

Monitoring the State of the ST. LAWRENCE RIVER



Seabirds – Sentinel Species for the Gulf, 4th Edition

Seabirds
Status: moderate in 2015
Trend: unchanged since 2005

Highlights

Seabird populations breeding in the migratory bird sanctuaries of the North Shore of the Gulf of St. Lawrence are influenced by such factors as food availability, predator abundance, and human disturbance. A census of these populations is conducted every five years. Given the positive status of Razorbill and Common Murre populations, the reduced but recently stabilized size of Herring Gull and Atlantic Puffin populations, and the presence of just a few remaining Caspian Terns, the status of this indicator is considered “moderate”.

Problem

Since the creation of the North Shore migratory bird sanctuaries in 1925, a census has been conducted every five years to assess and monitor their breeding seabird populations. There are currently nine sanctuaries between Sept-Îles and Blanc-Sablon. Over time, these exceptional sites have contributed to the protection of seabirds, which had suffered from intense human exploitation. Today, they continue to support large concentrations of breeding seabirds, of which may be of provincial, Canadian or even continental significance. Of the five species monitored some are surface feeders, while others dive to considerable depths. Some species are coastal foragers, while others find their food far offshore. Some of the species are much more vulnerable to human disturbance than others. The five-year assessment of the size and trend of these seabird populations is an indicator of ecosystem health and of environmental conditions (for example, abundance of forage fish, availability of breeding habitat, impact of predation and anthropogenic disturbance).

Study area

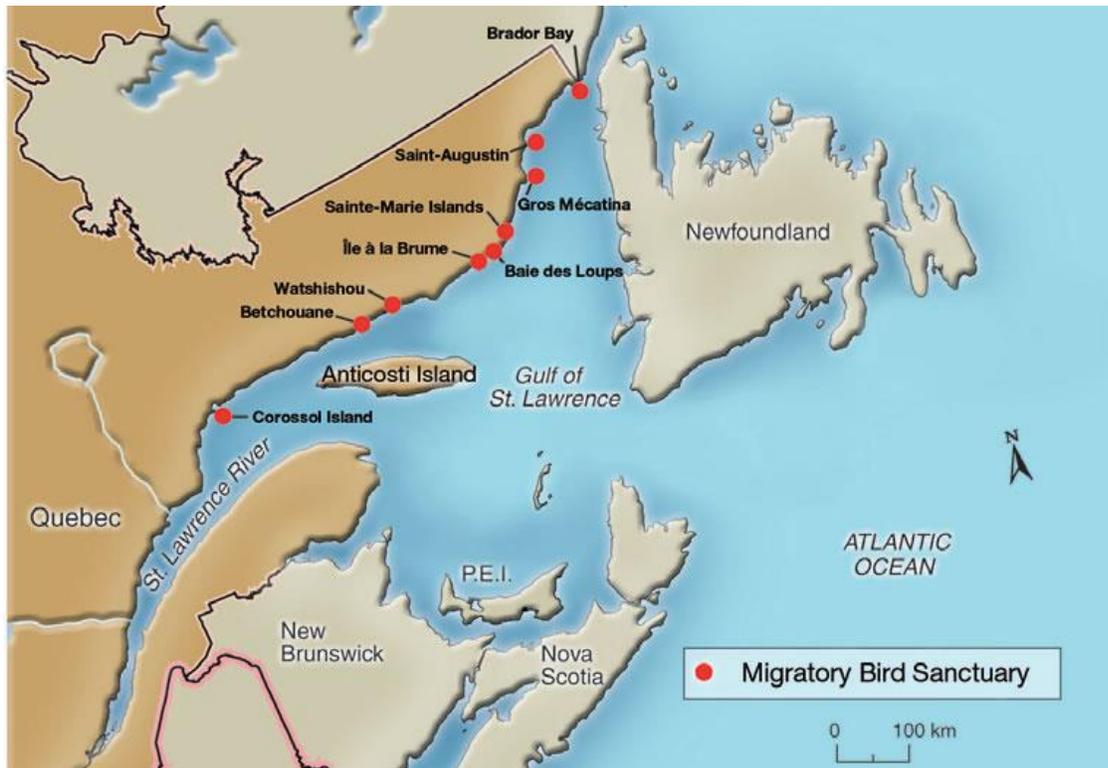


Figure 1. The migratory bird sanctuaries of the North Shore of the Gulf of St. Lawrence are located between Sept-Îles and Blanc-Sablon

Key measures

We take into account the current status as well as the recent (10 years; compared to 2005) and long-term (since 1982) population trends of five representative seabird species that breed in the Gulf of St. Lawrence. Variation of less than 25% is considered a relatively stable trend. The following criteria were used for determining the status and rating of populations:

- “Good” status and rating of 0: increasing (+25% or over) long- and short-term trends;
- “Moderate-good” status and rating of 1: long-term and short-term trends are increasing and stable, or stable and increasing (respectively);
- “Moderate” status and rating of 1: long-term and short-term trends either opposite (increasing and decreasing) or both stable;
- “Moderate-poor” status and rating of 1: long-term and short-term trends are decreasing (-25% or over) and stable, or stable and decreasing (respectively);
- “Poor” status and rating of 2: decline over the long and short terms.

The sum of the species population ratings define the overall status of the indicator (total of 0-1=good; 2-3=moderate-good; 4-6=moderate; 7-8=moderate-poor; 9-10=poor).

Status and trends

The Herring Gull: stable population after a sharp decline

The Herring Gull was first afforded legal protection in 1925 under the Migratory Birds Convention, which was signed by Canada and the United States in 1916. In the 1970s and 1980s, the species fed on the abundant supply of fish offal and discards thrown overboard by the thriving groundfish fisheries (cod in particular), and its population grew dramatically during this period. However, the collapse of the cod fishery as a result of overfishing cut off this food source and was the main cause of the sharp decline in Herring Gull numbers that followed (-70% between 1988 and 1993). Since then, the size of the population in North Shore sanctuaries has remained relatively stable (Figure 2).

Our data show a long-term decline (since 1982) and relative stability in the short term. The status of the Herring Gull population is considered “moderate-poor”.

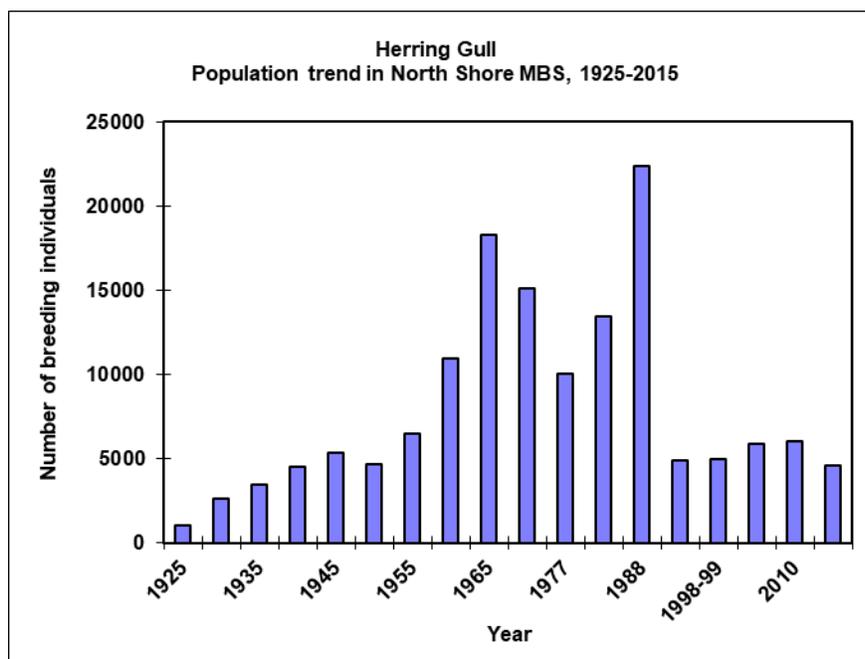


Figure 2. Population trend of the Herring Gull in North Shore migratory bird sanctuaries, 1925 to 2015

The Caspian Tern: a tiny and vulnerable population

The Île à la Brume Migratory Bird Sanctuary near La Romaine is the only regular Caspian Tern breeding site in Quebec. The five-year census of seabirds in the North Shore migratory bird sanctuaries recorded a breeding colony of between 60 and 90 birds at the site until 1950, the year in which the species was first absent. From 1955 to 1965, the number of birds declined dramatically from 76 to 10. This tiny colony has somehow survived, although no birds were observed in either 1993 or 1999 (Figure 3). Three Caspian Terns appear to have nested there in 2005 and 2010, and one nest was discovered in 2015. The status of such a minute population is obviously of concern and is considered “poor”. In the Île à la Brume Migratory Bird Sanctuary, the species may be affected by human disturbance and exploitation.

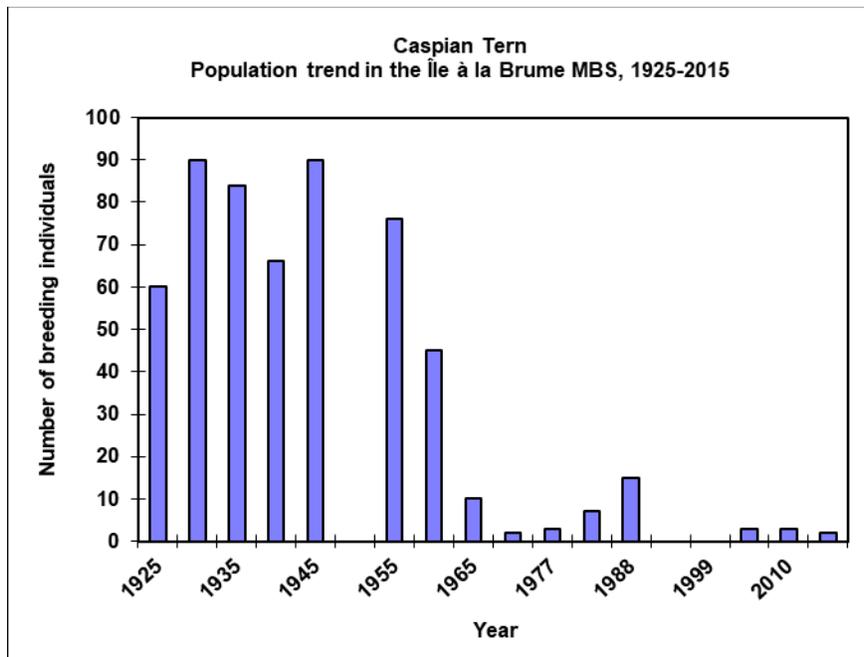


Figure 3. Population trend of the Caspian Tern in the Île à la Brume migratory bird sanctuaries, 1925 to 2015

The Alcidae: differing trends in the Razorbill, Common Murre and Atlantic Puffin

By creating migratory bird sanctuaries on the North Shore in 1925, the federal government contributed to the preservation of severely decimated Alcidae populations, which had been commercially exploited for decades for their meat, feathers and eggs. Common Murre, Razorbill and Atlantic Puffin populations remained relatively stable up to the 1960s. In the following decade however, despite the existing regulations, the populations of the three species reached their lowest levels. It is likely that this was the result of the popularity of outboard motors, which made the access to the sanctuaries by boat much easier. Surveillance in the sanctuaries was therefore subsequently increased.

The number of Common Murres breeding in North Shore sanctuaries grew rapidly between 1972 and 1993. In fact, except for a sudden 51% decline between 1999 and 2005, its numbers continued to increase (Figure 4). Because of this upward trend, both in the short and long term, the status of this species' population is considered "good".

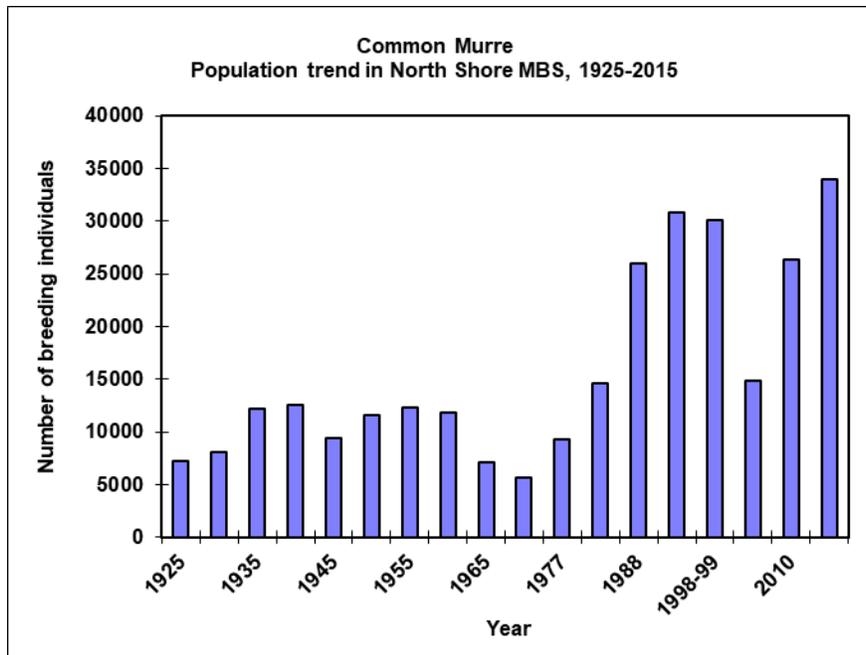


Figure 4. Population trend of the Common Murre in North Shore migratory bird sanctuaries, 1925 to 2015

The Razorbill's population trend is even more straightforward; its growth rate has been fairly consistent since 1982, never showing any sign of slowing down (Figure 5). Such an increase suggests that environmental conditions have been very favourable to Razorbills, especially food abundance, their diet being composed of small forage fishes such as capelin and sandlance. The status of this species' population is also considered "good".

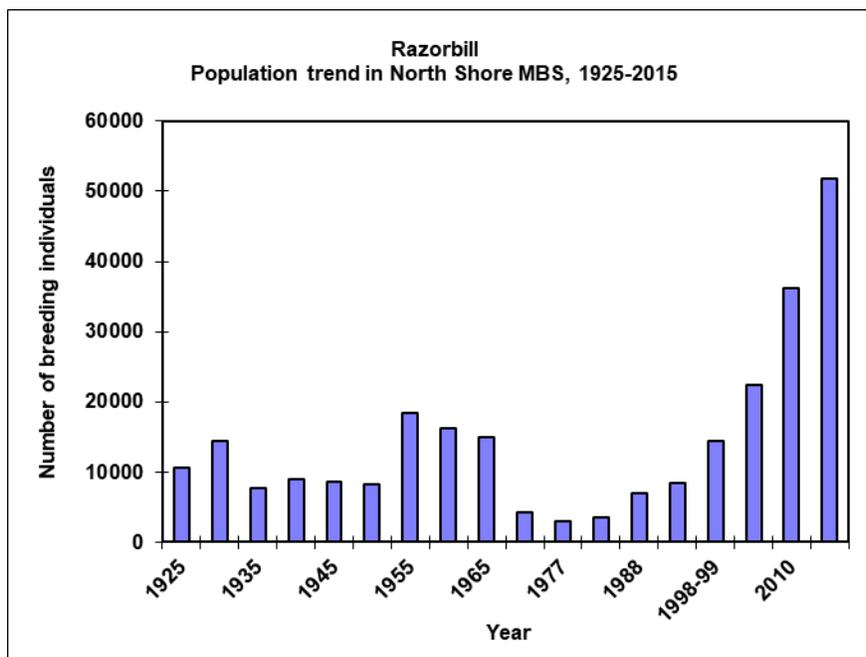


Figure 5. Population trend of the Razorbill in North Shore migratory bird sanctuaries, 1925 to 2015

The Atlantic Puffin is, however, the outlier for the Alcidae. The breeding population grew considerably between 1982 and 1993, followed by a sharp decline and then a stabilization (Figure 6). The result is a 19% long-term decline (since 1982) and a recent stable trend, which combine to give a “moderate” status assessment. The factors affecting the species are largely unknown, especially given that their diet is quite similar to that of Razorbills and Common Murres.

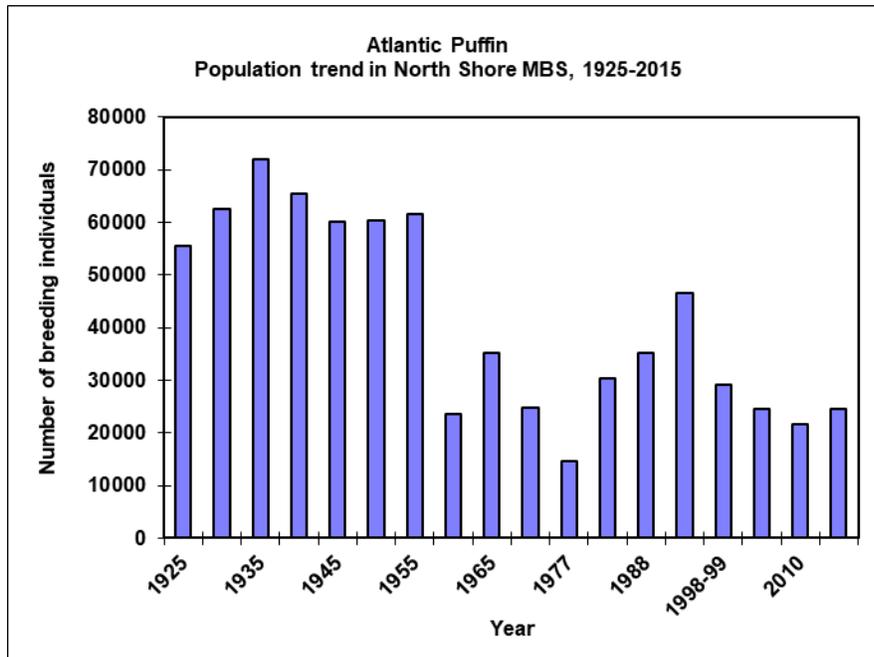


Figure 6. Population trend of the Atlantic Puffin in North Shore migratory bird sanctuaries, 1925 to 2015

Outlook

Following the 2010 and 2015 censuses, population trends, both in the long term (compared to 1982) and short term (10 years), remained nearly unchanged for our five indicator species. If the assessments of “good” for the Common Murre and Razorbill, “moderate” for the Atlantic Puffin, “moderate-poor” for the Herring Gull, and “poor” for the Caspian Tern are combined, the resulting overall status of the indicator remains “moderate”.

The continuation of the five-year censuses (the next of which is planned for 2021) will make it possible to verify whether these population trends will last over time. There may be several factors underlying the population trends, and in-depth studies would be necessary to better assess their significance.

For more information

List of references used in the sheet and other relevant references.

Rail, J.-F. and R. Cotter. 2015. Seventeenth Census of Seabird Populations in the sanctuaries of the North Shore of the Gulf of St. Lawrence, 2010. *Canadian Field-Naturalist*, vol. 129 no 2, p. 152-158.

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State of the St. Lawrence Monitoring Program

Five government partners—Environment and Climate Change Canada, Fisheries and Oceans Canada, Parks Canada, the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec, and the Ministère des Forêts, de la Faune et des Parcs du Québec—and Stratégies Saint-Laurent, a non-governmental organization that works actively with riverside communities, are pooling their expertise and efforts to provide Canadians with information on the state of the St. Lawrence and the long-term trends affecting it.

For more information about the State of the St. Lawrence Monitoring Program, please consult our website: http://planstlaurent.qc.ca/en/state_monitoring.html.

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