

**EASTERN HABITAT JOINT VENTURE  
FIVE YEAR PLAN FOR THE  
IMPLEMENTATION OF THE  
NORTH AMERICAN WATERFOWL MANAGEMENT PLAN  
IN  
NEWFOUNDLAND AND LABRADOR  
(2008-2012)**

**The following document, “Eastern Habitat Joint Venture Five Year Plan for the Implementation of the North American Waterfowl Management Plan in Newfoundland and Labrador (2008-2012) has been fully endorsed and supported by the below Newfoundland and Labrador Eastern Habitat Joint Venture Steering Committee partners and signatories:**

**John Blake, Director, Wildlife Division  
Newfoundland and Labrador, Department of Environment and Conservation**

**Ducks Unlimited Canada**

**Canadian Wildlife Service, Environment Canada**

**Nature Conservancy of Canada**

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## **EXECUTIVE SUMMARY**

The North American Waterfowl Management Plan (NAWMP) was signed by Canada and the United States in 1986, expanded to include Mexico in 1994, and pursues a partnership approach through habitat and species joint ventures to conserve wetland and associated upland habitats for waterfowl. The province of Newfoundland and Labrador has participated since 1988 in the Eastern Habitat Joint Venture (EHJV) partnership program. The EHJV's goals are to protect, enhance, restore and if necessary, directly secure important wetlands and waterfowl habitat.

The Newfoundland and Labrador strategy for the next five years will involve, firstly, the continuation and maintenance of programs and projects which have proven to be effective, namely the Municipal, Corporate and Coastal Stewardship Agreement programs. Secondly, the plan will also attempt to, where appropriate, develop and implement conservation initiatives which will lead to habitat securement, such as is outlined in the goals of the Nature Conservancy of Canada. Thirdly, the plan will provide for enhancement and restoration opportunities for waterfowl habitat, such as cavity nest-box, eider shelter and beaver levellor projects. Lastly, the plan will encourage the cooperative implementation of community based monitoring projects aiming to address all bird conservation on a landscape basis.

The Newfoundland and Labrador EHJV program has been, and will continue to be, somewhat unique as compared to other EHJV programs in that it focuses primarily on a public/municipal stewardship approach to conserving and enhancing existing wetland habitat for waterfowl populations. The approach is designed to reflect that, primarily due to a historically low human population and limited agricultural development, the province has not experienced the drastic losses of wetland and associated upland habitats which are typically associated with other eastern seaboard jurisdictions. However, the province contributes significantly to the overall breeding populations of North American waterfowl and seabirds and also acts as an important wintering, moulting and staging ground for certain species. However, these breeding populations are widely dispersed in low densities across the vast landbase and the province does not have a comprehensive wetlands inventory at its disposal. This limits its ability to prioritize habitat conservation initiatives except on a case by case basis and on overall habitat priorities. As such, the program has, and will continue to focus on priority areas that are in greatest danger of being destroyed by residential, commercial or industrial activities, namely those within the vicinity and jurisdiction of municipalities. The municipal wetland stewardship

agreement approach was formally audited in 2003 by an independent body and found to be a “powerful and effective strategy” for conserving wetlands habitat for waterfowl populations.

The EHJV Science team has designated a list of eight key waterfowl species for the province which includes American Black duck, Green-winged teal, Ring-necked duck, Barrow’s goldeneye, Common eider (all 3 subspecies), Surf scoter, Harlequin duck (Eastern population), Long-tailed duck and Canada goose. Population baselines and objectives have been established for these populations in Newfoundland and Labrador. Secondly, key habitat areas have been defined which include watersheds under municipal jurisdiction, coastal islands and their associated marine habitat and forested wetland areas used by breeding waterfowl. The primary key limiting factor in these habitats has been identified as duckling survival.

Over the course of this five year plan (2008-2012) the Newfoundland and Labrador EHJV partners project a total expenditure exceeding 6.1 million dollars. Projects will secure some 2385 hectares of wetlands primarily through Stewardship Agreements and the efforts of the Nature Conservancy of Canada, costing some 2.87 million dollars. It will aim to influence an additional 65,000 hectares, primarily through Municipal or Coastal Community Stewardship Agreements and extension activities, costing some 1.2 million dollars. Enhancement activities, such as nestbox placement for cavity nesters, installation of eider nest shelters and adoption of beaver levelers, will aim to enhance some 507 hectares of waterfowl habitat potentially resulting in the production of some 3135 broods and costing some \$837,000. Management or maintenance activities of existing NAWMP projects will affect some 3623 hectares which is currently estimated to support 9150 broods costing over \$534,000. Lastly, an estimated \$750,000 will be put into communications, policy adjustment, evaluation activities and coordination of projects. These activities include important projects such as development and implementation of a wetland habitat policy, wetland signage, brochures, presentations, local monitoring of key waterfowl populations and adaptive management through, on the ground, ongoing assessment.

## **INTRODUCTION**

The North American Waterfowl Management Plan (NAWMP) was signed by Canada and the United States in 1986, and expanded to include Mexico in 1994. The plan pursued a partnership approach to international conservation with goals to conserve wetland and associated upland habitats for waterfowl. The Plan's continental approach to conservation is implemented through regional and species joint ventures.

The Eastern Habitat Joint Venture (EHJV) was formed in 1988 and officially implemented in 1989 at the Wildlife Ministers' Council. The EHJV covers the geographical jurisdictions of Canada's six eastern provinces (Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador). The EHJV is one of 4 habitat joint ventures in Canada and one of 17 habitat joint ventures throughout Canada and the United States that are tasked with the implementation of NAWMP.

The original purpose of the EHJV was to secure the waterfowl resources of eastern Canada by maintaining and enhancing the quantity and quality of wetland habitat through direct and indirect programs aimed at securing, enhancing and restoring valuable wetland habitat. With the creation of the North American Bird Conservation Initiative (NABCI) in 1999, the EHJV program is moving towards an all bird/all habitat initiative, but until dedicated funding is found to support the other initiatives - land birds, sea birds and shorebirds - NAWMP and waterfowl will continue to be the focus and the implementation of other bird programs will only take place when there is a strong overlap with existing programs. The NABCI is outlined in Appendix 1.

The major accomplishments of the EHJV were outlined in the 2005 NAWMP Assessment Report. This report outlines significant gains in wetland and associated upland habitat conservation delivered by the EHJV partners since the inception of NAWMP. In Newfoundland and Labrador (NL), the partnership is continuing to grow and involves the Newfoundland and Labrador Department of Environment and Conservation, Ducks Unlimited Canada, Wildlife Habitat Canada, Nature Conservancy of Canada, Environment Canada (Canadian Wildlife Service), as well as numerous Municipal Governments, community-based conservation groups, corporations and individual landowners. To date this partnership has secured in excess of 32,000 hectares of wetland and wetland associated uplands, enhanced and restored 1,313 hectares of wetlands and associated uplands, installed 500 cavity nest boxes, placed 4,500 eider nest shelters and influenced an additional 68,662 hectares of habitat through the Municipal

Stewardship program. The partners have also had a positive impact on the public awareness and acceptance of the value of wetlands not only as waterfowl and wildlife habitat, but for their ecological and social significance.

It was recognized early on that the Newfoundland and Labrador situation would require some non-traditional thinking as opposed to what were, then current, traditional approaches to wetland and waterfowl conservation. In NL wetlands habitat is extensive and populations of breeding waterfowl are widely dispersed, but often in low densities. Historical trends in human inhabitation have tended to follow the coastline, focusing on the fishery and forests for sustenance with little agricultural development. The result is that existing wetlands have not been as significantly impacted as those in more eastern seaboard jurisdictions or those of other EHJV partners. As such, the NL EHJV program (1989-2004) has focused on the conservation of existing wetlands and waterfowl populations in key known waterfowl locations or in areas faced with imminent impact from development such as within municipal watersheds. The NL Stewardship Program has had a history of being very successful in having municipalities, corporations and individuals across the province agree to incorporate wetland conservation into community planning and management activities. It is based on this success that the EHJV strategy in Newfoundland and Labrador for the next five years (2007-2011) will involve, firstly, the continuation and maintenance of programs and projects which have proven to be effective, namely the Municipal, Corporate and Coastal Stewardship Agreement programs. Secondly, the plan will also attempt to, where appropriate, develop and implement conservation initiatives which will lead to habitat securement, such as is outlined in the goals of the Nature Conservancy of Canada. Thirdly, the plan will provide for enhancement and restoration opportunities for waterfowl habitat, such as cavity nest-box, eider shelter and beaver levellor projects. Lastly, the plan will encourage the cooperative implementation of community based monitoring projects aiming to address all bird conservation on a landscape basis.

## WATERFOWL POPULATIONS

Nineteen species of waterfowl are known to use the coastal and freshwater wetlands of Newfoundland and Labrador as breeding, molting, migration and wintering habitat. In Labrador, the vast areas of wetlands, which are mostly inaccessible by roads and in a pristine wilderness state, support relatively large numbers of waterfowl but in low densities. This is the same for the south coast barrens, designated wilderness areas, and the central-eastern northern Peninsula on the island of Newfoundland. The coastal areas support large numbers of common eider, other sea ducks and sea birds.

### Breeding

There are vast areas of largely pristine inland wetlands which support breeding waterfowl, however, the limited productivity of these wetlands results in low breeding densities (0.3 IBP/km<sup>2</sup> extrapolated from BDJV survey plots). During nesting and brood-rearing period, waterfowl are widely dispersed on ponds, rivers and marshes throughout the province. Coastal areas support large numbers of common eider, other sea ducks and sea birds.

The Black Duck Joint Venture breeding pair surveys have been conducted annually since 1990 and monitor trends, primarily in black duck, but also other key waterfowl populations. Analyses of the population trends of these key species reveal that waterfowl populations are generally stable and/or increasing (Table 1). Black ducks and Canada Geese are the most common inland nesting waterfowl, while common eiders (*dresseri* and *borealis*) are the most common coastal nesting species.

**Table 1: Breeding Waterfowl Species**

<b>Breeding Waterfowl Species</b>	<b>Estimated Pairs (1996-2005)</b>	<b>Trend</b>
American black duck	30626±11278	Stable
Common Goldeneye	17675±12592	Stable
Ring-necked duck	11506±10287	Stable
Green winged teal	5532±2325	Stable
Common Eider ( <i>dresseri</i> )	20,681 ± 6896	Increasing
Common Eider ( <i>borealis</i> )	18,681 ± 7130	Increasing
Canada goose	40,879	Increasing

Key factors impacting breeding waterfowl populations are thought to include that:

- 1) Nest success is not limiting for most key waterfowl species, with the exception of Common eider (southern race) and cavity limited Common goldeneye, as suitable nesting habitat appears to be abundant. A detailed study of common eider demographics is currently underway that will evaluate the assumption that nest success limits eiders. Results are expected to inform a revised eider population model by March 2009.
- 2) There is ample breeding habitat available across Newfoundland and Labrador for inland waterfowl as long as this habitat remains intact.
- 3) Local production of waterfowl can be increased through increased duckling survival associated with enhanced wetlands.
- 4) Non breeding season survival (harvest mortality) is a strongly influential factor to population dynamics of eastern populations. We assume that non-breeding season survival will remain relatively constant.

### **Staging and Moulting**

NL has many inland and coastal wetland sites where large numbers of waterfowl traditionally congregate during the spring and fall migration (Table 2). In addition, there are several important coastal sites where large numbers of scoters and Canada Geese moult. However, information is limited on the numbers of birds staging in NL.

**Table 2: Moulting Waterfowl Species**

<b>Staging and Moulting Waterfowl Species</b>	<b>Estimated Numbers</b>	<b>Trend</b>
American Black Duck	Undetermined	Undetermined
Common Eider	Undetermined	Undetermined
CAGO - North Atlantic (NAP)	Undetermined	Undetermined
Surf Scoter	50,000-60,000	Undetermined

### **Wintering**

Four species of waterfowl are known to regularly over-winter in the open waters surrounding NL. If warming trends continue NL may play a more important role in providing wintering habitat for Black ducks (Table 3).

**Table 3: Wintering Waterfowl Species**

<b>Wintering Waterfowl Species</b>	<b>Estimated Numbers</b>
American Black Duck	2,000
Common Eider (borealis/dresseri)	114,000
Long-Tailed Duck	No data
Harlequin Duck	250 - 300

## **Species at Risk**

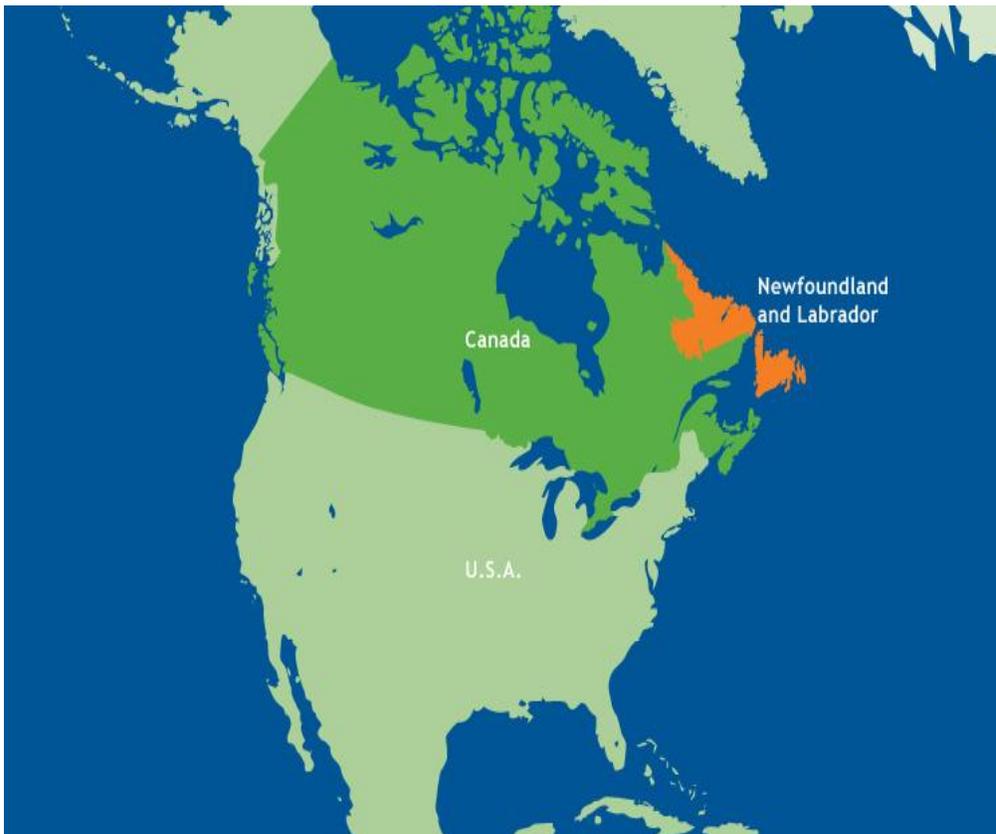
The Harlequin duck was down-listed from “Endangered” to a “Species of Special Concern” in 2001 based on new information indicating the population is larger than previously thought. A new recovery plan has been developed that calls for a range wide wintering population of 3000 birds. The population goals of this management plan are based on the goals outlined in the original Harlequin Duck Recovery Plan (Montevecchi et al. 1995). The initial goal of that plan was to achieve a sustained population of 2000 individuals wintering within eastern North America for at least three of five consecutive years by 2005, followed by the long term goal of at least 3000 wintering individuals (with at least 1000 adult females) for at least three of five consecutive years by 2010 (Montevecchi et al. 1995). In accordance with the priorities of the original Recovery Plan, the long term goal of this management plan is to recover the Harlequin Duck population in eastern Canada by increasing the population to have at least 3000 individuals wintering in eastern North America for three of five consecutive years with at least 1000 breeding aged females. This reflects the goal of the original Recovery Plan that was based on a minimum viable population analysis conducted with demographic data from the Iceland population of Harlequin Ducks (Montevecchi et al. 1995). If future population models, that are based on eastern North American demographic data, suggest that 3000 individuals does not constitute a sustainable population then the alternate goal will be to increase the population and habitat recovery goals accordingly, to ultimately allow for removal from the Species at Risk Act legal species list, and related Provincial species at risk lists. NL currently winters an average of 250 Harlequin ducks. However, harlequins only winter in 10 key locations and the management plan calls for a comprehensive assessment of threats to each key wintering site. This assessment will help to form the basis of future EHJV actions.

## **WATERFOWL HABITAT**

The province of Newfoundland and Labrador (Figure 1) consists of a total of 40,600,000 hectares with approximately 75% being in Labrador. The coastline of the island of Newfoundland measures 19.4 thousand kilometers and the Labrador coastline measures an additional 20.6 thousand kilometers. This coastline includes many islands which are used for breeding by various species of sea ducks and sea birds.

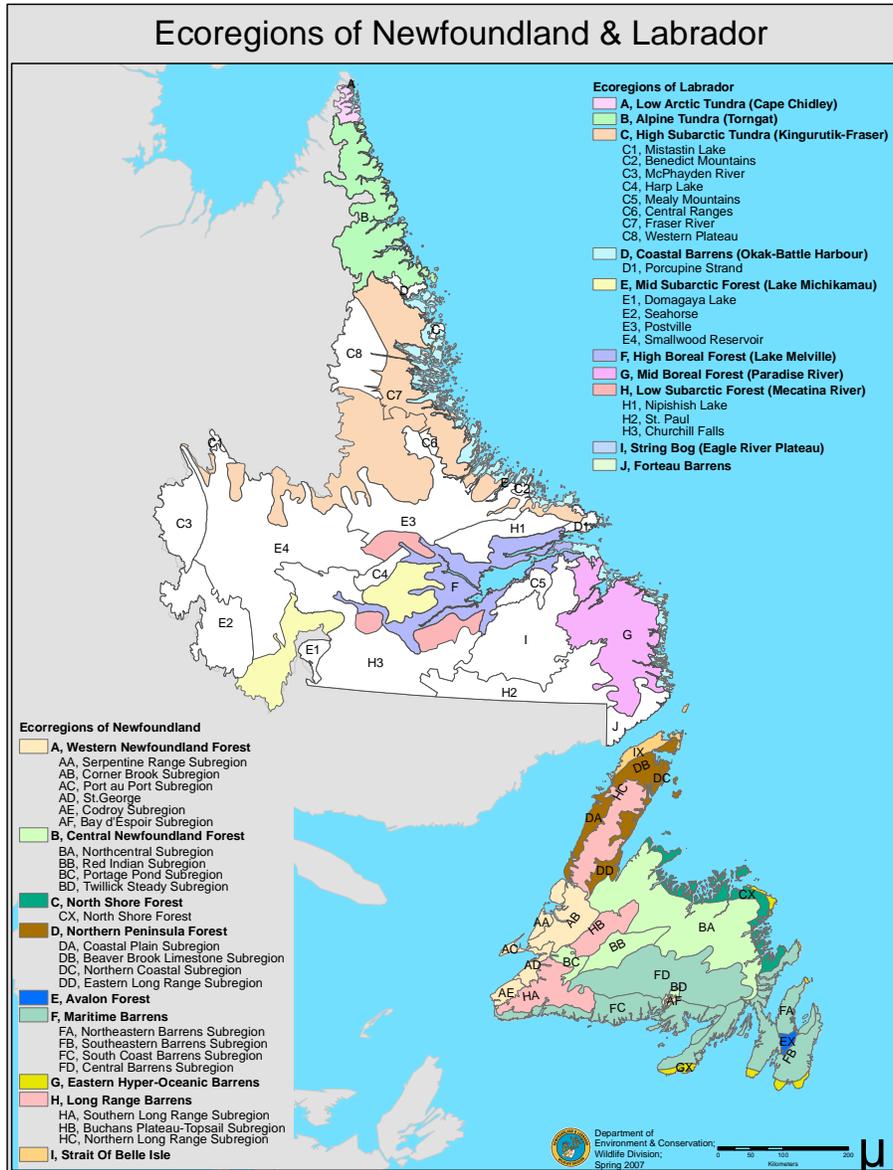
A wetlands inventory has never been carried out in the province, but the management of these resources has been assisted by individual field surveys, ecological mapping programs and a peatland inventory. The provinces wetlands not only provide important habitat for many species of waterfowl and other wildlife, but also perform other valuable ecological and social functions including ground water recharge, carbon storage and control or abatement of flooding, drought and erosion as well as valuable recreational, educational and scientific opportunities.

**Figure 1: Location of Newfoundland and Labrador Relative to North America**



The primary geographic classification system that will be referenced in this document for the Island of Newfoundland will be the Ecoregions of Newfoundland (Figure 2). This classification system was also used in a comprehensive report on waterfowl distribution in Labrador (Bateman, M.C. and A.H. Hicks. 1999. Waterfowl Populations in the Low Level Training Area of Labrador, a Data Compilation and Analysis). The Ecoregions are further described in Appendix 2.

**Figure 2: Ecoregions of Newfoundland and Labrador**



The island of Newfoundland is also associated with Bird Conservation Region (BCR) 8, Boreal Softwood Shield, and Waterfowl Conservation Region (WCR) 8.2, which is a subdivision of BCR 8 and contains 2,800,000 hectares of wetland. The Labrador portion of the province is associated with BCRs 3 (Arctic Plains and Mountains), 7 (Taiga Shield) and 8 (Boreal Softwood Shield) and WCRs 3, 7 and 8, which correspond to the BCRs, and contains 4,200,000 hectares of wetland. The coastal areas of the province are associated with Pelagic Waterfowl Conservation Region (PWCR) 1003 (Newfoundland-Labrador Shelf). The PWCR is adapted from the Pelagic Waterbird Conservation Region, a marine analog of terrestrial Waterbird Conservation Regions developed for the North American Waterbird Conservation Plan which addresses the needs of both sea ducks and sea birds. Many species of sea ducks occupy offshore areas almost exclusively during the non breeding season. Coastal islands and the surrounding waters are critical to the life cycle of these waterfowl.

**Boreal Shield: Bird Conservation Region 8/Waterfowl Conservation Region 8 & 8.2  
Newfoundland-Labrador Shelf: Pelagic Waterbird Conservation Region 1003**

The Boreal Softwood Shield is a broad, U-shaped region comprised of seacoasts in the east and, as you move away from the coast, vast areas that are more than 80 percent forested by closed stands of conifers, largely white and black spruce, balsam fir, and tamarack. Toward the south, broad leaf trees, such as white birch, trembling aspen, and balsam poplar are more widely distributed, as are white, red, and jack pine. The region is a broadly rolling mosaic of uplands and associated wetlands, dotted with numerous small to medium-sized lakes. Wetlands range from being acidic and oligotrophic to relatively lush with peatlands common. The area provides important breeding, migration and molting habitat for species including teal, eider, murre, American black duck, ring-necked ducks and Canada geese. Coastlines and offshore area in the east are important year-round for breeding and wintering sea ducks and seabirds (Figure 3).

For the purposes of waterfowl conservation this region has been subdivided with 8 being the mainland portion in Labrador and 8.2 the island of Newfoundland.

Sixteen percent of Labrador (46,000 square kilometers) is located within WCR 8. A portion of this region encompasses the Churchill River Valley and the coastal plain surrounding Lake Melville. It has the most favourable climate and the highest breeding density of diving ducks for Labrador.

One hundred percent of the Island of Newfoundland is located within WCR 8.2. The climate is severely influenced by its location in the North Atlantic and adjacency to the cold Labrador Current and the warmer Gulf Stream. Weather can be very variable, especially throughout the eastern portion of the province.

The associated Pelagic WCR 1003 is adjacent to the eastern Labrador coastline and the complete coastline of the island of Newfoundland. The numerous islands and surrounding waters support very large numbers of sea ducks and sea birds for breeding, staging, molting and wintering purposes.

**Taiga Shield: BCR 7/WCR 7**

**Newfoundland-Labrador Shelf: PWCR 1003**

The subarctic climate is characterized by relatively short, cool summers with prolonged periods of daylight and long, very cold winters. Coastal marshes and extensive tidal flats are present along the coastline. The Canadian Shield is characterized in upland sites and along rivers by open, mixed-wood forests of white spruce, balsam fir, trembling aspen, balsam poplar, and white birch. Further north, approaching the limit of tree growth, stunted black spruce and jack pine dominate, accompanied by alder, willow, and tamarack in the fens and bogs. Thousands of lakes and wetlands occur in glacially carved depressions, and peat-covered lowlands are commonly waterlogged or wet for prolonged periods due to discontinuous but widespread permafrost and provide important habitat for many species of breeding waterfowl (Figure 3).

Seventy eight percent (229,500 square kilometers) of Labrador is within WCR 7. It includes the Eagle River Plateau which supports very high numbers of surf scoters and greater scaup. The highest densities of breeding Canada goose are within this WCR, especially the coastal barrens.

The associated Pelagic WCR 1003 is adjacent to the eastern Labrador coastline and the numerous islands and surrounding waters support very large numbers of sea ducks and sea birds for breeding, staging, molting and wintering purposes.

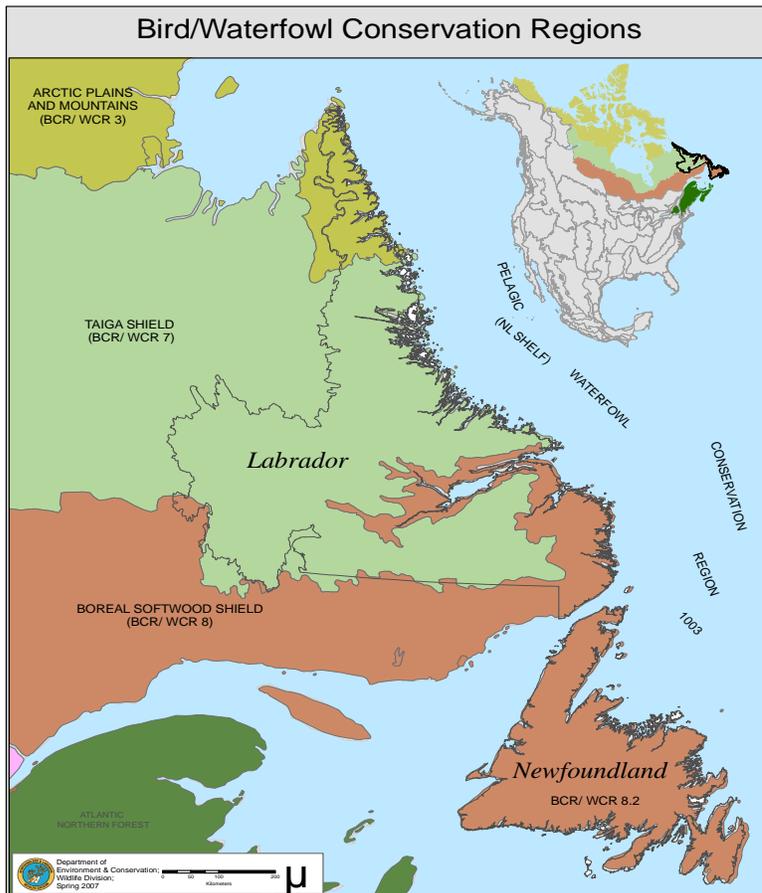
**Arctic Cordillera: BCR 3/WCR 3**

**Newfoundland-Labrador Shelf: PWCR 1003**

This region includes low-lying coastal tundra and drier uplands of the Arctic mountains across the entire northern edge of North America. Because of thick and continuous permafrost, surface water dominates the landscape (20-50 percent of the coastal plain). Freezing and thawing form a patterned mosaic of polygonal ridges and ponds, and many rivers bisect the plain and flow into the Arctic Ocean. The ocean surface is generally frozen 9 to 10 months of the year, and the ice pack is never far from shore. Because of the wetness, waterfowl and shorebirds are the dominate community. Few bird species winter in the region (Figure 3).

Due to its remoteness and that most of it is within and protected by the new Torngat Mountains National Park Reserve, this region will not be addressed in this plan.

**Figure 3: Bird Conservation Regions and Waterfowl Conservation Regions of Newfoundland and Labrador.**



## **RISKS AND THREATS TO WATERFOWL HABITAT**

Newfoundland and Labrador only has a population of just over 500,000 people which is largely concentrated along the coast. The provincial economy is heavily dependant on natural resources, such as forestry, fishing, oil production, mining and agriculture. These factors create the potential for negative impacts on wetland habitats and waterfowl populations at both a local and landscape scale. Traditionally, human settlement has been associated with some of the most productive waterfowl habitats in the province resulting in concerns over the impacts of urban and industrial expansion on wetlands and coastal habitat. The pattern of settlement along the coast was primarily to allow for access for harvesting of inshore cod stocks. In these settlements fresh water would have been a priority and therefore many of these communities have developed around some of the more productive estuarine habitats in the province. For example, the planning area for the Town of Stephenville Crossing, which has significant breeding (black duck, green-winged teal), staging (Canada goose) and moulting habitat (scaup), is approximately 3,000 hectares of which approximately 50% is wetland.

In recent years municipal control has been expanded to encompass entire watersheds. Municipal governments now have jurisdiction over very large watersheds and are increasingly simultaneously being pressured to provide and create economic incentives. Economic growth is usually followed very quickly by urban expansion. Both of these activities have the potential to negatively impact on wetland and waterfowl habitats. The most significant urban growth is associated with the City of St. John's and adjacent communities on the Avalon Peninsula. Over the years urban growth has resulted in wetlands being drained and infilled and riparian habitat destroyed. The impact of residential development has been primarily addressed through the Municipal Wetland Stewardship program with over 12,000 hectares of wetland and associated upland being secured and protected from adverse development to date.

Habitat Loss, Fragmentation and Degradation: Forestry, mining and hydroelectric activities pose the greatest threats to inland habitats. Due to the nature of the soils, topography and weather, agricultural development in NL has not been as intensive as in other provinces. Agricultural holdings have actually decreased from 47,355 hectares in 1991 to 40,580 hectares in 2001. Many of these lands have been converted to residential development or other uses.

In recent years resource development agencies are becoming more accountable for planned habitat disturbance, primarily via the legal Environmental Assessment process. Mitigation and compensation measures are usually a requirement of development and tend to address the more significant habitat issues; however, extensive loss, fragmentation, and degradation may result from the cumulative effects associated with multiple smaller disturbances. Legislative policies in NL state that before development can precede in and around wetlands an environmental assessment (EA) must take place. For example, a peat extraction operation that will affect > 2 ha., infilling of wetlands > 5 ha., cottage developments >10 ha. and hydro developments > 50 ha. all require EAs. However, many smaller sites do not trigger an environmental assessment and the negative impacts of these smaller sites could result in a significant cumulative impact.

Forestry activities can have short term impacts during periods of activity as well as long term landscape ones such as loss of cavity trees and wetland siltation. However, current practices are thought to be relatively benign for waterfowl and wetlands in that regulations require treed buffers to remain around all water bodies greater than 1m in width. The forest industry supports 1,500 person years and injects \$82,000,000 annually into the NL economy. Forestry operations are prevalent in Newfoundland and are increasing in southern Labrador. The primary impact of forestry operations is the temporary loss of upland habitat adjacent to wetlands. If appropriate buffers are not applied water tables in adjacent wetlands could be negatively affected in the short term. However, with the implementation of appropriate guidelines and practices, impact can be minimal. The impacts of forestry activities can be further minimized, by partnering with the pulp and paper industry. This has been demonstrated by NAWMP projects, such as occurred in the Birchy Basin in 1989, where over 405 hectares of a very productive wetland complex was enhanced and protected through an agreement with the pulp and paper company. Forestry activities are thought to have decreased the availability of present and future nest cavity trees which has a negative impact on cavity nesting species like Common goldeneye. Stewardship agreements, conservation agreements and legislative tools will all be looked at to determine their effectiveness in ensuring an adequate supply of cavity nesting trees.

The foot prints of mining operations are typically small but if established in critical wildlife habitats can have long term localized detrimental impacts. The mining industry is growing in NL with a number of new operations underdevelopment. The mining industry is worth an estimated \$1.6 billion to the NL economy. Operations, such as the Inco nickel mine at Voisey's Bay, are also critical to providing employment to the aboriginal communities. Mining companies have been and will continue to be encouraged to become involved in conservation initiatives, such as the Iron Ore Company of Canada's "Tailings to Biodiversity" project and Inco's support of sea duck research in Labrador. In addition, they are encouraged to adopt "best practices" in their operations to help eliminate and remediate impacts. In 1979, an exploratory peatland inventory for the Island of Newfoundland was completed but there has been limited impact with only one major peat extraction operation to date. Therefore, the overall effect from peat mining on the landscape and waterfowl is considered minimal. There are however proposals to increase development of peatlands for various commercial ventures such as fuel peat extraction and agricultural purposes which also result in resource access road building.

Hydro electric developments and associated damming of streams, rivers and ponds has occurred extensively throughout NL. Although hydro-electric projects can result in the production of new wetland habitats they often result in the flooding of productive marshes and reduce shoreline vegetation due to scouring and drawdown. Hydro operations can also result in high inputs of mercury into biological systems. The larger issue of all these activities is the increased access to undisturbed areas. It is difficult to assess past losses but efforts will be made to mitigate future losses primarily through Environment Assessment processes and impact studies.

Increased Access/Disturbance: Disturbance to birds is typically associated with human settlement, industry, fisheries, ecotourism, and recreational activities. Much of NL has been relatively inaccessible but new forest access roads and highway construction is allowing access to some of the most remote waterfowl habitat in the province. Access development as well as the ensuing activities, such as cottage and camp development and increased use of all terrain vehicles, can have a detrimental impact on wetlands and waterfowl. Specifically, the new trans-Labrador highway runs adjacent to the Eagle River Plateau, one of the most productive waterfowl habitats in Labrador.

Ecotourism: Visitation to coastal areas and islands during summer periods of high waterfowl use is becoming increasingly popular and lucrative. These activities could have a detrimental impact, especially during nesting and brood rearing. Ecotourism could negatively impact sea duck populations unless best practices are followed by the tourism operators. Young common eiders are especially prone to predation because of human disturbance. However, the majority of the significant seabird colonies in NL are formally protected as designated Provincial Wilderness and Ecological Reserves which come with a suite of protection regulations limiting visitation and cruise ship activity.

Contaminants: Oil spills and illegal bilge pumping have killed large numbers of sea ducks and sea birds over the past several decades. There have been large scale developments of offshore oil facilities and as petroleum development expands the potential for spills in breeding, molting, and migration habitats increases. The non-breeding period for sea ducks is spent primarily in marine environments and during this period they are often found in large aggregations and therefore more vulnerable to these types of threats. The recent new federal legislation, Birds Oiled At Sea, has given the Coast Guard and Environment Canada stronger powers and authority to persecute offenders. With these new powers and the tools needed to enforce this legislation, these federal departments are spending more time monitoring coastal shipping routes. This is anticipated to significantly reduce the issue of birds oiled at sea.

Human Health Risks: Bird related diseases such as Avian Influenza and West Nile Virus are potentially upcoming issues in waterfowl conservation. Avian influenza is endemic to most species of waterfowl but the highly pathogenic H5N1 strain is causing concerns. A monitoring program in waterfowl has been initiated across Canada and to date there have not been any positive tests for H5N1 in wild waterfowl populations in North America. The impact of these concerns is the potential increase in demand to drain wetlands to reduce mosquito populations in response to concerns about West Nile Virus. Public concern has the potential to have the biggest influence on programs related to the Municipal Steward initiative and setting of new wetland and bird conservation policies.

Predation: Greater black-backed gulls are a predator of common eider ducklings and eggs. Other introduced predators such as mink and, eastern coyote can create problems by limiting waterfowl production particularly in dense eider colonies. To help offset this problem an eider nest structure program was first implemented in 1987 and will be continued over the next five years. Human disturbances from activities such as ecotourism also increase the chances of predation. Results of a 5 year eider research project will establish the importance of this limiting factor for eiders.

Recreational and Subsistence Hunting: Many communities in NL are situated in very remote areas on the coast and rely on subsistence and recreational hunting to supplement their diets. Aboriginal people have their own restrictions and quota system. A spring goose hunt and the gathering of eider eggs are activities that are also practiced by aboriginal communities and at this time it is not known if these activities have a negative impact. However, the prevalence of spring egging is diminishing. A aggravating factor is that in some years winter sea ice conditions have been known to cause sea ducks to congregate in huge numbers in a relatively small area becoming far more vulnerable to hunting. The cumulative impact of recreational and subsistence hunting, especially when weather and ice conditions are factored, is hard to determine and predict, but overall waterfowl harvest continues to decline in the Province.

Climate Change: Two possible outcomes of climate change/global warming that have the potential to have a significant negative impact on wetland habitats and waterfowl populations are sea level rise and melting of the permafrost. Rising sea levels could result in the loss or degradation of coastal habitat but it is also possible that some could be replaced by the creation of new ones. Increasing global temperatures would result in the melting of the northern permafrost, potentially resulting in wetland loss similar to being currently demonstrated in Alaska.

## WATERFOWL PRIORITIZATION AND GOALS

### Key Waterfowl Species

The EHJV science team established eight key waterfowl species for NL (Table 4). In addition, Common goldeneye were added as a provincially important species based on their relative breeding abundance, their importance in the harvest and the fact that they will readily respond to management activities. Trends have been established based on the results of sixteen years of waterfowl surveys.

**Table 4: Key Waterfowl Species in Newfoundland and Labrador**

Species	IBP Trends (1990-2005)	Seasonal Relevance
American black duck	Stable	Breeding, Staging, Wintering
Green-winged teal	Stable	Breeding
Ring-necked duck	Stable	Breeding
Barrow's goldeneye	Vulnerable Species	Breeding, Wintering
Common eider (all 3 sub species)	Increasing	Breeding, Staging, Wintering
Surf scoter (moulting)	Undetermined (surveys planned)	Breeding, Staging
Harlequin – Eastern	Undetermined	Breeding, Wintering
Long-tail duck	Undetermined	Wintering
Common goldeneye	Stable	Breeding, Staging, Wintering
Canada goose	Increasing	Breeding, Staging

## WATERFOWL POPULATION GOALS

### Breeding

The major goals of the EHJV partnership in NL are to maintain inland breeding waterfowl population's similar to those observed during the past decade and to increase the population levels of Common Eider (*borealis* and *dresseri*). As a result, waterfowl population goals are equivalent or close to the population benchmarks established by the Canadian Wildlife Service (CWS) (Table 5).

Appendix 4 identifies the EHJV and Atlantic priorities for breeding waterfowl associated with the WCRs and Pelagic WCRs for NL (WCR 8.2 is specific to the island of Newfoundland), with Appendix 5 providing the continental perspective.

Breeding waterfowl are distributed throughout NL but at relatively low densities. These densities have been mapped for Labrador (See Appendix 6). Regional densities have not been mapped for insular Newfoundland.

**Table 5: Waterfowl Indicated Breeding Pair Population Goals for EHJV Priority Species**

<b>Species</b>	<b>Population Objective</b>	<b>Estimated Pairs (1996-2005)</b>	<b>Deficit</b>
American Black Duck	48,000	30,626± 11,278	17,374
American Green-winged Teal	7,000	5,532± 2,325	1,468
Ring-necked Duck	28,000	11,506± 10,287	12,494
Harlequin Duck	3000 in NA	250-300 in NL	-----
Common Eider (dresseri)	47,500	20,681 ± 6,896	26,819
Common Eider (borealis)	25,700	18,681 ± 7,130	7,019
CAGO - North Atlantic (NAP)	60,000	40,879	19,121
Common Goldeneye	20,000	17,675±12,592	2,325
		<b>Total</b>	<b>86,620</b>

The difference between the current waterfowl population, estimated as the mean from 1996 – 2005 from the BDJV survey plots, and the waterfowl objective were used to establish the deficit in breeding waterfowl in NL. The overall waterfowl deficit in NL is estimated to be about 86,620 IBP and this number sets the target for habitat objectives. This deficit is higher than originally estimated in that population survey numbers were not previously available.

### **Staging and Molting**

CWS surveys indicate that large concentrations of staging waterfowl (spring and fall) occur along coastal areas of NL. There are also many inland sites in Labrador where spring staging occurs. Many of these inland sites, staging areas in particular, have traditionally been used by the Innu of Labrador and are an important part of their cultural landscape. There is limited data available for staging populations and as such we are unable to develop staging goals for black ducks, eiders, and Canada Geese. However, we were able to develop a staging goal of 55,000 surf scoters (Table 6).

Major molting sites for waterfowl have also been identified in Labrador. Inland sites typically are dominated by black duck and Canada geese. Coastal habitats are used extensively by molting waterfowl. One of the most important coastal molting sites is the Backway in Labrador where over 30,000 surf scoters have been observed along with significant numbers of white-winged and black scoters. However, a multitude of waterfowl stage all along the coast of Newfoundland and Labrador.

**Table 6: Staging and Molting Conservation Needs**

<b>Species</b>	<b>EHJV Priority</b>	<b>Atlantic Priority</b>	<b>Population Benchmark</b>
American Black Duck	High	High	Data deficient
Common Eider (dresseri)	High	High	Data deficient
Common Eider (borealis)	High	High	Data deficient
CAGO - North Atlantic (NAP)	High	High	Data deficient
Surf Scoter	High	High	55,000

**Wintering**

Common eider winter in large concentrations in the coastal habitats of NL and occurrence is generally determined by the presence or absence of ice. Other species of waterfowl such as Black ducks and Harlequin ducks utilize the ice free coastal areas as wintering habitat. Goals are outlined in Table 7.

**Table 7: Wintering Conservation Needs**

<b>Species</b>	<b>EHJV Priority</b>	<b>Atlantic Priority</b>	<b>Population Benchmark</b>	<b>Population Objective</b>
Black Duck	High	High	2000	undetermined
Harlequin Duck	High	High	250 -300	undetermined
Common Eider (dresseri & borealis)	High	High	114,000	undetermined

## **HABITAT PRIORITIZATION AND GOALS**

Habitat objectives are linked to desired population goals for the key species as habitat objectives for key species are assumed to reflect and accommodate the needs of other waterfowl species within NL. The goals also reflect the key limiting factor for most species, that of duckling survival. Habitat objectives will be refined and adjusted as new biological and environmental information is developed and integrated into a model-based decision process. The habitat objectives are developed to reduce the current waterfowl deficit.

The Newfoundland and Labrador EHJV program encompasses four of the EHJV key program regions as identified in the 2004 NAWMP Implementation Framework. These include Atlantic Coastal, Atlantic Freshwater Wetlands, Boreal Forest and Sub-Arctic Barrens. Within this context the 5 year plan will address three priority landscapes within these regions.

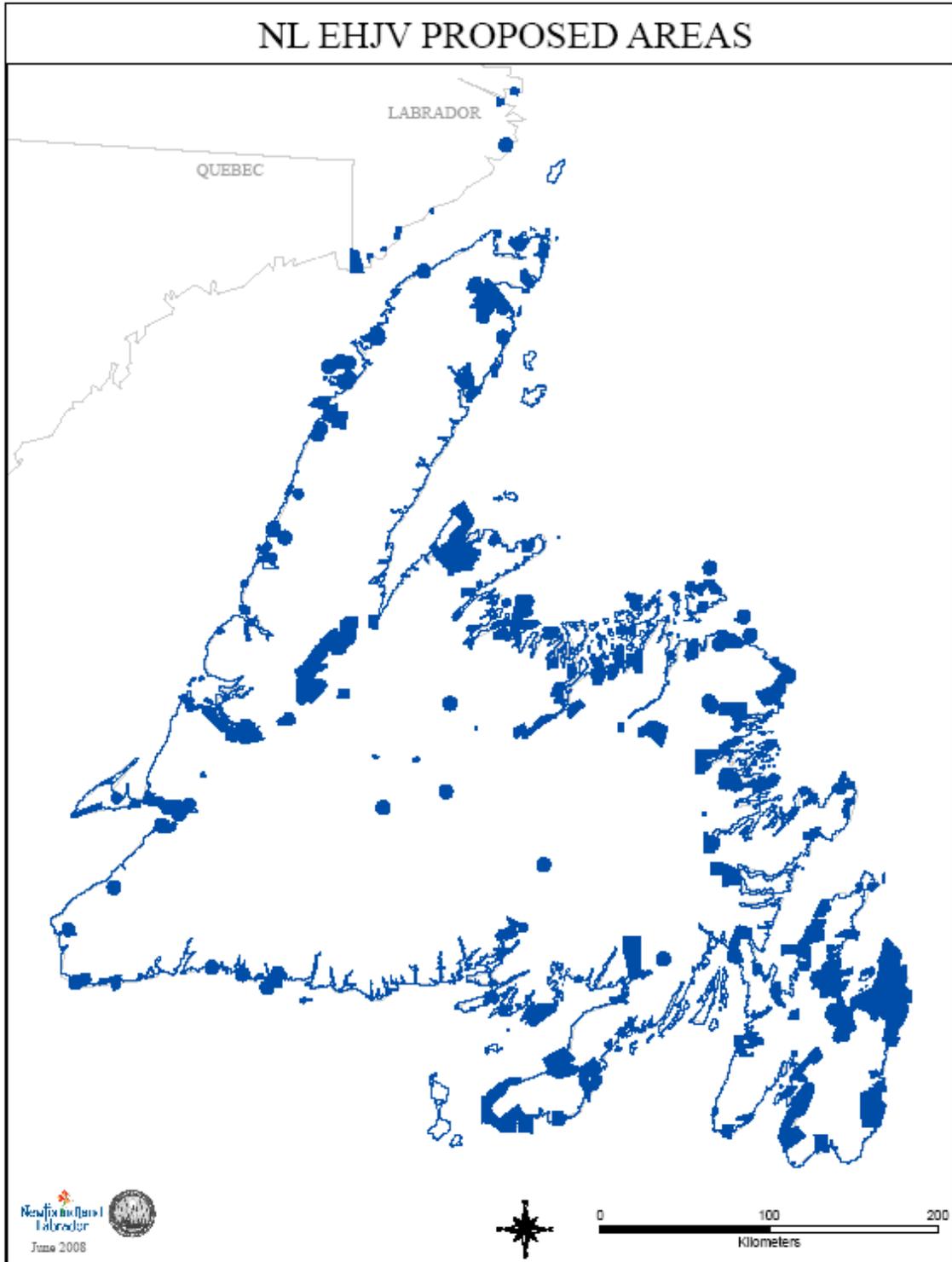
1) Coastal Areas: There are numerous coastal islands and associated marine habitat that are important to various species of sea ducks and sea birds for breeding, brood rearing, staging, molting and wintering (Figure 4a & 4b).

2) Forested Wetland Areas: There are many small wetlands in the forested landscape in NL which collectively provide important breeding and brood rearing habitat for a variety of species of waterfowl (Figures 4a & 4b). Existing legislation requires that treed buffers be left surrounding waterbodies and wetlands but larger buffers and habitat protection may only be requested after particularly sensitive or significant areas for waterfowl are actually identified. In the absence of a provincial wetland inventory many such areas may not have been identified during initial development of Forest Harvest Strategies. However this can be addressed on an ongoing basis through the provincial Forestry Planning Process in cooperation with the forest harvesting companies.

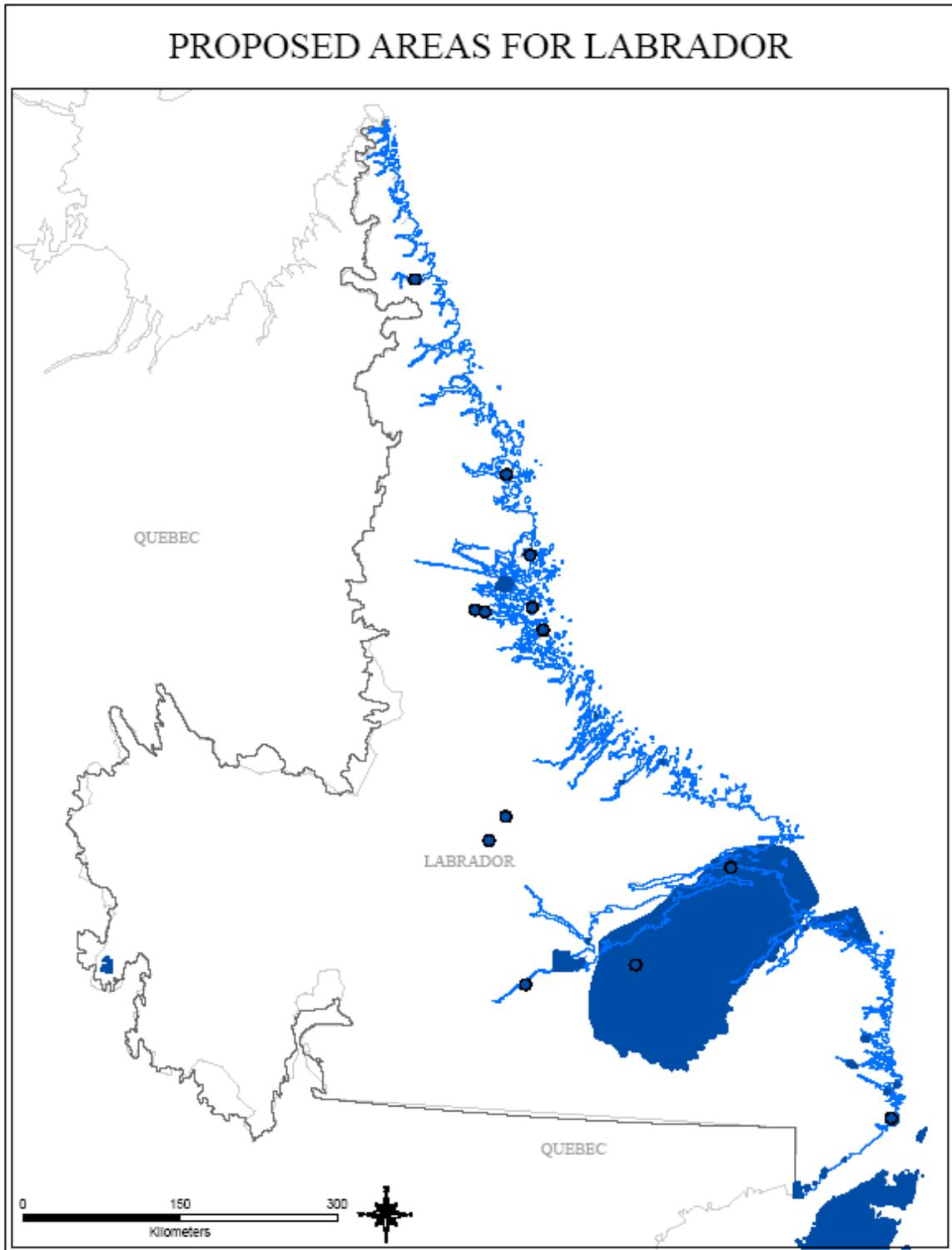
3) Municipal Watersheds: As administrative unit municipal jurisdictions encompass large areas of watershed that include freshwater wetlands and associated upland habitats that are used by waterfowl primarily for breeding, brood rearing and some spring staging. Most settlement patterns in NL are associated with coastal areas so that along with the freshwater there is also the estuarine habitat which is used for staging and wintering as well as for breeding and brood rearing. Many of these areas have already been targeted for habitat securement or stewardship agreements which influence watershed development and use (Figures 4a & 4b).

As previously discussed, NL does not have a wetland inventory and as a result there is no baseline data to determine net habitat changes over time, but efforts are currently underway to produce a Canada Wetland Inventory which will allow NL to monitor landscape changes from that point in time. However, at a provincial scale, we assume that change in waterfowl habitat has been minimal over the past 15 years, but the cumulative effect of loss of small wetlands is unknown. Given these limitations, the conservation actions outlined below are targeted to specific habitat types and associated land areas. These activities include securement, stewardship, enhancement, management, communication/education, policy adjustment and evaluation. The mix of proposed conservation actions reflect a balance between the need to retain existing habitat through various securement activities and the need to restore/enhance habitat to increase the number of breeding pairs. Each action has a land area goal associated with them and the total land proposed for stewardship actions under this plan is expected to exceed 70,000 hectares.

Figure 4a: Newfoundland Projected Priority Areas for Conservation Action.



**Figure 4b: Labrador Projected Priority Areas for Conservation Action.**

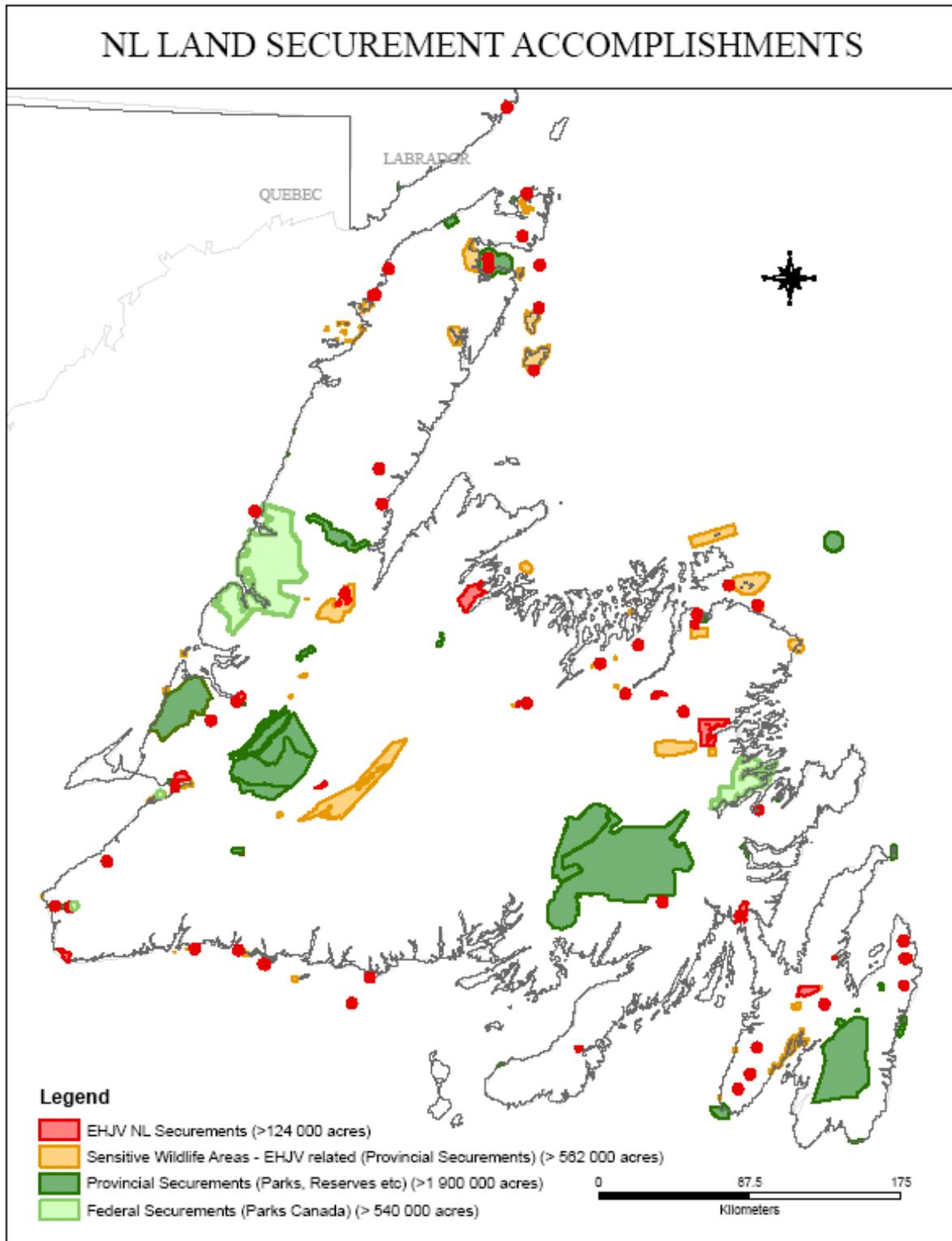


## **CONSERVATION ACTIONS**

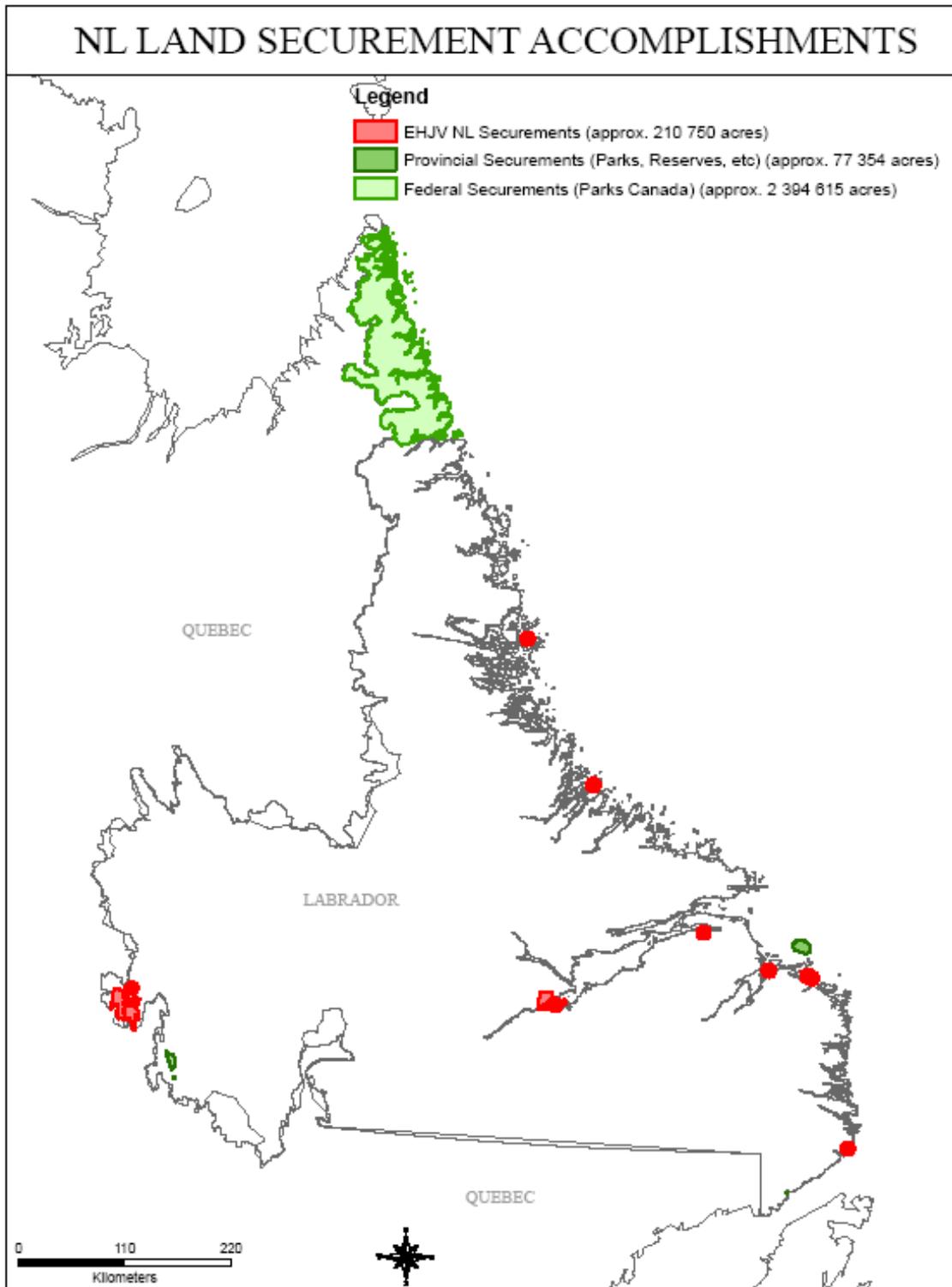
### **A) Securement**

Securement involves the protection of wetland and/or upland habitat through land title transfer or binding long-term (> 10 year) conservation agreements with a landowner or manager such as negotiated municipal, corporate and individual stewardship agreements. There are approximately 2.8 million wetland ha. (25% of total surface area) on the Island of Newfoundland and an additional 4.2 million wetland ha. (14 % of total surface area) in Labrador. As a component of the total land base currently subject to provincial or federal protection, approximately 151,620 (2.2%) hectares of the ~7 million hectares of wetland are deemed to currently have some sort of habitat protection through legislation, EHJV programs or other NGO's (Figures 5a & 5b). Over the next five years the following techniques will be used to secure an additional 2385 hectares of wetland or upland habitat on priority landscapes in NL.

Figure 5a: Newfoundland Land Securement Accomplishments.



**Figure 5b: Labrador Land Securement Accomplishments.**



Acquisition: The acquisition of land involves the transfer of title and is accomplished through crown land transfers, fee simple acquisition and land donation. Acquisition as a tool for securement will be focused on the purchase of key lands where human activity is threatening waterfowl habitat or areas that are conducive to playing important education or demonstration purposes. Only 2% of the land base is in private holding, but this represents approximately 2,000,000 hectares of which most is on the Island of Newfoundland. While much of the land is found in municipalities, there are very large tracts of private land still remaining in central Newfoundland. 385 hectares is targeted for acquisition which will occur primarily in the Western Forest Ecoregion of the Island of Newfoundland; however, opportunistic acquisitions in key sites of other ecoregions will be made if they come available (Figures 4a & 4b).

Stewardship / Conservation Agreements: Stewardship or Conservation agreements are generally negotiated between sponsoring agencies and landowners (including federal and provincial Crown agencies) as well as land managers (including First Nations, corporate industry groups or municipalities) where these managers are able to sign agreements (10 year minimum) restricting activities associated with the land for the purposes of wildlife and habitat conservation. Restrictions still allow the sponsoring agency to carry out conservation/stewardship activities in consultation with the land owner/manager. This is the one of the primary tools of the NL Wetland Stewardship Program. Over the five year plan Conservation Agreements will result in the protection of 2,000 hectares in priority conservation areas (Figures 4a & 4b). An additional priority activity will be to resign existing 10 year private land stewardship agreements, particularly in the Codroy Valley.

Crown Designation: Crown designation is when the right to manage a parcel of property is passed from one government department to another. The title of the land remains within the original government department or agency while administration and control of the land is transferred to another department or agency. Designation comes into effect when the policies and statutes of the receiving department or agency are applied to the property (Figures 4a & 4b). This activity can provide various levels of protection with varying levels of expediency.

Maintaining the base population of inland breeding waterfowl in NL will require that vast tracts of wilderness areas remain intact into the future. Through the EHJV planning process, work will begin over the next five years to determine through surveys, both past and new, where the greatest concentrations of waterfowl are breeding inland in Newfoundland and Labrador. The end goal is that the average IBP per hectare in

designated areas will be determined at the eco-region level. An analysis of protected lands and proposed protected lands, either through federal or provincial designations, will be completed with estimates of waterfowl IBP supported within these protected areas. Based on the above analysis and with a goal of protecting the habitat of half the IBPs breeding inland in NL, EHJV partners will identify large tracts of lands now lying outside designated protected areas and determine long term strategies to protect these areas.

These activities complement other habitat protection ongoing within the province such as the provincial Natural Areas Systems Plan being implemented by the NL Parks and Natural Areas Division. Additionally the Federal Parks system is moving to establish the Torngats and Mealy Mountains National Parks in Labrador. Both of these are very significant actions will result in the permanent protection of habitat, significant portions of which include wetland and associated upland habitat. For example the Torngats National Park will protect the entirety of the Arctic Cordillera terrestrial ecozone. The Mealy Mountains Park will encompass the Eagle Mountain Plateau, some of the most productive habitat for breeding and moulting waterfowl in the province.

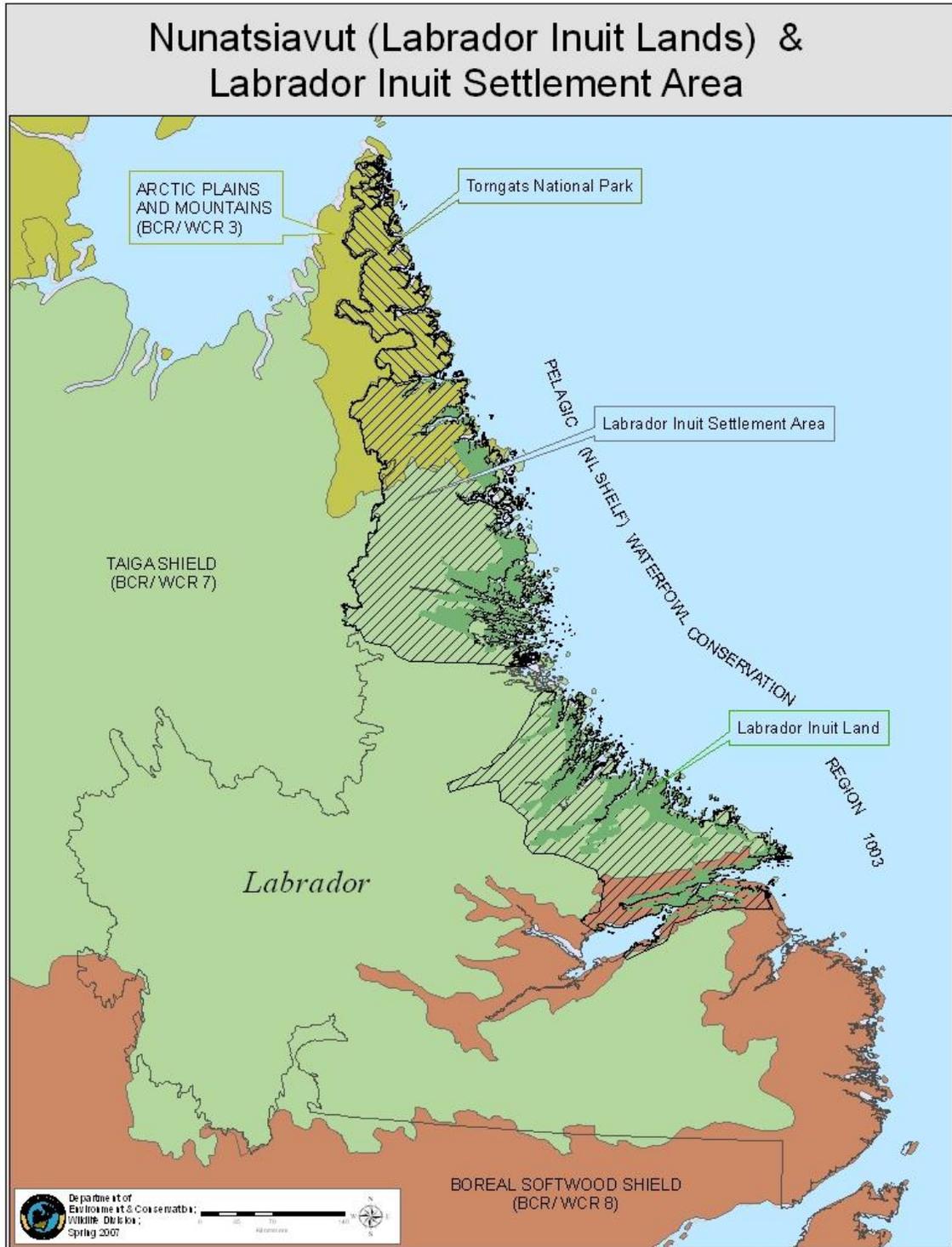
## **B) Stewardship**

Stewardship refers to the responsibility to manage one's land use practices and activities with proper regard to the surrounding environment and the rights of others. This activity is associated with a wide range of conservation activities that either promote or directly result in the sustainable use of land for the purpose of conserving wildlife and the habitats they depend on. Stewardship activities do not secure lands but often times result in the land owner/manager going the next step to some type of securement agreement. Stewardship activities will focus on governments, industry and private land owners. The NL Stewardship Program has been successful in engaging communities across the province to incorporate wetland conservation into community planning. Through the Municipal Wetland Stewardship Program, a town agrees to mitigate development to reduce negative impact on wetland and associated upland habitat within the boundaries of the stewardship agreement. This program model has the potential to broaden its scope from the individual community level to providing conservation planning at the landscape level. Partners will use past and new waterfowl survey data to define those important tracts of land not currently protected and develop specific strategies to garner the support of Provincial agencies and a corporate component, specifically forestry and mining, to apply designations. The goal under the program will be to have municipalities agree to provide long-term conservation influence over 5000 hectares of wetlands.

The NL Coastal Stewardship program will target communities whose residents have a historic relationship with coastal islands and the surrounding waters that are critical breeding, brood rearing and molting sites for sea ducks and sea birds. The municipality has no jurisdiction over these islands however a goodwill stewardship agreement with the community allows for a partnership for the development and implementation of best practices to be followed when carrying out traditional activities on or around these islands. These Best Management Practices have been developed in consultation with local communities and several are ready to sign on to act as stewardships of these seabird habitats. Securement of these islands, when warranted, is handled primarily through Crown Designation or by acquisition where appropriate. An additional component is to begin a comprehensive assessment of the threats which impact each of the 10 known harlequin key wintering locations. Such an assessment will help to form the basis of future EHJV actions.

The Labrador Inuit Association has completed their land claim process and has now formed the Government of Nunatsiavut (Figure 6). This brings with it new responsibilities associated with wildlife management. A pilot project will be selected in a key waterfowl use area to help foster a new partnership and working relationship aimed at ensuring the appropriate stewardship of the waterfowl resource and their habitat.

Figure 6: Nunatsiavut.



### **C) Enhancement**

Enhancement, involves habitat improvement activities which are carried out on already secured wetland and/or associated upland habitats to increase their carrying capacity for waterfowl populations and other wildlife. Activities planned via this 5 year plan are expected through time to increase the IBP of waterfowl and reduce the existing waterfowl deficit. Currently, there is no waterfowl productivity model for NL that relates the brood production to waterfowl population response. Waterfowl productivity models will need to be developed to help understand the waterfowl population response to conservation actions, but limited waterfowl surveys and habitat information dictate that it will be some time before this is attempted. We do, however, anticipate that waterfowl response to restored wetlands and uplands will accumulate as the program is deployed across the landscape.

Eider Nest Structure Program: There is international concern over the number of common eiders (*dresseri* sp.) in Atlantic Canada. Generally, we are faced with limited information about what is affecting the population; however, it has been assumed that the ability to successfully hatch eggs is a factor in the number of young eiders produced each year. This assumption will be validated by a 5 year study of factors limiting waterfowl populations in Newfoundland and Labrador that will be completed in 2009. The stated goal for common eiders (*dresseri* sp.) is to increase the breeding population to 47,500 IBP from the current ~20,000 IBP. Installation of nest shelters helps prevent egg predation typically by gulls. Currently, the majority of nesting colonies in Newfoundland and southern Labrador have some nest shelters due to past actions under the 1989-2004 NAWMP program. The shelters have been shown to be particularly effective on nesting islands with little natural cover available. The shelters have also proven to be a useful tool for research, as they provide predictable locations for finding nests and minimize the stress experienced by nesting eiders when researchers are working in the area. Work will continue within coastal communities and with local development associations to construct and install an additional 500 eider nesting shelters (200 ha) over the next five years. This program will focus on priority colonies that are: 1) have significant breeding populations and limited cover on the island, 2) in a priority coastal stewardship program areas, and 3) are part of on-going research projects. The proposed activities would result in 900 hatched nests/year. The eider shelter program will adapt in response to results of the eider population ecology study that is currently underway. At that time an overall target for nest shelters will be established.

Cavity Nest Box Program: It is thought that Common goldeneye populations are limited by the availability of nest cavities in trees. It is believed that forestry activities have decreased the availability of suitable cavity-producing trees. However, forestry companies are adopting management practices to promote the abundance of snag trees following forestry operations. Common goldeneye readily accept artificial nesting structures. Therefore, nest boxes are a logical and affordable conservation action to increase the goldeneye populations by 5000 IBP to ~20,000IBP. To date, 500 nest boxes have been deployed. An additional benefit of this program is its value in generating community support for an environmental initiative. The objective to the program is to deploy an additional 500 shelters (200 ha upland habitat restored) over the next five years in priority areas. The program will also be linked closely with the Forest Industry to ensure cavity trees are left on the landscape as part of the corporate stewardship initiative. The installation of 500 nest boxes could result in an additional ~400 broods/year based on an estimated 80% usage rate per nest deployed.

Beaver Levellers: Under the former NL EHJV plan both government and corporate road managers have been encouraged by Ducks Unlimited and the province to adopt “Clemson” type levellers, that if monitored regularly, reduce the costs associated with repairing washouts related to culverts being blocked by beavers and help to maintain the associated waterfowl habitat. This type of activity will be promoted through the stewardship extension program as well as directly to industry and governments where beavers are a problem. To date 25 levellers have been deployed by partners and land managers and are currently being assessed to determine their success in maintaining or enhancing waterfowl habitat. The goal for this 5 year plan is to deploy a further 5 levellers thereby enhancing 20 ha of wetlands. These enhanced wetlands would be expected to support ~0.25 broods/ha and result in an additional 5 broods/year.

## **D) Restoration:**

Wetland restoration includes actions that restore key habitat features that have been lost or degraded, and creating new waterfowl habitats that serve as ecological equivalents to lost habitat. Wetland restoration programs typically involve restoring large wetlands within productive areas using a suite of restoration techniques (i.e., water control structures and dykes). The resulting habitat is open marsh in a hemi-marsh state and support on average support ~0.5 brood/ha. These wetlands are important to all key waterfowl species in terms of increasing duckling survival, but also provide important moulting and staging habitat. These intensively managed wetlands are essential to increasing the overall carry capacity of the landscape. Opportunity in Newfoundland and Labrador for this type of restoration is limited due to limited wetland productivity and the limited number of degraded wetlands. The extent of relatively intact habitat limits the gains from these activities which are typically costly to build and even more costly to maintain. Restoration will be focused in pockets of high waterfowl value based on a Ducks Unlimited Canada proposal. The DUC target is to restore four sites resulting in 87 ha of wetland restored on the island of Newfoundland. As a minimum this should result in an additional 87 pairs and 43 broods/year.

## **E) Management**

Existing Securements or Habitats Influenced: Previous actions taken under former implementation plans (1989-2004) have resulted in stewardship agreements which have impacted a significant amount of wetland habitat for waterfowl. These agreements require extensive effort to manage and maintain, sometimes referred to as stewardship extension, and include activities such as education and communication that promote adoption and maintenance of environmentally sustainable land use practices by landowners, land managers and conservation organizations. A key example of this is that in municipalities, elected councils change and new council members need to be educated to reinforce their commitment. During the next 5 years these activities will impact over 60,000 hectares.

Existing Restoration: Management activities have been conducted on secured wetland and/or upland habitats to manage and maintain their carrying capacity for waterfowl and other wildlife. There are a total of 1,313 hectares of managed wetlands and over 4,500 eider shelters and 500 cavity nest boxes throughout Newfoundland and Labrador. These existing NAWMP projects (water control structures, eider nest structures, and common goldeneye nest boxes) will be inspected, operated and/or maintained to ensure maximum use and efficient operation. This base of managed habitat is estimated to support 9,150 broods.

Community Issues/Impacts: Many communities in NL are situated in very remote areas on the coast and rely on subsistence and recreational hunting to supplement their diets. Aboriginal people have their own restrictions and quota system. A spring goose hunt and the gathering of eider eggs are activities that are also practiced by aboriginal communities and at this time it is not known if these activities have a negative impact, although it seems the prevalence of spring “egging” is diminishing. Over the five year period of this implementation plan an attempt will be made to determine whether these activities are actually having a detrimental impact on waterfowl populations, especially geese and sea ducks, and how to alleviate their impact, if any exists.

## **F) Communication/Education**

Communication and education activities are instrumental to ensuring the effectiveness of the EHJV program. The NAWMP/EHJV activities are identified through road signs, brochures, presentations to general audiences and target groups. Communications and education are one of the key tools for promotion and delivery of stewardship initiatives. For example, meetings of the Stewardship Association of Municipalities to discuss wetland stewardship issues are supported through this component. One of the successes of the municipal stewardship agreement program is that it has spawned this cooperative group. The SAM meets biannually and is a supporting body which enables interaction amongst participating municipalities (ones which have signed agreements or are interested in signing agreements). This has had, in part, the effect of helping the municipalities to become more self-sustaining in terms of their stewardship of the wetlands and waterfowl within their individual jurisdictions.

## **G) Policy Adjustment**

Policy adjustment refers to work conducted to influence or modify existing legislation, programs and policies of federal, provincial or municipal governments that affect land use directly or indirectly. Policy pertaining to development in wetlands is the responsibility of the Water Resources Division of the Department of Environment and Conservation. The Province has adopted a number of policies and legislation that aids in the conservation and protection of wetlands. The “Policy for Development in Wetlands” was issued in 1997 and establishes the criteria for issuing a permit for all development activities in wetlands.

EHJV partners have been instrumental in the public awareness and acceptance required to adopt the existing measures. Guiding the initiation and drafting of new legislation pertaining to wetland and waterfowl conservation in NL will be supported by the EHJV partners. This includes involvement and input into the provincial Environmental Impact Assessment process, forest harvesting guidelines, the Interdepartmental Land Use Committee, identification of Sensitive Wildlife Areas. A current provincial initiative which will have an impact on wetland conservation includes the development and subsequent implementation of the Sustainable Development Act.

## **H) Evaluation**

Evaluation of the NL EHJV program through research and monitoring of wetlands and waterfowl habitats can help in assessing progress towards overall NAWMP objectives. The overall success of the program is linked to the effectiveness of the various implementation activities. Some activities have broad impacts over large geographic areas, e.g. policy change and outreach, while others effect positive changes at much smaller scales, e.g. nest boxes/shelters, wetland enhancements and municipal stewardship projects. The full suite of programs must be successfully implemented to achieve both waterfowl population and habitat goals.

Past Evaluation: Some examples of formal program evaluation already carried out in NL include:

- “Tailings to Biodiversity Initiative” (Iron Ore Company of Canada report)
- “Municipal Stewardship Program Audit” (Blanchard et al., 2003)

- “Habitat Selection and Artificial Shelter Use by Eiders in Atlantic Canada” (Canadian Wildlife Service report)
- “Habitat Utilization by Brooding Canada Geese (*Branta canadensis*) on the Swift Current Barrens of Newfoundland” (NL Wildlife Division internal report)
- “Habitat Correlates of Reproductive Success of Canada Geese on the Swift Current Barrens, Southeastern Newfoundland.” (NL Wildlife Division internal report)
- “Enhancement of the Grazing Habitat of Canada Geese (*Branta canadensis*) on the Swift Current Barrens through Fertilizer Applications.” (NL Wildlife Division internal report)
- “Preliminary Results of the Vegetation Component of the Swift Current Barrens Fertilization Project.” (NL Wildlife Division internal report)

Future Evaluation: Emphasis, over the next five years, will be placed on implementing an adaptive management paradigm to the evaluation and assessment of program and program impacts. This feed back loop of, on the ground, ongoing assessment of programs and projects will ensure that conservation programs continue to evolve.

The Municipal Stewardship Program evaluation (Blanchard et. al., 2003) concluded that the program was highly successful, particularly with respect to informing and impacting municipal decision-making related to conservation of waterfowl habitat. However, a limitation of this evaluation was its ability to relate the municipal stewardship activities to changes in waterfowl populations. Programs designed to monitor waterfowl and other migratory birds, upland and wetland habitat, and habitat changes may be implemented at a national, joint venture, provincial or key program area level. The continuation of current breeding waterfowl surveys is critical as it provides the long term trend information that will be used to evaluate overall impact of the EHJV programs in Newfoundland and Labrador. It is planned that the partnership will implement targeted waterfowl surveys to more thoroughly address the waterfowl response to stewardship activities. Additionally local stewards, for example those living within existing municipal stewardship agreement lands, will be encouraged to develop and implement community based monitoring regimes that supplement scientific monitoring with local and traditional knowledge. Basic new information on waterfowl during the staging period is viewed as critical among these assessments. Table 8 is a result of discussions at the EHJV Science Workshop held July 18-19, 2006 to identify key new information needs from monitoring programs.

**Table 8: Assessment of spatial and temporal adequacy of current waterfowl monitoring programs for key waterfowl species.**

Species	Breeding			Staging			Wintering		
	Monitoring*	Spatial**	Temporal***	Monitoring	Spatial	Temporal	Monitoring	Spatial	Temporal
<b>Ducks</b>									
Black duck	Y	Y	Y				Regional	Incomplete	Y
Lesser Scaup	N			Regional	Incomplete	Y	Y	Y	Y
Ring-necked duck	Y	Y	Y						
Common Goldeneye	Y	Y	Y						
Common eider – 2 subspecies	Regional	Incomplete	Y	N			N		
Surf scoter	N			Y	Y	Y			
Harlequin – Eastern	Y****						Y	Y	Y
Long-tail duck	N						Developing		
<b>Geese</b>									
Canada goose – NAP	Y	Y	Y	Y	Y	Y	Regional	Incomplete	Y

Recognized as management tools to increase waterfowl nest success and ultimately waterfowl population size, nest shelters and nest boxes have been used widely in NL to enhance populations of Common eider and Common goldeneye. The importance of nest shelters as an active management action will be evaluated as part of the development of a refined population model in 2009. The deployment of nest boxes for Common goldeneyes will increasingly involve local groups. As such, data on the use of nest boxes will be collected and pooled with previous information to evaluate the impact of the program to breeding goldeneyes.

The Joint Venture community is moving to embrace the importance of explicit waterfowl population – habitat models as an effective tool to improve the understanding of resource allocation and expected benefits to investment. In Newfoundland and Labrador the limited waterfowl and habitat information make this challenging. Having said this, we will work to integrate new approaches to describing the waterfowl distribution and habitat availability to improve the targeting of conservation actions and improve the understanding of the waterfowl impacts of our actions across the landscape. Specifically, studies will be conducted under the auspices of the species joint ventures to clarify the impacts of harvest, habitat, weather and site-specific interactions on black duck and sea

duck populations and to assess the efficacy of management treatments. As this plan is developed and implemented, new studies will be required to evaluate the success of existing and/or new programs.

## **RESOURCE NEEDS**

Challenges: The unique landscape of NL has required the development of an innovative approach to the implementation of the EHJV programs. Socio-economic realities in NL also require an approach that is flexible yet effective. Additionally the relatively recent development of the coastal stewardship program to address issues related to sea ducks, and broadening the overall program focus to include Labrador, has brought with it new challenges. Some of these challenges are associated with increased costs and new logistical concerns related to the delivery of the program to remote communities. Further, as more municipal stewardship agreements are signed additional resources are required to manage and maintain the relationships that are being developed with signatories, and to provide the support required to ensure that maximum benefits continue to be achieved. Aboriginal land claims have resulted in increased responsibilities for the management of natural resources under the jurisdiction of the new Nunatsiavut government. The aboriginal community must be included as a partner to ensure the conservation needs of waterfowl are being addressed appropriately and adequately which brings with it an associated cost.

The province of NL is a major contributor of waterfowl to the Atlantic Flyway and seabirds and it is imperative that the resources are available to ensure that these populations and their habitats are maintained. Resource development is increasing but the opportunity is there to ensure that waterfowl habitat is considered prior to development. It is more cost effective to encourage appropriate conservation now rather than attempting to restore or create new habitat in the future to compensate for losses that should have been avoided. However, the waterfowl deficit can only be reduced by investing in enhancement activities. This requires a balanced commitment to securement and enhancement programs. Table 9 outlines categories of activities planned under this 5 year plan, the partners who plan to be involved in implementing these activities, the projected benefits to waterfowl, the amount of land impacted and the associated costs to actually reach these goals. Table 10 outlines forecasted partner contributions but these are subject to the availability of funds and ongoing budgetary processes. Appendix 7 outlines accomplishments made under the previous fifteen year NL EHJV plan.

**Table 9: Five Year Forecasted Financial Resources Required to Achieve NL Waterfowl and Habitat Conservation Objectives**

<b>Activity</b>	<b>Species</b>	<b>Hectares</b>	<b>Costs</b>	<b>Delivery Agent</b>	<b>Benefits</b>
<b>Securement</b>					
Acquisition	All	385	1,568,000	NCC	B / S
Conservation Agreements	All except eiders	2,000	800,000	NCC/DU/Prov	B / S / W
Crown Designation	All species	Undetermined	500,000	Prov	B / S / W
<b>Stewardship</b>					
Influence	All	5,000	800,000	NCC/DU/Prov	B / S / W
Extension	All	60,000	400,000	NCC/DU/Prov	B / S / W
<b>Enhancement</b>					
Eider shelters	Common eider	200	120,000	DU	B
Cavity nest boxes	Goldeneye and other cavity nesters	200	120,000	DU	B
Water Control	All inland	87	585,000	DU	B/S
Beaver Levellers	All inland	20	12,340	DU/ Prov	B
<b>Management</b>	All species	3,623	534,253	NCC/DU/Prov	B / S / W
<b>Communications</b>	All	n/a	100,000	NCC/DU/Prov/ CWS	B / S / W
<b>Policy</b>	All	n/a	150,000	NCC/DU/Prov	B / S / W
<b>Evaluation</b>	All	n/a	100,000	NCC/DU/Prov/ CWS	B / S / W
<b>Coordination</b>	All	n/a	400,000	NCC/DU/Prov	B / S / W
<b>Total</b>	-----		<b>\$6,189,593</b>	-----	-----

**Table 10: Five-Year Forecasted Partner Contributions**

<b>Delivery Agency</b>	<b>Cdn.Contribution</b>	<b>US Nonfed Match</b>	<b>U.S NAWCA Funds</b>	<b>Total</b>
<b>Prov. NL</b>	2,800,000	-----	-----	<b>2,800,000</b>
<b>WHC</b>	150,000	-----	-----	<b>150,000</b>
<b>Eniv. Can</b>	496,593	-----	-----	<b>496,593</b>
<b>NCC</b>	1,568,000	100,000	-----	<b>1,668,000</b>
<b>DUC</b>	75,000	500,000	500,000	<b>1,075,000</b>
<b>TOTAL</b>	<b>5,089,593</b>	<b>600,000</b>	<b>500,000</b>	<b>6,189,593</b>

### **INTEGRATION WITH OTHER BIRD CONSERVATION INITIATIVES**

The NL program will continue to encourage partnership with other bird conservation initiatives to ensure the most efficient and effective use of resources, specifically where there are overlaps in habitat priorities, goals and on the ground activities. An example of this is the partnership with the Government of Canada’s Habitat Stewardship Program for Species at Risk to address piping plover recovery in wetland stewardship program areas. Three stewardship agreement areas occur within known plover habitat and local stewards act to complement federal and provincial recovery efforts in protecting nesting beaches.

The EHJV also has well established effective on the ground programs and local stewards which lend themselves well to integration with other bird conservation initiatives. Many of the EHJV activities are program rather than project based, thus providing long term, consistent delivery of conservation activities. These programs can quickly respond to conservation of other bird species as opportunities arise.

## **IMPLEMENTATION PROCESSES AND RELATIONSHIPS**

### **Board**

The EHJV Board is presently composed of one representative from each of the provincial Wildlife agencies in Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador; Regional Director, Environment Canada (Canadian Wildlife Service – CWS), Ontario, Québec, and Atlantic; Director of Migratory Birds Branch, CWS HQ; and one representative from each of Ducks Unlimited Canada, Wildlife Habitat Canada, the Nature Conservancy of Canada, Bird Studies Canada and The Mining Association of Canada. A representative of the NABCI Canada Secretariat and the NAWMP Coordinator housed at the Association of Fish and Wildlife Agencies in Washington, D.C., sit as ex-officio members of the Board.

### **Provincial Steering/Technical Committee**

Administration at the provincial level is headed by the provincial steering committee, chaired by the provincial Director of Wildlife or their designate. The steering committee consists of one representative of each of the five major Canadian funding partners (NL, CWS, DUC, NCC and WHC) and oversees all aspects of the planning and implementation of the EHJV in the province by:

- determining overall strategic direction for the program;
- reviewing and approving all plans associated with the program and ensuring that strategic, long term and annual work plans are established;
- ensuring that all projects are properly screened and approved by the relevant regulatory processes and/or agencies;
- establishing annual expenditure plans, negotiating cost-sharing arrangements, and overseeing financial arrangements;
- developing legal arrangements for implementation;
- providing accounting to all partners on actual expenditures for input into the National Tracking System;
- ensuring that an appropriate implementation structure and process is in place for each approved project;
- ensuring that appropriate evaluation activities are implemented in accordance with the EHJV Evaluation Plan;
- providing direction to the Provincial Technical Committee and Project Managers;
- implementing the policies, procedures and directions of the EHJV Board as required, and providing the Board with the required documentation of plans, project evaluations, expenditures, etc.;

- developing communication strategies and plans;
- ensuring that all partners get full recognition for their contributions; and
- promoting the provincial EHJV program provincially, nationally and internationally as appropriate.

### **Technical Committee**

The technical committee is responsible for the development of technical aspects of the EHJV and implementation of approved projects at the provincial level. Membership is composed of one representative from each funding partner (where appropriate) as well as other experts as needed. This committee is chaired by the NL EHJV Program Manager.

The committee has the following mandates:

- input into the five year programs and annual operation plan;
- review and recommend project proposals under approved programs;
- participate in the EHJV Evaluation and Planning Committee as required; and
- advise and/or form a Project Management Committee to implement projects as required.

To increase efficiency the Steering and Technical Committee meetings have been merged.

### **Administration**

The NL-EHJV is administered by the province through the NL-EHJV Program Manager.

The duties are:

- serve as secretariat to the Provincial Steering Committee;
- serve as chair of the Provincial Technical Committee;
- coordinate the development of project proposals and funding requests to the United States;
- coordinate the development and implementation of five and fifteen year plans;
- promote the EHJV within own and other provincial departments;
- solicit new government and NGO partners;
- coordinate the delivery of EHJV programs and projects;
- serve as database manager for the NTS;
- establish Project Management Committees as required;
- promoting the provincial EHJV program provincially, nationally and internationally as appropriate; and
- ensure that EHJV projects are vetted through the provincial EA process when necessary.

## RELATIONSHIP TO OTHER JOINT VENTURES

### Species Joint Ventures

The NL EHJV relies on information provided by the Sea Duck Joint Venture to ensure appropriate conservation measures are implemented to address sea duck populations. Black Duck Joint Venture surveys provide the population data to determine local trends and indications of success of the program on American black ducks and other inland species.

### Habitat Joint Ventures

Interaction with the other habitat joint ventures has been primarily at the senior administrative level of the North American Wetlands Conservation Council (Canada) and NABCI. Newfoundland and Labrador is geographically far removed from the other Canadian habitat Joint Ventures which makes working relationships impractical. Opportunities for cooperation may closely tie with the Atlantic Coast Joint Venture (ACJV) due to the extensive coastline and shared species associated with the NL EHJV and the ACJV.

## FUNDING SOURCES

Table 11 identifies all contributions reported to the National Tracking System for the delivery of the EHJV program in NL from 1989 to 2006.

**Table 11: Partner Contributions from 1989-2006.**

Partner	Contribution	Percentage of Total
Canada Government Federal	\$2,272,460	27%
Canada Government Provincial	\$1,731,344	21%
Canada Government Local	\$478,989	6%
Total Canada Government	\$4,482,793	54%
Canada Non-Government	\$1,261,017	15%
Total Canada	\$5,743,810	69%
United States Government Federal	\$1,354,006	16%
United States Government States	\$64,700	1%
United States Other	\$1,171,668	14%
Total United States	2,590,374	31%

## **EHJV COMMUNICATIONS**

Effective communications, marketing and extension products and initiatives are needed to inform and attract new and existing partners from regional to international levels. Communications and education programs will also identify the intrinsic and functional socioeconomic value of birds, their habitats and sustainable landscapes to current and prospective partners. Products aimed at educating the public on the risk of bird and mosquito born diseases and the values of properly managed wetland systems in warding off these risks will be produced.

Communications activities and initiatives will be compatible with and complementary to existing partner communications efforts. The EHJV communications strategy will focus on informing appropriate audiences about program results and new initiatives. Most importantly, communications undertakings will highlight partner involvement and accomplishments using a variety of marketing tools. Priority areas, activities and products promoting these programs will be developed and distributed on an as need basis. Efforts will be made by all partners to ensure that contributions of partners are fully recognized when presenting conservation actions that they are delivering.

**Appendix 1: Review of Progress on the North American Bird Conservation Initiative.**

This document can be found on the world wide web at:

[http://www.cec.org/files/pdf/BIODIVERSITY/nabci\\_Report-final-englishmaps.pdf](http://www.cec.org/files/pdf/BIODIVERSITY/nabci_Report-final-englishmaps.pdf)

A more general overview of the NABCI can be found on the world wide web at:

[http://www.nabci.net/International/English/pdf/Join the Partnership EN.pdf](http://www.nabci.net/International/English/pdf/Join_the_Partnership_EN.pdf)

## **Appendix 2: Ecoregion Descriptions**

### **The Island of Newfoundland**

Avalon Boreal Forest: this ecoregion contains only 2% of the total water surface area on the island, but it has some of the highest average breeding densities of American black duck and green-winged teal on the island. The water bodies are described as oligotrophic bog ponds and small streams, but here are numerous beaver flowages which are responsible for the enhanced productivity.

Maritime Barrens: this ecoregion is characterized by coastal subarctic barrens which include shallow, acidic soils with exposed bedrock, extensive peatlands and 40% of the total water surface area on the island. Patterned fens, which are important to Canada geese, American black duck and scaup, are common. Local areas of grasses and sedges among the peatlands provide important breeding areas for these and other birds

Central Forest: this ecoregion is heavily forested with a gently rolling to hilly topography underlain mainly by acidic bedrock. The area includes 25% of the total water surface area of the island. These water bodies include streams, brooks, rivers, ponds and lakes. The limiting factors to waterfowl production are low water pH and extensive forestry practices. In spite of these issues, the area is second only to the Avalon as the most important habitats to breeding population of dabbling ducks, particularly American black duck, and the most important for Canada geese on the island.

North Shore: 4% of inland waters on the island are contained within this ecoregion which consists of numerous streams and small ponds. This area has the longest growing season in the province and relatively productive aquatic systems. The most important features for waterfowl are found in the coastline and offshore islands which contain numerous lagoons and salt marshes. Areas are important for teal, eider, murre, American black duck and ring-necked ducks. Noteworthy concentrations of American black ducks can be found at Middle Arm, Carmanville Pond, Newman Sound and Deadman's Bay.

Western Forest: this ecoregion contains fast flowing river systems in deep rugged valleys and makes up only 2% of the water bodies on the island. The area has the most fertile soils in the province and best growing conditions. River systems have glacio-fluvial and alluvial flood plains which have been largely developed to agricultural lands. The province's most lush and productive waterfowl habitat exists in several areas in the ecoregion.

Long Range Barrens: this ecoregion comprises the highlands extending from the southwestern coast to the northern part of the Northern Peninsula. It consists of the barrenlands atop the Southern and Northern Long Range Mountains and across the Buchans Plateau to the Gaff Topsails. These barrenlands are considerably more biologically limited than the Maritime Barrens although 17% of the island's waterbodies are found within their boundaries.

Northern Peninsula: this ecoregion comprises the forested parts of the Great Northern peninsula and the bog-covered marine deposits along the west coast. The area includes 9% of inland waterbodies on the island, however, large islands important to waterfowl, particularly common eider, are found at or near Hare Bay. Soils of this area are comparable to those of the Western Forest Ecoregion, however, a short growing season and severe winters restrict productivity. Nevertheless, the presence of extensive deposits of limestone bedrock has produced a relatively lush environment for waterfowl. On marine deposits low plateau bogs contain pools and drainage channels which are attractive to waterfowl species, particularly American black duck.

Straight of Belle Isle: this ecoregion occupies the northern tip of the Northern Peninsula and comprises coastal lowlands dominated by sloping bog plateaus and uplands covered with sandy and colluvial deposits along with acidic till. Wetlands make up more than 25% of this ecoregion and there are also coastal islands used by breeding eiders. This area is a primary migration route for birds traveling to and from Labrador.

## **Labrador**

Low Arctic Tundra (Cape Chidley) and Low Arctic-Alpine (Torngat): these northern ecoregions corresponding have very limited value to waterfowl.

Taiga Shield: the subarctic climate is characterized by relatively short, cool summers with prolonged periods of daylight and long, very cold winters. Coastal marshes and extensive tidal flats are present along the coastline. The Canadian Shield is characterized in upland sites and along rivers by open, mixed-wood forests of white spruce, balsam fir, trembling aspen, balsam poplar, and white birch. Further north, approaching the limit of tree growth, stunted black spruce and jack pine dominate, accompanied by alder, willow, and tamarack in the fens and bogs. Thousands of lakes and wetlands occur in glacially carved depressions, and peat-covered lowlands are commonly waterlogged or wet for prolonged periods due to discontinuous but widespread permafrost. The abundance of water provides an important habitat for breeding waterfowl. Representative birds include black scoter, whimbrel, rock and willow ptarmigan, gray-cheeked thrush, American tree sparrow, short-billed dowitcher, common redpoll, Harris's sparrow, northern shrike, blackpoll warbler, fox sparrow, and rough-legged hawk.

High Subarctic Tundra (Kingurutik-Fraser): the George River Plateau makes up the main (northern) portion of this ecoregion. Various mountainous outliers, including the Benedict Mountains, Wine River Mountains, Mealy Mountains, and the McPhadyen Plateau also belong to this region. The upland vegetation is similar to the Low Arctic Tundra - Torngat ecoregion; however, the valleys support tree growth. Closed black spruce forests (with some larch) occur on lower valley slopes. River terraces support open spruce forests with a lichen dominated understory. Shallow fens with frozen peat occupy small depressions in plateau surfaces.

Coastal Barrens (Okak-Battle Harbour): this ecoregion is composed of islands, exposed headlands, and protected inlets. Moist, sheltered valley slopes provide ideal conditions for white spruce forests with a moss understory. Coastal heath exists along headlands and ridges. Marine terraces are suitable for salt marshes and plateau bogs. High areas have exposed bedrock, with lichens and mosses growing on sheltered lee slopes and in small cracks. Scrubland consisting of alder, dwarf birch, and Labrador tea dominate in areas subjected to fires. Deeply incised U-shaped valleys occur in conjunction with steep-sided, rounded mountains and fjords extend well inland. Large bogs can be found south of Davis Inlet, and salt marshes occur on large marine terraces. Permafrost occurs in isolated patches. Many of the small coastal islands are used extensively by common eider.

Mid Subarctic Forest (Michikamau): this ecoregion includes the flood plain area and islands of the Smallwood Reservoir. The original landscape of island-studded lakes and peatlands has been transformed into a large lake with a few islands and flooded forest land. Lowlands include ribbed fens, string bogs, marsh-peatland complexes and some island studded waterbodies. This ecoregion provides some of the most productive waterfowl habitat to dabbling ducks, Canada geese and diving ducks in Labrador. Areas such as Snegamook Lake, Seal Lake, Ossokmanuan Lake, Atikonak River and Lac Joseph have been noted for spring and fall staging habitat. Also present are alluvial flood plains and deltas where swamps and marshes provide critical moulting as well as spring and fall staging grounds for waterfowl, particularly American black ducks.

Low Sub-Arctic Forest (Mecatina River): this ecoregion is characterized by upland plains and wide valleys with large rivers, bogs and ponds. A large plateau which is characterized by extensive deposits of string bogs has been found to be relatively important for Canada geese and diving ducks. Important areas such as Minipi Lake include spring and especially fall staging habitat. It also contains some of the remaining known population of harlequin ducks in eastern Canada. Inland rolling uplands with small lakes and covered valleys are important for fall staging of waterfowl and surveys show the area as preferred breeding ground for green-winged teal.

String Bog (Eagle River Plateau): this area is situated south of Lake Melville and the Mealy Mountains, bounded on the east by the Paradise River and the west by the Kenamu River. This plateau is an upland consisting of sedge-marsh-shrub swamps and extensive string bog-esker complexes. It is one of the most important breeding grounds of diving and dabbling ducks in southern Labrador and to some extent for Canada geese.

### Boreal Shield and Hudsons Plains (BCR/WCR 8)

This BCR includes the Hudson Plains-the largest extensive area of wetlands in the world- and extends east and west onto the Canadian Shield. The subarctic climate is characterized by relatively short, cool summers with prolonged periods of daylight and long, very cold winters. The poorly drained areas of the Hudson Plains support dense sedge-moss-lichen covers, with open wood lands of black spruce and tamarack in better-drained sites. Coastal marshes and extensive tidal flats are present along the coastline. The Canadian Shield is characterized in upland sites and along rivers by open, mixed-wood forests of white spruce, balsam fir, trembling aspen, balsam poplar, and white birch. Further north, approaching the limit of tree growth, stunted black spruce and jack pine dominate, accompanied by alder, willow, and tamarack in the fens and bogs. Thousands of lakes and wetlands occur in glacially carved depressions, and peat-covered lowlands are commonly waterlogged or wet for prolonged periods due to discontinuous but widespread permafrost. The abundance of water provides an important habitat for breeding waterfowl. Representative bird include Black Scoter, Whimbrel, Rock and Willow Ptarmigan, Gray-cheeked Thrush, American Tree Sparrow, Short-billed Dowitcher, Common Redpoll, Harris's Sparrow, Northern Shrike, Blackpoll Warbler, Fox Sparrow, and Rough-legged Hawk. The coasts of Hudson and James Bay provide critical shorebird staging habitat, funneling millions of birds southwards during fall migration.

High Boreal Forest (Lake Melville): this ecoregion encompasses the Churchill River Valley and the coastal plain surrounding Lake Melville and has the most favourable climate in Labrador. The important waterfowl habitats in this ecoregion are found along the coastal plains bordering inlets and bays. These areas are important nesting, spring and fall staging areas for all avian species for all stages through the seasons. A major molting site for black scoters is associated with this ecoregion.

Mid Boreal Forest (Paradise River): this undulating, bedrock controlled landscape of southeastern Labrador has many rock outcrops and supports fairly productive, closed-crown forests. The climate is considered boreal and is moister and cooler than the Lake Melville area. Summers are cool to warm and winters are short and cold. The growing season is 120 to 140 days. Black spruce and balsam fir are the most common tree species, but hardwoods are commonly encountered. Raised bogs are characteristic of valleys in the area.

Forteau Barrens: this ecoregion is located at the southeastern most tip of Labrador, adjacent to the Strait of Belle Isle. Low hills are covered with scrub spruce, crowberry barren, and slope bogs. Strong winds and frequent storms occur because of the ecoregions proximity to the Strait of Belle Isle.

NL Shelf Pelagic Waterfowl Conservation Region (PWCR) 1003: Common eiders make limited use of terrestrial WCRs during their annual cycle. Many other species of sea ducks also occupy offshore areas almost exclusively during the non breeding season. Coastal islands and the surrounding waters are critical to the life cycle of sea ducks. The PWCR is adapted from the Pelagic Waterbird Conservation Region, a marine analog of terrestrial Waterbird Conservation Regions developed for the North American Waterbird Conservation Plan, which addresses the needs of sea ducks and sea birds.

The island of Newfoundland is associated with Waterfowl Conservation Region (WCR) 8.2 which is a subdivision of Bird Conservation Region (BCR) 8 (Boreal Softwood Shield) and contains 2,800,000 hectares of wetland (25%). The Labrador portion of the province is associated with WCRs 3, 7 and 8 which correspond to BCRs 3 (Arctic Plains and Mountains), 7 (Taiga Shield and Hudsons Plains) and 8 (Boreal Softwood Shield) and contains 4,200,000 hectares of wetland (14%). The coastal areas of the province are associated with Pelagic WCR 1003 (Newfoundland-Labrador Shelf). (Figure 1, BCR/WCR)

Bird Conservation Region 8, Waterfowl Conservation Region 8.2: This BCR includes the Hudson Plains-the largest extensive area of wetlands in the world-and extends east and west onto the Canadian Shield. The subarctic climate is characterized by relatively short, cool summers with prolonged periods of daylight and long, very cold winters. The poorly drained areas of the Hudson Plains support dense sedge-moss-lichen covers, with open wood lands of black spruce and tamarack in better-drained sites. Coastal marshes and extensive tidal flats are present along the coastline. The Canadian Shield is characterized in upland sites and along rivers by open, mixed-wood forests of white spruce, balsam fir, trembling aspen, balsam poplar, and white birch. Further north, approaching the limit of tree growth, stunted black spruce and jack pine dominate, accompanied by alder, willow, and tamarack in the fens and bogs. Thousands of lakes and wetlands occur in glacially carved depressions, and peat-covered lowlands are commonly waterlogged or wet for prolonged periods due to discontinuous but widespread permafrost. The abundance of water provides an important habitat for breeding waterfowl. Representative bird include

Black Scoter, Whimbrel, Rock and Willow Ptarmigan, Gray-cheeked Thrush, American Tree Sparrow, Short-billed Dowitcher, Common Redpoll, Harris's Sparrow, Northern Shrike, Blackpoll Warbler, Fox Sparrow, and Rough-legged Hawk. The coasts of Hudson and James Bay provide critical shorebird staging habitat, funneling millions of birds southwards during fall migration.

Arctic Plains and Mountains (BCR/WCR 3): This region includes low-lying, coastal tundra and drier uplands of the Arctic mountains across the entire northern edge of North America. Because of thick and continuous permafrost, surface water dominates the landscape (20-50 percent of the coastal plain). Freezing and thawing form a patterned mosaic of polygonal ridges and ponds, and many rivers bisect the plain and flow into the Arctic Ocean. The ocean surface is generally frozen 9 to 10 months of the year, and the ice pack is never far from shore. Because of the wetness, waterfowl and shorebirds dominate the avian community and passerines are scarce. The most abundant breeding birds on the coastal plain include Northern Pintail, King Eider, Oldsquaw, American Golden-Plover, Semipalmated Sandpiper, Pectoral Sandpiper, Red-necked Phalarope, and Lapland Longspur. Several Old World species, including the Arctic Warbler and Bluethroat, penetrate the region from the west. Taiga passerines, such as Gray-cheeked Thrush and Yellow Warbler, reach the region along drainage systems and raptors, including Gyrfalcon and Rough-legged Hawk, nest commonly along major rivers. Few bird species winter in the region.

### **Appendix 3: NAWMP 2004 Implementation Framework**

This document can be found on the world wide web at:

<http://www.nawmp.ca/pdf/impfr-en-k.pdf>

**Appendix 4: EHJV and Atlantic priorities for breeding waterfowl associated with the WCRs and Pelagic WCRs for NL.**

Species	EHJV NL Conservation Needs				
	EHJV Priority	Atlantic Priority	Population Baseline	Population Objective	Seasonal Relevance
<b>Ducks</b>					
American Black Duck	High	High	48,000	49,500	B <sup>a</sup>
American Black Duck	High	High	data deficient	undetermined	S <sup>b</sup>
American Black Duck	High	High	data deficient	undetermined	W <sup>c</sup>
Ring-necked Duck	High	High	28,000	30,500	B
Barrow's Goldeneye	High	Mod	data deficient	undetermined	B
Harlequin Duck	High	High	data deficient	undetermined	B
Harlequin Duck	High	High	150	undetermined	W
Long-Tailed Duck	High	Low	data deficient	undetermined	W
Common Eider (dresseri)	High	High	18,000	undetermined	B
Common Eider (dresseri)	High	High	data deficient	undetermined	S
Common Eider (dresseri & borealis)	High	High	114,000	undetermined	W
Common Eider (borealis)	High	High	18,500	undetermined	B
Common Eider (borealis)	High	High	data deficient	undetermined	S
Black Scoter	High	High	data deficient	undetermined	B
<b>Geese &amp; Swans</b>					
CAGO - North Atlantic (NAP)	High	High	32,000	undetermined	B
CAGO - North Atlantic (NAP)	High	High	data deficient	undetermined	S
<b>Other species listed as Provincial Priorities:</b>					
American Green-winged Teal			7,000	7,000	B
Common Goldeneye			15,000	20,000	B
Surf Scoter			55,000	undetermined	S (M)
<sup>a</sup> Population Baseline and Objectives for "Breeding" is based on breeding pairs for all species except eiders (adult males)					
<sup>b</sup> Population Baseline and Objectives for "Staging" is based on total counts					
<sup>c</sup> Population Baseline and Objectives for "Wintering" is based on total counts					

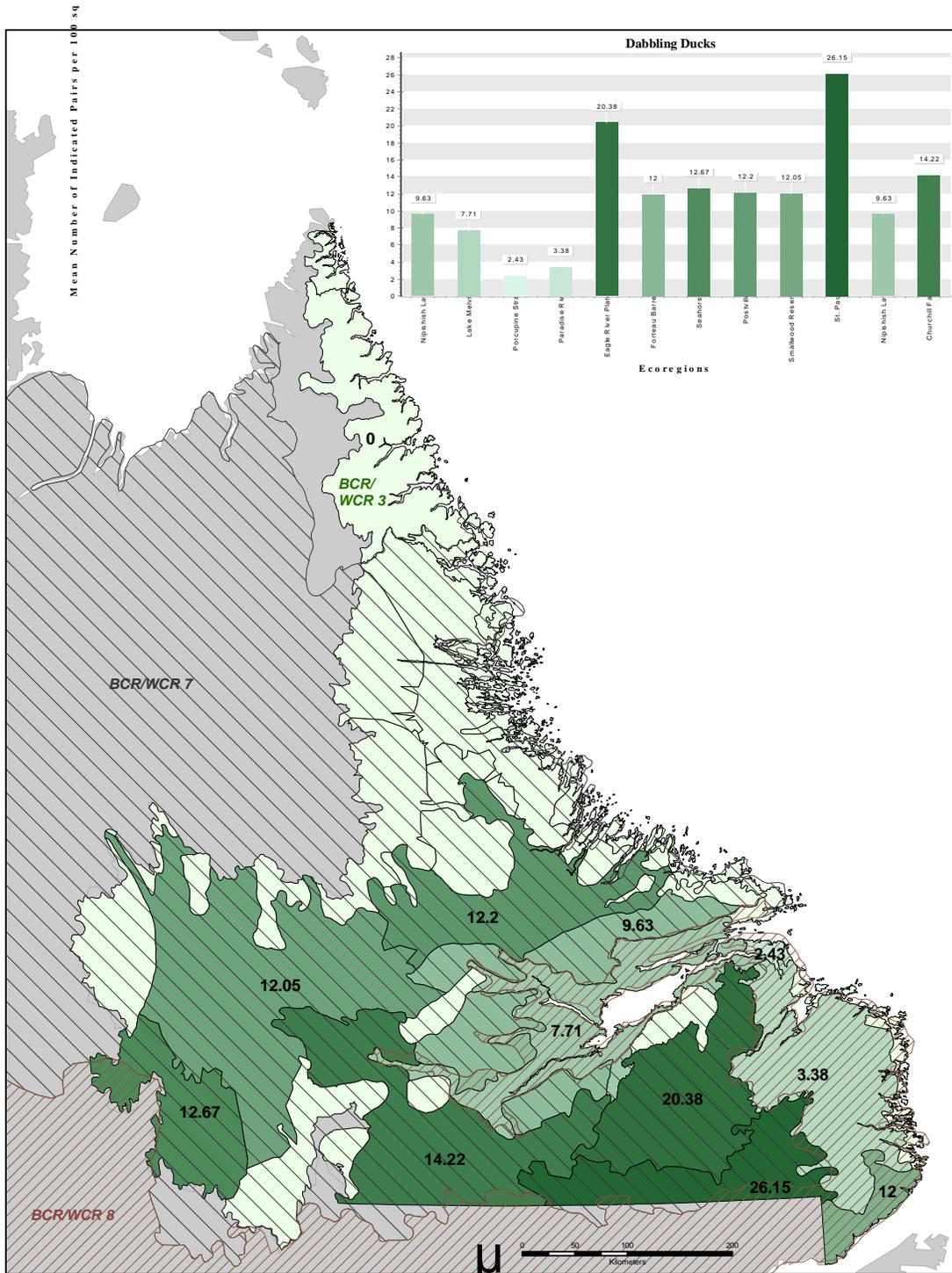
**Appendix 5: Combined Prioritization for Breeding and Non-breeding Ducks for NL  
(adapted from NAWMP 2004 Implementation Framework)**

WCR	Pelagic WCR's		Species	Continental/ Priority	Breeding Importance	Breeding Need	Nonbreeding Importance	Nonbreeding Need
	Breeding	Nonbreeding						
3			Northern pintail	High	Mod High	High	Mod Low	Moderate
3			Black scoter	Mod High	Mod Low	Mod Low		
3			Common goldeneye	Mod High	Mod High	Mod High		
3			King eider	Mod High	High	High		
3			Long-tailed duck	Mod High	High	High		
3			Steller's eider	Mod High	Mod High	Mod High		
3			Surf scoter	Mod High	Mod High	Mod High		
3			White-winged scoter	Mod High	Mod Low	Mod Low		
3			Harlequin duck	Moderate	Mod High	Mod High		
7			American black duck	High	Mod High	High		
7	1002	1002/1003	Common eider	High	High	Highest	Mod High	High
7			Northern pintail	High	Mod Low	Moderate		
7			American wigeon	Mod High	Mod Low	Mod Low		
7			Black scoter	Mod High	Mod High	Mod High		
7			Common goldeneye	Mod High	High	High	Mod Low	Mod Low
7			King eider	Mod High	Mod Low	Mod Low		
7			Long-tailed duck	Mod High	High	High		
7			Surf scoter	Mod High	High	High		
7		1003	White-winged scoter	Mod High			Mod Low	Mod Low
7			Barrow's goldeneye	Moderate	Mod High	Mod High		
7			Bufflehead	Moderate	Mod Low	Mod Low		
7			Green-winged teal	Moderate	Mod Low	Mod Low		
7			Harlequin duck	Moderate	High	High		
7			Ring-necked duck	Moderate	Mod Low	Mod Low		
7			Common merganser	Mod Low	Mod High	Moderate	Mod Low	Mod Low
7			Red-breasted merganser	Mod Low	Mod High	Moderate		
8			American black duck	High	Mod High	High	Mod High	High
8	1003	1003	Common eider	High	High	Highest	High	Highest
8			Mallard	High	Mod Low	Moderate	Mod Low	Moderate
8			American wigeon	Mod High	Mod Low	Mod Low		
8		1003	Black scoter	Mod High			Mod High	Mod High
8			Blue-winged teal	Mod High	Mod Low	Mod Low		
8			Common goldeneye	Mod High	High	High	High	High
8		1003	King eider	Mod High			Mod High	Mod High
8		1003	Long-tailed duck	Mod High			Mod High	Mod High
8		1003	Surf scoter	Mod High	Mod High	Mod High	High	High
8			Barrow's goldeneye	Moderate	High	High	Mod High	Mod High
8			Bufflehead	Moderate	Mod Low	Mod Low	Mod Low	Mod Low
8			Green-winged teal	Moderate	Mod Low	Mod Low		
8		1003	Harlequin duck	Moderate	Mod High	Mod High	Mod High	Mod High
8			Ring-necked duck	Moderate	Mod High	Mod High		

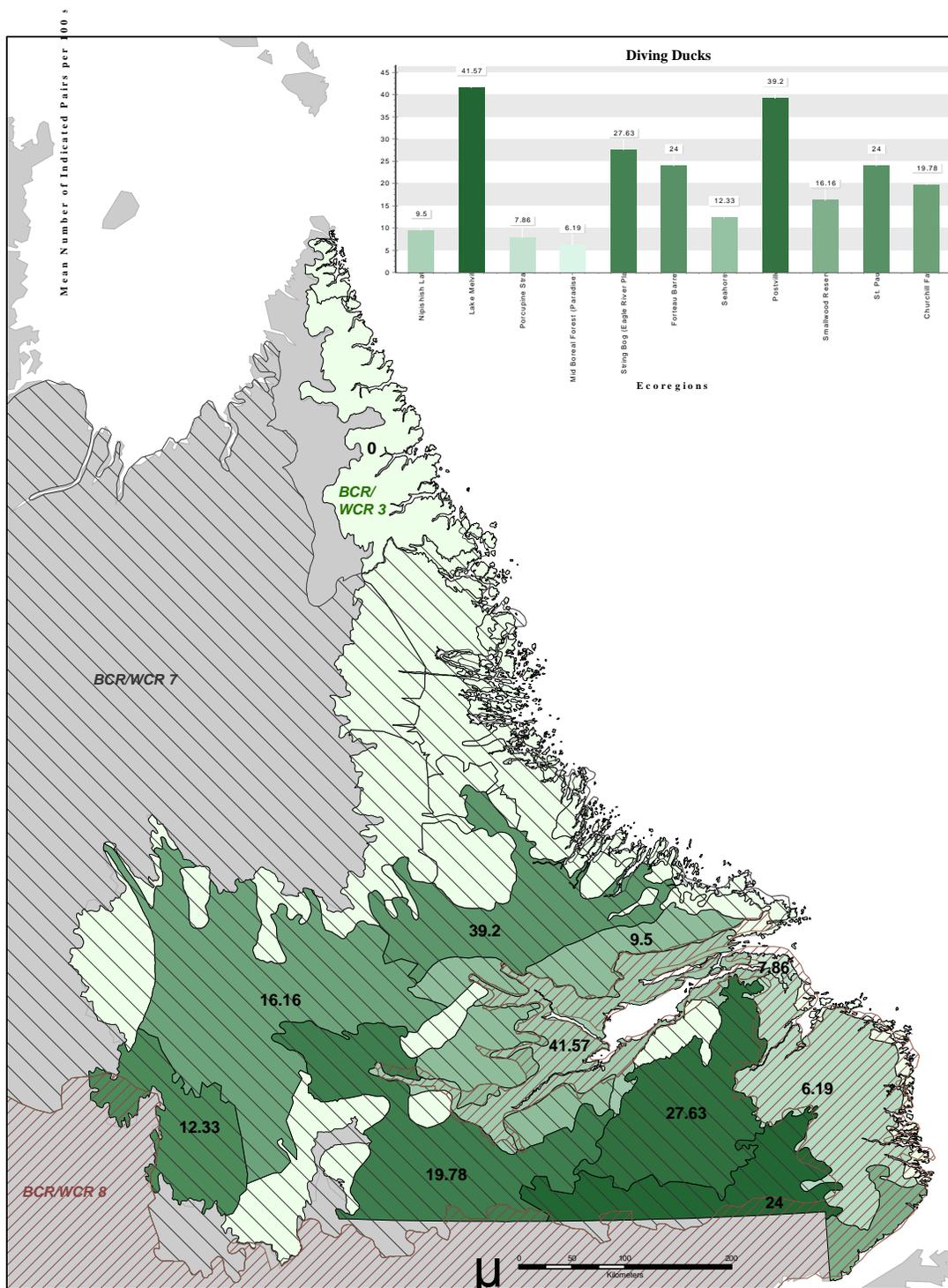
8			Common merganser	Mod Low			High	High
8			Hooded merganser	Mod Low	Mod High	Moderate		
8			Red-breasted merganser	Mod Low	Mod High	Moderate	Mod Low	Mod Low
8.2			American black duck	High	Mod High	High		
8.2	1003	1003	Common eider	High	High	Highest	High	Highest
8.2			Common goldeneye	Mod High	Mod Low	Mod Low		
8.2		1003	King eider	Mod High			Mod High	Mod High
8.2		1003	Long-tailed duck	Mod High			Mod High	Mod High
8.2		1003	White-winged scoter	Mod High	Mod High	Mod High	Mod Low	Mod Low
8.2			Green-winged teal	Moderate	Mod Low	Mod Low		
8.2		1003	Harlequin duck	Moderate	Mod High	Mod High	Mod High	Mod High
8.2			Ring-necked duck	Moderate	Mod High	Mod High		
8.2			Red-breasted merganser	Mod Low	Mod High	Moderate		

**Appendix 6: Mean number of indicated pairs per/sq.km. within the Ecoregions of Labrador** (Waterfowl Populations in the Low Level Training Area of Labrador – a data Compilation and Analysis”, Bateman and Hicks 1999)

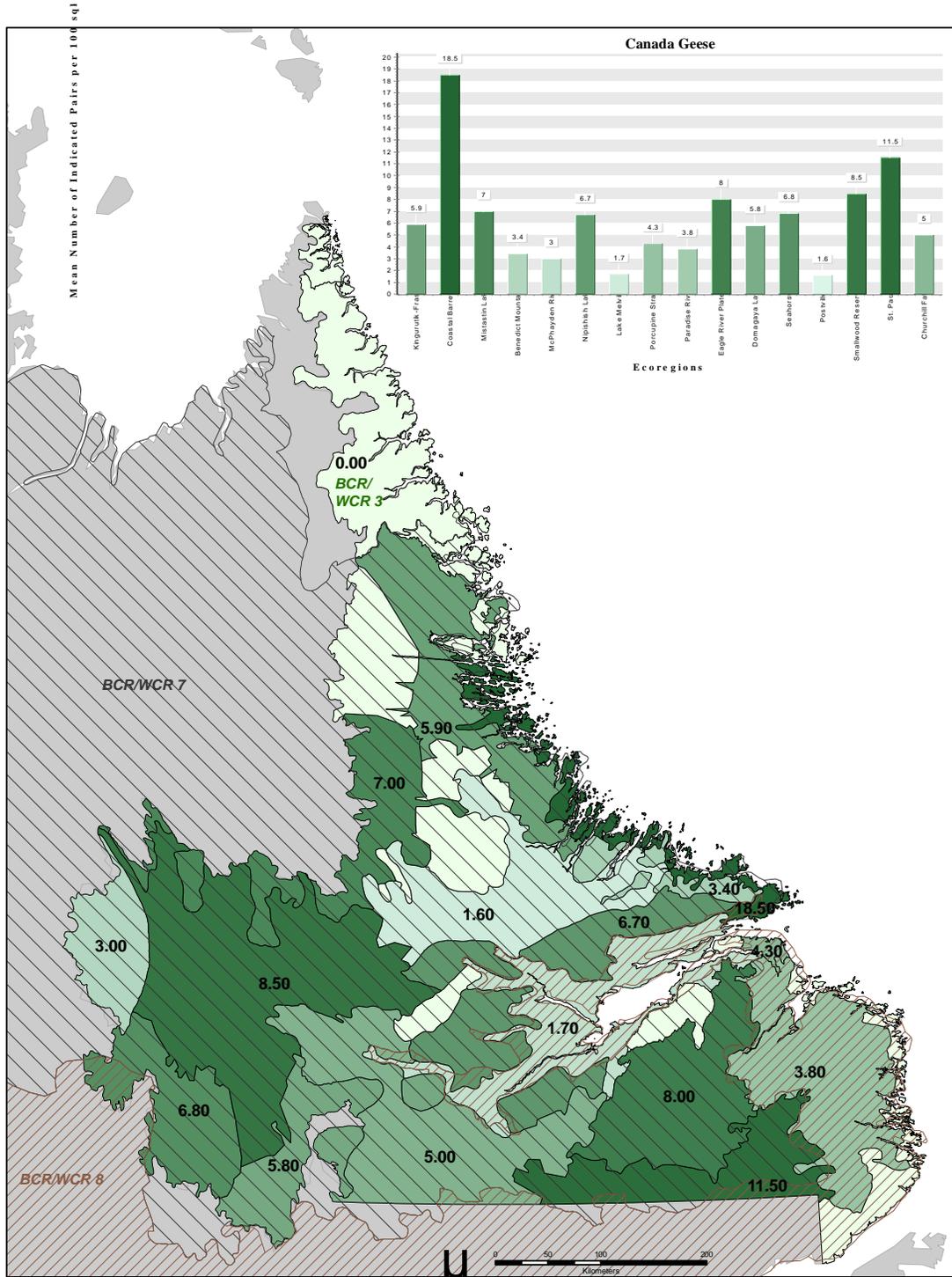
**Dabbling Ducks**



# Diving Ducks



# Canada Geese



**Appendix 7: First 15 years accomplishments.**

<b>Intensive Activities</b>	<b>Acres Predicted</b>	<b>Acres Accomplished</b>
<b>Securement</b>		
Purchase		394.1
Agreements		78,709
Crown Designation		732
<b>TOTAL</b>	<b>500</b>	<b>79,835</b>
<b>Enhancement</b>		
Existing Impoundments	----	
New Impoundments	1,200	1958
Beaver Habitat	4,100	762
Fertilization	3,600	60
Level Ditching	----	
Upland Cover	----	
Agricultural Methods	----	
Eider nesting Cover	----	
Nest Structure Program	----	
Eider Nest Structures	(5,000)*	4,321 shelters*
Inland Nest Structures	(200)*	408 boxes*
Lure Crop	----	6
Vegetation Management	----	
Control of Exotics	----	
<b>TOTAL</b>	<b>14,100</b>	<b>7,515</b>
<b>Extensive Activities</b>		
Agricultural Methods		
Wetlands Private		2,971
Wetlands Corporate/Crown/Municipal Government Policy		169,669
<b>TOTAL</b>	<b>277,700</b>	<b>172,640</b>