass.
- There is a lack of understanding of the connections between local land use planning and how development in the subcatchment and in the riparian zone contributes to water quality.
- There are new industries, and therefore new impacts on water, such as oil and gas and mining projects such as potash.

Broader Water Policy Challenges

- Increasingly, there is a wealth of knowledge created through citizen science; however it continues to be a challenge to capitalize on data gathered through citizen science by communities and governments to gain a better understanding of the local and broader state of the environment.
- The provincial government does not necessarily use watershed groups' and other organizations' monitoring data in decision making processes such as environmental impact assessments for new development projects.

- The size of the St. John River watershed and geographical distribution of people, presents a large challenge with respect to bringing different stakeholders together and aligning priorities.

Gagetown

Gagetown is a small village located about 60kms downstream of the City of Fredericton and upstream of St. John. It is the first major population centre downstream of industries and the dams on the river system. The impacts of flow regime changes due to the hydroelectric dams are particularly felt in this region. Gagetown and the surrounding area is also a vibrant farming community and has become an attractive place for artists, boaters and naturalists.

Gagetown is located in Reach 3 of CRI`s State of the Environment Report.

Local Issues:

- Historically there has been aggressive herbicide spraying on Base Gagetown that has had impacts on local vegetation leading to land cover changes and has exacerbated sedimentation into the river.
- River island habitats have been hugely altered by changes to flow regimes; people have seen the downriver migration of the islands.
- The Mactaquac dam is capturing and holding back sediment that contains nutrients that is absorbed by farm fields in the floodplains during flooding. This is reducing the natural nutrient recharging of farm land.
- A lack of enforcement and infrastructure for sewage discharge is increasing pollution from boating at Gagetown Marina.

Broader Water Policy Challenges

- There is concern over the potential for future shale gas drilling and hydraulic fracturing, particularly the use of water for the extraction process. There are many questions which remain unanswered about the industry that should be addressed in provincial water policies. Key questions that have been raised: Where is water going to come from for industrial activity? How will the wastewater be treated and released, and how is that going to impact the local environment? Lack of enforcement or maintenance of current water protection regulations is a gap leading to ineffective protection.

- Government lacks the administrative and financial capacity to implement and enforce good water policy frameworks in the province.
- Given the sentiment that the government is not able to effectively enforce its legal obligations, there is growing scepticism that proactive water protection activities led by communities and local organizations can be successful without a simultaneous effective implementation of the regulatory system.
- We have an archaic flow management regime which is based solely on peak energy demand (Beechwood dam data shows this clearly). There is concern that dam operators are not educated enough to understand and implement "environmental flows".

St. Mary's First Nation

The CRI State of the Environment report included a chapter that brought together, for the first time, traditional ecological knowledge (TEK) and "western science" to provide information on the condition of freshwater environmental indicators. While all communities can contribute a rich oral history of their regions and how they use the river, it was important to include First Nations' perspectives on the local issues and priorities. First Nations can provide a longer and broader history of the river system.

St. Mary's First Nation is within the city of Fredericton and is one of seven Wolastoqiyik (Maliseet) Nations along the St. John River. St. Mary's First Nation has had strong representation by community members in water conversations and actions in New Brunswick, particularly concerning the St. John River. Our session was hosted by CRI's Water Grandmother, Cecelia Brooks, and the St. Mary's First Nation community.

St. Mary`s First Nation is located in Reach 3 of CRI's State of the Environment Report.

Local Issues

- Complimentary (to The State of the River Report) studies in flora, fauna, cultural heritage, land use changes are lacking and would augment the traditional scope of study of river/watershed management with useful information.
- While there is a great interest in citizen science, particularly in collecting and passing on Traditional Ecological Knowledge, there is a lack of training in collecting and disseminating the information.

Broader Water Policy Challenges

- There is a lack of harmonization of methodologies of data collection and interpretation between communities and cultures to allow for a consistent database of information on the state of the environment as a whole.
- There is a systemic capacity gap in the lack of a water/environmental science curriculum in the public education system. In addition to this gap, there is a lack of curriculum focused on Aboriginal history and holistic connection to natural resources. Addressing these gaps in environmental education is the key to forming students (than adults) who are connected to and take ownership of the river.

Fredericton

The city of Fredericton is the located midway along the length of the St. John River with the river dividing the city into north and south sides. The river is often referred to as the Heart of the city. This relatively large municipality is a key area for discussion along the system because of its influence on the river in the form of wastewater effluent, storm water management and urban runoff. The residents of the city also pride themselves on being connected to the river culturally and for its impact on their quality of life. Fredericton is also directly downstream (20km) from the Mactaquac Dam, the largest impoundment on the river system.

The Fredericton area has a very active interest in water management with many watershed organizations and two major universities with water related programs (including researchers with CRI) and environmental studies. It was important to tap into the both the perspectives of the urban public, the local interest groups and the academic community. The session was co-hosted by the Fredericton Area Watersheds Association and the Nashwaak Watershed Association.

Fredericton is located in Reach 3 of CRI's State of the Environment Report.

Local Issues

- The Mactaquac headpond land clearing and shoreline development is increasing sedimentation and impacting water quality.
- There is continued topsoil mining along the sensitive shoreline of the Nashwaak River.

- The aquaculture industry in the Bay of Fundy is having an impact on wild fish that migrate to and through tributaries of the St. John, particularly the Nashwaak. These fish act as disease vectors and carry sea lice infestations.
- The flow management of the upstream dams needs to be addressed. There needs to be less regulation of the natural flow and incorporation of environmental flows.
- There is increasingly more bank hardening through shoreline development or new structures to control erosion which actually causes further erosion.
- There are concerns over how new industrial projects will impact the river and tributaries. There is particular concern about shale gas exploration/development throughout the Nashwaak watershed (and province as a whole) and a proposed open pit tungsten and molybdenum mine for the headwaters of the Nashwaak watershed.
- Old wood roads act as conduits for surface water runoff and intercept groundwater flows.

Broader Water Policy Challenges

- Currently, the province's regulatory system meant to protect the surface water resources is ineffective.
- Agricultural practices are often in direct conflict with water management regulations. For example, top soil mining is considered an agricultural practice, while in conflict with the riparian buffer regulations of the Clean Water Act.
- There are potential new water allocation issues that have not historically been there, particularly with respect to the shale gas and frac'ing industry and their water demands for surface water and groundwater withdrawals.
- Economic development policies and environmental protection policies are often conflicting. Furthermore, unemployment levels in communities along the river are areas with potential resource development projects with a high environmental impact (communities needing economic stimulus are potentially more favourable toward resource extraction projects with large water impacts).
- The cumulative impact of development on river health is not often considered when reviewing proposals. For example, currently we could build many developments with each meeting individual regulatory requirements but when they are all added together (i.e. cumulative impacts) the river's carrying capacity is exceeded.

- Geomorphic assessments (considering broad scale aspects of geology, river morphology, existing development, etc.) are not currently the norm in assessing erosion control. Erosion is dealt with on a case by case basis and does not consider upstream, downstream, or watershed conditions.

Woodstock

Woodstock is a major centre located on the St. John River at the mouth of the Meduxnekeag River, a major international tributary. Woodstock is situated between the downriver Mactaquac dam and upriver Beechwood dam and is in the southern portion of Carleton County, which is best known as New Brunswick's agricultural (potato) belt. The area has a rich history as the first incorporated town in the province, and in recent years has been the fastest growing community as the town acts as a service and transportation hub. Woodstock, as a location for a Tour Stop, offered to attract rural and urban residents and an active water management network in the Meduxnekeag River Watershed Association Inc., our local host.

Woodstock is located in Reach 2 of CRI's State of the Environment Report.

Local Issues

- There is less Atlantic salmon in the river now than there was in the 1960's when the river was so grossly polluted. There is a large focus on the desire for a recovered salmon fishery in the future. As one participant said, the challenge to face is: "Can we have hydropower and salmon at the same time?" This will be the social acceptability litmus test.
- Agriculture in the region is a bigger polluter now than ever. Agriculture has become more intensive recently with an increase in monoculture crops, and therefore requires higher fertilization rates, more nitrogen, more phosphorus and more soil erosion.

Broader Water Policy Challenges

- Our local organizations, such as watershed associations, need local support. This is key to more effective water management in New Brunswick.
- There is an extra challenge presented when communicating about the importance of water protection in areas of economic desperation.

- Dealing with the current issues is challenging enough, however now these concerns will be amplified by climate change. We need to better understand how climate change will impact water resources, particularly river flows in the face of a projected increase in precipitation in our region.
- There is concern about the future of the New Brunswick Water Classification Program and regulation – a regulatory tool that was intended to provide enforceable water quality standards for many watersheds across the province. Watershed groups around the province have worked hard on provisional classification but are receiving indications that this program will not, after 15 plus years, progress to the next stage of legal implementation.
- There is a lack of acknowledgement that the largest polluters of the river system are indeed major polluters. It would seem that the big polluters in the 1960s are still the big polluters now. Often, however they are following the regulations set out to them when it comes to wastewater discharge. This suggests that regulations and requirements currently in place are old, inadequate and need to be updated because they do not consider cumulative impacts on river health.
- It is challenging to align regulatory frameworks for an international river. There is currently a lack of communication between and outreach to people, researchers and agencies in Maine.

Florenceville

Florenceville-Bristol is about 40kms upriver of Woodstock in the heart of Carleton County's potato farming belt and is often referred to as the "French Fry Capital of the World". The St. John River flowing through this region faces challenges such as nutrient loading from point sources such as large industries and nonpoint sources (agriculture) and changes to fish populations and fish health. Florenceville is also immediately downstream of the Beechwood dam which dramatically changes the natural flow characteristics of the river multiple times a day.

Florenceville is located in Reach 2 of CRI's State of the Environment Report.

Local Issues

- There is a strong local interest in restoring fish populations. In the 1960's there was an abundance of salmon and a large commercial licensed fishery. However, since then, there have been declines in fish populations due to blockages on the system (dams).
- Agricultural practices are contributing to nitrogen and phosphorus loading, not just the more obvious point sources.
- The tributaries are typically where people live and have a connection to, however, there is a lack of data collection and monitoring on the tributaries of the St. John River.
- Precipitation, water levels and the sedimentation at this reach of the river were unprecedented in 2010.

Broader Water Policy Challenges

- The current water management framework is no longer able to address the water challenges the citizens of New Brunswick are facing in the 21st century.
- Climate change is and will continue to be a challenge. Climate change will mean even more flooding and more soil moving into the water.
- The fact that the St. John River watershed is about 50% in the US presents challenges in communicating and aligning policies.
- Understanding the scientific conditions plus the community needs and wants (what kind of river we need and want) is an extremely large and sometimes overwhelming venture to undertake.
- There is a lack of physical erosion mapping and updated floodplain mapping that is needed in order to make policy development decisions for future planning, particularly in the face of more extreme weather events.
- There is a lack of regulation and enforcement of development on the floodplain.
- It is very difficult to understand cumulative impacts on a watershed scale and then to incorporate that information into policy development.
- The current financial circumstances of the province make it difficult to make water protection policies a priority.

Tobique First Nation

Tobique First Nation is the second aboriginal community session we held during this tour, and one of the seven First Nation communities located on the St. John River. The community is located on the Tobique River, a major tributary of the St. John. The Tobique is a key interest point along the St. John River system because it is the location of the Tobique hydroelectric dam. The reach of this system has seen both natural river flow and ecological changes such as dramatic declines in the population of Atlantic salmon. The Tobique First Nation has held a strong interest in and influence on the St. John River, and their stories are an important part of understanding the challenges and opportunities in this reach of the river system. This session was hosted by CRI's Water Grandmother, Cecelia Brooks, and the Tobique First Nation community.

Tobique First Nation is located in Reach 3 of CRI's State of the Environment Report.

Local Issues

- Restoring fish populations, healthy enough for human consumption, is a major local priority. Salmon are gone and Sturgeon of large sizes has not been reported in the river since the start up of the Beechwood dam.
- There has been a loss of medicinal plants found in the floodplain of the river due to changes in the flow of the river and bank characteristics.
- The community requires improved municipal wastewater treatment facilities.
- There is a lack of buffer zones to protect the river that has lead to scouring of the exposed riverbanks from ice flows and extreme shoreline erosion placing community infrastructure (i.e. roads) in jeopardy.
- There has been extremely reduced low flow in the Tobique River since the Tobique hydroelectric dam was built and upriver water storage structures were created.
- The community has seen changes to the shoreline and loss of traditional lands and places of community value (i.e. gathering spots) post construction of the Beechwood dam.
- There are concerns over loss of wetlands, water flows, and broader water quality issues of the river system.
- There are concerns that the increase of algae growth from agricultural inputs might impact fish spawning habitats.
- There has been so much change to the river in this reach that it is a challenge to identify what the river used to look like in order to know what to restore the river to.

Broader Water Policy Challenges

- Our current policies are unable to address challenges of the 21st century and need a broader and more holistic approach to managing the river.
- Specifically, provincial policies for regulating the input of pollutants are not strict enough and are out-of-date.
- There is a large challenge in compelling a private venture (for profit) to consider environmental flows in their planning which has a larger social and environmental value, and potentially a loss in revenues for the company.
- While there is an opportunity in alternative riverbank stabilization techniques, they are not supported by current policies and regulations and there is little funding or expertise in implementation of these alternative solutions.

Edmundston

Edmundston is the most north-westerly community along the St. John River, located in the headwaters at the border with the USA and also Quebéc. The city itself sits on the banks of the Madawaska River near its mouth where it converges with the St. John. The region is best known for its historical and current, though diminished, forest industry. Located in the hills of the Appalachian Mountains with its characteristics hardwood forest, there are several saw mills and pulp and paper plants in the vicinity. Edmundston is a predominantly francophone community. Our local host was the Société d'aménagement de la rivière Madawaska et du lac Témiscouta.

Edmundston is located in Reach 1 of CRI`s State of the Environment Report.

Local Issues

- There is a desire to improve water quality. Locals would love to be able to swim in the river again like they used to.
- It is a challenge to step back and to reduce pollution now when we already have the industries and the municipalities, etc. in place.
- The shallower water levels here in this region often exacerbate the issues, particularly the impacts of effluent pollution.
- Climate change increases water levels which results in a "Chocolate River". Runoff from forest cutting, ravines, gullies, roads, etc., all contribute to the warming of the water.

- Some forestry operations led to a decrease in the natural filtration system the forest provides. There is a lack of understanding of how this affects the health of the river system.
- There is a lack of acknowledgement that small damns and impoundments are big contributors to changes in flow regime and fish passage as well, not just the large major dams on the river.
- Locally, there are French, English and Aboriginal cultures which present have challenges particularly in language and communication of the issues and in coordinating efforts.

Broader Water Policy Challenges

- Effective public participation in water policy development is challenge. There is concern about if and how the public can effectively intervene when they are concerned about policies that govern how the river is used and managed, and how much that costs (time, money, resources, etc.)
- There is often a lack of consideration of the linkages between river health and public health -- chemicals, pesticides, pharmaceuticals and fungicides are now prevalent in the environment and flow through the river.
- Communities are often unable to compete with the power of industries and big business and their influence on government decisions.
- Universities are increasingly being financially supported by industry, and therefore, exists the potential for research and communication 'handcuffing' of academics on issues such as water policy development based on science.
- We have made progress in terms of better river management and improved river health, but now we are faced with a new challenge in adapting to climate change.
- There is a lack of real innovation in sharing and collaborating on the issues we face in managing the river.
- The river is an international issue yet the International Joint Commission (IJC) has been absent on the issue unlike other international waters like the St. Croix.

3 Common Ground for Connection

After summarizing the discussion about local issues and priorities and broader water policy challenges, a number of themes emerged as common points among many of the Tour Stops. The following table identifies the key themes discussed in each community. This table helps to pin-point areas of mutual interest and can help in decision making as we identify potential action plans for moving forward.

Table 1. Themes of common interest in each Tour Stop

Common Ground	Hammond	St. Mary's	Gagetown	Tobique	F'ton	Woodstock	Florenceville	Edmundston
Local Issues								
Restore Salmon	X	X		X	X	X	X	
River Flows	X		X	X	X	X	X	X
Shoreline Erosion	X			X	X		X	X
Nutrient Inputs			X	X	X	X	X	X
Visioning/ Awareness	X	X			X	X	X	X
Planning	X			X	X	X	X	X
Broader Policy								
Science/ Data Needs / Linkages	X	X		X	X	X	X	X
Climate Change				X		X	X	X
Regulatory Effectiveness	X		X	X	X	X	X	X

Common local issues identified along the entire river were restoration of salmon and river flows, addressing shoreline erosion and nutrient inputs. It is clear that solving these local challenges requires action both at the local level but broader policy changes at the watershed and provincial umbrella too.

4 Specific Opportunities and Solutions

Participants offered many creative solutions and opportunities for addressing local issues, for creating better policies and for creating a 'connected community' around the St. John River.

We heard multiple times that there needs to be an action plan for the St. John River, and its watershed. While an action plan can take many forms, there are incremental steps or actions that can work toward this goal. Below we outline some of the themes that we heard that might inform a larger plan.

A. *Science and Data Needs and Integration*:

There was a lot of discussion about science and data – what is available, what is lacking and how existing data can and needs to be integrated more effectively. For example, there are many watershed groups and other conservation organizations around the province that have the opportunity to continue to monitor the river and its tributaries and share data. Participants felt that there needs to be a consistent methodology for evaluating river health for New Brunswick, or for the St. John River specifically. Many protocols exist but a common form is necessary in order that all of the data collection efforts are standardized. It was also expressed that there is a severe lack of data during winter conditions and that permanent year round monitoring stations are needed.

It was also suggested that the tributaries should have geomorphologic studies that take into consideration broader upstream, downstream and broader watershed components, to help address and more effectively correct erosion issues. Report carding/tracking of water quality indicators and other watershed health indicators can be a tangible way to monitor these baseline conditions and changes over time.

There is a desire to better communicate to the Department of Environment just how this data can act as a feedback loop between government decision makers and citizen scientists

B. Restoring Environmental Flows:

The concept of restoring "environmental flows" was often discussed in the context of how dams and other smaller impediments have dramatically altered the natural flow regime of the

river's tributaries and the main stem. Participants identified an important opportunity for engagement of the public by government agencies and industries on the ending lifespan of Mactaquac dam in the next 15 years. There are opportunities such as dam reengineering, or even decommissioning to restore the river and fish passage. Public engagement on restoring flows and managing the Mactaquac Dam should begin as soon as possible.

C. Collaborative Initiatives:

There are numerous organizations that currently exist and who already have a mandate to monitor, protect, restore and engage the public and other stakeholders around the river. Participants recognized that there was an opportunity to galvanize the collective efforts of local groups rather than duplicating efforts. Many examples of successful campaigns were discussed at each Tour Stop, such as the work to designate the river as a Canadian Heritage River by the St. John River Society.

The St. John River is an international waterway, as such, there is an opportunity to communicate and work with US counterparts (government and NGO's) to share data collection, and evaluation. There is also a unique opportunity to engage the International Joint Commission on the river.

"Watershed management" was consistently brought up as a concept which requires considerable collaboration and integration (and therefore challenges), but which might be the best approach. Other concepts such as co-management governance approaches, including acknowledgment of the fact that First Nations land claims issues still need to be addressed, might be models to explore.

D. Green Infrastructure

The St. John River watershed is relatively undeveloped compared to other larger river systems in Canada. There are still opportunities to maintain green spaces and develop green infrastructure without having to undergo restoration. For example, in urban and suburban areas, municipal planners need to be encouraged to integrate soft path approaches to stormwater management that can immediately decrease nutrient loading from urban runoff. Furthermore, our still pristine areas can be used as reference sites for area that do require restoration.

E. Visioning, Engagement and action planning

One of the lengthiest conversations from all the Tour Stops revolved around envisioning what kind of future St. John River communities would like to see and how to get there. Of particular importance was effectively engaging with the general public to create a "culture" and new "social norm" of connection, ownership and responsibility for the river like people seemed to be in the past. Most participants acknowledged that watershed and conservation groups and others tended to communicate amongst ourselves, but the knowledge level and awareness of the issues on the river are not widely known in the public realm.

In order to spread the conversations and connections to the broader public, participants suggested that there is a need to:

- Show people the river – take them to the issues and let them experience the good parts and the bad parts.
- Get youth involved to make change as they are the ones who will see the fruits of their labour. Children need to be reconnected to nature.
- Get the media involved as the medium that the average citizen pays the most attention to.
- Better understand and communicate the use values of the river for all generations.
- Keep the public discussions broad enough so that anyone can identify their piece and their opportunities for participation. If the discussions are too narrow, people do not see how the issues apply to them.
- Set objectives for what kind of river is wanted, early in the discussions (i.e. cold water stream, salmon returns, community driven etc.).
- Acknowledge the social, cultural and political differences along the river and tailor communication messages to different 'audiences'.
- Be creative in connecting people to the river and provide opportunities for people to get on the river specific ideas included a St. John River Barge that would travel and engage people up and down the system such as Fiddlers on the Tobique; canoe runs; water theme museum exhibit, etc.).
- Find that "spark" that is currently missing that connects all up and down the river system.
- Make the economic case for river protection. For example, there is an enormous opportunity to generate ecotourism both on St. John River and the flood plain that also works toward engaging and educating the public.

5 What's Next: Staying Connected

Immediate feedback from participants indicated that they felt that the River Tour was a very positive and worthwhile undertaking. There was overwhelming support to continue making connections between people and the science, people and each other and people to the river. The discussion brought forward both easy and creative ways that we can continue to communicate as we try to build the capacity to make positive changes on some of the priorities flagged in this report.

CCNB has created and will maintain an email listserve of participants who left their contact information during the Tour. This listserve will be used as the starting point for continuing the communication by sharing this report, asking for feedback, discussing next steps, etc. It is hoped that this will spark the formation of a loose network for sharing and collaboration. It was suggested that this initial list of people should continue to grow and that an effort should be to make connections with diverse groups that use and care about the river. It was also suggested that social media be used to reach and draw in a broader audience, particularly youth.

WWF-Canada has identified the St. John River as a focal river as part of its national living rivers campaign, which has the potential, along with Canadian River heritage status, bring national and even international profile to the river and resources (financial, science, etc) over the next 5-7 years of the campaign.

In the short term, the organizers would like to build next events based on priority areas identified by River Tour participants. We hope to continue the discussion on these options and others through feedback on the report and expanding our partnerships on the river.