

WHAT WE HOPE TO SEE IN THE
***GREAT LAKES PROTECTION
ACT***

**GREEN SPACE &
HEALTHY GREAT LAKES**

Great Lakes Protection Act
Alliance Backgrounder Series

Canadian Environmental Law
Association, David Suzuki Foundation,
Ecojustice, Environmental Defence,
Ducks Unlimited Canada, Great Lakes
United, Sierra Club Ontario

***How do wetlands and other green
spaces impact the Great Lakes?***

More than 70 percent of Ontarians depend on the Great Lakes for their drinking waterⁱ. Because wetlands, riparian zones, and forests filter and recharge freshwater supplies, they influence the quality and supply of our drinking water.

Wetlands are important habitat for wildlife and species at risk, offer ecotourism opportunities and provide important social and cultural benefits to the people of Ontario and to all Canadians.

Wetlands are a vital part of Ontario's environmental and economic sustainability. They provide many benefits, such as flood, drought and erosion prevention and help mitigate the impacts of climate change.

Despite these important values wetlands, riparian zones, and green spaces within the Great Lakes basin are all in decline.

In 2001 there were 167 species at risk in the Great Lakes basin; 83 of

these species are threatened or endangeredⁱⁱ. Over 600 species live in Canada's wetlands. This includes 1/3 of Canada's species at riskⁱⁱⁱ. Forests provide habitats for over 2/3 of Canada's species of plants, animals and microorganisms, including approximately 65 per cent of Canada's species at risk^{iv}.

The conservation (including protection and restoration) of remaining wetlands, riparian zones and forests through the Great Lakes Protection Act is essential, if we are to restore and protect our vital Great Lakes ecosystem.



Longuissa Bay, Georgian Bay.
Great Lakes water levels must be allowed to fluctuate enough to maintain health and diversity of coastal wetlands.

Wetlands

Wetlands provide ecosystem services that the Great Lakes and Ontarians can't do without. Ecosystem services are the processes by which the environment provides services for us, such as clean water, pollination, and habitats for fish and wildlife. In 2003, the value of all Canadian wetland ecosystem services was estimated at \$20 billion annually^v. As a proxy for the Great Lakes, the value of the Greenbelt non-market wetland ecosystem services is estimated at \$1.3 billion per year^{vi}.

Despite these values, wetlands in the Great Lakes system are threatened by the ongoing pressures of development and grey infrastructure, invasive species, and pollution.

Heavily settled Great Lakes environments have generally lost up to 75% of their baseline wetland area and almost 100% in some cases^{vii}. Scientists warn that “at least 10% watersheds should consist of wetlands... to mitigate erosion and flooding events”^{viii}.



→ *address climate change*
Wetlands are responsible for storing a large portion of greenhouse gas emissions in the Great Lakes basin, and for increasing watershed resilience in the face of climate change impacts.

Warmer water resulting from climate change creates a more hospitable environment for invasive species, nuisance algae, pathogens, and waterborne diseases^{ix}. Wetlands help to minimize these climate change impacts by filtering nutrient loads to lakes, thereby helping reduce algal blooms that deplete oxygen stores, which can damage fish and aquatic species' health.

→ *filter and reduce stormwater runoff naturally*
More frequent storm events and runoff episodes from heavy rain and snow melt are contributing to

increased nutrient and contaminant loading in water bodies. Climate change modeling predicts a continued increase in intensity of storm events.

There are concerns that Ontario's approach to stormwater management, focusing on grey infrastructure, is not able to cope with the challenges of climate change. Currently, the Canadian insurance industry is paying \$1.5 billion a year in water damage claims^x. By acting as a natural stormwater runoff system, natural and constructed wetlands reduce the demands on aging stormwater infrastructure, and decrease the need for repairs and replacement.

→ *provide important habitat*
In the Mixedwood Plains ecozone between Lakes Ontario, Huron and Erie, habitat loss and fragmentation are “the largest threat to biodiversity”^{xi}.

Many of Ontario's fish spend some or all of their lifecycles in wetlands, including Largemouth Bass, Muskellunge, Northern Pike and Yellow Perch^{xii}.

Coastal wetlands need to be able to migrate, to move inland or move out, with changes in water levels, to support biodiversity^{xiii}.

Remaining wetlands must be conserved to ensure species at risk are not extirpated from the Great Lakes basin.

Riparian Zones

Riparian zones connect aquatic areas with terrestrial areas. Healthy vegetation in riparian zones help maintain the productivity of wetlands, streams, and lakes for fish by maintaining water quality, water temperatures, and providing spawning and rearing areas. Riparian zones filter and reduce surface water runoff from surrounding uplands, thereby trapping sediment and associated pollutants such as nutrients, pesticides and bacteria^{xiv}.

Forests and Other Green Spaces

Forest cover in the Great Lakes basin spans 27.8 million hectares, roughly half of the entire basin^{xv}. But only about 10% of Canada's Great Lakes basin forest is protected. Southern Ontario's forest cover is just 22%, down from a historic high of 90%^{xvi}.

Great Lakes forests and other green spaces support many environmental services. Forests stabilize soil, reducing erosion and sedimentation deposits into the Great Lakes^{xvii}. Forests can reduce nitrogen in water runoff by up to 90 per cent^{xviii}, reducing algae blooms and eutrophication. They help with climate change mitigation and adaptation, and play an important role in the hydrologic cycle by pumping water from soil back into the atmosphere through transpiration^{xix}.

→ *a source of recreation*

For residents and tourists, the wetlands, riparian zones, and other green spaces surrounding the Great Lakes are a recreation destination for swimming, paddling, hiking, hunting, and angling. Protecting these green

spaces supports Ontario's tourism economy, and the health of Ontarians. In 2009, Great Lakes area tourists in both Canada and United States brought more than \$136 million in value to the local economy^{xx}.

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ⁱ Government of Ontario, *Ontario's Natural Resources – Water and Lakes*, (2012). Accessed at http://www.ontario.ca/en/about_ontario/EC001033.html

ⁱⁱ Office of the Auditor General, *Report of the Commissioner of the Environment and Sustainable Development*, (October 2001). Accessed at http://www.oag-bvg.gc.ca/internet/English/att_c101sec5e_e_11716.html

ⁱⁱⁱ Ducks Unlimited Canada, *Natural Values: Linking the Environment to the Economy, Wetlands* (2006), p.1. http://www.ducks.ca/conservation/wetland_values/pdf/nv6_wet.pdf

^{iv} Natural Resources Canada, *The State of Canada's Forests 2004-2004*, (2005) via Ducks Unlimited Canada, *Natural Values: Linking the Environment to the Economy, Forests*, (2006), p.1.

^v Campbell, L. and C.D.A Rubec, *Wetland Stewardship: New Directions. Final Report of the conference on Canadian Wetlands Stewardship, Report No. 03-3*, (2003), p.16, via Ducks Unlimited Canada, *Natural*

Values: Linking the Environment to the Economy, Wetlands, (2006), p.2.

^{vi} Wilson, S. *Ontario's Wealth, Canada's Future: Appreciating the Value of the Greenbelt's Eco-Services*, (2008). p.2.

^{vii} Whillans, T. *Changes in Marsh Area Along the Canadian Shore of Lake Ontario*, (1982).

^{viii} Detenbeck et al., *Evaluating Perturbations and Developing Restoration Strategies for Inland Wetlands in the Great Lakes Basin*. *Wetlands* 19: 789-820, (1999), via Ontario's Biodiversity Council, *State of Ontario's Biodiversity 2010*, (2010), p.53.

^{ix} *Adapting to Climate Change in Ontario: Report of the Expert Panel on Climate Change Adaptation*, (2009).

^x *Ibid.*

^{xi} Ontario's Biodiversity Council, *State of Ontario's Biodiversity 2010*, (2010), p.12.

^{xii} *Ibid.*, p. 53.

^{xiii} Hebb, Andrea Jennifer, *Implementation of a GIS to Assess the Effects of Water Level Fluctuations on the Wetland Complex at Long Point, Ontario*, (2003), Diss. University of Waterloo. Waterloo, Ontario.

^{xiv} *River Keepers, Riparian Buffers: rationale, strategies, and resources for restoring and protecting streamside corridors*, (n.d.). Accessed at http://www.riverkeepers.org/pdf/riparian_buffers_fact_sheet.pdf

^{xv} EPA and Environment Canada, *State of the Great Lakes 2005: What is the State of Great Lakes Forests?* Accessed at www.epa.gov/glnpo/solec.

^{xvi} Ontario Ministry of Natural Resources, *Mixed Wood Plains Ecozone: ecosystem status and trends report*, (2009), p.12.

^{xvii} Ducks Unlimited Canada, *Natural Values: Linking the Environment to the Economy, Forests*, (2006), p. 1.

^{xviii} David Suzuki Foundation, *Watersheds of the Ontario Greenbelt, Policy Options to Preserve, Protect, and Restore the Watersheds of the Greenbelt*, (2012), p.8.

^{xix} Ducks Unlimited Canada, *Natural Values: Linking the Environment to the Economy, Forests*. (2006), p.2. Accessed at http://www.ducks.ca/conservewetland_values/pdf/nv10_for.pdf

^{xx} Great Lakes Advocate, *One Million Tourists in 2010*, (2011). Accessed at <http://www.greatlakesadvocate.com.au/news/local/news/general/one-million-tourists-in-2010/2057876.aspx>