

**Atlantic Canada Beached Bird Survey
2008 Report**

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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).

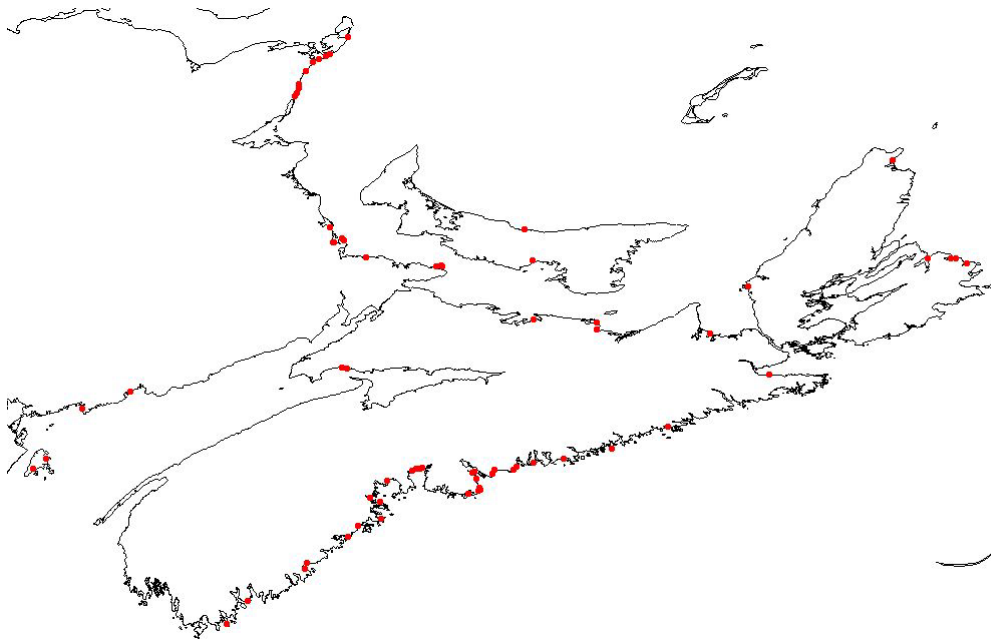


Figure 1 - Maritime beaches surveyed from April 1, 2009 to March 31, 2009.

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

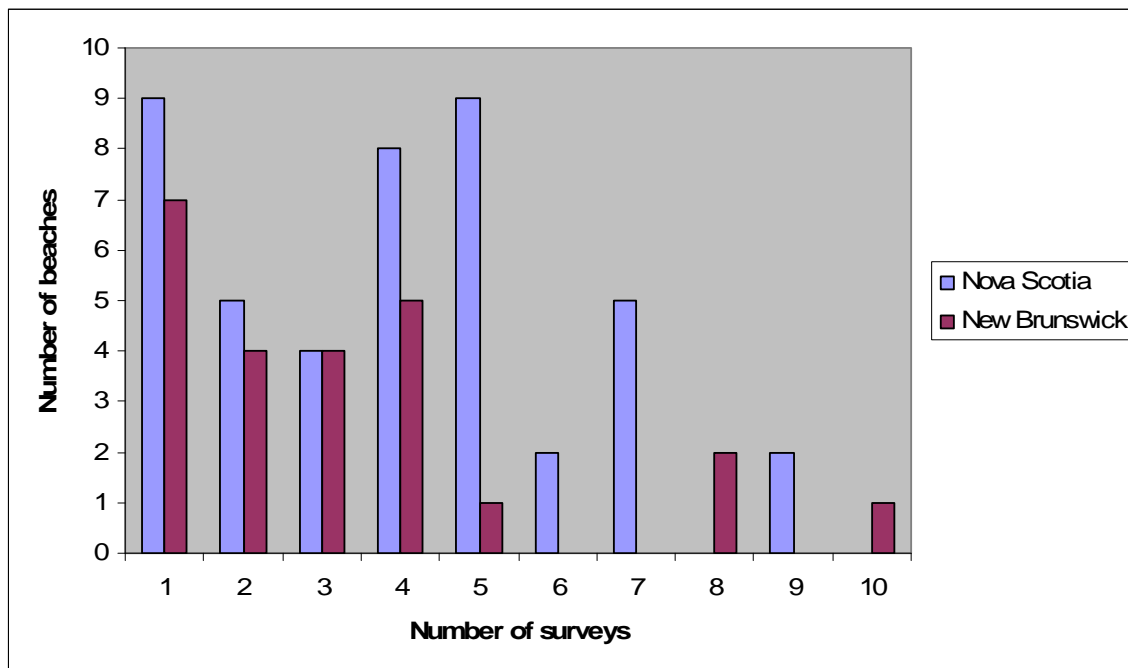


Figure 2 - Frequency distribution of the number of surveys conducted per beach in Nova Scotia and New Brunswick from April 1, 2008 – March 31, 2009.

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.

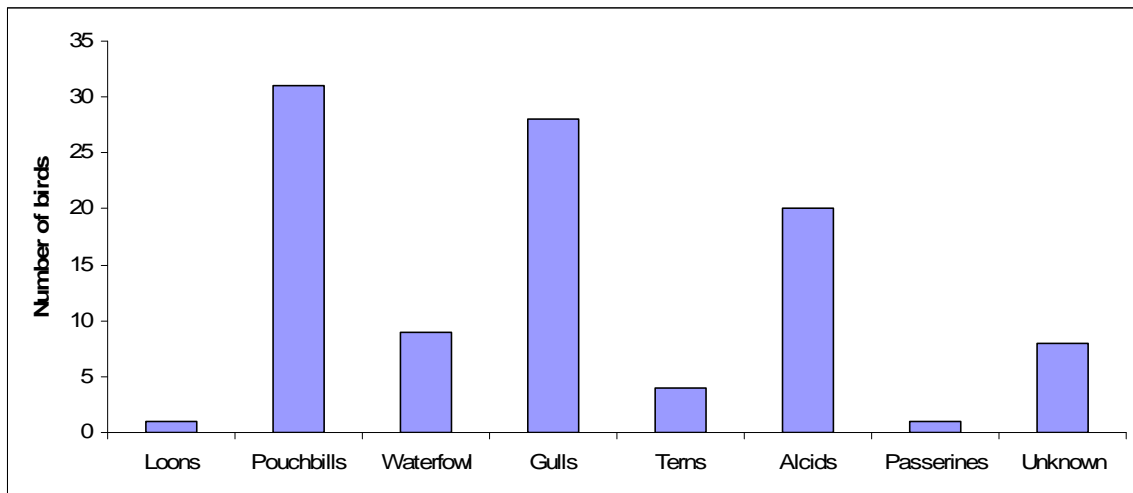


Figure 3 - Abundance of beached birds, grouped taxonomically, found on beaches in NB and NS from April 1, 2008 to March 31, 2009.

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
