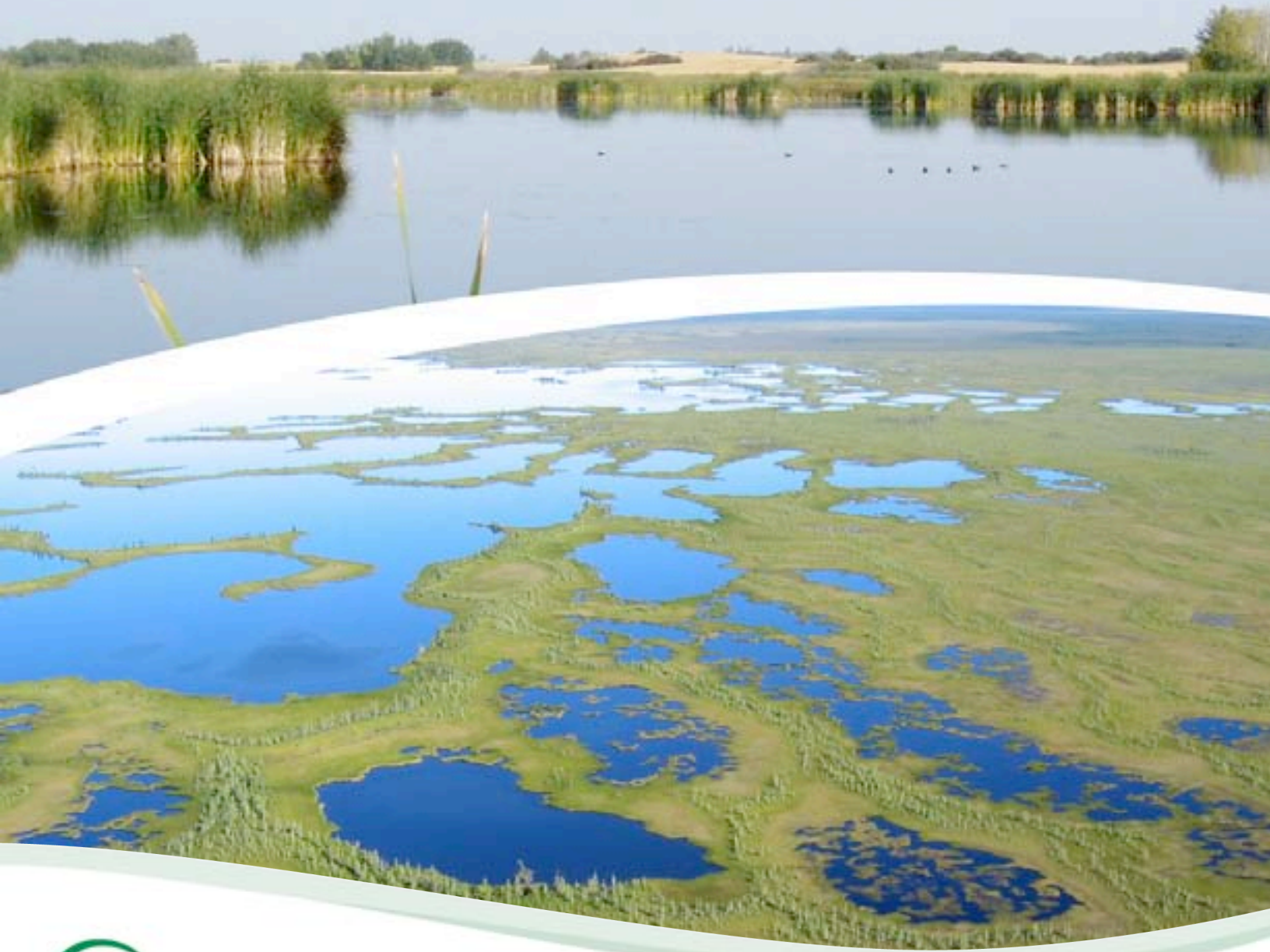


**Submission by Ducks Unlimited Canada
to the
Manitoba Water Council's
Public Consultation on Wetlands**

June 2010



Ducks Unlimited Canada
Conserving Canada's Wetlands

Active by nature.

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DUC's Mission:

Ducks Unlimited Canada conserves, restores and manages wetlands and associated habitat for North America's waterfowl. These habitats also benefit other wildlife and people.

DUC's Vision:

Abundant wetlands and waterfowl—today, tomorrow and forever.

BACKGROUND

Ducks Unlimited Canada (DUC) would like to thank the Manitoba Water Council (MWC) and Manitoba Water Stewardship (MWS) for the opportunity to provide input into this important public consultation process. Seeking Manitobans' perspectives on wetlands is very timely as we begin to develop a renewed appreciation for the vital importance of wetlands to our environment, our economy, and our way our living.

Ducks Unlimited Canada is a private, non-profit, habitat conservation organization founded in 1938. Since that time, we have developed considerable expertise related to wetland ecosystems and their contribution to biodiversity, watersheds, human and community health and the economy. In Manitoba, DUC has 75 community-based fundraising events annually, which are driven by 1,100 volunteers and attract more than 16,000 supporters.

DUC and our supporters are concerned about the continuing loss and degradation of wetlands and the resulting loss of benefits they provide to all Manitobans. DUC continues to promote and demonstrate the watershed benefits of wetland retention and restoration. There is significant scientific research that underscores the important role wetland ecosystems play not only as critical habitat for waterfowl and other wetland-dependent wildlife, but as natural purification systems, for storing and sequestering carbon and in reducing peak runoff flows. A recent study by Dodds et al (2008) found that the total value of ecosystem services provided by wetlands was 10 times greater per unit area compared to any other habitat type.

DUC has made numerous presentations to government at various meetings and forums related to water strategies, water quality and drainage. We have participated in the developments of the following: Water Protection Act (WPA) – Bill 22; Water Rights Amendment Act – Bill 14; Hunting, Fishing and Trapping Heritage Act – Bill 217; and Amendments to Manitoba's Environment Act – Bill 29. We have also contributed to the revisions of the Forest Management Riparian Guidelines as related to wetland conservation. Additionally, DUC has provided the Manitoba Water Council with information on our research at Broughton's Creek, as well as a summary of wetland-related statutes and policies in other provinces. It is our intent that this submission will build on our previous contributions.

Manitoba is steward to 20% of Canada's wetlands and second only to Ontario in terms of total wetland area (Natural Resources Canada 2010). In Manitoba, DUC's wetland conservation efforts focus on two broad ecological regions – the prairies and the boreal forest. The prairies are dominated by privately-owned agricultural land and the boreal forest is largely comprised of Crown Land supporting a variety of resource-based industries and traditional aboriginal pursuits. Additionally, prairie and boreal wetlands offer unique challenges and risks due to differences in soils, climate, geology and hydrology. They also offer unique opportunities. DUC's conservation

program delivery recognizes these fundamental differences and the structure of this submission reflects these distinctly different regions.

This map broadly illustrates the geographic distribution of the boreal forest (green) and the prairie (yellow) ecozones.



PRAIRIE WETLANDS

Wetland Loss in Manitoba

The vast majority of wetland loss in Manitoba is due to drainage for agricultural purposes. Rates of wetlands loss are historically high in Manitoba. Hanuta (2001) studied an area encompassing a portion of the Red River Basin and found that in the 19th century at least 10 per cent of the area was covered by wetlands. However, in the 20th century, this wetland area has been reduced by 90 per cent. A series of recent estimates conducted by DUC suggest we are losing an average of six hectares (15 acres) daily in southwest Manitoba.

In 2008, the Manitoba Government, in partnership with DUC and the Manitoba Habitat Heritage Corporation (MHHC), initiated the Wetland Restoration Incentive Program (WRIP). This program's target is to restore approximately 250 hectares annually for four years. DUC estimates suggest that in the Manitoba Prairie Pothole Region (PPR) alone, wetlands are lost at a rate of 2,200 hectares annually. If fully subscribed, WRIP has the limited potential to offset, at best, 11 per cent of the wetland loss rate in the region. It is clear that the Manitoba Government also needs to focus on prevention of further wetland loss.

Why are Prairie Wetlands Being Lost

Agriculture has been identified as the cause of 85 per cent of wetland loss in Canada (Government of Canada 1991). In agricultural areas these losses occur because markets typically do not provide producers with financial returns for retaining and restoring wetlands on their property. Research also indicates that when landowner decisions are based solely on market returns, that is, without payments for ecosystem services, they will tend to generate land use/land cover patterns with low provision of ecological goods and services (Nelson et al 2009).

Wetlands can be costly for producers to maintain in terms of increased fuel and time required to manoeuvre machinery around them during seeding and harvesting. The presence of wetlands can also lead to double application of seed, herbicide or fertilizers, resulting in higher costs to the producer. Draining wetlands increases cultivated acreage and in the majority of cases, results in increased crop production and improved profit margins. Economics drive the majority of on-farm decisions and as a result, many landowners convert wetland areas for other uses.



Drainage in the Killarney area (2007)

Implications of Prairie Wetland Loss

The environmental value of wetlands is well-documented (Gabor et al 2004). The following sections highlight some of the environmental and economic value of Manitoba prairie wetlands.

Biodiversity

Wetlands are extremely productive natural ecosystems that provide biologically diverse habitat for over 600 species of plants and animals, 11 of which are at-risk in Manitoba. Wetlands offer many recreational opportunities including hiking, canoeing, wildlife watching and much more. Wetlands are important for hunting, which is big business in Canada. Since 1985, nearly \$600 million in licensing fees have been collected from hunters by federal and provincial governments (Powers 2000). Hunters also contribute an additional \$600 million annually to the Canadian economy through the purchase of equipment, travel, lodging, food and other hunting-related expenses (Powers 2000). Manitoba is clearly a recognized destination spot for travelers and certainly benefits economically from wetland-supported uses and activities.

Wetlands are key spawning, nursery, and feeding areas for commercially and recreationally important fish species (Antwi-Buadum 2003). Northern pike, largemouth bass and channel catfish are all valuable species that breed in wetland habitats (Graff & Middleton 2002). Both Canadians and Americans make large investments in Canada's fishing industry.

Every year, DUC provides wetland education programs that reach over 94,000 Canadian students and their teachers; countless wetlands across Canada serve as their "outdoor classrooms."

Water and Carbon

DUC conducted research in the Broughton's Creek watershed within the Prairie Pothole Region (PPR) of Manitoba to determine the amount of wetland loss and the subsequent impact on water quality and carbon sequestration. The research found that 70 per cent of the total number of wetlands (5,921 wetland basins) in the 259 square kilometer watershed have been degraded or lost entirely due to drainage activity. This has resulted in a:

- 31 per cent increase in area draining downstream;
- 18 per cent increase in peak flow following rainfall;
- 30 per cent increase in water flow;
- 31 per cent increase in nitrogen and phosphorus load from the watershed;
- 41 per cent increase in sediment loading (average annual); and
- release of approximately 34,000 tonnes of carbon, equivalent to 125,000 tonnes of CO₂—the annual emissions from almost 23,200 cars.

When we scale up these results to the PPR of Manitoba, which is characterized by similar geographic land use and wetland loss rates, the cumulative impact of drainage becomes evident. Wetland drainage across the PPR has resulted in an additional 229 tonnes of phosphorus entering receiving waters annually. Considering that the City of Winnipeg has invested \$670 million in sewage systems upgrades to reduce phosphorus loading by 105.5 tonnes annually, the full benefit of the City's sewage systems upgrades will account for less than half of the contribution from wetland drainage in the PPR.

The draining of wetlands also releases into the atmosphere carbon that had previously been stored in the vegetation and soil. Wetland loss in the PPR has resulted in the release of 5.0 million tonnes of carbon—equivalent to the emissions of 169,000 cars per year for 20 years. The impact of wetland loss in the PPR alone is equivalent to adding the emissions from 1.8 Brady Landfill sites. To replace the ecosystem services lost due to wetland drainage in Manitoba it cost approximately \$15 million in 2005 alone. This cost will increase to \$19 million by 2020 if we fail to design and implement policies that will protect wetlands.

Millions of dollars have already been invested by the Manitoba government to reduce greenhouse gases. Recent announcements include the Manitoba Sustainable Agriculture Practices Program (MSAPP) and the Trees for Tomorrow Program. The continued loss and degradation of the province's wetlands are counter-productive to these government initiatives.

The 345,000 tonnes of sequestered CO₂ (total of 50 years reductions from all 5 million trees to be planted over the five years of the program) coupled with the 82,000 tonnes of CO₂ (total reductions from all actions taken so far under MSAPP) equal a net total greenhouse gas (GHG) mitigation benefit of 427,000 tonnes. As noted earlier, DUC estimates that Manitobans lose over 2,200 hectares of wetlands in southwest Manitoba every year. According to our research, this loss alone translates into the equivalent emissions of over 438,000 tonnes of CO₂ annually. Therefore, on average, one year of drainage activity in southwest Manitoba, more than cancel out the combined multi-year GHG mitigation benefits associated with these two initiatives.

When wetlands are drained, not only do we lose the natural ecosystems that help filter and cleanse our waters but we also increase the drainage or contributing area. This in turn exacerbates the frequency and magnitude of downstream flooding. On average, for every hectare of wetland that is drained, an additional five hectares of drainage area also contributes to downstream flows. As noted earlier, DUC estimates suggest we are losing an average of approximately six hectares of wetland every day in the PPR of Manitoba. For every six hectares

of wetlands that are drained in the PPR of Manitoba, an additional 30 hectares (the equivalent of 45 football fields) of drainage area contributes to downstream flooding, erosion and nutrient transport every day.

But the damage doesn't stop there. Perhaps the most insidious impact of wetland drainage is the increase in connectivity that drainage infrastructure causes on the landscape. Drainage channels by their very nature facilitate water movement. Recent research by DUC and further supported by Tiessen et al (2010) indicate that significant amounts of soluble phosphorus are transported off the landscape, primarily during snowmelt. Drained wetlands not only remove the natural filtering capacity of the watershed, but also facilitate the transport of soluble nutrients to downstream water bodies, ultimately contributing to the increasingly frequent blooms of toxic blue-green algae, which are symptomatic of the degrading health of so many of Manitoba's lakes and rivers including Lake Winnipeg.

Flood Prevention

Wetlands regulate water flows and can retain large volumes of water. The flood prevention service provided by wetlands in the Lower Fraser Valley is estimated by Olewiler (2004) to be worth \$408 to \$2,110 per hectare per annum. If we apply the lower estimate provided by Olewiler (2004) the remaining wetlands of the Manitoba PPR (approximately 647,360 hectares) provide a total potential flood prevention service of approximately \$264 million annually. In the Manitoba PPR alone, the value of lost flood prevention services due to the drainage of 90,248 hectares is estimated at \$37 million. We can no longer afford to ignore the impacts of draining Manitoba's prairie wetlands.

BOREAL WETLANDS

Manitoba's Boreal Wetlands

Approximately 80 per cent of Manitoba is boreal forest and 43 per cent is wetland; hence most wetlands in Manitoba are found in the boreal. Manitoba is second only to Ontario in terms of total boreal wetland area (Natural Resources Canada 2010). Wetlands occupy more of the boreal landscape than commonly thought, exceeding over 50 per cent in some locations, thus play a significant role in boreal forest ecology.

Boreal wetlands are diverse, are generally poorly understood and often misidentified. For ease of description, these wetlands are grouped into two main categories: organic wetlands (called peatlands) and mineral wetlands. Organic wetlands include bogs, fens and conifer swamps. Mineral wetlands include hardwood and shrub swamps, marshes and shallow open water (NWWG 1987). Most boreal wetlands are peatlands and contrary to popular belief fens are more common than bogs, have a high water table and slow internal drainage (NWWG 1988) a key attribute making them vulnerable to development.

Hydrology is complex and challenging to understand in the boreal forest (Devito et al 2005 as cited in NCASI 2007). Boreal wetlands are often connected to each other by subsurface flows (e.g. via fens) and stream networks which transport water and nutrients over long distances helping maintain the health of aquatic and lake ecosystems. This makes boreal wetlands susceptible to developments that can block natural flows (e.g. roads). As well, subsurface flows

and geological features can often be more important factors in determining water flow than topographical relief which is often considered to be the primary factor.

Manitoba's boreal forest is home to some incredible wetland areas including the following:

- The Saskatchewan River Delta (SRD) near The Pas is approximately 900,000 hectares (2.2 million acres) in size and the largest inland freshwater delta in North America. To put this in perspective – the SRD is over 175 kilometers in length, greater than the distance from south Winnipeg to the U.S. border. It is also a Canadian Important Bird Area of global significance (Important Bird Areas Canada 2010) and holds some of the highest densities of waterfowl in Canada's boreal forest.
- Manitoba shares the third largest wetland region in the world with Ontario; the Hudson Bay Lowland (Lake Winnipeg Stewardship Board 2010).
- Manitoba's great lakes (Lake Winnipeg, Lake Winnipegosis and Lake Manitoba), most of which are located in the boreal, have significant coastal wetland areas ranking among the largest in the world (ILCC 1999 as cited in Watchorn et al). These wetlands provide erosion protection, fish and wildlife habitat, recreational areas and are considered important as the initial filter for terrestrial runoff and eroded soil as well as anthropogenic wastes including pesticides, metals, fertilizers, acids, and domestic and industrial sewage (Watchorn et al in prep).

Impacts on Boreal Wetlands

Although the boreal forest was once thought to be isolated from human development there are some considerable implications of past and current developments on Manitoba's boreal wetlands.

- Since European settlement, an estimated 1.9 million hectares (4.7 million acres) of boreal forest in Manitoba, including an unknown amount of wetlands, have been converted primarily for agricultural purposes. This is equivalent in size to approximately 80 per cent of Lake Winnipeg.
- Water management projects, primarily from hydro electric developments, have had lasting impacts on boreal wetlands either through water level stabilization, inundation of wetland area upstream or a drying effect below dam structures.
- Although constituting a relatively small footprint in Manitoba, peat extraction and associated development have lasting impacts on peatlands by drainage and removing wetland biomass (peat) and altering water flow by ditching.
- Industrial development including mineral exploration, mining and forestry continues to expand. Boreal wetlands are often highly connected systems moving water and nutrients over large distances. Developments that impede this natural flow of water have lasting impacts by drying and flooding of wetlands due to blockage.



Road blocking water flow through boreal wetland

Implications of Loss or Degradation to Boreal Wetlands

Biodiversity

Boreal wetlands provide key habitat for a multitude of waterbirds as well as fish, amphibians, reptiles, song birds, moose, furbearers and the threatened woodland caribou which is listed both federally and in Manitoba as a species at risk.

The boreal forest of the U.S. and Canada, including the wetlands, supports nearly 50 per cent of North America Birds (Blanchard & Wells 2005) representing over 300 species (Hinterland Who's Who 2006). Specific to wetlands, an estimated 30 per cent of all shorebirds (seven million) and 38 per cent (26 million) of all of the waterfowl that breed in North America do so within the Boreal Forest Region (Blanchard & Wells 2005).

Manitoba's boreal is part of the Canadian western boreal forest, an area second only to the prairies in terms of importance to breeding waterfowl, which includes several species that are below or well below their long term average: scaup (53%), scoter (44%), mallard (19%) and widgeon (24%). Each year during the breeding season, approximately 1.6 million waterfowl call the boreal forest of Manitoba home.

Ecosystem Services – Carbon, Flood Control, Filtration

The majority of boreal wetlands are peatlands (bogs and fens) which store significant amounts of carbon and help moderate the effects of climate change (NCASI 2007). DUC estimates that approximately 19 billion tonnes of carbon are stored in Manitoba's peatlands alone, the equivalent of almost 100 years of Canada's total greenhouse gas emissions.

In terms of carbon stock values, Anielski & Wilson (2005) conducted an evaluation of the economic value of the ecological goods and services provided by Canada's boreal region. They estimated the carbon stock value of peatlands to be CDN \$4195/hectare (2002 dollars). Vitt et al (2000) estimated the area of peatlands in Manitoba to be 36.5 million hectares. Based on this information, the carbon stock value of Manitoba's peatlands is CDN \$153 billion worth of carbon stock.

As noted previously, wetlands regulate water flows and can retain large volumes of water. The work undertaken by Anielski & Wilson (2005) estimated the non-market ecosystem service values of Canada's boreal wetlands (including flood control, water filtering and biodiversity values) at CDN \$80.4 billion/year (based at \$939/hectares in 2002 dollars). If we apply this estimate to the area of boreal wetlands in Manitoba (est. 80 million hectares) the estimated value of these ecosystem services total CDN \$75 billion/year.

Economic Activities

Boreal wetlands support a variety of economic activities including hunting, trapping, sport and commercial fishing and tourism. They also supply the raw materials for many non-timber forest products and support traditional aboriginal pursuits. Some boreal wetlands provide suitable timber for the forest industry, some are harvested for horticultural peat and others become winter transportation routes to northern communities and mineral exploration activities.

NEED FOR A MANITOBA WETLAND POLICY

Public Demand for Wetland Protection

A January, 2007 Decima Research poll showed that the environment eclipsed health care, the war on Afghanistan, taxes, and the economy as the most frequently mentioned preoccupation of Canadians. Although the economy has become a global concern recently, many believe the environment is still a top issue.

Recent research conducted in Manitoba by the University of Alberta shows that the general public is very willing to pay for wetland conservation to achieve specific environmental goals (Pattison 2009). The survey also shows that Manitobans expect their government to play an important role in wetland conservation, and that they are willing to pay increased taxes of \$294 per household annually for five years to retain wetlands and \$359 per household annually for five years to restore wetlands to levels that existed in the province in 1968.

When applying a five per cent discount rate and considering that there are 488,765 households in Manitoba (Statistics Canada 2008) this suggests Manitobans are willing to fund wetland programs in Southern Manitoba to levels of about \$550 million for retention to \$660 million to

achieve full restoration. This is a significant signal and commitment from the Manitoba public that: a) wetlands are important to them; b) they are willing to have their tax dollars spent on wetland conservation and; c) the government must do more to protect this valuable resource.

Manitoba Has No Wetland Policy

In Manitoba, there is no specific policy or strategy that provides legal or comprehensive protection for wetlands across the province. The Government of Manitoba presently has a number of fragmented, albeit well-intentioned, land management policies, programs and guidelines that attempt to recognize the inherent value of wetlands, but they are not sufficient. The ongoing wetland loss and degradation that is being allowed in Manitoba is not sustainable, but there are actions that can be put in place to protect the public interest. Government commitment is the first step to protecting and restoring wetlands for the benefit of all Manitobans. The Government of Manitoba must set a clear mandate to develop a comprehensive, province-wide, wetland policy for effective wetland conservation and restoration within a realistic timeframe (i.e. two years). The time to act is now.

Manitobans Need a Provincial Wetland Policy

Wetlands are one of Earth's most productive ecosystems and are a significant type of natural capital, rich in diversity that provide many essential ecological goods and services and directly support a range of economic benefits. An effective provincial wetland policy is required to ensure the continued provision of the numerous ecological goods and services that wetlands provide for all Manitobans.

With the multiple and sometimes competing interests for the same land base (e.g. conservation vs. development) there is a clear need for an overarching policy that incorporates wetland conservation as a key element to both sustainable land-use and protection strategies.

In Canada, progressive wetland policies have recently been enacted in Nova Scotia, New Brunswick, and Prince Edward Island. Growing recognition of wetland ecological goods and services has been an important factor in developing these wetland policies. Unfortunately, wetland values are not recognized or adequately protected by most other provinces. Manitoba is no exception.

What a Wetland Policy Should Include

DUC recognizes the prairie and boreal forest ecozones are characterized by very unique ecological attributes, resource management challenges and policy requirements. Nevertheless, DUC firmly believes it is in the government's best interest to pursue a single provincially-based wetland policy that provides broad overarching direction and enables unique policy components relevant for each distinct area and industrial sector. Recent research conducted in Manitoba which included a multi-stakeholder working group, documented the value of such an approach (Pankratz 2010).

Based on our expert knowledge of wetlands and vast experience with wetland conservation programs coupled with a comprehensive review of wetland policies across Canada, DUC recommends that a Manitoba wetland policy must:

1. **Provide a clear vision for wetlands today and in the future.**
 - For example, Prince Edward Island has a “no-net loss of wetlands and wetland function” mandate.
 - DUC recommends a “no loss of wetlands policy” with the recognition that a “no-net loss” policy may be a required interim step to that end.
2. **Incorporate a mitigation sequence.**
 - Regardless of the vision, an effective wetland policy must incorporate a mitigation sequence that clearly addresses avoidance, minimization and compensation.
3. **Include all classes and types of wetlands for all ecozones.**
 - All wetlands need to be included regardless of their geographic location, ownership, type, size or permanency.
4. **Reward good and penalize poor stewardship.**
 - A robust wetland policy requires an integrated approach lead by incentives to encourage desirable land stewardship practices.
 - Such an approach can be supported by a regulatory backdrop coupled with effective strategies related resource management planning, awareness, education, extension and communication. This combination of policy instruments will help to discourage undesirable land-use activity.
5. **Be transparent and accountable to the public.**
 - Effective inventory, monitoring, evaluation and adaptive management processes must be incorporated.
 - Such processes and requirements will vary across the province and ecozones.
6. **Be enabled by appropriate legislation, regulations and guidelines.**
 - An effective wetland policy should be integrated to include all available policy instruments.
 - It will be necessary to find the right balance between protection and sustainable land-use activities across all industrial sectors.
 - This framework must be supported by a commensurate capacity in terms of staff and budget so the components may be effectively implemented.
7. **Be supported by an ecologically-based wetland inventory.**
 - Not all wetlands function in the same way and a provincial wetland inventory with a classification system that reflects regional characteristics would provide critical information for ongoing land-use decisions.
 - Such a provincial inventory has been initiated in Alberta.

DUC can provide additional information on any or each of these desired components for a provincial wetland policy.

The Consequences of Inaction

We have already lost or degraded many of the province’s wetlands and the symptoms of this loss in terms of degraded water quality, lost biodiversity, increased GHG emissions, and increased flooding continue to manifest themselves and impact the lives of Manitobans every day.

A significant part of the problem has been that existing policies do not consider full-cost accounting or cumulative impact assessments in wetland-related decision-making processes. Governments and the public are now realizing that investments in wetland protection and restoration yield multiple economic, environmental and social benefits that improve environmental resilience and as such should take priority over the many other environmental best management practices that yield singular benefits. Society is realizing that the real or perceived economic benefits gained at the expense of depreciated natural capital is not sustainable in the long-term and is bad economics.

DUC believes that true wetland conservation can only be accomplished through a comprehensive wetland policy supported by strong legislation, regulations, guidelines and programs that encourage responsible stewardship of wetland resources by landowners and land managers. It is imperative that governments establish effective policies and institutions for managing, monitoring and providing incentives that reflect the numerous values of wetland ecological goods and services. Government inaction and lack of recognition to these trends will inevitably be more costly in the long term.

DUC commends the Manitoba Government and the Water Council for conducting these public consultations and we appreciate the opportunity to contribute. It is an important step toward an effective wetland policy that will benefit all Manitoban's today and into the future.

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