

BRIEFING NOTE: Nature-based Climate Solutions in Nova Scotia Goals

**Environmental Goals and Climate Change Reduction Act
June 2022**

GOAL IN EGCCRA:

There is currently no goal in EGCCRA related to nature-based climate solutions.

OUR ANALYSIS:

Nova Scotia has not yet fully recognized the value of nature based climate solutions (NBCS) or provided sufficient resources to maximize its natural ecosystems' capacities to combat the climate crisis and address the biodiversity loss crisis. Moving forward, Nova Scotia should develop a framework for evaluating the potential effectiveness of different NBCS pathways in Nova Scotia across sectors, and support only those most likely to provide real, long-term benefits.

RECOMMENDATIONS:

- By 2030, carefully designed nature-based climate solutions (also known as natural climate solutions) are a central component of Nova Scotia's climate change mitigation and adaptation strategies, and Nova Scotia's approach to conserving and restoring biodiversity.
- Nature-based climate solutions must be implemented at the same time as rapid reductions in greenhouse gas emissions. We must avoid the pitfall of seeing NBCS as permission to continue business as usual.

ACHIEVING THE GOAL:

Nova Scotia should accelerate existing programs that seek to protect and enhance its natural ecosystems and biodiversity. For example, the province has been slow to make progress on its network of terrestrial protected areas and to support the establishment of marine protected areas that could protect coastal 'blue carbon' habitats like eelgrass meadows. There is now a 20% land and water protection goal in EGCCRA and a commitment to finish designating sites identified in the 2013 Parks and Protected Areas Plan. Because of the many benefits of these initiatives for the climate, biodiversity and society, strong protection measures must be implemented more quickly.

ADDITIONAL INFORMATION:

- Many of Earth's ecosystems naturally sequester large amounts of atmospheric CO₂ for the long term, helping to mitigate climate change. In addition, many natural ecosystems generate ecosystem services (e.g. flood protection by riparian vegetation, coastal buffering by seagrass meadows and salt marshes) that can help communities adapt as climate change progresses.
- Global biodiversity is in crisis. Loss of species, degradation of ecosystems and reduced genetic variation in wild and domestic species represents an existential crisis on par with the climate emergency.
- Nature-based solutions are actions that work with and enhance nature to solve societal problems; nature-based climate solutions are those that help mitigate the effects of, and adapt to, the climate crisis specifically⁽¹⁾. These include a wide range of protection, improved management and restoration measures. In addition to combating the climate crisis, these measures often have significant, long-term benefits for biodiversity and society.
- A landmark global study from 2017 suggests that full implementation of cost-effective NBCS could provide 30% of needed climate mitigation to remain below 2°C of warming ⁽²⁾, although some have argued that this is an overestimate.

ADDITIONAL INFORMATION CONTINUED:

- In Canada, a recent study ranked the NBCS pathways with the largest opportunity for climate mitigation by 2030 by sector (3). Sectors and pathways with the greatest potential over the next decade included (but were not limited to):
 - Agricultural lands
 - Expanding cover crops, sustainably harvesting crop residue and converting to biochar, improving nutrient management
 - Wetlands
 - Avoiding peatland conversion, avoiding freshwater mineral wetland conversion, restoring salt marshes
 - Grasslands
 - Avoiding grassland conversion
 - Forests
 - Improving forest management, avoiding forest conversion
- The same study determined that NBCS related to improved management offered the greatest mitigation potential by 2030 followed by protection and restoration. However, the value of restoration projects increased rapidly when the timeline was extended to 2050, highlighting the value of investments in restoration this decade.

KEY CONSIDERATIONS FOR IMPLEMENTING EFFECTIVE NBCS:

- To be effective and avoid critical pitfalls, NBCS must be carefully planned in accordance with the best available ecological science, be based on social equity principles, and be carefully monitored and evaluated (4).

KEY CONSIDERATIONS CONTINUED:

- For example, commercial forest monocultures are often touted by industry as effective NBCS. However, these monocultures sequester a fraction of the carbon of naturally regenerated forests (5), are harvested at regular intervals (meaning that some sequestered carbon will be re-released), and may risk invasion of adjacent lands by the fast-growing commercial species; such approaches must be approached with skepticism.
- The climate vulnerability of natural carbon sinks must be carefully considered. Some habitats will be increasingly at risk of disturbance in the future (e.g. forests at risk from wildfires and pests, salt marshes at risk of drowning from sea level rise), which could limit their effectiveness as NBCS in some areas and possibly turn them into carbon sources rather than sinks (6).
- Research must be accelerated to fill critical knowledge gaps and ensure that investments in NBCS produce the desired long-term climate mitigation benefits. Key gaps include the climate vulnerability of natural carbon sinks, rates and permanence of carbon sequestration across all habitats including freshwater wetlands, and co-benefits of conservation as a nature-based climate solution.
- NBCS must be implemented as the same time as decarbonizing our economy, including through radical systemic change, as efficiently as possible (7).

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