



EXPLORING GREEN SHORES IN NEW BRUNSWICK

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A REPORT PREPARED BY
THE NEW BRUNSWICK
ENVIRONMENTAL NETWORK

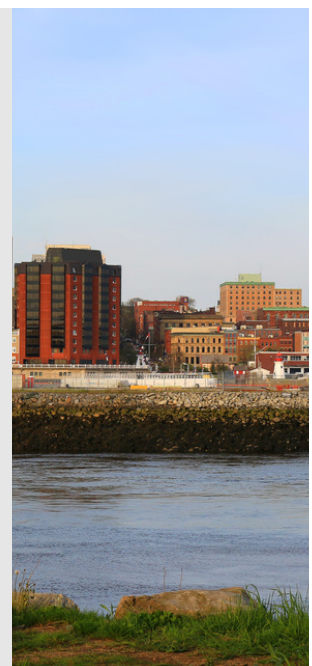
THE STATE OF COASTAL ENVIRONMENTS IN NEW BRUNSWICK

Coastal environments in Canada are currently under significant pressure. On the east coast, sea-level rise and stronger storm surges are expected to increasingly impact coastal communities. Under this threat, an increasing proportion of the coastline is being hardened to protect existing and newly built residential and commercial development. Coastline hardening through the means of rock armour, gabions, seawalls, and other means is known to alter coastal processes and affect sensitive coastal ecosystems. Although they can be necessary to protect critical infrastructures such as roads, wharfs, and buildings, they are often overused to protect land investments and are by no means impervious to the impacts of sea-level rise and storm surges.

Facing threats of erosion and coastal flooding, communities are increasingly turning to nature-based solutions to protect the coastline without harming sensitive habitats or significantly altering coastal processes. By mimicking natural ecosystems, nature-based solutions such as living shorelines have some capacity to adapt to changing conditions accelerated by climate change and sea-level rise. One of the greatest barriers to the implementation of nature-based solutions in Canada is a lack of standardized approaches and data.

GREEN SHORES APPROACHES TO SHORELINE PROTECTION AND RESTORATION:

- A **living shoreline** is a protected, stabilized coastal edge made of natural materials such as plants, sand, or rock. Unlike a concrete seawall or other hard structure, which impedes the growth of plants and animals, living shorelines grow over time.
- **Nature-based solutions** are focused on restoring and/or emulating nature in order to increase human, ecosystem, and infrastructure resilience to climate impacts. These solutions often result in environmental, economic, and social co-benefits, including carbon sequestration—a key tool in mitigating greenhouse gas emissions. Nature-based solutions include both green and natural infrastructure.
- **Soft shore techniques** describe measures that can reduce shoreline erosion with fewer environmental impacts associated with conventional hard structures such as bulkheads and seawalls. They include beach nourishment, the use of large logs, biotechnical methods using vegetation, and other techniques.



THE GREEN SHORES PROGRAM

The impacts of human development, including habitat loss and pollution, combined with climate change challenges are negatively affecting the health of shoreline ecosystems and the ecological services flowing from them. Green Shores® is an initiative of the Stewardship Centre for British Columbia (SCBC) with the broad objective of increasing capacity to address impacts of shoreline development, including climate change, shoreline ecology, and human well-being. The benefits of incorporating natural ecosystem functions into shoreline management increasingly point to the use of options like nature-based solutions consistent with the Green Shores guiding principles:

1. Preserve the integrity and connectivity of shoreline processes.
2. Maintain and enhance shoreline habitat diversity and function.
3. Minimize and reduce pollutants in the shoreline environment.
4. Reduce and reverse cumulative impacts on shoreline systems.

Launched in 2010 in British Columbia (BC), Green Shores is a made-in-Canada approach to improving shoreline resilience. It requires a multi-disciplinary, integrated approach to shoreline management by encouraging the adoption of sustainability principles in the design and construction of projects on marine, coastal, and lake shores.

GREEN SHORES AS A TOOL FOR CLIMATE CHANGE ADAPTATION:

- Encourages best management practices that use nature-based approaches to protect land from erosion and flooding including projected sea-level rise.
- Helps achieve multiple goals such as shoreline stabilization, habitat restoration, and climate resilience as well as increased esthetic, recreational, and economic values.
- Provides a framework for use by shoreline professionals, local governments, and property owners to improve shoreline asset management and values.



Green Shores Program Components

Green Shores is an initiative that provides science-based tools and best practices to help people minimize the impacts of new developments, and restore the shoreline ecosystem function of previously developed sites. It is a voluntary, incentive-based rating program focused on positive steps to reduce the impact of residential development on shoreline ecosystems. Over the past 10 years, Green Shores has evolved from providing design guidance for shoreline projects to becoming a multi-faceted program. Key components of the program include:

- Green Shores Credit and Rating Systems
 - Green Shores for Shoreline Development
 - Green Shores for Homes
- Shoreline Project Certification (Bronze, Silver, Gold)
- Green Shores Local Government Working Group
- Green Shores Training
- Green Shores Technical Advisory Committees and Approved Professionals.



GREEN SHORES L1 TRAINING FOR NEW BRUNSWICK PROFESSIONALS AND DECISION-MAKERS

In an initiative funded by Natural Resources Canada, the New Brunswick Environmental Network partnered with the Stewardship Centre for British Columbia and Transcoastal Adaptation Centre for Nature-Based Climate Solutions to offer Level 1 (L1) Green Shores training to coastal stakeholders in New Brunswick.

The stakeholders invited came from provincial and community-scale non-profit organizations, regional service commissions, and provincial government departments. The full list of participants can be found in appendix A.

The goal of the training was to introduce Green Shores to practitioners and decision-makers in New Brunswick so that they understood the program sufficiently to comment on it. The NBEN then organized a discussion with the training participants to determine how the program could be implemented in the province to best serve the coastal ecosystems and communities.

Training Part 1 – February 23rd, 2022

The first part of the L1 Green Shores training took place online in the morning of February 23rd, 2022. The course was taught by Professor Danika van Proosdij of the Department of Geography and Environmental Studies at Saint Mary's University and the Transcoastal Adaptations Centre for Nature-Based Solutions. This session included theory about shoreline ecosystems, values, threats, and governance, an overview of the Green Shores program credits, rating and certification systems. The session had two participatory activities. The first allowed for a discussion on the values and threats around coastal ecosystems. The second helped them familiarise themselves with the task of designing a living shoreline with the Green Shores rating and credits system.



Training Part 2 – March 18th, 2022

The second part of the L1 Green Shores training took place in Shediac on March 18th, 2022, and consisted of two separate site visits. Participants first met at Parlee Beach Provincial Park where Professor van Proosdij led them on a beach walk and pointed to examples of coastal geomorphological processes at work. The dunes at Parlee Beach were damaged by Hurricane Dorion in 2019 and the Park has an ongoing practice of beach nourishment, though mostly mechanical. It is a highly visited park and participants discussed how to integrate more natural approaches to coastal restoration while maintaining the quality of experience that visitors have come to expect.

Participants then headed to a small piece of public land adjacent to Shediac's Rotary Park (site of the giant lobster). This strip of land butts up against several private properties and is situated at the foot of a heavily trafficked bridge at the mouth of the Scoudouc River. It is a popular local fishing spot. There is noticeable erosion along the banks with old backfill slowly becoming exposed (mostly concrete). Riprap has been placed in some areas to slow erosion. Participants were split into four groups and asked to use the Green Shores for Homes Credits and Ratings guide to design a restoration plan for one of four distinct parts of the property.



Feedback Discussion Session

Participants then returned to Parlee Beach for a 2-hour facilitated feedback session on the Green Shores program and its potential for implementation in New Brunswick.

Participants were split into 3 groups and led through 4 rounds of discussion. To guide the discussion, the following questions were presented to the participants:

Q1

What do public and private shorelines look like in your communities? Issues, trends, attitudes, etc.

Q2

Does the Green Shores program respond to the gaps in your capacity to work on shoreline restoration and preservation? If so, how? If not, what is missing?

Q3

What are your thoughts on the rating system - which elements work well in New Brunswick shorelines/ecosystems? Which elements might be incompatible?

Q4

What do you think of the certification system for Green Shores? Is it valuable? Do you think people will want to have their project certified?



WHAT WE HEARD

Much of the New Brunswick coastline is already heavily developed and inhabited, though some areas still have sizable stretches of natural coastline. There is a palpable tension and stress in coastal communities around the need for shoreline protection, and differences in opinion about how to go about it can sometimes cause rifts between neighbors. The coast is still largely seen as a place for leisure and not as a critical habitat for wildlife that also provides important ecosystem services to humans. It is not uncommon to find stretches of coastline littered with garbage and there is a strong culture of four-wheeling (all-terrain vehicles) on New Brunswick beaches despite efforts to educate the public on the damage caused to dune ecosystems. A culture shift is needed in how we view the coast. Existing regulations to protect our coasts lack teeth and are not properly enforced. We are not doing enough to plan for increased erosion along our coastlines. More work needs to be done to educate the public on the importance of shoreline protection. Positive examples of natural approaches to shoreline protection should be better highlighted and monitored over time.





RECOMMENDATIONS AND OPPORTUNITIES

1

Increase Green Shores' relevance and specificity to the New Brunswick context

Certain elements found within the credit and rating system are not relevant to New Brunswick (ex: groins are already prohibited by law), whereas other New Brunswick realities could be included (incorporation of species at risk such as the bank swallow; stronger emphasis on the removal of riprap instead of bulkheads, with the former being much more common in the province). New Brunswick imagery should be used to appeal more personally to local populations. GIS mapping of coastal areas with the highest potential for implementation of a living shoreline approach could help better focus efforts. All materials should be available in both French and English.

2

Develop pilot projects to demonstrate the effectiveness of the living shoreline approach over time

Participants were largely in agreement that much of the general population remains unconvinced that living shorelines can be as effective as hard armouring in protecting our shorelines. They stressed the need for more positive examples of living shorelines at work. Ideally, these examples would be high-profile and easy to visit. If tracked over time, these pilot projects could provide the empirical evidence that decision-makers often seek when choosing a way forward. Watershed management groups or relevant local community organizations could be mandated to implement these pilot projects, as these groups often already have strong relationships with their communities and could act as important liaisons for the Green Shores program.

3

Provide training and increase capacity for local implementation of living shorelines

There is currently a lack of on-the-ground capacity for the execution of living shoreline projects. The Green Shores Program can fill a gap in the province, if it can first help develop experts at the local level and create the know-how and capacity to support people on the ground with the implementation of their projects. There are not enough professionals (landscapers, engineers, etc) offering services for key-in-hand implementation of living shorelines and there is a lack of available materials needed to do living shorelines well (native plant species, etc).

4

Provide incentives to homeowners to adopt natural approaches to shoreline protection and push for more restrictions on hard armouring as a first option

Many participants wondered whether homeowners would find the credits and rating system and certification worthwhile and suggested creating incentives for following the Green Shores approach. It was suggested that Green Shores in New Brunswick could be set up similar to how NB Power contracts certified energy advisors to visit homes and conduct home energy evaluations with recommendations on how to improve a home's energy efficiency. It was suggested that the adoption of a Green Shores approach could also be tied to the expediting of permits. Existing government regulations on coastal protection are seen to be insufficient and are not always properly enforced. New Brunswick does not have a coastal protection act, though Action 23 of the Province's Water Strategy identifies the need to develop a regulatory framework to designate coastal protected areas under the Clean Water Act. Participants pointed to other jurisdictions where the feasibility of a soft approach must first be ruled out before a hard approach can be approved. With rock armouring already present on many coastal properties, it was suggested that hybrid approaches may need to be explored.

5

Simplify the Green Shores process and keep it cost-competitive to maximize uptake

Rock armouring is seen as an easy, immediate, and affordable key-in-hand approach to protecting one's shorefront property. For a living shoreline approach to appeal to a greater number of people, it has to be presented similarly. There is always a percentage of the population that will pursue an environmentally friendly course of action on conviction alone, but if it costs more, the average homeowner is unlikely to do so. Green Shores is a clear and easy framework with various levels of tools and resources for understanding and engaging with it and for convincing others of its merits. That said, we can always be clearer about the steps involved to adopt the Green Shores approach from A-Z.



CONCLUSION

There is interest from the provincial government in New Brunswick to have more practitioners trained in natural shoreline restoration in coastal ecosystems. The economy of coastal communities in many parts of the province is largely based on tourism which depends on the aesthetic image of a natural coastline. Also important at a provincial level is the preservation of iconic species at risk through the protection of critical habitats. Although it lacks professional expertise in living shorelines restorations, the Province has working relationships with several community organizations with a focus on environmental stewardship that are ready and willing to apply living shorelines locally. Additionally, Helping Nature Heal, a Nova Scotia-based company that implements living shorelines, is already quite present and active in the province.

In New Brunswick, the NBEN is well-positioned to host a chapter of Green Shores due to its provincial scope, and established relationships with all levels of government, academia, and the environmental NGO sector. The Université de Moncton, with its campuses in both Moncton and coastal Shippagan, or Mount Allison University situated near the Chignecto Isthmus, have been identified as a potential academic partner for Green Shores because some of their professors' research interests and teaching experience related to coastal processes. No concrete collaboration has been established at this time. Transcoastal Adaptations Centre for Nature-based Solutions could have the capacity to hold a teaching role for New Brunswick's Green Shores training if needed.

The establishment of a small number of Green Shores pilot projects in the province was suggested by many as the best way to convince New Brunswickers of the Program's merits and to demonstrate a living shoreline's effectiveness over time.

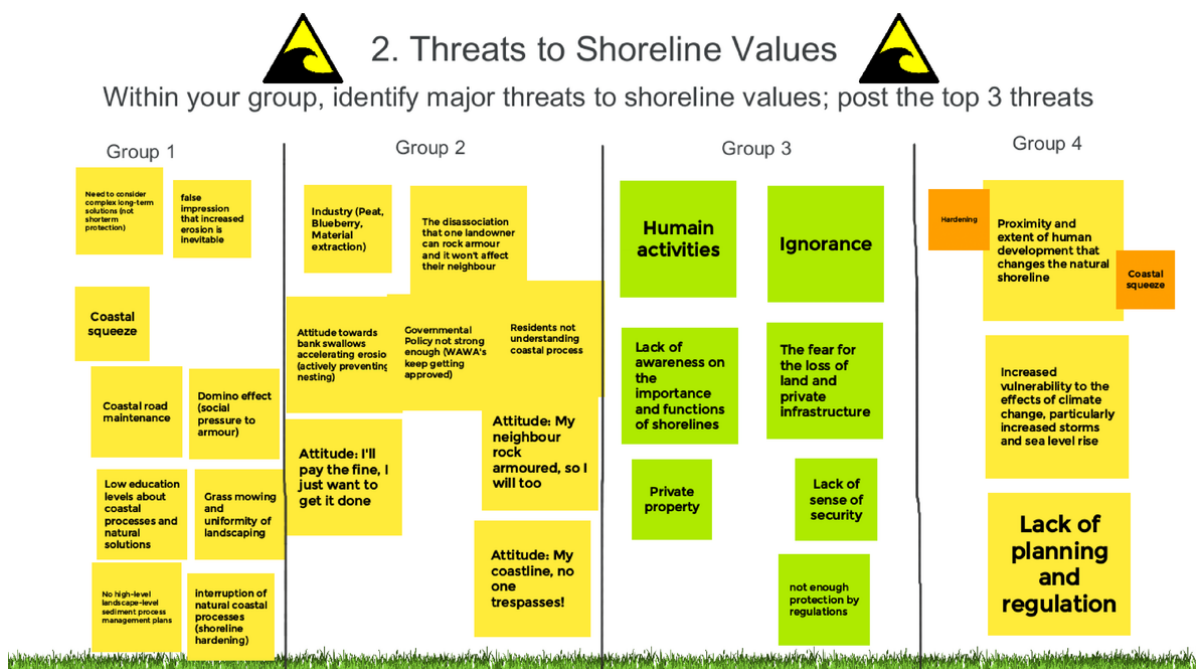
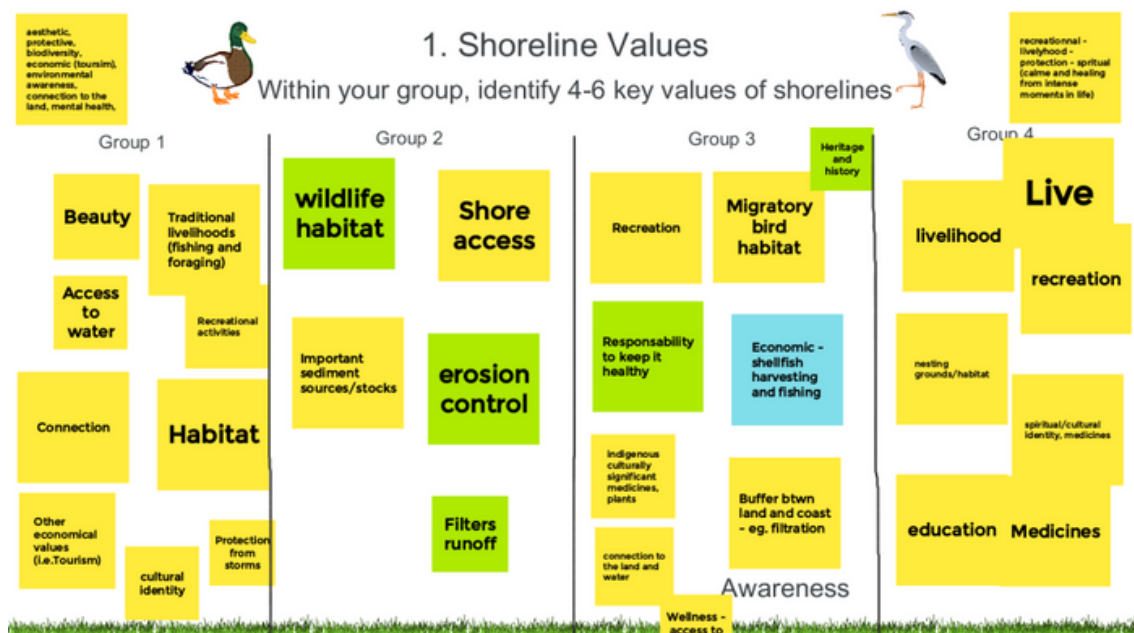
APPENDIX A

Green Shores Level 1 Training Participant List

Participant	Sector	Organization
Allison MacKay	ENGO	Birds Canada
Jolyne Hébert	ENGO	Shediac Bay Watershed Association
Serge LaRochelle	ENGO	Groupe de développement durable du Pays de Cocagne
Julie Cormier	ENGO	Vision H2O
Lisa Fauteux	ENGO	Verts Rivages
Jamylynn McDonald	ENGO	ACAP Saint-John
Yannick Thériault	ENGO	Bassins versants de la Baie des Chaleurs
Joanie Bertin	Provincial Government	New Brunswick Department of Environment and Local Government
Lauren Stead	ENGO	Nature NB
Billie-Jo Fowler	ENGO	Tabusintac Watershed Association
Sam Robichaud	ENGO	Esgenoôpetitj Watershed Association
Kalen Mawer	ENGO	Eastern Charlotte Waterways
Lee Faulkner	ENGO	New Brunswick Alliance of Lake Associations
Benjamin Kocyla	Regional Service Commission	Acadian Peninsula Regional Service Commission
Dominique Berube	Provincial Government	New Brunswick Department of Natural Resources and Energy Development
Greg Quinn	Provincial Government	New Brunswick Department of Transportation and Infrastructure
Renelle LeBlanc	Co-op	Projet Aulnes
Marc-André Long	Regional Service Commission	Southeast Regional Service Commission
Robert Capozzi	Provincial Government	New Brunswick Department of Environment and Local Government
Danis Comeau	Co-op	Projet Aulnes
Mary-Jane Quigley	Provincial Government	New Brunswick Department of Transportation and Infrastructure

APPENDIX B

Green Shores Level 1 Training Exercises Results (found in 23rd February, Green Shores Files, BRACE files)



4. GSH Exercise - Group 1

Category 1: Soft protection where grass ends to reduce erosion

Category 2: Habitat credits trees and snags, remove invasive, retain woody material

Category 3: minimal site disturbance for installing soft protection, use of environmentally friendly building products, upgrade or replacement of septic system (if applicable)

Category 4: collaboration with neighbours, educational opportunity to share with the public

Set back the deck

More naturalizing of the lawn area, no mowing and no pesticide use, more vegetation

Create a more sloped edge at the grass/area where erosion is occurring

Stormwater management techniques around the home to reduce runoff



4. GSH Exercise - Group 2

4.1 Shoreline collaboration

4.4 Shoreline Stewardship Participation

4.2 Public education



4. GSH Exercise - Group 3

Shoreline process :
Applicable 1.1 no protection, 1.2 setback from house, how much?, 1.5 plants for stabilise

Shoreline Habitat :
2.1 keep vegetations, 2.2 keep and add trees, 2.4 maintain drift wood, 2.6 no mow zone except for small path to shore



Water quality : 3.1 limiter l'utilisation d'outils; 3.3 woodchips naturel pour sentier; 3.4 enlever cloture; 3.5, use compost pour planter arbre, 3.6 check septic systems;

Shore Stewardship :
4.2 Faire shore Up - avec communauté; dire au monde d'arreter de faire des feux sur la plage; 4.4 On peut etre des stewards

No
pesticide
here

4. GSH Exercise - Group 4



Use our
property as an
example - 4.4
(2)

Having a
community
access to the
beach - 2.6 (3)
and 4.1 (8)

Remove wood
fence - 2.5 (10)
and 3.4 (4)

More native
plants
(grasses, bush
and trees) - 2.1
(15) and 2.2 (6)
and 3.2 (8)