

**Atlantic Canada Beached Bird Survey
2008 Report**

Kyle Wellband, Kate Bredin and Becky Whittam

Bird Studies Canada – Atlantic Region
P.O. Box 6227
Sackville, NB E4L 1G6



Dovekie - Henk Kwindt

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INTRODUCTION

This fiscal year (April 1, 2008 – March 31, 2009) the Atlantic Canada Beached Bird Survey was expanded to include beaches on Nova Scotia's eastern and northern coasts. In October 2008 we issued a call for volunteers in community newspapers and received a phenomenal response, adding over 35 new volunteers and beaches to the survey, nearly doubling the size and scope of the project. Many of the new survey beaches are clustered around Halifax but they also range north to Halfway Cove in Guysborough County and south to Blanche Beach in Shelburne County. Results from these new beaches, as well as beaches that continue to be surveyed in Cape Breton Nova Scotia, the Northumberland shore of New Brunswick, and the Bay of Fundy, are reported on here.

METHODS

Volunteers were asked to survey their beaches once per month during low tide, or as the tide was receding. They recorded both general weather and beach conditions at the start and at the end of the surveys (weather = cloud cover, precipitation, sea state, and tide level and wind direction; beach conditions = wrack thickness and continuity, and evidence and amount of oil pollution).

When a beached bird was found, volunteers were asked to identify the bird to the most precise taxonomic level possible (family, genera, or species), which varied with the state of carcass decomposition and volunteer identification skills. Presence of oil on carcasses was also noted, using the scale created for the Newfoundland Beached Bird Survey. This is a five-point scale, as follows:

- 0) clean feathers (no oil)
- 1) slight surface oiling; oil does not totally penetrate the breast feathers or coat the wings
- 2) moderate oiling; oil penetrates the base of the feathers or saturates wings, less than 25% of body oiled
- 3) heavy oiling; oil penetrates to base of feathers, more than 25% of body oiled
- 4) unknown; less than half of plumage remains, impossible to determine if oiled

Volunteers also recorded the degree of emaciation of each bird in order to determine whether starvation contributed to death. This four-point scale is based on the shape of the breast:

- 1) round – in normal birds, the breast is rounded like a lifeboat and you can barely feel the keel of the breastbone
- 2) even – in moderately starved birds, the breast slopes away from the keel evenly, like the roof of an A-frame house
- 3) concave – in extremely starved birds, the sides of the breast bow inward, like the concave hull of a speedboat
- 4) unable to determine – if the carcass is old, badly decomposed or scavenged, or for other reasons the breast condition does not allow such a description

In addition, volunteers recorded the occurrence of entanglements on the carcass (fish line, six-pack holder, etc.), sex and age class (if possible), suspected cause of mortality, and the presence of any visibly oiled live birds on the beach or in the water.

Data were entered into a Microsoft Access relational database which includes tables with information on surveyors, beaches (location and description), surveys (date, time, conditions) and beached birds.

Deposition rate, or number of birds detected per kilometer of beach surveyed, is a standard measurement for beached bird surveys, and enables us to compare Maritime surveys with ongoing beached bird surveys in other locations in North America. Deposition rates were calculated as follows. The number of times a beach was surveyed was multiplied by the length of the beach in kilometers (= survey length). The survey lengths of all beaches were then summed together (= total kilometers surveyed). The total number of birds detected on all beaches was then divided by the total kilometers surveyed (=deposition rate).

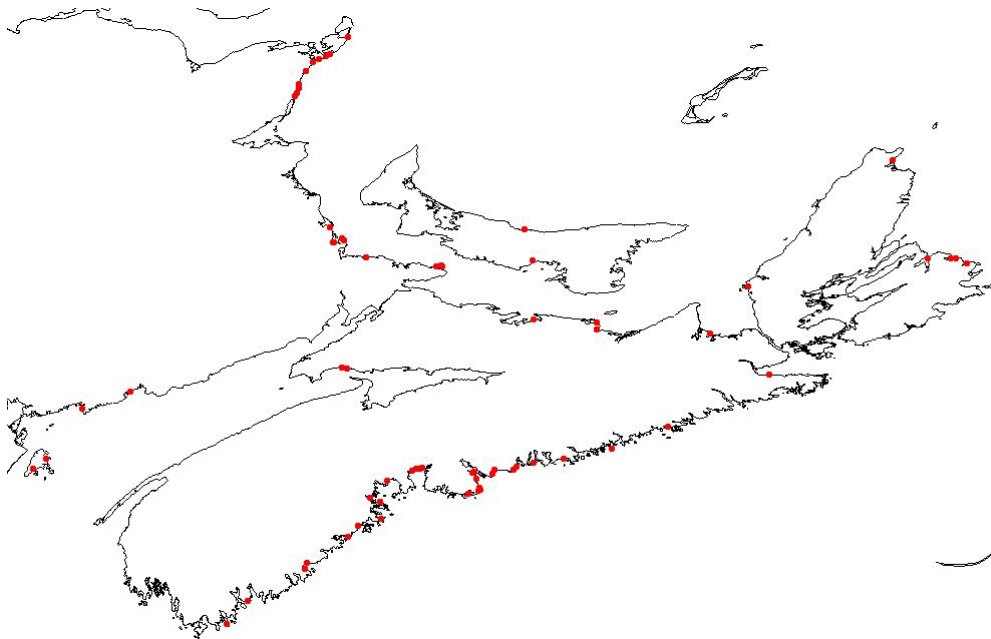


Figure 1 - Maritime beaches surveyed from April 1, 2009 to March 31, 2009.

RESULTS AND DISCUSSION

Survey effort

Volunteers in New Brunswick, Nova Scotia and Prince Edward Island spent more than 249 hours surveying for beached birds (Table 1). A total of 70 beaches were surveyed across the region, and 102 birds of 25 different species were recorded by surveyors (Table 1, Appendix A). Survey frequency, or the number of surveys per beach, is summarized in Figure 2. In New Brunswick, most beaches were surveyed one to four times. In Nova Scotia most beaches were surveyed four or five times, reflecting the increased survey efforts of new volunteers along the eastern shore. Twelve beaches were surveyed more than five times in the last year (Figure 2).

Table 1 - Summary of effort and results of the Atlantic Canada Beached Bird Survey (April 1, 2008 – March 31, 2009)

| | NS | NB | PE | Total |
|---------------------------|-----|----|----|-------|
| Number of Beaches | 44 | 24 | 2 | 70 |
| Number of Surveys | 173 | 78 | 7 | 258 |
| Number of Birds Found | 58 | 42 | 2 | 102 |
| Number of Volunteers | 35 | 10 | 2 | 47 |
| Number of Volunteer Hours | 189 | 55 | 5 | 249 |

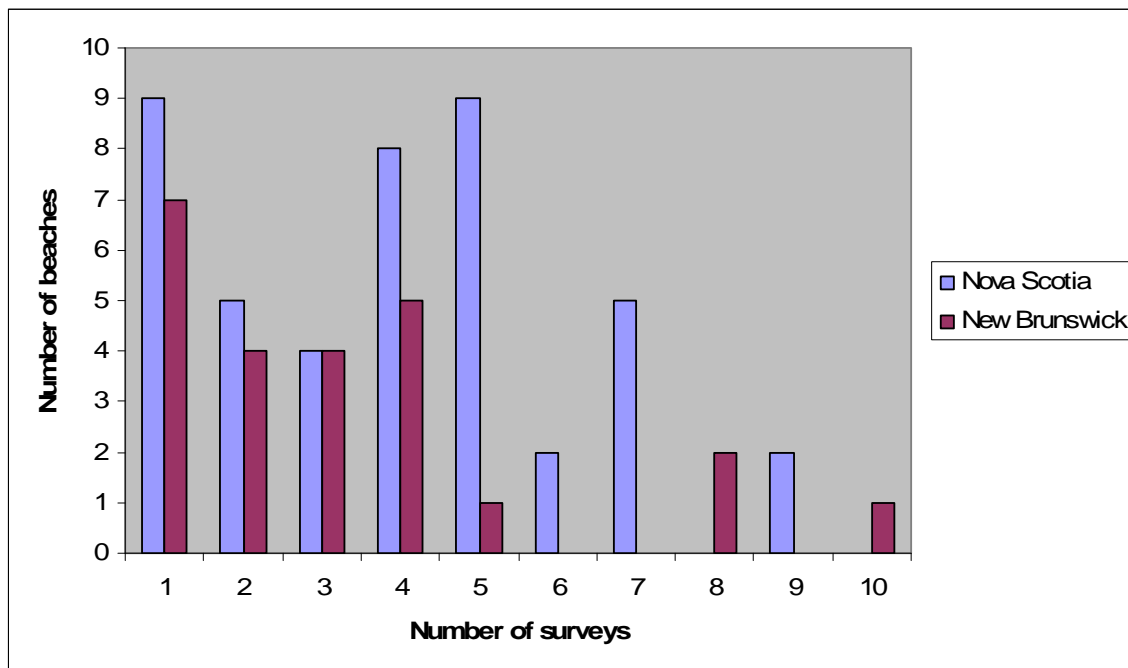


Figure 2 - Frequency distribution of the number of surveys conducted per beach in Nova Scotia and New Brunswick from April 1, 2008 – March 31, 2009.

Bird Groups and Species Recorded

As a group, pouchbills (herons, cormorants and gannets) made up the largest proportion of beached birds, with 31 individual birds representing 30.4% of all beached birds recorded (Figure 3). Almost all (25/31) pouchbills were Northern Gannets (discussed below). Gulls made up the second-largest group of beached birds, with 28 individual birds and 27.5% of all beached birds recorded (Figure 3). Approximately half of those (13 birds), were Herring Gulls. Gull detections were evenly distributed throughout the year. The third largest group of beached birds recorded was the Alcids (razorbills, murre, dovekies) with 20 birds and 19.6% of the total number of beached birds found. The third largest group detected was waterfowl (ducks) with 9 birds (8.8% of the total) (Figure 3). Unknown birds represent birds that were either decomposed or scavenged to a point that identification even to Genus or Family (e.g., gull species) was not possible. These eight unidentified birds represented just 7.8% of all the beached birds found.

The most abundant individual species detected was Northern Gannet, with a total of 25 individuals representing 24.5% of all beached birds recorded. Of the 25 gannets, 19 were found

on the Acadian Peninsula, representing 18.6% of all beached birds found. This result reflects the geographic distribution of Northern Gannets within the Maritimes and the proximity of the Acadian Peninsula to the breeding colony on Bonaventure Island off the Gaspé Peninsula, Quebec. Most gannets were found during the summer, which is similar to findings of a study of Northern Gannet mortality by Armenta et. al. (2006). The results of our study, however, are biased toward the summer months (May – August) due to increased sampling of the Acadian Peninsula beaches by Piper Project staff during the summer. (The Piper Project, now known as Nature NB’s Species At Risk program, is a stewardship project of NatureNB with a particular emphasis on Piping Plover and its habitat). The principal source of mortality for Northern Gannets in the summer is fisheries bycatch in gillnets (Armenta et al. 2006). We have direct evidence of bycatch from two gannet carcasses upon which necropsies were performed by staff at the Atlantic Veterinary College in Charlottetown.

Eight Dovekies (8% of the total birds recorded) were found in Nova Scotia during the reporting period (see cover photo). Three were found on Cow Bay Beach near Halifax. The remaining four were found on five different beaches (Cleveland Beach, Gill Cove, Blanche Cove, Bridgeport Basin and Southeast Bar).

Perhaps the most unusual bird found on a beach this year was an American Redstart, found by Dominique Gusset at The Gulch south of Halifax, Nova Scotia. It is likely that this bird was blown out over the ocean during a storm, became disoriented and perished from exhaustion, then washed ashore.

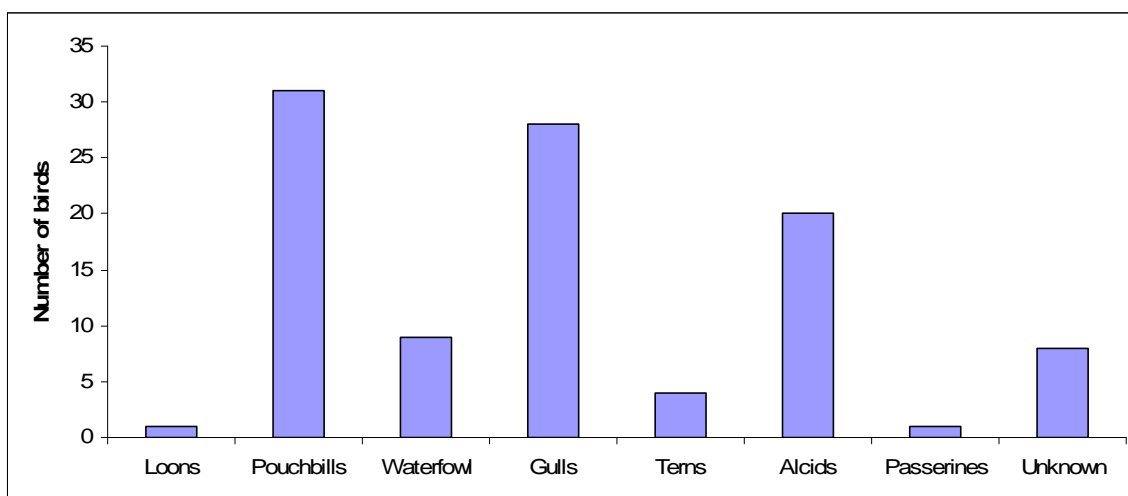


Figure 3 - Abundance of beached birds, grouped taxonomically, found on beaches in NB and NS from April 1, 2008 to March 31, 2009.

Oiled Birds

From April 1 2008 to March 31 2009 only one beached bird was found to have oil on its plumage. Identified as a murre species, it was collected by Environment Canada for further analysis. Though they could still be taxonomically identified, much of the plumage and soft tissues of five of the birds (5%) found in these survey was missing, so that detecting anything less than a serious level of oiling would be difficult or impossible.

Deposition Rates

The average beached bird deposition rate for the Maritimes was 0.23 birds/km and ranged from 0.29 birds/km in mainland Nova Scotia to 0.07 birds/km in New Brunswick. Two beached birds were found in Prince Edward Island this year but deposition rates are not calculated for this province because they would be unrealistically high due to the small number of surveys conducted on just a few beaches. These deposition rates are well below averages for some other North American Beached Bird Surveys but similar to deposition rates for British Columbia and Massachusetts (Table 2).

This report provides the first estimates of deposition rate (0.29 birds/km) for beached birds on the eastern coast of mainland Nova Scotia. A greater number of beached birds were found on these Nova Scotia beaches over the five month period reported here (November 2008-March 2009) than in any other region of the Maritimes since Bird Studies Canada began the Beached Bird Survey in 2001 (Table 2).

Table 2 - Comparison of deposition rates from other beached birds surveys (adapted from Campbell 2008).

| Location | Deposition rate (birds/km) | Reference |
|---|----------------------------|--|
| BC Beach Watch (1986-1997) | 0.37 ± SD 0.56 | Burger 2002 |
| BC BBS (2002-2005) | 0.23 ± SD 0.43 | BSC unpubl. data |
| COASST Washington and Oregon (2001-2005) | varies by region | COASST 2002, 2003, 2004, 2005 |
| Beach Watch (1993-2002) California | 0.99 | Roletto <i>et al.</i> 2003 |
| Newfoundland (2000-2006) | 0.72 ± SD 0.16 | CWS unpubl. data Campbell and Bredin 2007 |
| Cape Breton (2001-2006) | 0.11 | |
| Kent County, NB (2007) | 0.15 | Campbell 2008 |
| Charlottetown Harbour, PE (2007) | 0.048 | Campbell 2008 |
| Massachusetts (2003-04) | 0.22 ± SE 0.04 | Harris <i>et al.</i> 2006 |
| Mainland Nova Scotia (2008-09) | 0.29 | This report |
| New Brunswick (2008-09) ¹ | 0.07 | This report |

¹ Records from the Acadian Peninsula submitted by the Piper Project were not included in deposition rate calculations because these surveys were only conducted in summer, and surveys with no birds were not always reported, making it impossible to calculate the total number of kilometers surveyed

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Appendix A: Summary of the species of beached birds detected on beaches in NS and NB from April 1, 2008 – March 31, 2009.

| Species | Number of birds | Percent of all beached birds |
|---------------------------|------------------------|-------------------------------------|
| American Black Duck | 1 | 1.0 |
| American Redstart | 1 | 1.0 |
| Arctic Tern | 1 | 1.0 |
| Black Scoter | 1 | 1.0 |
| Black-crowned Night Heron | 1 | 1.0 |
| Black-legged Kittiwake | 2 | 2.0 |
| Canada Goose | 2 | 2.0 |
| Common Eider | 1 | 1.0 |
| Common Murre | 5 | 4.9 |
| Common Tern | 2 | 2.0 |
| Double-crested Cormorant | 2 | 2.0 |
| Dovekie | 8 | 7.8 |
| Great Black-backed Gull | 7 | 6.9 |
| Great Cormorant | 1 | 1.0 |
| Greater Scaup | 1 | 1.0 |
| Herring Gull | 13 | 12.7 |
| Mallard | 1 | 1.0 |
| Northern Gannet | 25 | 24.5 |
| Razorbill | 1 | 1.0 |
| Red-breasted Merganser | 1 | 1.0 |
| Red-throated Loon | 1 | 1.0 |
| Ring-billed Gull | 1 | 1.0 |
| Thick-billed Murre | 1 | 1.0 |
| White-winged scoter | 1 | 1.0 |
| Alcid sp. | 5 | 4.9 |
| Gull sp. | 5 | 4.9 |
| Pouchbill sp. | 2 | 2.0 |
| Tern sp. | 1 | 1.0 |
| Unknown sp. | 8 | 7.8 |

Appendix B: Summary of surveys and beached birds found on beaches in NB, NS and PEI from April 1, 2008 to March 31, 2009.

| Beach Number | Beach Name | Province | Number of Surveys | Number of Birds |
|---------------------|-----------------------------|-----------------|--------------------------|------------------------|
| NB07 | Sheldon Point | NB | 3 | 0 |
| NB08 | Seal Cove | NB | 10 | 0 |
| NB11 | Maces Bay | NB | 8 | 1 |
| NB12 | Castalia Marsh | NB | 8 | 2 |
| NB13 | Cape Jourimain - Anne's Acr | NB | 4 | 0 |
| NB14 | Gloria's Beach | NB | 2 | 0 |
| NB15 | Cap de Cocagne | NB | 4 | 1 |
| NB17 | Lovers Lane | NB | 4 | 0 |
| NB19 | St-Thomas-de-Kent | NB | 5 | 1 |
| NB20 | Tip Cocagne Cap | NB | 1 | 0 |
| NB21 | Cape Jourimain - Lighthouse | NB | 4 | 0 |
| NB22 | Cape Jourimain - Gunning Po | NB | 4 | 0 |
| NB23 | Cedar Road South | NB | 1 | 1 |
| NB24 | Pointe à Barreau | NB | 3 | 3 |
| NB25 | Chaisson Office | NB | 1 | 1 |
| NB26 | Le Goulet | NB | 3 | 4 |
| NB27 | Dune Tracadie | NB | 2 | 9 |
| NB28 | Four Road | NB | 2 | 9 |
| NB29 | Baie Petit Pokemouche | NB | 3 | 5 |
| NB32 | Dune de Pointe a Bouleau | NB | 2 | 1 |
| NB41 | Grand Passage | NB | 1 | 2 |
| NB43 | Ste-Marie-St-Raphael | NB | 1 | 2 |
| NB44 | Plage Gallien | NB | 1 | 0 |
| NB45 | Cap Pele | NB | 1 | 0 |
| CB26 | Southeast Bar | NS | 7 | 5 |
| CB32 | Dominion Beach | NS | 1 | 0 |
| CB40 | Big Glace Bay | NS | 7 | 5 |
| CB41 | Bridgeport Basin | NS | 7 | 3 |
| CB45 | Cabot Landing | NS | 5 | 1 |
| CB50 | Port Hood / Shipping Pt. | NS | 2 | 0 |
| NS07 | Fox Point | NS | 1 | 0 |
| NS08 | Port Greville | NS | 1 | 0 |
| NS12 | Lighthouse Beach | NS | 4 | 5 |
| NS15 | Pomquet Beach | NS | 4 | 0 |
| NS16 | Martinique Beach | NS | 1 | 0 |
| NS17 | Graves Island | NS | 7 | 1 |
| NS18 | Cherry Hill | NS | 5 | 1 |
| NS19 | Halfway Cove | NS | 1 | 0 |
| NS20 | Taylor Head Provincial Park | NS | 6 | 0 |
| NS21 | Hapes Point | NS | 3 | 0 |
| NS22 | Berrys Bay / Demings Island | NS | 2 | 1 |
| NS23 | Cleveland Beach | NS | 7 | 3 |
| NS24 | Meisners Beach | NS | 5 | 0 |
| NS25 | NW Arm to Dingle Beaches | NS | 5 | 2 |
| NS26 | Look Off at Herring Cove | NS | 9 | 1 |

| | | | | |
|------|-------------------------|----|---|----|
| NS27 | The Gulch | NS | 4 | 1 |
| NS28 | Duncan's Cove Beach | NS | 5 | 2 |
| NS29 | Champayne Dam | NS | 5 | 0 |
| NS30 | Point Pleasant Park | NS | 4 | 3 |
| NS31 | Westhaver Beach | NS | 5 | 0 |
| NS32 | Cow Bay Beach | NS | 9 | 10 |
| NS33 | Backman's Beach | NS | 5 | 0 |
| NS34 | Queensland | NS | 3 | 0 |
| NS35 | Kingsburg Beach | NS | 2 | 0 |
| NS36 | Risser's Beach | NS | 3 | 0 |
| NS37 | Rainbow Haven | NS | 4 | 0 |
| NS38 | Black Point Beach | NS | 5 | 0 |
| NS39 | Boutilliers Point Beach | NS | 4 | 0 |
| NS40 | Gill Cove | NS | 1 | 1 |
| NS41 | Crystal Crescent | NS | 4 | 4 |
| NS42 | Carters Beaches | NS | 4 | 0 |
| NS43 | Summerville Beach | NS | 2 | 1 |
| NS44 | Murray Beach | NS | 1 | 0 |
| NS46 | Clam Harbour | NS | 1 | 0 |
| NS47 | Rudey's Head | NS | 3 | 3 |
| NS48 | Blanche Cove Beach | NS | 6 | 5 |
| NS49 | Seaforth | NS | 1 | 0 |
| NS50 | Caribou Provincial Park | NS | 2 | 0 |
| CH08 | Rocky Point | PE | 6 | 0 |
| PE07 | Brackley Bay | PE | 1 | 2 |
