

**COSEWIC**  
**Status Appraisal Summary**

on the

**Barrow's Goldeneye**  
*Bucephala islandica*

Eastern Population

**in Canada**

**SPECIAL CONCERN**  
**2011**

**COSEWIC**  
Committee on the Status  
of Endangered Wildlife  
in Canada



**COSEPAC**  
Comité sur la situation  
des espèces en péril  
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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For additional copies contact:

COSEWIC Secretariat  
c/o Canadian Wildlife Service  
Environment Canada  
Ottawa, ON  
K1A 0H3

Tel.: 819-953-3215  
Fax: 819-994-3684  
E-mail: [COSEWIC/COSEPAC@ec.gc.ca](mailto:COSEWIC/COSEPAC@ec.gc.ca)  
<http://www.cosewic.gc.ca>

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## COSEWIC Assessment Summary

### Assessment Summary – May 2011

**Common name**

Barrow's Goldeneye

**Scientific name**

*Bucephala islandica*

**Status**

Special Concern

**Reason for designation**

This population is found only in eastern regions of Canada. The population is small, but has been relatively stable over the last 10 years. Despite recent improvements in protection, threats from loss and degradation of forested habitats, in particular, are ongoing.

**Occurrence**

Quebec, New Brunswick, Prince Edward Island, Nova Scotia, Newfoundland and Labrador

**Status history**

Designated Special Concern in November 2000. Status re-examined and confirmed in May 2011.



## COSEWIC Status Appraisal Summary

### ***Bucephala islandica***

Barrow's Goldeneye / Eastern Population

Garrot d'Islande / Population de l'Est

Range of occurrence in Canada: QC, NB, PE, NS, NL

### **Current COSEWIC Assessment: Special Concern**

#### **Status category:**

XT     E     T     SC

Date of last assessment: November 2000

#### Reason for designation at last assessment:

Numbers of individuals in this eastern population are limited. Although threats such as limited habitat availability and oil spill potential have been identified, none is currently at a scale that would impact negatively on the population.

#### Criteria applied at last assessment:

None

Special Concern (Definition at last assessment) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.

Special Concern (Current definition) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

If the earlier version of criteria was applied<sup>1</sup>, provide correspondence to current version of the criteria:

### **SSC Recommendation:**

- No change in status and criteria  
 No change in status, new criteria

### **Evidence (indicate as applicable):**

#### **Wildlife species:**

*Change in eligibility, taxonomy or designatable units:*

yes  no

**Range:**

*Change in Extent of Occurrence (EO):* yes  no  unk   
*Change in Index of Area of Occupancy (IAO):* yes  no  unk   
*Change in number of known or inferred current locations\*:* yes  no  unk   
*Significant new survey information* yes  no

**Explanation:**

The results of new surveys (e.g. Robert *et al.* 2002; Robert and Savard 2006; Robert in press) suggest that the range of the Barrow's Goldeneye / Eastern Population has not changed since the 2000 COSEWIC status report (Figure 1). The Extent of Occurrence (EO), although not changed, has been recalculated for this status appraisal summary using current COSEWIC protocols. This recalculation results in an EO of approximately 2,000,000 km<sup>2</sup> rather than 125,000 km<sup>2</sup> as indicated in the 2000 COSEWIC report. Similarly, Index of Area of Occupancy (IAO), which was not calculated for the 2000 report, has been calculated based on the area of the wintering grounds and is > 2000 km<sup>2</sup>.

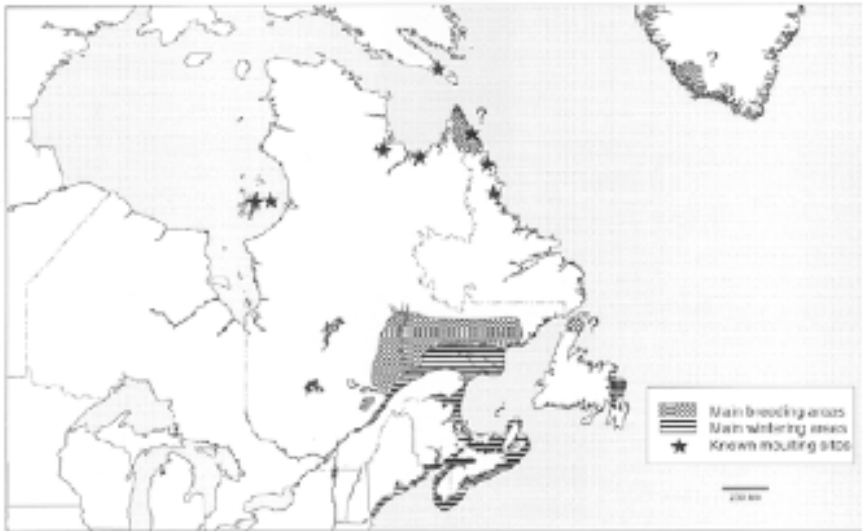


Figure 1. Breeding and wintering distributions and known moulting sites for Barrow's Goldeneye/Eastern Population (from Robert *et al.* 2000).

\* Use the IUCN definition of "location"

**Population Information:**

*Change in number of mature individuals:* yes  no  unk   
*Change in total population trend:* yes  no  unk   
*Change in severity of population fragmentation:* yes  no  unk   
*Change in trend in area and/or quality of habitat:* yes  no  unk   
*Significant new survey information* yes  no

**Explanation:**

The results of new surveys (Robert and Savard 2006; Robert in press) have updated the population information provided in the 2000 COSEWIC report. The latest figures (Robert *et al.* 2006; Robert in press) estimate the current population at between 4,000 and 4,200 mature individuals. In 2000, the population was estimated at 2,800 mature individuals (Robert *et al.* 2000). This was considered a conservative estimate. The difference in population size between the two time periods is assumed to be the result of increased survey effort over the last 10 years and an improved understanding of the winter range, rather than a true increase in the population.

**Threats:**

*Change in nature and/or severity of threats:*

yes  no  unk

Most threats have continued since the last report, although some have abated.

Explanation:

**Previous threats quoted directly from Robert *et al.* (2000):**

“Non-breeding season: Large proportions of the population congregate in a few areas along the St. Lawrence corridor, which is a very important waterway for shipping. A single oil spill could have a significant impact on this small population. Contamination of the sediments of important wintering areas could affect birds that congregate there. For example, Baie-des-Anglais (Baie-Comeau), where up to 23% of the population winters, has the worst case of contamination by industrial discharge of PCBs and PAHs (Polyaromatic Hydrocarbons) of any coastal area in eastern Canada.

Other threats during the non-breeding season include hunting. The number of Barrow’s Goldeneyes harvested each fall in eastern North America is low (probably 100 – 400 individuals), but even a small continuous harvest could have a significant impact on such a small population, particularly if adults are harvested.

Breeding season: Forest exploitation presents an important threat. Logging affects goldeneyes by directly destroying nests during harvesting operations, by reducing the availability of potential nest sites, by forcing goldeneyes to nest further from ponds, exposing young to predation on their way to the water, and by rendering lakes accessible to hunters and fishermen, which increases disturbance to breeding birds. Logging was responsible for the loss of at least 4,172 km<sup>2</sup> of forests between 1976 and 1996 in what is considered to be the “core breeding area” of the eastern population of the Barrow’s Goldeneye. Moreover, the north shore of the St. Lawrence, north of the Saguenay River, will probably be logged much more intensively in the near future. It should also be noted that white birch and trembling aspen, which account for a significant proportion of the trees growing large enough to provide nest cavities for goldeneyes, are now harvested in many areas, which was not the case a few years ago.

Lakes that were originally fishless have now been stocked with brook trout, and there are indications that the presence of these fish may reduce the quality of lakes for the Barrow’s Goldeneye. Moreover, nest disturbance by fishermen may increase desertion and disturbance of broods, which may increase duckling mortality through an increased susceptibility to predation.”

**Current situation:**

Non-breeding season: Barrow’s Goldeneye continue to be hunted each fall in eastern North America, but bag and possession limits have been put in place in all provinces as of 2008 (see **Protection**). The level of hunting mortality is not expected to have a significant impact on the population under the current regulatory framework (B. Pollard pers. comm. 2011).

Threats from potential oil spills are ongoing. However, a recent study examining contaminant levels in the tissues of Barrow’s Goldeneye wintering in the St. Lawrence found levels to be relatively low and not likely to be a concern for wintering populations (Ouellet *et al.* in prep.).

Breeding season: Forest harvesting in the range of the Barrow’s Goldeneye is ongoing. Approximately 8% of Barrow’s Goldeneye nesting habitat is expected to be clear-cut in the next 10 years (Robert *et al.* 2010). Threats from fish-stocking, where fish added to fishless lakes compete with Barrow’s Goldeneye for food, have also been curbed to some extent (see **Protection**).

**Protection:**

*Change in effective protection:*

yes  no

Explanation:

Implementation of a moratorium on the stocking of fishless lakes in the Saguenay-Lac-Saint-Jean area in 2002 (M. Robert pers. comm. 2009).

Implementation of measures to ban aquaculture activities, including fish stocking, throughout a vast area in the Côte-Nord region (M. Robert pers. comm. 2009).

Implementation of measures to prohibit the stocking of fishless lakes in controlled harvesting zones and in Québec wildlife reserves (M. Robert pers. comm. 2009).

The species was listed as Vulnerable in Québec in 2009 under the *Act Respecting Threatened or Vulnerable Species in Québec* (R.S.Q. c. E-12.01). This prohibits the collecting, buying, selling or keeping of the species in captivity.

Inclusion of consideration for the Barrow's Goldeneye in the administrative agreement pertaining to threatened or vulnerable wildlife and flora in Québec's forests. This agreement is between the Ministère des Ressources naturelles et de la Faune du Québec and the Ministère du Développement durable, de l'Environnement et des Parcs and is designed to protect the forest habitats of threatened or vulnerable species (M. Robert pers. comm. 2009).

Beginning in the fall of 2008, Québec hunters were required to respect a daily bag limit of one Barrow's Goldeneye and a possession limit of two. In addition, since 2002, hunting of the Barrow's Goldeneye and the Common Goldeneye is prohibited in the aquatic portion of federal hunting district E and along a portion of the north shore of the St. Lawrence River Estuary in district F (M. Robert pers. comm. 2009).

In New Brunswick, migratory bird hunting has been prohibited since 1997 in Dalhousie Bay, an area where large concentrations of Barrow's Goldeneye can sometimes be found in the fall and winter (Migratory Birds Regulations [Schedule 1 only] C.R.C., c. 1035, July 1997).

In Ontario, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador, regulations specifying a daily bag limit of one Barrow's Goldeneye and a possession limit of two Barrow's Goldeneyes have been in place since 2007 (Canadian Wildlife Service Waterfowl Committee. 2007. Migratory Birds Regulations in Canada: July 2007. CWS Migr. Birds Regul. Rep. No. 21.).

The Barrow's Goldeneye is designated as a "vulnerable" species under the Newfoundland and Labrador *Endangered Species Act* (NL ESA E-10.1, 2001). A management plan was published in 2006 by the government of Newfoundland and Labrador (Schmelzer 2006). The management plan focuses on the need to: "manage areas used by molting, wintering and possibly breeding Barrow's Goldeneyes in a manner that retains their ecological integrity and suitability for these activities".

**Rescue Effect:**

*Change in evidence of rescue effect:*

yes  no

Explanation:

Isolation from other populations in W North America and Iceland is, in fact, the basis of the DU. Therefore no rescue effect.

**Quantitative Analysis:**

Change in estimated probability of extirpation:

yes  no

Details: N/A

**Summary and Additional Considerations:**

This population is found only in eastern regions of Canada. The population is small, but has been relatively stable over the last 10 years. Despite recent improvements in protection, threats from habitat loss and degradation, in particular, are ongoing.

**Acknowledgements and authorities contacted:**

Diane Amirault (CWS, NS); Karine Picard, Michel Robert, Jean-Pierre Savard (CWS, QC), Bruce Pollard, Scott Gilliland, Samara Eaton (CWS, Atlantic).

**Information sources:**

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Schmelzer, I. (2006) A management plan for Barrow's Goldeneye (*Bucephala islandica*; Eastern population) in Newfoundland and Labrador. Wildlife Division, Department of Environment and Conservation. Corner Brook, NL.

Species at Risk Public Registry > Species Profile > Barrow's Goldeneye Eastern population

[http://www.registrelep.gc.ca/species/speciesDetails\\_e.cfm?sid=644](http://www.registrelep.gc.ca/species/speciesDetails_e.cfm?sid=644)

**Author of SAS:** Michel Gosselin

## TECHNICAL SUMMARY

*Bucephala islandica*

Eastern Population / Population de l'Est

Barrow's Goldeneye

Garrot d'Islande

Range of occurrence in Canada: QC, NB, PE, NS, NL

### Demographic Information

|  |                                       |
|--|---------------------------------------|
| Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines (2008) is being used)   | 2-3 years                             |
| Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?   | No                                    |
| Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]  | No evidence of decline                |
| [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations]   | No evidence for a change in abundance |
| [Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].   | N/A. Population has been stable       |
| [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future. | N/A. Population has been stable       |
| Are the causes of the decline clearly reversible and understood and ceased?  | N/A                                   |
| Are there extreme fluctuations in number of mature individuals?  | No                                    |

### Extent and Occupancy Information

|   |                           |
|---|---------------------------|
| Estimated extent of occurrence<br>Based on convex polygon around breeding, wintering and moulting areas   | 2,000,000 km <sup>2</sup> |
| Index of area of occupancy (IAO)<br>(Always report 2x2 grid value; other values may also be listed if they are clearly indicated (e.g., 1x1 km <sup>2</sup> grid, biological AO)).<br>IAO includes the wintering range only | > 2,000 km <sup>2</sup>   |
| Is the total population severely fragmented?  | No                        |
| Number of "locations*"  | Unknown                   |
| Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?  | No                        |
| Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?  | No                        |
| Is there an [observed, inferred, or projected] continuing decline in number of populations?   | No                        |
| Is there an [observed, inferred, or projected] continuing decline in number of locations?   | Unknown                   |
| Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?<br>Approximately 8% of forest breeding habitat is expected to be cleared in the next 10 years                | Yes                       |
| Are there extreme fluctuations in number of populations?  | No                        |
| Are there extreme fluctuations in number of locations*?   | No                        |
| Are there extreme fluctuations in extent of occurrence?   | No                        |

---

\* See definition of location.

|   |    |
|---|----|
| Are there extreme fluctuations in index of area of occupancy? | No |
|---|----|

**Number of Mature Individuals (in each population)**

| Population | N Mature Individuals |
|------------|----------------------|
|            |                      |
| Total      | 4,000-4,200          |

**Quantitative Analysis**

|  |         |
|--|---------|
| Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years]. | Unknown |
|--|---------|

**Threats (actual or imminent, to populations or habitats)**

|  |
|--|
| - Forestry, which can destroy nest sites and increase disturbance near nesting areas<br>- Oil spills in coastal waters |
|--|

**Rescue Effect (immigration from outside Canada)**

|  |     |
|--|-----|
| Status of outside population(s)? The Eastern Population of Barrow's Goldeneye is a single DU that is isolated from other goldeneye populations in western North America and Iceland. Therefore, the status of outside populations is not relevant. |     |
| Is immigration known or possible?  | N/A |
| Would immigrants be adapted to survive in Canada?  | N/A |
| Is there sufficient habitat for immigrants in Canada?  | N/A |
| Is rescue from outside populations likely?   | No  |

**Current Status**

|                                     |
|-------------------------------------|
| COSEWIC: Special Concern (May 2011) |
|-------------------------------------|

**Status and Reasons for Designation**

|   |                                   |
|---|-----------------------------------|
| <b>Status:</b><br>Special Concern   | <b>Alpha-numeric code:</b><br>N/A |
| <b>Reasons for designation:</b><br>This population is found only in eastern regions of Canada. The population is small, but has been relatively stable over the last 10 years. Despite recent improvements in protection, threats from loss and degradation of forested habitats, in particular, are ongoing. |                                   |

**Applicability of Criteria**

|  |
|--|
| <b>Criterion A</b> (Decline in Total Number of Mature Individuals): Does not meet criterion; no decline in number of mature individuals.   |
| <b>Criterion B</b> (Small Distribution Range and Decline or Fluctuation): Does not meet criterion; both EO and IAO above thresholds.   |
| <b>Criterion C</b> (Small and Declining Number of Mature Individuals): Does not meet criterion; population size is < 10,000, but no evidence of a decline.   |
| <b>Criterion D</b> (Very Small or Restricted Total Population): Does not meet criterion; population size and index of area of occupancy above threshold and no information on number of locations. |
| <b>Criterion E</b> (Quantitative Analysis): None conducted.  |



### COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

### COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

### COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

### DEFINITIONS (2011)

|                        |  |
|------------------------|--|
| Wildlife Species       | A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years. |
| Extinct (X)            | A wildlife species that no longer exists.  |
| Extirpated (XT)        | A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.  |
| Endangered (E)         | A wildlife species facing imminent extirpation or extinction.  |
| Threatened (T)         | A wildlife species likely to become endangered if limiting factors are not reversed.   |
| Special Concern (SC)*  | A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.  |
| Not at Risk (NAR)**    | A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.  |
| Data Deficient (DD)*** | A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.   |

\* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

\*\* Formerly described as "Not In Any Category", or "No Designation Required."

\*\*\* Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.



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