



Nova Scotia Wetland Conservation Policy

(Draft for Consultation)

July 16, 2009



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Introduction

The *Nova Scotia Wetland Conservation Policy* provides direction and a framework for the conservation of wetlands. It supplements and provides context to legislation, regulations and operational policies designed to protect and guide management of wetlands in Nova Scotia. It is a comprehensive policy for the Government of Nova Scotia to ensure the benefits wetlands provide are maintained for the people of Nova Scotia.

The policy highlights the important roles wetlands play in Nova Scotia's landscapes and their value to society. It represents a commitment to managing Nova Scotia's wetlands in a consistent manner and to balance the desire for maintaining a high level of wetland integrity for future generations with the current need for sustainable economic development in our communities.

The intent of the *Nova Scotia Wetland Conservation Policy* is to identify which legislation, regulation and policy is currently relevant to wetland conservation, clarify responsibilities of government and the public related to wetlands and make this information more clear and accessible to Nova Scotians. Ultimately, the policy establishes a specific policy goal and objectives intended to prevent the net loss of Nova Scotia's valuable wetlands.

Government realizes that effective wetland conservation and preventing net loss is unlikely to be achieved through policy alone and acknowledges the critical role of voluntary stewardship by Nova Scotians in the success of any wetland conservation efforts in the province.



Background

A. Existing Regulatory Tools for Wetland Conservation in Nova Scotia

The *Environment Act* and the *Environmental Goals and Sustainable Prosperity Act* (EGSPA) contain critical provisions related to wetlands. NSE has the primary regulatory and enforcement responsibilities for wetlands under these regulatory tools.

- Enacted in 2007, EGSPA mandates that government develop a policy to prevent the net loss of wetlands by the end of 2009.
- The Environment Act includes a definition of wetlands and clarifies Ministerial authority over wetlands.
- The *Activities Designation Regulations* are key regulations under the *Environment Act* that include a requirement for an approval from Nova Scotia Environment (NSE) prior to any alteration of a wetland (Section 5(na)).
- *Environmental Assessment Regulations* under the *Environment Act* require that undertakings which disrupt a total of two or more hectares (in area or function) of any wetland must undergo an environmental assessment.

Additional relevant wetland legislation, regulation and policy include (responsible department listed parenthetically):

- The *Agricultural Marshland Conservation Act*, which allows construction for agriculture purposes on former salt marshes designated as "marshlands" (Agriculture);
- The *Off Highway Vehicle Act*, which prohibits the operation of an off-highway vehicle in or on a wetland, swamp or marsh (Natural Resources - NSDNR);
- *On-site Sewage Disposal Systems Regulations* under the *Environment Act*, which require a clearance setback of 30.5 m for sewage disposal systems from all wetlands (NSE);
- *Provincial Subdivision Regulations* under the *Municipal Government Act*, which require that the location of any wetland be shown on final subdivision plans (Service Nova Scotia and Municipal Relations - SNSMR);
- *Wildlife Habitat and Watercourses Protection Regulations* under the *Forests Act*, which require a Special Management Zone separating forestry operations from all watercourses and some wetlands with standing

- or flowing water (e.g., fresh and salt water marshes, ponds and estuaries). These regulations are not applicable to commercial, industrial or urban development or agricultural operations, but apply in all public and private forests (NSDNR);
- Beaver Dam Removal Code of Practice, which allows beaver dams to be removed or breached periodically to protect, maintain or construct infrastructure or to avoid the flooding of private or public land (NSDNR)
- Other supporting policy tools related to wetlands are available on the NSE website (<http://www.gov.ns.ca/nse/water/wetlands>) (NSE).
- Protecting human and ecosystem health by removing organic waste and bacteria, and filtering excess nutrients (e.g., nitrogen and phosphorous), contaminants and silt from surface and ground water;
- Storing and sequestering carbon from the atmosphere, potentially moderating climate effects;
- Protecting coastlines from storm surges;
- Regulating the water balance and drinking water supply by storing or recharging groundwater reservoirs;
- Providing important habitats for fish, wildlife and plants, often for rare or endangered species, such as our globally significant coastal plain flora;
- Producing abundant and diverse plant communities that may be released, after decomposing, as essential nutrients to support fisheries and food webs in nearby rivers, estuaries and coastal waters; and,
- Offering opportunities for recreational, scientific, aesthetic, spiritual and cultural pursuits.

B. Ecosystem Services and Functions Performed by Wetlands

Wetlands provide or support a wide range of important ecological, social, and economic functions and services beneficial to Nova Scotians. Individual wetlands will typically only provide a subset of these functions and services. These include, but are not limited to:

- Maintaining watershed health by moderating flood waters, slowing runoff rates and minimizing erosion and sedimentation of adjacent lakes and streams;

C. Historic Wetland Loss in Nova Scotia

Details on the amount of wetland originally present in Nova Scotia that was lost following European settlement are limited, but losses appear to have been high for some types of wetlands. For example, 80% of the salt marshes along the Bay of Fundy and 65% of salt marshes province-wide are estimated to have been lost mainly to dyking and agriculture. Losses of freshwater wetlands are also thought to be high in our more fertile regions like the Annapolis Valley and the Northumberland Strait, along the floodplains of the Cornwallis, Annapolis and Shubenacadie Rivers, as well as near urban centres.

Unfortunately, most loss estimates for Nova Scotia are based on studies with limited analysis that precludes province-wide estimation or assessment of their accuracy. The fact that there have been no efforts to systematically characterize wetland loss throughout the province means that there is considerable uncertainty about original conditions.

D. Consequences of Wetland Loss

The loss or degradation of wetlands due to human activities results in a loss or decrease in their ability to provide ecosystem services effectively or support the full suite of ecological functions they normally perform. In addition, wetlands are among the most productive and diverse of all the ecosystems on earth, so the loss of wetlands can also mean the loss of species or local populations of fish, wildlife and plants that depend on them for habitat or food.

Nova Scotia's wetlands provide an estimated \$7.9 billion worth of benefits in ecosystem services to Nova Scotians annually according to a GPI Atlantic study on the provinces water resource values, so the economic consequences of wetland loss can be substantial. It is becoming apparent for municipalities in other jurisdictions that conserving, constructing or restoring wetlands may be a more economical option than building water treatment systems to replace the water quality improvement functions that wetlands provide. GPI Atlantic estimates wetland loss to development in Nova Scotia equates to an estimated \$2.3 billion annually in lost ecological services like water purification, recharging drinking waters and enhancing fishery productivity.

Some of the largest economic impacts expected to be associated with wetland loss are related to sea level rise and climate change. Estimates by federal agencies and the Intergovernmental Panel on Climate Change suggest sea levels in Atlantic Canada will rise about 1 m over the next century. Higher water levels are expected to result in eroding shorelines, increased flooding during storms and high tides, damage to wharves, buildings, and roads and contamination of drinking water supplies with saltwater. Salt marshes and other coastal wetlands have already been degraded by coastal development and rising seas, leaving coastlines more vulnerable to large storms.

Evidence examined by the Geological Survey of Canada suggests that damage to shorelines, roads and property from Hurricane Juan in Nova Scotia in 2003 was less in areas with intact barrier beaches and salt marshes than in areas without these natural features. Juan is estimated to have cost Nova Scotia provincial

and municipal governments over \$100 million, many of the costs associated with damaged coastal infrastructure. Public funds are now routinely spent on flood control in areas where salt marsh has been converted to other land uses and multimillion dollar seawalls for flood control are being considered by a number of communities. GPI Atlantic estimates that the remaining salt marshes in Nova Scotia provide over \$400 million worth of ecosystem services to Nova Scotia communities each year, including flood and erosion control and infrastructure protection from storm surges.

E. Current Inventory of Wetlands in Nova Scotia

A province-wide wetland inventory completed by NSDNR in 2004 provides the most up-to-date estimate of the number and area of different wetland types in the province. The inventory is based upon visual interpretation of 1:10,000 scale aerial photographs taken between 1998 and 2001. It is available online at

(<http://www.gov.ns.ca/natr/wildlife/wetlands/nswi.htm>).

Based on the 2004 inventory, Nova Scotia's 5.5 million hectares of land is comprised of 360,462 hectares (6.6% of total land area) of freshwater wetlands and 17,060 hectares (0.3% of total land area) of salt marsh. Over three-quarters of our wetlands are peatlands (bogs and fens), with shrub swamps (10.1%) and salt marsh (4.5%) being the only other types comprising more than 3% of our provincial total. Our rarest types are freshwater marshes, lakeshore wetlands, wet meadows and seasonally flooded flats along rivers. *It is important to note that forested wetlands*

are significantly underestimated in the inventory and comprise a much larger portion of the provinces land area than current totals suggest.

Salt marshes located primarily along Northumberland, Fundy and Atlantic coasts, freshwater peatlands along the Atlantic coast and lake-edge wetlands and peatlands mainly in southwestern Nova Scotia that support globally rare coastal plain flora are among the most ecologically significant and unique wetlands in the province. In addition, there are three wetland complexes designated as Wetlands of International Importance under the Ramsar Convention on Wetlands. The three wetland complexes are: 1) Southern Bight, Minas Basin (26,800 ha) - supports the largest numbers of mixed species of shoreline birds during fall migration in all of North America; 2) Musquodoboit Harbour (1,925 ha) - a salt marsh with extensive eelgrass beds that provide cover and nutrients to support abundant invertebrates, coastal fisheries and food webs and wintering waterbirds; and 3) Chignecto National Wildlife Area (1,025 ha) - a salt marsh dissected by numerous tidal creeks and freshwater wetlands that play an important role in supplying nutrients to coastal waters and moderating storm surges as well as providing staging areas for migrating waterfowl.

F. Wetland Management

NSDNR has the primary responsibility for managing wetland habitat and biodiversity within government and through partnerships with other levels of government, industry,

non-government agencies and private land owners. One key partnership is the Nova Scotia Eastern Habitat Joint Venture (NS-EHJV). Since 1989, NSDNR, along with other provincial departments (NSE and Agriculture) and other partners (Ducks Unlimited Canada, Environment Canada - Canadian Wildlife Service, Nature Conservancy of Canada) have cooperated in the NS-EHJV to deliver over \$19,500,000 towards wetland conservation through habitat securement (36,700 hectares), enhancement (10,400 hectares) and management (13,200 hectares). The main focus has been on restoring or creating wetlands in areas where wetland loss has been the most severe and in securing significant wetlands through purchase or agreement.



Policy Goal

To prevent the net loss of wetland in Nova Scotia through wetland conservation practices that balance the need for wetland protection with the need for sustainable economic development, now and in the future.

Policy Objectives

- Manage human activity in or near wetlands with the goal of **no loss** in *Ecologically Significant Wetlands* and preventing **net loss** in area or function for *other wetlands*;
- Promote wetland securement and stewardship and increase awareness of the importance of wetlands in the landscape;
- Promote a long-term net gain in wetland types that have experienced high historic losses to restore beneficial ecosystem services across the province;
- Encourage the use of buffers to better ensure integrity of wetlands adjacent to development (i.e. residential, commercial, industrial) and agricultural and forestry operations; and
- Align wetland conservation tools and practices in Nova Scotia with those in New Brunswick and Prince Edward Island when feasible.

Scope and Application

This policy applies to all wetlands in Nova Scotia with the following exceptions:

- wetlands that are less than 100 m² in total area;
- former salt marshes designated under the Agricultural Marshland Conservation Act as agricultural land;
- wetlands constructed specifically for the purposes of wastewater or stormwater treatment;
- wetlands created on upland habitats not for the purpose of compensation;
- linear developments less than 60 m long and 10 m wide in shrub or wooded swamps; and,
- wetlands, such as those that develop;
 - o within the medians or drainage ditches of transportation corridors and require periodic or emergency maintenance for public safety and protection of adjacent properties and infrastructure;
 - o within constructed and maintained agricultural drainage ditches, as well as any agriculture lands that are regularly saturated in spring with sheet water; and,
 - o as the result of urban, commercial or industrial construction projects, or other similar human activities that have taken place since January 1, 1990.

Although government recognizes that many wetlands, such as vernal pools and small urban ponds that are less than 100 m² in size may play important roles in the landscape and strongly encourages avoidance of these wetlands when siting developments, this policy does not apply unless they are listed as *Ecologically Significant*.



Implementation and Management Actions

Objective 1 - Manage human activity in or near wetlands with the goal of no loss in Ecologically Significant Wetlands and preventing net loss in area or function for other wetlands.

A. Ecologically Significant Wetlands (ESW)

The Government will:

- Consider the following as ESWs
 - o All salt marshes, because they have suffered substantial historic losses, are highly productive, support high biodiversity, sequester carbon efficiently and can play important coastal protection and fishery support roles.
 - o Wetlands that are within a designated Ramsar site, National Wildlife Area, Provincial Wildlife Management Area, Migratory Bird Sanctuary, Western Hemisphere Shorebird Reserve Network site, National or Provincial Park, Nature Reserve, or Protected Natural Areas.
 - o Natural wetlands that are project sites under the *North American Waterfowl Management Plan* and secured for conservation through the NS-EHJV.
 - o Wetlands that have been restored, enhanced, created or protected as part of compensation for alterations to other wetlands.
 - o Wetlands known to support at-risk species as designated under the federal *Species At Risk Act* or the *Nova Scotia Endangered Species Act*.
 - o Wetlands in designated Protected Water Supply areas
- Develop a process for classifying additional wetlands or wetland types as ESWs
 - o Supporting a significant species or species assemblages (e.g., coastal plain flora) or high wildlife biodiversity, having significant hydrologic value or high social or cultural importance will be among the wetland characters, functions and services considered for classifying additional wetlands as ESWs.

Government will not:

- Support alterations proposed in an ESW or any alterations that pose a substantial risk to an ESW, except:
 - o Alterations that restore or enhance an ESW, or
 - o Alterations deemed to provide necessary public function, after completing an Environmental Assessment (if required) with public review or receiving other approvals. (e.g., Wetland Alteration Approval) as appropriate.

B. Other Wetlands

The Government will:

- Update the provincial wetland inventory to assist government and the public in identifying wetlands around the province with the intent of eventually being able to use the inventory as the primary source for wetland identification. Until necessary updates have been completed, the inventory must not be used as the only source for identifying wetland locations or be considered a substitute for obtaining field confirmation of wetland locations when evaluating the suitability of a site for any particular project. DNR wet areas mapping tools (<http://www.gov.ns.ca/natr/forestry/GIS/wamdownload.htm>) can also be used to help identify and predict where wetlands are likely to be located during the project planning phase.
- Require all proponents proposing projects that will negatively affect wetland function or area to submit an application through the Wetland Alteration Approval or Environmental Assessment process, as appropriate and adhere to a mitigation sequence to achieve the objective of preventing net loss.
- NSE will establish and maintain a *Proponent's Guide to Wetland Conservation* that will clarify the approval process and requirements for proponents.

Objective 2 - Promote wetland securement and stewardship and increase awareness of the importance of wetlands in the landscape.

A. Securement and Stewardship

The Government will:

- Use a variety of strategies to conserve wetlands, which may include: acquisition, enhancement and restoration of wetlands using funds obtained through the NS-EHJV Program and other cooperative programs; conservation easement agreements; stewardship agreements; tax incentives for maintaining ecosystem services (e.g., Community Economic Development Investment Funds); and ecologically sensitive land gifts.
- Retain ownership of all ESWs that are currently in Crown ownership, unless it is deemed necessary for public function to do otherwise.
- Work with municipalities to promote wetland conservation within municipal planning efforts and bylaws.

B. Awareness and Education

The Government will:

- Promote and assist in the development of wetland awareness and education programs which target the general public, students, landowners and other private sector stakeholders.
- Support and encourage the development of cooperative educational and training programs with private sector stakeholders, particularly related to wetland delineation and functional assessment, as well as the economic value of retaining wetlands within urban/commercial development settings.
- Encourage the exchange of information and expertise on desired wetland conservation practices among provincial and federal government offices and departments, and municipalities to ensure that, whenever possible, all policies and programs are consistent with the objectives of this policy.

Objective 3 - Promote a long-term net gain in wetland types that have experienced high historic losses to restore beneficial ecosystem services and functions across the province.

The focus of the net gain objective is on wetlands that have experienced high historic losses (e.g., salt marshes). The intent is to gradually regain some of the important ecosystem services (e.g., storm surge and shoreline erosion protection) and functions (e.g., nutrient subsidies to coastal food webs) lost when these wetlands were converted to other uses.

The Government will:

- Help achieve gains by providing assistance with coordination and funding of restoration efforts, potentially using funds such as the Environmental Trust Fund or the Habitat Conservation Fund to support these projects.
- Collaborate with stakeholders to provide an assessment that identifies where loss of particular wetland types was historically high and prioritize potential restoration sites for all regions of the province. High priority sites will include those in watersheds/regions where wetland loss has been high and ecosystem services or functions are below thresholds necessary to maintain watershed health.



Objective 4 - Encourage the use of buffers to better ensure integrity of wetlands adjacent to development (i.e. residential, commercial, industrial) and agricultural and forestry operations.

The Government will:

- Encourage buffers between wetlands and developments and agricultural operations similar to those required as "Special Management Zones" for forestry operations under the WHWPR using a variety of tools, which may include;
 - o Educating private landowners, land developers, municipal land use planners, and farmers about beneficial management practices (e.g., Environmental Farm Stewardship Program) for various development activities adjacent to wetlands.
 - o Considering the use of buffers in Environmental Assessment approvals for projects with a high potential to negatively impact wetlands.

Objective 5 - Align wetland conservation tools and practices in Nova Scotia with those in New Brunswick and Prince Edward Island when feasible.

The Nova Scotia Wetland Conservation Policy includes a number of the same provisions that are included in the New Brunswick and Prince Edward Island wetland policies to increase consistency and clarity in wetland management across the Maritime provinces for all stakeholders.

The Government will:

- Align guidance documents and other management tools developed to support the implementation of the Nova Scotia Wetland Conservation Policy, whenever feasible, with similar tools used in New Brunswick and Prince Edward Island.



Definitions

Avoidance

The prevention of impacts on wetlands, either by choosing an alternate project, alternate design or alternate site for development. It is considered the first, best choice of mitigation alternatives.

Buffer

An area around a wetland within which limited or no development or physical alteration of the landscape is permitted.

Conservation

The protection and management of wetlands to assure optimum sustained ecological, economic and social benefits.

Compensation

Action taken as the last step in the sequence of wetland mitigation, consisting of measures taken to offset losses of wetland and wetland functions and services which remain after all possible minimization measures have been applied. It is an essential component to any successful policy to prevent net loss of wetlands (see details in *NSE Proponent's Guide to Wetland Conservation*).

Development

The erection, construction, alteration, placement, location, replacement or relocation of, or addition to, a structure and a change or alteration in the use made of land or structures.

Ecologically Significant Wetland

Wetlands having local, regional, provincial, national or international importance that are identified through the provincial identification process.

Ecosystem Services

The benefits people obtain from ecosystems. These include provisioning (e.g., food, fresh water, natural medicines, fiber, fuel), regulating (e.g., climate, erosion and flood regulation, water supply purification and maintenance of flow regimes), and cultural services that directly affect people (e.g., tourism, heritage, recreational, educational, scientific and aesthetic opportunities) and the supporting services needed to maintain other services (e.g., nutrient and water cycling, photosynthesis, soil formation).

Enhancement

Rehabilitation projects conducted in existing wetlands to achieve specific management objectives or provide conditions which previously did not exist, and which increase one or more wetland functions or services. Enhancement may involve trade-offs between wetland resource functions and services; a positive change in one function or service may result in negative effects to others.

Minimization

Reducing the adverse effects of development on the functions and services of wetlands at all project stages (planning, design, implementation and monitoring) to the smallest practicable degree.

Mitigation

A process for achieving wetland conservation through the application of a hierarchical progression of alternatives to the adverse effects of alterations, which include:

- (a) *Avoidance* of impacts;
- (b) *Minimization* of unavoidable impacts;
- (c) *Compensation* for impacts that cannot be avoided; and
- (d) *Monitoring and Adaptive Management* to meet conservation goals.

Necessary Public Function

Projects that provide public function on a provincial scale such as public transportation projects, public infrastructure, linear pipeline or transportation corridors, and projects necessary for public safety and protection of adjacent properties and infrastructure.

Private Sector Stakeholders

Includes, but not limited to, individuals, non-government organizations, groups, associations, educational institutions, researchers, businesses, not for profit organizations, landowners.

Restoration

Re-establishment of previously existing wetland and its functions and services by human intervention at a site where a wetland no longer existed, or existed only in a highly degraded state.

Salt marsh

Vegetated wetland that is flooded regularly by tidal water, or influenced by salt spray or seepage, such that the water and/or soil is saline or brackish. Low marshes, which are flooded regularly are often dominated by salt water cordgrass (*Spartina alterniflora*), and high marshes are often flooded only during extreme tides and typically dominated by salt meadow cordgrass (*S. patens*). These are globally-significant, extremely-productive wetlands that provide many critical environmental, societal and economic functions and services.

Securement

The long-term protection of a wetland by a range of tools including, but not limited to, direct acquisition, policy, legislation, land stewardship programs, bequests, conservation easements or donations.

Vernal Pools

Small (< 0.5 ha), shallow wetlands that lack permanent inlet or outlet streams and typically dry out in the summer. They provide critical breeding habitat for frogs, salamanders, insects and fairy shrimp and feeding and drinking sites for birds, mammals, turtles and other wildlife.

Watercourse

The bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not, and all ground water.

Wetland

Land commonly referred to as marsh, swamp, fen or bog that either periodically or permanently has a water table at, near or above the land's surface or that is saturated with water, and sustains aquatic processes as indicated by the presence of poorly drained soils, hydrophytic vegetation and biological activities adapted to wet conditions.

**Wetland Functions**

The biophysical processes that take place within wetland ecosystems. These can be characterized apart from any human context (e.g., fish and waterfowl habitat, refugia for rare and endangered species, maintenance of biological diversity and the production of energy to support food webs, nutrient retention), but may provide indirect human benefits.