

# Cape Breton Beached Bird Survey 2003-2004 Report



Long-tailed Duck by Lee Anne Reeves

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Greg Campbell and Becky Whittam



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## Summary

The Cape Breton Beached Bird Survey continued for its third season in 2003-2004. A total of 118 surveys were conducted on 28 beaches, 11 of which were new. Thirty beached birds were found, six of which showed signs of oiling (20%). Oiling rates were higher than in 2002-2003 (0%), but not as high as the first year of the survey (85.7%). The most common species found in 2003-2004 were Dovekies and Herring Gulls. A single new beach on the Gulf of St. Lawrence side of Cape Breton accounted for 20% of all beached birds found in 2003-2004. After three years of surveys in Cape Breton the overall rate of deposition of beached birds is 0.16 birds per kilometre, which is much lower than that recorded in southern Newfoundland but within the range of deposition rates reported for other parts of North America. The overall bird oiling rate is 52.5% over three years, the second-highest rate recorded on a beached bird survey in North America (after Newfoundland).

## Introduction

The waters off the Atlantic Canadian coast are an important area for tens of millions of seabirds (Chardine 1995). These same waters also serve as commercial fishing grounds and major shipping lanes linking Europe with North America (Elliot *et al.* 2002). Oil pollution resulting from this heavy sea traffic, whether from chronic operational discharges or accidental spills, has been estimated to kill as many as 300,000 seabirds each year off south-eastern Newfoundland (Wiese 2002). One of the most useful ways for monitoring the effects of oil pollution on seabirds is by conducting beached bird surveys. Regularly repeated beached bird surveys have been widely used around the world to monitor mortality of seabirds (Burger 1993, Wilhelm 2004). In 2001, the Atlantic Regional Office of Bird Studies Canada (BSC), in cooperation with the Canadian Wildlife Service initiated the *Cape Breton Beached Bird Survey*. The goals of the survey are to establish a baseline index of “normal” levels of occurrences of beached birds and to monitor the effects of oil pollution and other events causing an increase in seabird mortality.

Similar beached bird surveys are in place in other parts of North America, some since the 1980s. The Newfoundland beached bird survey has been collecting data since 1984. A survey along the Quebec Lower North Shore, the Northern Peninsula of Newfoundland and the Labrador Straits, led by the Quebec-Labrador Foundation, will be underway in the winter of 2004-2005 (P. Nash, pers. comm.). On the west coast, a beached bird survey program, called Beach Watch was in effect in British Columbia from 1986 to 1997. Since August 2002, Bird Studies Canada’s British Columbia office has been coordinating beached bird surveys along coastal BC. In neighbouring Washington state, COASST (Coastal Observation And Seabird Survey Team) has been monitoring beached birds since 1999. In the northeastern United States, Tufts Centre for Conservation Medicine’s Seabird Ecological Assessment Network (SEANET) has been monitoring beached birds for two seasons.

This report details the efforts and results of the Cape Breton Beached Bird Surveys’ many dedicated volunteers from July 2003 to July 2004 and compares the data with other beached bird surveys in North America. Additional information on this survey and on the effects of oiling can be found in past reports (Russell 2002, Hart 2003) available online at: <http://www.bsc->

[eoc.org/regional/acbeachbird.html](http://eoc.org/regional/acbeachbird.html). Finally, appendix A provides updated data from the 2001-2002 survey that were not available when Russell (2002) was written.

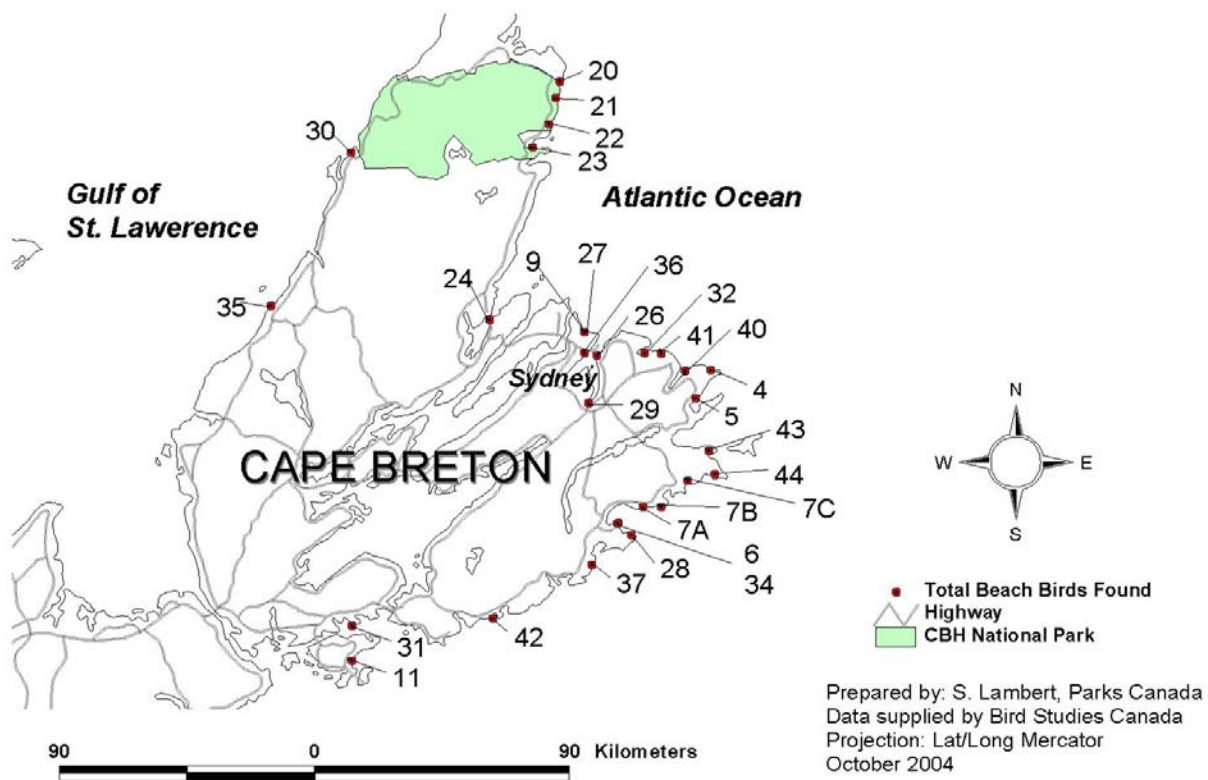
## Methods

Methods used in 2004 were the same as those used in the first two years of the project. For a complete description see Russell (2002).

Surveys were conducted mostly from November to April, although a few were done during the summer months. Volunteers were asked to survey their beaches once per month, preferably at the end of the month. Not all beaches were surveyed every month. One of the beaches surveyed in 2003 was not visited in 2004 (South Harbour). However, 11 new beaches were surveyed in 2003-2004, all but one on the Atlantic coast. St. Rose/Dunvegan beach was added on the Gulf of St-Lawrence side, while Kings Point, Dominion, Cape la Ronde, Belfry Gut, Big Glace Bay, Bridgeport Basin, St.-Esprit, Main-à-Dieu, Bear Cove and Baleine beaches were added on the Atlantic side. The locations of the beaches surveyed in 2004 are shown on Figure 1.

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## 2003-04 Cape Breton Beached Bird Survey



**Figure 1.** Location of beaches surveyed in Cape Breton from July 2003-July 2004. Beach numbers correspond to data in Table 1.

## Results and Discussion

During the 2004 season (July 29 2003 to July 27 2004), a total of 118 surveys were conducted on 28 Cape Breton beaches (Table 1). The Atlantic coast of Cape Breton has the bulk of surveys and is fairly well-covered on a north-south continuum (Figure 1). The majority of surveys were conducted from November-April (with December being the most “popular” month), which is the period when we most encouraged volunteers to survey their beaches (Figure 2).

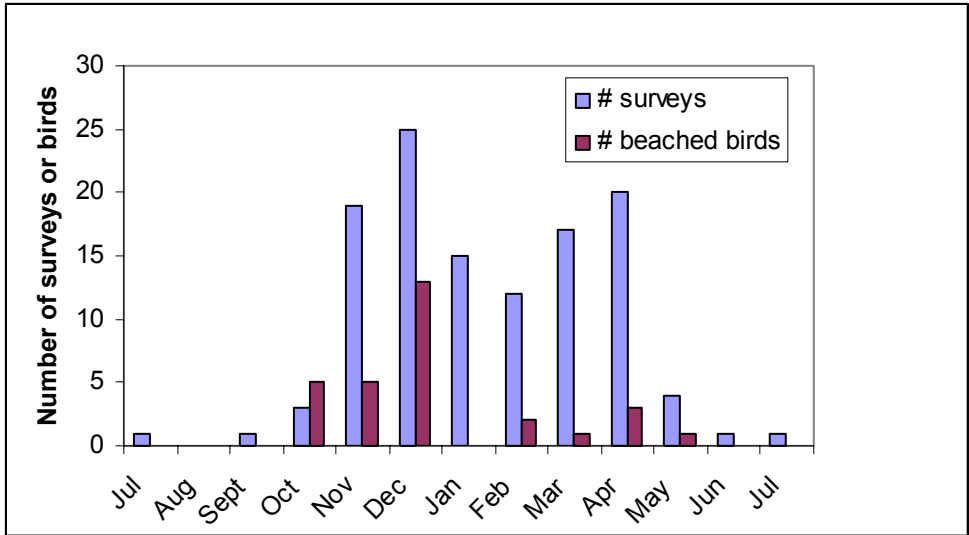
Thirty beached birds were discovered on these surveys. Of the 30 birds, only 6 showed signs of oiling. The most common beached birds found were Dovekies (6) and Herring Gulls (3), and unidentified ducks (7) and gulls (4) (Table 2). Most beached birds were found in December, which also coincided with the peak month for survey numbers (Figure 2). Figure 3 shows the beaches where birds were found.

The 2004 season showed more beached birds than the previous winter, but not as many as 2001-2002, despite the fact that survey effort increased dramatically in 2003-2004, with 118 surveys completed compared with only 80 and 88 in the first two years, respectively. The 2002-2003 season had the least beached birds (8), none of which were oiled, of the three years. This low count was attributed to the especially harsh winter of 2002-2003 (Hart 2003), when extreme cold resulted in the formation of extensive areas of sea ice along the coast. The ice cover on the beaches could have prevented dead or injured seabirds from washing ashore and made it difficult for observers to detect birds even if they were on the beach (Hart, 2003). Interestingly, however, surveyor Susann Myers notes that 2003-2004 seemed almost as bad as the previous winter in terms of drift ice, although conditions were not cold enough to produce sea ice locally. Nonetheless, Myers notes that the extensive drift ice in January-February 2004 between Sydney and Louisburg likely made detecting beached birds difficult. In fact, almost all surveys conducted in January and February 2004, and in some cases until mid-April 2004, noted extensive ice (and snow) on the beaches, making it impossible to detect carcasses. This likely explains why fewer surveys were conducted, and almost no beached birds were detected, during January and February.

There were 6 oiled birds found in 2003-2004 (1 Dovekie, 2 Herring Gulls, 1 unknown, 1 Murre spp., 1 duck spp.) whereas none of the eight birds found in 2002-2003 were oiled. In the first year of the project (2001-2002), 85.7% of beached birds were oiled (Table 3). However, all but one of the 2001-02 birds were found in February or March after an oil tanker spill that occurred off the coast of Cape Breton in late February of that year. In December 2003 three oiled ducks were reported by a hunter near Ingonish, NS; subsequent checks of unsurveyed beaches by Parks Canada staff detected five Dovekies and one Northern Gannet, none of which were oiled (A. Boyne, pers comm. and S. Lambert, pers comm.). Only two of this year’s six beached birds (a Dovekie and an unknown bird) were found in December and they were found quite a distance from Ingonish (at Wild Cove and Cape La Ronde), so were likely due to a separate incident than that detected by the hunter.

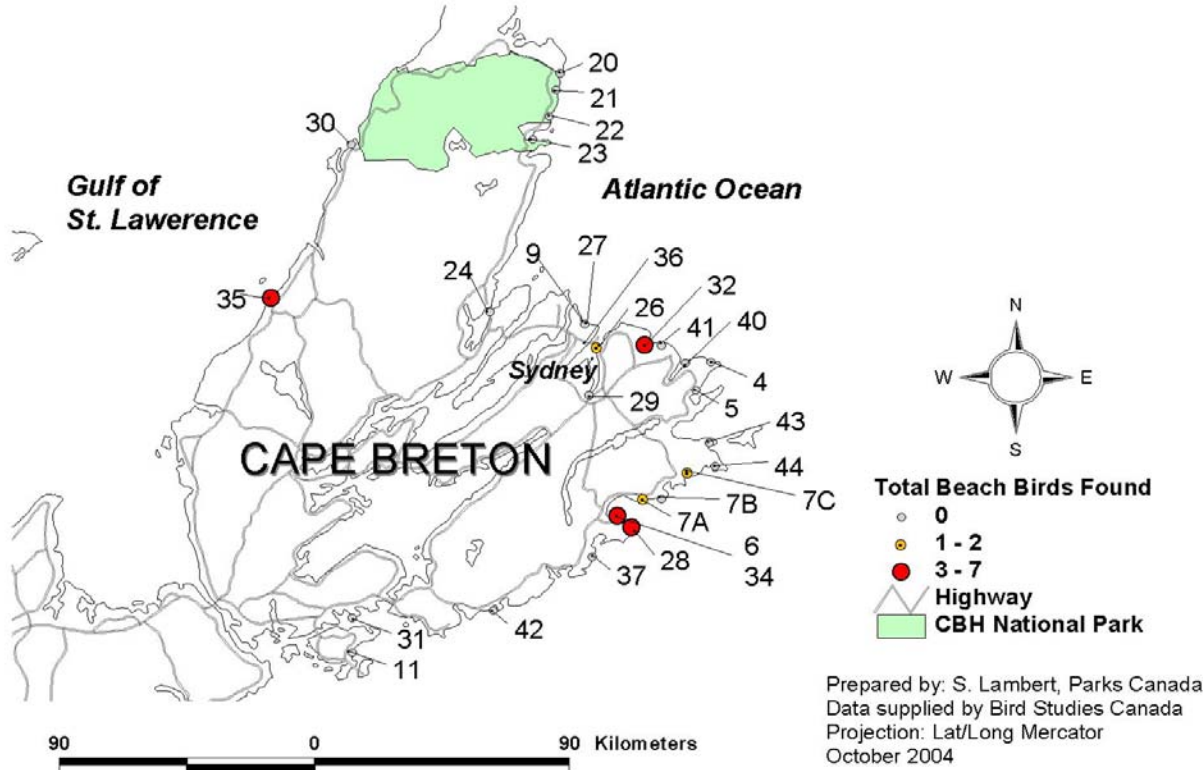
**Table 1:** Beached bird surveys conducted between July 29 2003 to July 27 2004, indicating surveyor effort and number of beached birds found. Note that for two beaches (#27 and #42), two sets of volunteers inadvertently surveyed the same beaches. Their results have therefore been combined.

Beach #	Beach Name	Surveyor	Beach length (km)	No. surveys	Total Hrs	Beached Birds	Oiled Birds
4	Schooner Pond	George Crowell & Beverly Sarty	0.6	5	3:00	0	0
5	Port Morien	George Crowell & Beverly Sarty	0.85	5	3:30	0	0
6	Gabarus	Joan Mills & Mary Lou Blundon	1.85	8	15:35	0	0
7A	Kennington Cove	Lee Anne Reeves & Susann Myers	0.85	6	6:29	2	0
7B	White Point	Lee Anne Reeves	0.825	4	2:35	0	0
7C	Wild Cove	Susann Myers	0.6	6	6:05	2	1
9	Florence	Terry & Hayden Laffin	1	2		0	0
11	Pondville	Sharon & George Digout	1.2	1	1:15	0	0
20	Neil's Harbour	Sheldon Lambert	0.35	4	1:04	0	0
21	Black Brook	Sheldon Lambert	0.65	4	1:31	0	0
22	Broad Cove	Erich Muntz	1.1	2	2:30	0	0
23	North Bay/Kings Point	Jill Adams	0.8	1	0:57	0	0
24	Englishtown/Jersey Cove	Bethsheila Kent	2.1	5	9:20	0	0
26	Southeast Bar	Shawn Sanson	1.25	2	2:59	2	0
27	Florence Back	Terry & Hayden Laffin / Anita Farrell	0.65	6	6:07	0	0
28	Cape la Ronde	Myles Kehoe	11	3		7	4
29	Point Edward	Ed Barrington & Mike Joseph	2.7	3	7:33	0	0
30	Petit Etang	Archie Doucette	2.5	3	2:05	0	0
31	River Bourgeois	Sharon & George Digout	2.75	1	1:30	0	0
32	Dominion beach	Alan Wilson	2.0	6	5:45	6	0
34	Gabarus/Bear Cove	Myles Kehoe	10	3		5	1
35	St.Rose/Dunvegan	Myles Kehoe	10	3		6	0
37	Belfry Gut	Lisa & Mike Zalewski	3.5	9	9:35	0	0
40	Big Glace Bay beach	Bernard MacKinnon	1.6	6	5:45	0	0
41	Bridgeport Basin beach	Bernard MacKinnon	0.74	6	4:15	0	0
42	St.-Esprit beach	Rainer & Sandra Meyerowitz /Robert & Ken Butts & Mary Forget	4.5	10	22:00	0	0
43	Main-à-Dieu	Maureen & Allan Cameron-MacMillan	1.4	4	3:12	0	0
44	Baleine	Maureen & Allan Cameron-MacMillan	0.3	1	0:35	0	0
<b>Total</b>			<b>83.67</b>	<b>118</b>	<b>115hr 12min</b>	<b>30</b>	<b>6</b>



**Figure 2.** Monthly distribution of surveys and beached birds found from July 2003 to July 2004.

## 2003-04 Cape Breton Beached Bird Survey



**Figure 3.** Geographic distribution of beached birds on survey beaches in 2003-2004.

**Table 2:** Beached birds found from July 29 2003 to July 27 2004.

Species	Total	Beach (# found, whether oiled, and date)
Duck spp.	7	Cape la Ronde (1 : 12/23/2003) Bear Cove (3 : 12/29/2003 and 1 oiled : 10/24/2003 and 1 : 4/1/2004) St. Rose/Dunvegan (1: 4/3/2004)
Dovekie	6	Dominion (4: 12/27/2003) Wild Cove (1: 11/29/2003, 1 oiled: 12/29/2003)
Gull spp.	4	Kennington Cove (1: 11/30/2003) Cape la Ronde (2: 10/22/2003) St. Rose/Dunvegan (1: 4/3/2004)
Herring Gull	3	Cape la Ronde (2 oiled: 10/22/2003) St. Rose/Dunvegan (1 : 11/18/2003)
Unknown	1	Cape la Ronde (1 oiled: 12/23/2003)
Razorbill	1	Southeast Bar (12/30/2003)
Thick-billed Murre	1	Southeast Bar (12/30/2003)
Murre spp.	1	Cape la Ronde (1 oiled: 3/30/2004)
Long-tailed Duck	1	Kennington Cove (2/3/2004)
Bufflehead	1	Dominion (2/3/2004)
Shorebird spp.	1	St. Rose/Dunvegan (12/19/2003)
American Crow	1	St. Rose/Dunvegan (11/18/2003)
Northern Gannet	1	St. Rose/Dunvegan (12/19/2003)
Merganser spp.	1	Dominion (5/31/2004)

**Table 3:** Summary data for the first three years of the Cape Breton Beached Bird Survey. Note that data from 2001-2002 are different than those reported by Russell (2002) as additional data came to light after the report was written. Appendix A provides updated results from 2001-2002.

Year	# Surveys	Beached birds	Oiled birds	Oiling rate	Deposition Rate (birds/km)
2001-2002 (Nov 01 – April 02)	80	42	36	85.7%	0.44
2002-2003 (May 02 – June 03)	88	8	0	0%	0.07
2003-2004 (July 03 – July 04)	118	30	6	20%	0.10
<b>total</b>	<b>270</b>	<b>80</b>	<b>42</b>	<b>52.5%</b>	<b>0.16</b>

**Table 4:** Comparison of oiling rates from different beached bird surveys (BBS) in North America.

Location	# beached birds	# oiled birds	Oiling rate	Deposition rate (birds/km)	Reference
BC Beach Watch (1986-1997)	310	39	12.58%	0.37 (± 0.56)	Burger 2002
BC BBS (2002-2003)	119	1	0.84%		T. Smith unpubl. data
COASST Washington & Oregon (2001-2004)	4818	21	0.44%	0-11.5 (varies by date and region)	COASST 2002, COASST 2003
Newfoundland BBS (1984-1997)	965	685	70.98%	2.25	Wiese and Ryan 1999
Cape Breton BBS (2001-2004)	80	42	52.5%	0.16	
SEANET Massachusetts BBS (2002-2003)	164	8	0.05%	0.12-0.45 (varies by date)	R. Harris unpubl. data

Dovekies were the most common species of beached bird this year, with six individuals found on two beaches. Susann Myers, the surveyor for Wild Cove, found one Dovekie in late November, and one in late December. She remarked that Dovekies are common in this area from November to January, and has observed predation on live birds by Great Black-backed Gulls and Herring Gulls. She suggested that one Dovekie died of predation, and the other of oiling (the bird had faint brown staining on about 50% of its breast feathers). The bird that was oiled was alive when first seen, floating on its back and occasionally kicking its legs. It was dead when it washed to shore about one hour later, and appeared to be badly emaciated.

The Long-tailed Duck found at Kennington Cove (see cover photo) was believed to have died from predation by an adult Bald Eagle. Surveyor LeeAnne Reeves noted five live Long-tailed Ducks in the area during the survey as well as an eagle. She also noted that the carcass, which was largely intact and very fresh, had a puncture wound under its left wing, and speculated that it was taken out of the water by the eagle and dropped on the beach. Her presence likely disrupted the eagle's predation event.

It is interesting to note that the one beach added on the Gulf of St. Lawrence side of Cape Breton (St. Rose/Dunvegan) hosted a large proportion of beached birds (6/30 = 20%). Myles Kehoe walked 10 km per survey on this beach. No doubt the long length of this beach increased the likelihood of finding beached birds; however, it has traditionally been believed that the Gulf of St. Lawrence side of Cape Breton is not as "productive" for beached birds as the Atlantic side. This is primarily because the major shipping lanes pass very close to the Atlantic side, but not to the Gulf side, and also because fewer seabirds use the Gulf side of Cape Breton (Lock et al 1994). However, currents may be more favourable on the Gulf side compared with the Atlantic side for beached bird deposition (Lock et al 1994). Perhaps more beaches should be added on the Gulf side in the future given the number of birds detected there in 2003-2004.



After 3 seasons of conducting beached bird surveys, a grand total of 80 beached birds have been found during 270 surveys. Of the 80 birds found, 42 were oiled to varying degrees for an overall oiling rate of 52.5%. Oiling was also found to be the major cause of death of beached birds off the coast of Newfoundland (Table 4). From 1984 to 1997, 70.98% of carcasses discovered during beached bird surveys were oiled (Wiese and Ryan 1999). Beaches on the Pacific coast have much lower oiling rates. On beaches surveyed in BC from 1986 to 1997 only 12.58% of beached birds in which the cause of death had been determined were found to have been killed by oiling (Burger 2002). During the 2002-2003 season, BSC's beached bird program found only one case of oiling on 119 dead birds (0.84%; Tasha Smith, pers.comm.). In the United States, beaches surveyed in Washington and Oregon had oil on only 0.85% of beached birds in 2002-2003 (out of 2122 carcasses) (COASST 2002, 2003).

It is not currently known why oiling rates are much higher on the Atlantic coast when compared with the Pacific. According to Burger (2002), it might be due to differences in the populations of seabirds found off each coast and the ocean processes (wind, currents) that bring seabird carcasses ashore. In nearby Massachusetts, however, only 9 out of 164 birds (0.05%) found in 2002-2003 were oiled, suggesting that the trend toward higher oiling rates on Atlantic beaches is not necessarily consistent along the coast.

Carcass deposition rates, or the number of carcasses discovered per km of beach surveyed, were calculated for all Cape Breton beaches in order to more accurately compare the numbers of beached birds from Cape Breton with other beached bird surveys. In Cape Breton, the deposition rate for the first 3 years of the program is 0.16 birds/km, which is considerably lower than that found in Newfoundland (2.25 birds/km) but relatively similar to that found in BC (0.37 birds/km), some parts of Washington and Oregon (especially "inside" waters; COASST 2003), and in Massachusetts (varies from 0.12-0.45 depending on date; see Table IV).

The total number of carcasses found is much lower in Cape Breton than in the other surveys mentioned. In Newfoundland, currents and prevailing winds depose many more beached birds than on the Cape Breton coast. On the Pacific coast, the proximity to major urban centers (Victoria, Vancouver, Seattle) and mild climate makes it easier for programs to recruit volunteers in much greater numbers. For example, the COASST program had 222 volunteers during 2003-2004! The sheer number of surveys on the west coast assures that many more beached birds will be found.

### **Future recommendations**

1. The original plan for the Cape Breton Beached Bird Survey was to conduct three years of surveys as a pilot phase to test the feasibility of a long-term monitoring program. The results from the first year clearly show that the survey is able to monitor impacts from oil pollution, with 85.7% of the carcasses having been oiled. If we consider the results from the second year as being an aberration due to the severe winter, at least another year of surveys should be done before we can adequately determine background levels of beached bird occurrences. Funding is in place from the Canadian Wildlife Service to complete this fourth year of monitoring.

2. A thorough evaluation of the impacts of weather (especially sea ice) on beached bird detection rates since 2001 should be conducted in the 2005 report. It is possible that Cape Breton is not suitable for conducting monthly surveys given the extensive drift ice present during some years (S. Myers pers. comm.).
3. Many more beaches were surveyed this past year by more volunteers than ever before. Twenty-eight beaches were surveyed in 2004 by 30 volunteers, compared with only seventeen beaches in 2003. As several individuals continue to survey more than one beach, finding additional volunteers to decrease the burden on current volunteers should be considered. Perhaps individuals who currently assist surveyors could be contacted to see if they would be interested in surveying their own beaches.

### **Acknowledgments**

Thanks to all the volunteers who have walked their beaches throughout the year, but especially during the cold and snowy winter months. We really appreciate the effort you are putting into this survey! Special mention should go to Myles Kehoe, who surveys over 30 km worth of beaches himself. Scientific consultation was provided by Todd Hass, Becky Harris, John Chardine, Richard Elliot, Andrew Boyne and Sabina Wilhelm. Thanks to Sheldon Lambert of Parks Canada for providing the map found in this report and reviewing an earlier draft. Susann Myers also provided very helpful comments on an earlier draft. Abby Porter did an excellent job recruiting and managing volunteers this winter, and Ramsey Hart managed the survey. Kristina Thompson and Jason Hudson entered the data. Funding is provided by the Atlantic Region of Environment Canada.

### **References Cited**

- Burger, A.E. 1993. Mortality of seabirds assessed from beached bird surveys in British Columbia. *Canadian Field-Naturalist* 107:164-176.
- Burger, A.E. 2002. Beached bird surveys in British Columbia, 1986-1997. Report to the Nestucca Trust Fund.
- Chardine, J. 1995. The distribution and abundance of aquatic birds in Canada in relation to the threat of oil pollution, *Wildlife and Oil Spills: Response, Research and Contingency Planning*. L. Frink, K. Ball-Weir and C. Smith eds. Tri-State Bird Rescue and Research Inc.
- COASST. 2002. Coastal Observation And Seabird Survey Team Reports 2001-2002.
- COASST. 2003. Coastal Observation And Seabird Survey Team Reports 2002-2003.
- Elliot, R.D., A.R. Lock, G.J. Robertson and F.K. Wiese. 2002. The Impact of Oil at Sea on Seabirds in Atlantic Canada. Environment Canada [www.atl.ec.gc.ca/boas/impact\\_e.html](http://www.atl.ec.gc.ca/boas/impact_e.html)

- Hart, Ramsey. 2003. Cape Breton Beached Bird Survey. Report 2002-2003. [www.bsc-eoc.org/regional/acbeachbird.html](http://www.bsc-eoc.org/regional/acbeachbird.html).
- Lock, A.R., R.G.B. Brown and S. H. Gerriets. 1994. Gazetteer of marine birds in Atlantic Canada: an atlas of seabird vulnerability to oil pollution. Canadian Wildlife Service, Atlantic Region.
- Russell, M. 2002. Cape Breton Beached Bird Survey 2001/2002 Winter Report. Unpublished Report, Bird Studies Canada.
- Wiese, F.K. and P.C. Ryan. 1999. Trends of chronic oil pollution in southeast Newfoundland assessed through beached-bird surveys 1984-1997. *Bird Trends* 7:36-40.
- Wiese, F.K. 2002. Estimation and impacts of seabird mortality from chronic marine oil pollution off the coast of Newfoundland. PhD thesis, Memorial University of Newfoundland, St. John's, NF.
- Wilhelm, S. 2004. Lessons from the Netherlands : A review on methods used to assess marine issues in the North Sea. Internal report, Canadian Wildlife Service, Dartmouth, NS.

**Appendix A.** Revised Table 1 from Russell (2002) indicating survey effort and number of beached birds found from November 2001-April 2002.

Surveyor Name	Beach Number/Name	# Surveys Completed	Beached Birds*	Oiled Birds	Live Oiled Birds
Kevin Middel	3/ Pt. Michaud	4	9 (1 refind)	8	1
George Crowell	4/ Schooner Pond	3	0	0	0
George Crowell	5/ Port Morien	3	1	1	0
Joan Mills	6/ Gabarus	5	2	2	4
Susann Myers	7A/ Kennington Cove	7	4	3	2
LeeAnne Reeves	7B/ White Point	4	7 (4 refinds)	6	12
Susann Myers	7C/ Wild Cove	10	12 (7 refinds)	12	8
Susann Myers	7D/ Mira Gut Beach	6	0	0	0
Terry Laffin	9/ Florence	4	0	0	0
Sharon & George Digout	11/ Pondville	2	1	0	0
George Delaney	17/ La Bloc, CBHNP	3	1	0	0
Heather Davis	18/ Pleasant Bay Beach	1	0	0	0
Sheldon Lambert	19/ South Harbour	1	0	0	5
Sheldon Lambert	20/ Neil's Harbour	4	1	1	0
Sheldon Lambert	21/ Black Brook	5	0	0	0
Erich Muntz	22/ Broad Cove	5	3	3	0
Bethsheila Kent	24/ Englishtown	8	0	0	0
Shawn Sanson	26/ Southeast Bar	3	1	0	0
Vivian and John Pye	27/ Florence Back Beach	1	0	0	0
Ed Barrington	29/ Point Edward Beach	1	0	0	0
<b>Cumulative</b>	<b>Total</b>	<b>80</b>	<b>42</b>	<b>36</b>	<b>32</b>

\*Beached bird species consisted of: Thick-billed Murre (18), Common Murre (8), Murre spp. (9), Great Black-backed Gull (2), Gull spp. (1), Iceland Gull (1), and Unknown (3).