

An overview of Climate Change Adaptation in New Brunswick

**Resiliency Planning Charrette
October 1, 2014**

Presentation Outline

- Context

- Role of the Climate Change Secretariat
- NB Climate Trends & Impacts

- Climate Change Adaptation in NB

- Recent GNB Initiatives, *NB Climate Action Plan*, *NB Flood Risk Reduction Strategy*
- Examples of NB Adaption Projects
- Challenges
- Current and Future Priorities

Context: NB Climate Change Secretariat

- Provincial leadership on climate change.
- Reduce or prevent GHG emissions.
- Adaptation strategies to address economic, social & environmental impacts.
- Collaboration at provincial, regional, national, and international levels.
- Engagement and mainstreaming.

Context: Climate Trends & Impacts

Warmer temperatures:

- Earlier snow-melt & breakup of river ice, increased probability of ice jams and flooding.
- Higher risks of forest fires and appearance of new pests and invasive species.



Changing precipitation & sea-level rise:

- Increased intensity and frequency of precipitation.
- Increased flooding of low-lying and coastal areas
- Greater rates of coastal erosion and groundwater contamination.
- Damage and increasing risk to infrastructure, homes, and businesses and communities.



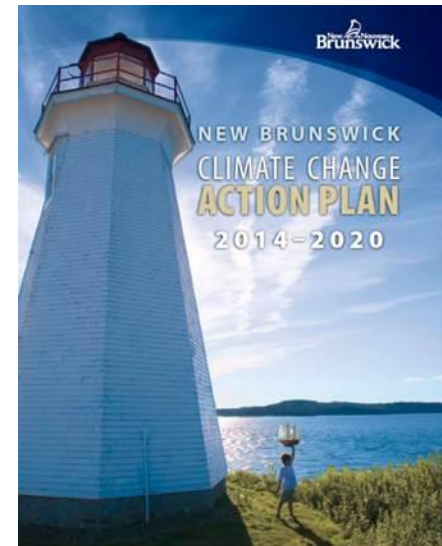
Climate Change Adaptation

- Essential component of community planning to increase resiliency.
- A changing climate presents both risks and opportunities.
- How people and systems adjust to the effects of climate change.
- Making adjustments in our decisions, activities and thinking.
- The goal is to increase resiliency while reducing vulnerability.
- Managing impacts on people, property, environment and economy.



Recent GNB Initiatives

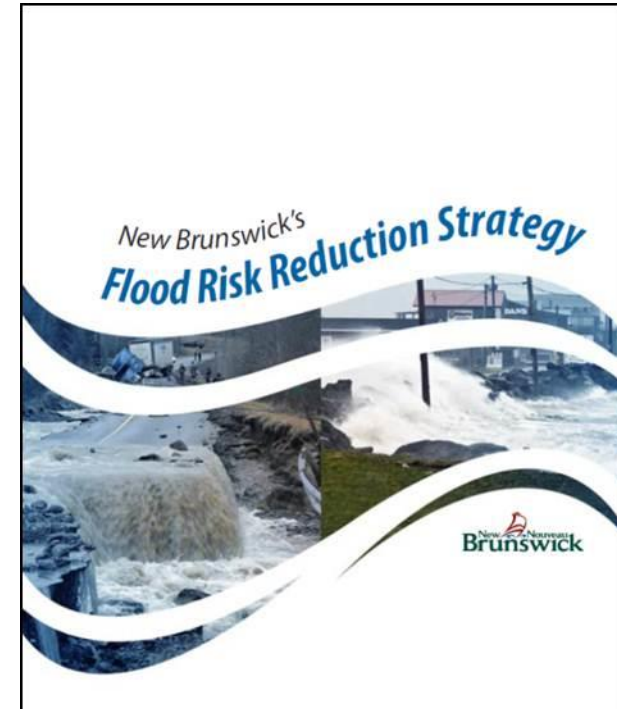
- NB Climate Change Action Plan 2014-2020
- Goal 1: Enhanced Resilience to the Impacts of Climate Change.
 - Data collection and research into Climate Change Impacts. *Building further knowledge about climate change and its impacts through data collection, monitoring and research.*
 - Risk and Opportunity Assessment. *Assessment to identify and quantify the risks and opportunities presented by a changing climate.*
 - Mainstreaming Adaptation. *Ensuring that adaptation to climate change is incorporated into every-day decisions.*



Recent GNB Initiatives

NB's Flood Risk Reduction Strategy

- **Objective 1:** Accurate Flood Hazard Identification.
- **Objective 2:** Planning for Communities and Infrastructure to Avoid Flood Risk.
- **Objective 3:** Informed Mitigation of Existing Flood Risk.

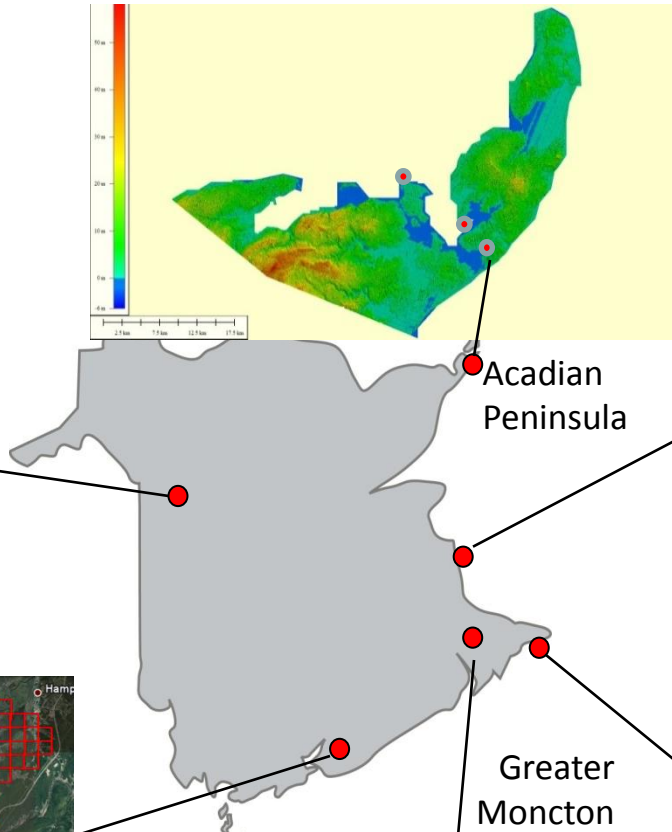


Adaptation: Achievements to Date

- Foundation studies completed for priority issues – erosion, flooding, groundwater impacts.
- Supported by the Province and other partners
 - Regional Adaptation Collaborative
 - Environmental Trust Fund
- Widespread recognition of the issues, willingness to act.
- Numerous communities engaged in vulnerability assessment, moving towards adaptation
 - Flexibility, not a one-size fits all approach.
 - Mainly driven by community interest and local champions.

Regional Adaptation Collaborative (RAC) NB Projects

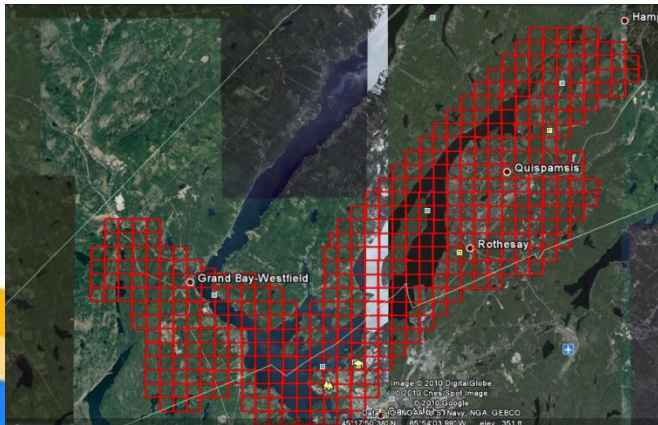
Grand Falls



Richibucto



Lower Saint John



Sackville-Tantramar



Greater Moncton



Environmental Trust Fund (ETF)

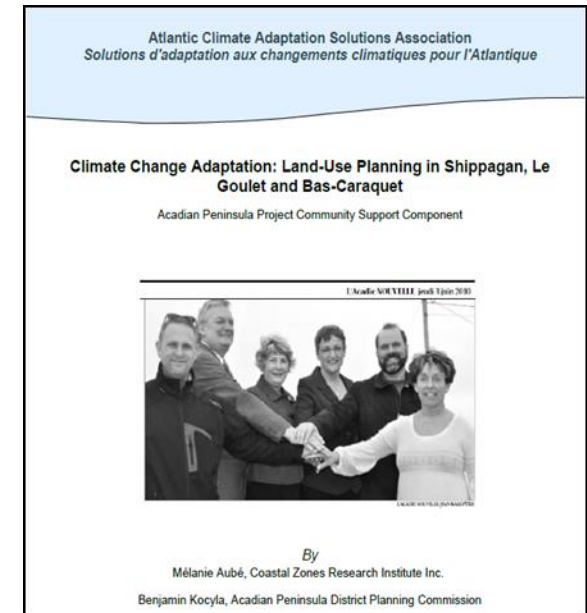
Adaptation Projects

- **Data acquisition** – LiDAR mapping, vulnerability assessments – *communities, coastal and inland areas & sensitive features.*
- **Information sharing** – school & university curriculums, outreach, sharing community assessment tools, and streaming web videos.
- **Mainstreaming and building resiliency** – community planning, coastal restoration.

Acadian Peninsula: Shippagan, Le Goulet, Bas-Caraquet



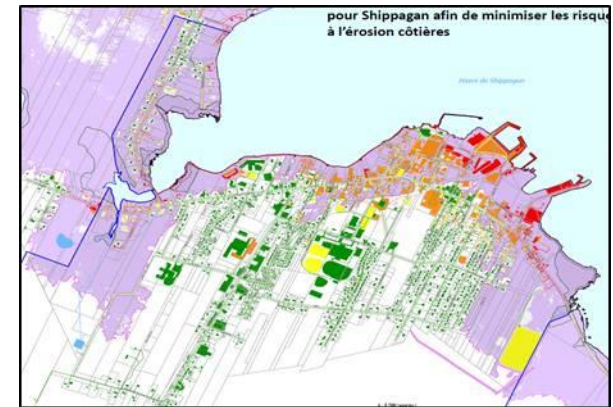
- Community driven, facilitated by local organization (Coastal Zone Research Institute).
- RAC work:
 - Citizen-based working groups.
 - Decision making by consensus.
 - Examined vulnerabilities and made recommendations to municipal councils.
 - Public presentations.



Acadian Peninsula: Shippagan, Le Goulet, Bas-Caraquet (continued)



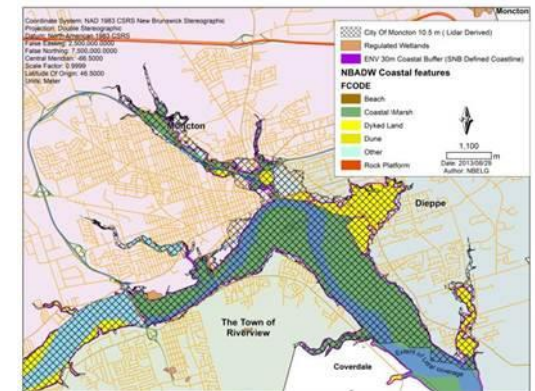
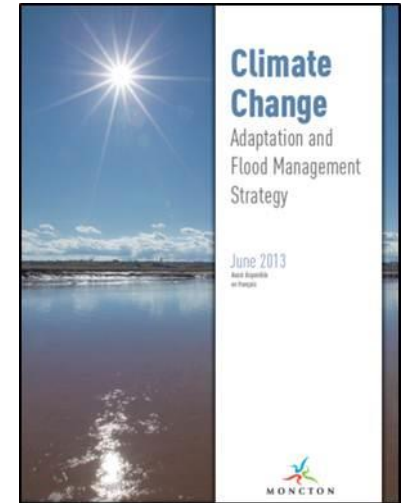
- Current work:
 - Facilitated by Coastal Zone Research Institute.
 - Continuing dialogue with Municipal Councils.
 - Regional approach to adaption planning, evaluation of regional needs and community prioritization.
 - Relocation feasibility studies.



Moncton - Adaptation and Flood Management Strategy



- Developed out of work completed under the RAC.
- Supported by the City's Climate Change Action Committee (CCAC).
- Identified risks and potential impacts.
- Made recommendations for reducing risk.
- Outreach materials for the public:
 - Guidance on flood proofing
 - Guidance on emergency planning



Sackville - Tantramar



- Focused on mapping, dike assessment, and infrastructure at risk.
- Sackville Council Briefed
- Memramcook, Port Elgin, Cocagne satellite projects
- Has lead to numerous studies in the region
- EOS Eco-Energy continuing to coordinate community engagement and adaptation post RAC

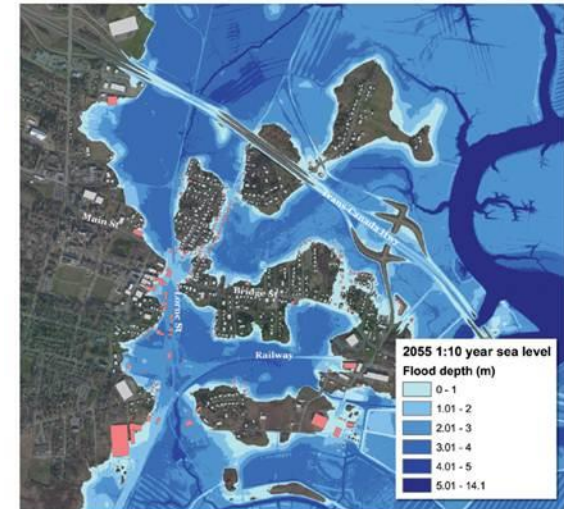
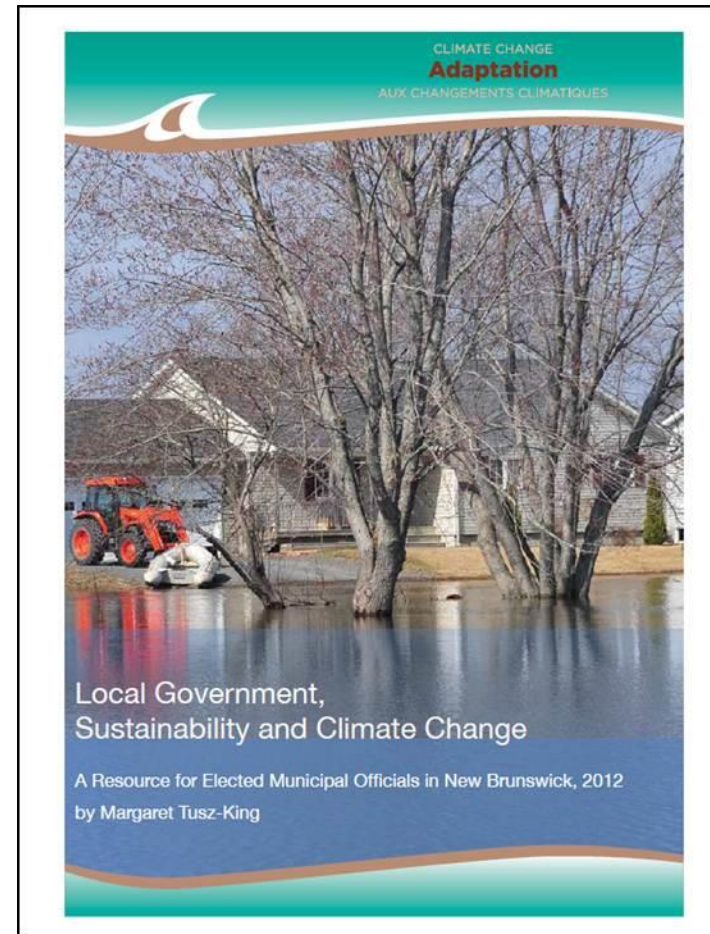
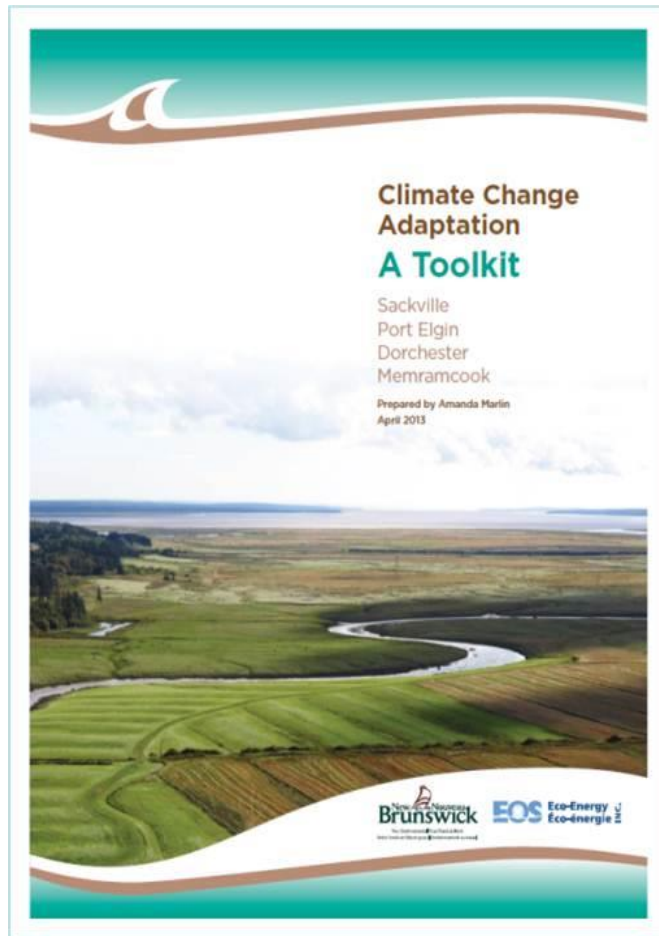


Figure 2: 1 in 10 year storm flood scenario in 2055.
J. Bornemann, TPDC

Examples of Projects Stemming from Sackville – Tantramar RAC



Charlotte County Community Vulnerability Assessment



- Five communities: St. Andrews, St. Stephen, Black's Harbour, Grand Manan, St. George.
- Community level advisory and engagement process.
- Supported by local organizations (St. Croix Estuary Project & Eastern Charlotte Waterways).
- Initial focus on identifying vulnerabilities.
- Next steps around engaging communities to prioritize adaptation options.

Community Vulnerability Assessment of Climate Change and Variability Impacts in Charlotte County, New Brunswick



Challenges

- The predictive element of climate science.
- Understanding and responding effectively to the growing fiscal liability related to climate impacts.
- Keeping citizens and councils engaged in the discussion.
- Moving from vulnerability assessment to implementation.
- Finding innovative ways to fund adaptation measures, *e.g. retreat, relocation, on the ground mitigation*.
- Addressing the gap in financing “early adaptation” vs. disaster response.
- Continuing to “mainstream” adaptation work.

Current and Future Priorities

- Building the knowledge base through continued research and key studies.
- Building education and awareness.
- Making adaptation part of the day-to-day decision making process.
- Support for communities:
 - Community Adaptation Planning Guidance.
 - Supporting projects – *ETF, RAC*.
 - Cost-benefit analysis of adaptation options to inform decision making.
 - Tools to help communities deal with change (e.g. relocation/retreat).