



British Columbia Coast

BirdWatch

The Newsletter of the BC Coastal Waterbird and Beached Bird Surveys

Volume 3 • November 2010

COASTAL WATERBIRD SURVEY: 10-YEAR TRENDS RESULTS ARE IN!



Since the inaugural season of BC's Coastal Waterbird Survey in September 1999, over 350 volunteers have participated in this program. More than 300 sites have been surveyed

throughout the BC coast - from the Lower Mainland, to the west coast of Vancouver Island and north to Prince Rupert and Haida Gwaii. More than 17,000 surveys have been completed! This has truly been, and continues to be, a highly successful Citizen Science program.

BSC's biostatisticians Tara Crewe and Denis Lepage, guided by BSC's Chief Scientist Phil Taylor, have conducted a 10-year (1999-2009) trends analysis on the Coastal Waterbird Survey dataset. The analysis focused on data collected in the Georgia Basin region since this is the area with greatest survey coverage and from where the large majority of data derive. Of the 60 waterbird species for which sufficient data exist to run this type of analysis, we found statistically significant declining trends for 17 species, increasing trends for 5 species, and no apparent trend (i.e. stable population) for the remaining 38 species. So, it's good news that the majority of our non-breeding waterbird populations appear to be stable, but also concerning that twice as many are in decline than on the rise. This summary provides further detail about the trends emerging from your 10-year dataset.

Most species (64%) show a stable population trend over the last decade, while 28% of species show a declining trend and 8% are undergoing an increasing trend. In general, shorebirds do not seem to be showing significant population changes, although Killdeer and Sanderling appear to be undergoing declines. Both Common Loon and Red-throated Loon appear to be declining as well. A few ducks showed a decreasing trend such as Barrow's Goldeneye, Canvasback, Green-winged Teal, Harlequin Duck, Hooded Merganser and Lesser Scaup. Many duck species experience high inter-annual variation in population indices, so we will continue to keep an eye on these to try and determine if they represent true declines or natural ups and downs.

From 1999-2009, we have seen significant decreases for Great Blue Heron, Western Grebe, Rhinoceros Auklet, and Black Scoter in the Georgia Basin area. These are species of high conservation concern. In contrast to the first five years of the survey when herons did not show a decline,



Great Blue Heron (T. Middleton)

the 10-year Coastal Waterbird Survey trend for Great Blue Heron is decreasing. Breeding season studies have also found that coastal Great Blue Herons (the COSEWIC-listed *fannini* subspecies) are in decline. Significant factors include loss of nesting habitat, eagle predation and increased human disturbance.

Read inside for more trends results...



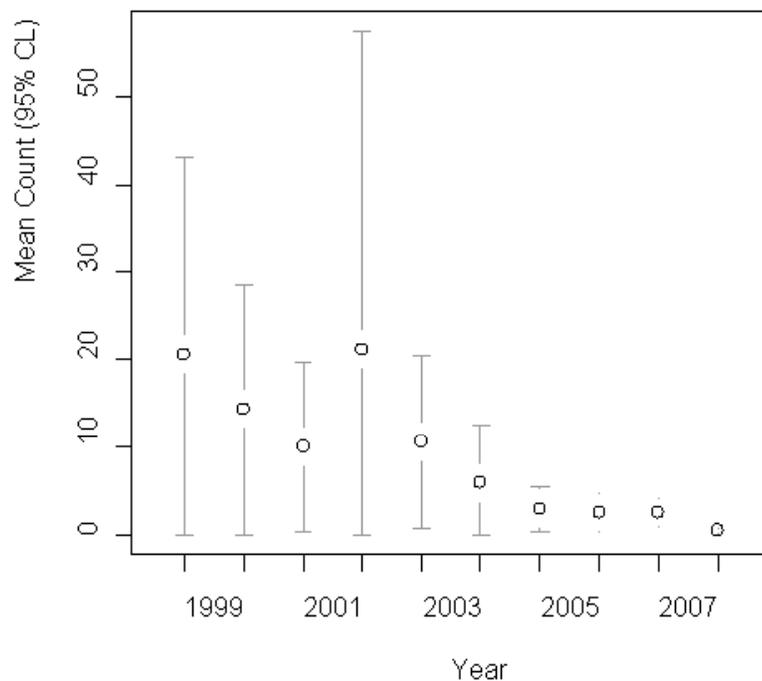
Coastal Waterbird Survey 10-Year Trends Results: 1999-2009 (continued)

During the early years of the Coastal Waterbird survey (2001-2005), high counts of up to 5000 Western Grebes were recorded at Oyster River, on the east coast of Vancouver Island during fall. Western Grebes were also abundant in the Fraser Delta area during springtime. Since 2007, the highest survey count from the Georgia Basin has been 470 at White Rock in the Lower Mainland. Interestingly, counts of several hundred Western Grebes continue to be regularly observed at a Coastal Waterbird Survey site further north, in the Broughton Archipelago. The 10-year decline we are seeing in the Coastal Waterbird Survey is a continuation of a much longer-term region-wide decline, as evidenced by Christmas Bird Count data from the Salish Sea, and a recent study conducted in Puget Sound, both of which indicate an 80-90% decline since the mid-1970s.



Western Grebe (T. Middleton)

The reasons for the decline of Western Grebes are poorly understood. Evidence indicates that the amount and/or availability of food for Western Grebes on overwintering grounds is changing. Herring and other small forage fish are critically important food for this species and for many other grebes and alcids. Recent fisheries studies indicate that herring are declining in the Georgia Strait and their distribution is shifting to other areas. Western Grebes may also be experiencing problems on their inland breeding grounds, such as habitat impacts and disturbance. Factors linked to the decrease of Western Grebe in Puget Sound include severe industrial contamination of coastal areas and collapse of an historical herring spawn site.

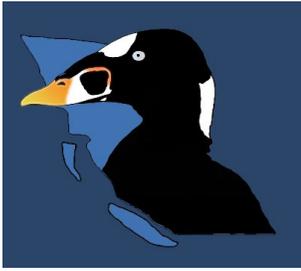


Average yearly counts for Western Grebe from 1999-2009 in the Georgia Basin region

Coastal Waterbird Survey 10-Year Trends Results: For each species, arrows indicate statistically significant increasing (green) or decreasing (red) trends. The blue symbol (~) indicates no statistically significant trend. The annual rate of population change is given in percent (%/year).

Trend	Species	Percent Change (%/year)
↓	Red-throated Loon	-5.6
~	Pacific Loon	-1.4
↓	Common Loon	-3.0
~	Horned Grebe	-1.5
~	Red-necked Grebe	-2.2
↓	Western Grebe	-13.6
~	Brandt's Cormorant	-4.1
~	Double-crested Cormorant	1.3
↑	Pelagic Cormorant	3.6
↓	Great Blue Heron	-2.3
~	Snow Goose	-0.9
↑	Canada Goose	7.2
~	Brant	-8.4
↑	Mute Swan	19.4
~	Trumpeter Swan	-5.5
~	Gadwall	-9.7
~	Eurasian Wigeon	7.2
~	American Wigeon	2.9
~	Mallard	0.4
↑	Northern Shoveler	24.8
~	Northern Pintail	-3.4
↓	Green-winged Teal	-7.9
~	Greater Scaup	-6.7
↓	Lesser Scaup	-11.8
↓	Canvasback	-18.9
~	Ring-necked Duck	3.1
↓	Harlequin Duck	-2.2
~	Surf Scoter	-1.6
~	White-winged Scoter	-3.9
↓	Black Scoter	-17.7

Trend	Species	Percent Change (%/year)
~	Long-tailed Duck	-3.7
~	Bufflehead	0.2
~	Common Goldeneye	-1.2
↓	Barrow's Goldeneye	-3.3
~	Common Merganser	0.9
↓	Hooded Merganser	-6.7
~	Red-breasted Merganser	0.7
~	Bald Eagle	1.4
~	Northern Harrier	-6.2
~	Red-tailed Hawk	-5.0
~	Peregrine Falcon	-7.3
~	Black-bellied Plover	-6.2
↓	Killdeer	-7.3
~	Black Oystercatcher	2.3
~	Greater Yellowlegs	-4.4
~	Black Turnstone	7.2
~	Surfbird	-12.4
↓	Sanderling	-12.1
~	Dunlin	-3.4
↓	Bonaparte's Gull	-18.5
~	California Gull	2.8
↓	Glaucous-winged Gull	-4.4
↓	Herring Gull	-11.7
~	Mew Gull	2.1
~	Ring-billed Gull	4.9
~	Thayer's Gull	2.4
~	Common Murre	-2.0
↑	Pigeon Guillemot	26.8
~	Marbled Murrelet	1.7
↓	Rhinoceros Auklet	-42.7

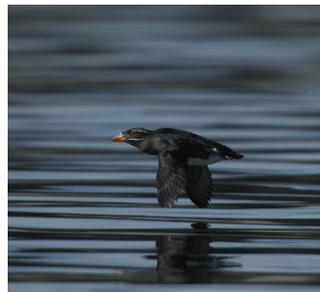


Coastal Waterbird Survey 10-Year Trends Results: 1999-2009 (continued)

Rhinoceros Auklets appear to be declining significantly, although the exact reasons are

unclear. Like Western Grebes, these birds also rely heavily on small fish for food such as herring and sand lance. Rhinoceros Auklets often occupy areas further offshore and can be difficult to see in some circumstances. For this reason, the Coastal Waterbird data may not be an optimal indicator for the regional non-breeding population of Rhinoceros Auklets.

Four Rhinoceros Auklet breeding colonies are regularly monitored by the Canadian Wildlife Service, all located on the central and north coast of BC (Triangle Island, Pine Island, Skaang Gwaii, and Lucy Islands). The Pine Island colony is showing an overall decline in



Rhinoceros Auklet (T. Middleton)

breeding, while Skaang Gwaii and Lucy Island colonies seem to be increasing. On Triangle Island, Rhinoceros Auklet breeding had been declining for several years, but 2009 surveys showed a large increase in the number of nesting burrows. Unfortunately preliminary monitoring results indicate Rhinoceros Auklet experienced a very poor breeding year in 2010, possibly linked to warmer ocean conditions and shifts in prey availability (M. Hipfner, Environment Canada, pers. comm.). Preliminary results from a recent tagging study led by Sean Boyd and Mark Hipfner of Environment Canada show that after leaving the Pine Island colony, Rhinoceros Auklets dispersed long distances in very different directions, suggesting that individuals from the same colony may not use the same non-breeding areas, which has important conservation implications. In as little as seven weeks after breeding, birds travelled from Pine Island to as far north as offshore areas near Glacier Bay, Alaska, and as far south as Oregon. This kind of tagging study provides crucial information

about overwintering habitat for seabirds like Rhinoceros Auklets, for which we otherwise have little information on their individual movements in winter.

Of the three scoter species on the BC coast, we found no significant trend for Surf or White-winged Scoter but we did see a significant decline for Black Scoter. The reasons for this are not clear. Black Scoter typically frequent areas with muddy/sandy bottoms where they dive to eat mussels and clams, as well as crustaceans like limpets and snails. The decline could be related to degradation of coastal overwintering habitats or problems on the breeding grounds. Surveys conducted in Alaska as part of the Waterfowl Breeding Pair and Habitat Survey indicate Black Scoter have declined at a rate of 1.6% per year, or by almost 50% since the 1950s. The map below shows the migration route and timing for a tagged female Black Scoter travelling from overwintering grounds off Vancouver Island to breeding grounds in Alaska, with stopover sites along the way.



Black Scoter migration route (courtesy Sean Boyd, Environment Canada)

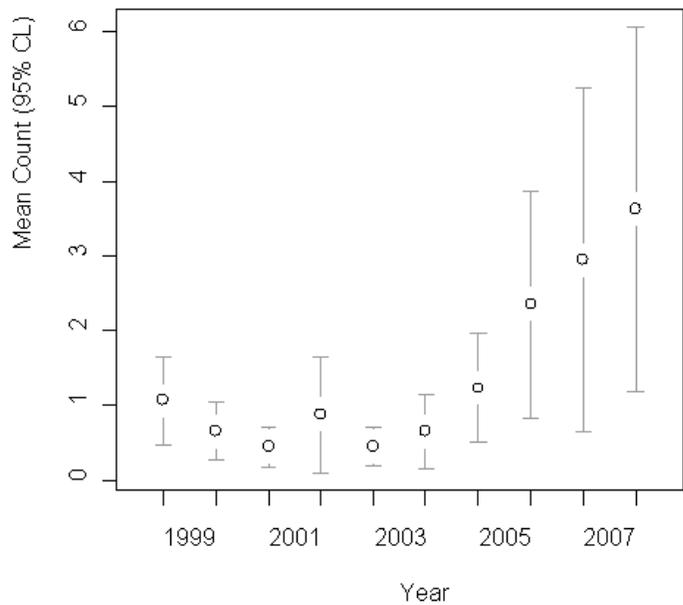
For some species, there seems to be a regional localized decline occurring. For example, counts of Horned Grebe from the Victoria-Saanich peninsula area suggest a decrease since the survey began, mirrored by trends in

adjacent Puget Sound, but Georgia Basin region-wide data show no significant trend. In April 2009, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommended that Horned Grebe be added to Canada's list of species at risk due to declining numbers nationally.

On the increasing side, the 10-year Coastal Waterbird dataset shows that numbers of Canada Geese, Northern Shoveler and Pelagic Cormorant are on the rise. Although these data indicate that overwintering populations of Pelagic Cormorants in the Georgia Basin are thriving, other studies have shown there are serious problems on the breeding colonies. Pelagic Cormorants nest on rock cliffs, caves and islets along the entire coast of BC. Between the 1960s and 1980s, there were 100-1000 pairs of breeding Pelagic Cormorants. In 2000, surveys throughout the Strait of Georgia found that the number of nests had declined by 54%. Disturbance and predation by Bald Eagles is thought to be a significant factor causing breeding declines of Pelagic Cormorants. Other possible factors include shifts in prey abundance (eg. less herring, gunnels, salmon) and human disturbance from recreational boating. The increasing trend for Pelagic Cormorants shown by Coastal Waterbird Survey data likely reflects an increase in the overwintering population, possibly as a result of other birds moving into the Georgia Basin from elsewhere.

Another species that seems to be increasing rapidly in the Georgia Basin is Mute Swan, a non-native species introduced from Europe and Asia. The highest count of Mute Swan was 160 near Sidney in April 2005. This is a concern since Mute Swans can reduce the amount of submerged aquatic vegetation available as food for native waterbird species. In addition, they can be quite aggressive and may compete with native swans and other waterfowl for habitat.

Pigeon Guillemot appears to be undergoing a boom in numbers in the Georgia Basin area. In particular, large counts have been recorded off Southern Vancouver Island, in the Saanich area. Little information is available to explain this trend. There is a large breeding colony located on nearby Mandarte Island. And perhaps other factors are causing birds from other areas to redistribute to the Georgia Basin for the winter.



Average yearly counts for Pigeon Guillemot from 1999-2009 in the Georgia basin region



Pigeon Guillemot near Victoria (H. Reid)

The Coastal Waterbird Survey provides the only long-term monitoring dataset for the BC coast. A similar trends analysis was recently done in Padilla Bay, Puget Sound where overwinter waterbird counts collected in 1978/79 were compared to data collected in 2003/06. Many trends were similar to those we found. For example, Western Grebe, Red-throated Loon and Black Scoter are also undergoing significant declines in Puget Sound. As found by Coastal Waterbird Survey data, positive trends were similarly found for Pelagic Cormorant, Canada Goose and Pigeon Guillemot in Puget Sound.



Coastal Waterbird Survey 10-Year Trends Results: 1999-2009 (continued)

A future goal will be to collaborate with other agencies and organizations to conduct an analysis of these trends over a broader regional scale. Although 10 years is a significant milestone for the program, it remains a relatively short period of time to assess trends in species that often live longer than 10 years. The strength of the program relies on continuing the surveys and engaging new interested volunteers throughout the coast. We extend our deepest gratitude to all volunteers who have contributed to this long-term effort over the years! Any new (or returning) volunteers interested in participating, please email us at BCPrograms@birdscanada.org, or toll-free **1-877-349-2473**.

Welcome New Volunteers

A hearty thank you to all current volunteers participating in the BC Coastal Waterbird Survey and a warm welcome to new participants:

Jim & Fran Askey, Sandy Bowie, Mike Boyd, Jay Brogan, Jon Carter, Nonie Coulthard, Fred & Evelyn Dobson, Julie & Denis Foster, Kate Forster, Alexis Harrington, Mike Hoebel, Sheila Howlett, Bill Kinkaid, Simon Kruithof, Kitty Lloyd, Andy Murray, Jason Northcutt, Stan Olson, Andrea Paetow, Joan Plysiuk, Bob Sarti, Muggs Sigurgeirson, Jason VanRooyen, Fern Walker, Carol Wardle, Ted Warren, Megan Willie, Neil Wilson and Charlene Wood.

Thanks to Long-time Volunteers

We wish to thank past volunteers who contributed several years of surveys:

Jean Allen, Dave Aldcroft, Gladys & Jerry Anderson, Steve Baillie, Jenny Balke, Robin Baron, Maija Bismanis, Don Blood, Neil Bourne, John Brighton, Janice Brown, Lynda Butterworth, Joan Cartwright, Carole Chambers, Bob Chappell, Peter Clarkson, Jim Clelland, Lynda Colbeck, Fred Cooke, Bruce Cousens, Rela Cripps, Chris Dale, Paul deNiverville, John Dove, Yorke Edwards, Kyle Elliott, Liz Fitch, Jennifer Fletcher, John Fletcher, John Gaskin, Bryan Gates, Jim & Betty Goodman, Billie Gowans, Rich Green, Lea Haggert, Jack Hammonds, Bill Heidrick, John Henigman, Bill Heybroek, Jean Hudson, Dave Ingram, John Ireland, Pam & Harvey Janszen, Fran Johnson, Paul Jones, Allan & Sandra Kokorudz, Pat Levitt, Eric LoFroth, Gail Loughridge, Betty Lunam, Hue & Jo Ann MacKenzie, John & Lois MacKenzie, Frances & Torbin Madsen, Diana Maloff, Jeanette Martinolich, Derrick Marven, Nelson McInnes, Jack & Jean McLeod, Anne McNeill, Sandy McRuer, Allan Milligan, John Mills, Erik Milton, Guy Monty, Glen & Judy Moores, Patti Moreland, Rosemary Nixon, Ivan Nygaard-Petersen, Bev O'Sullivan, Jim Phillips, Ilya Povalyaev, Barry Price, Wendy Prothero, John Rawsthorne, Keith Riding, Murray & Penny Robertson, Geoff Robins, Neil Robins, Mary Roddick, Ron Satterfield, Bernard Schroeder, Brian Scott, Barbara Sedgwick, Alan Shatwell, Brian Slater, Joan Sommer, Dave Spalding, Ron Speller, Prue & Bernie Spitmann, Al Storey, Derek Sutton, Faith Takishita, Doreen Tamboline, Jack & Bev Temp, Rick Toochin, Tauno Tuominen, Audrey Viken, Leona Wall, Sue Wheeler, Alan Whitehead, Jim Wisnia, Ken Wright, Arlene Yaworsky.

USEFUL WEB RESOURCES



NatureCounts

www.naturecounts.ca

Launched in 2008, the goal of the NatureCounts website is to facilitate the collection, management, analysis and sharing of natural inventory and monitoring data, with a particular focus on birds and other vertebrates. NatureCounts is managed by Bird Studies Canada, and is the first Canadian node of the Avian Knowledge Network, a group dedicated to the understanding of the patterns and dynamics of bird populations across the Western Hemisphere. Participants in programs coordinated by Bird Studies Canada, like the Coastal Waterbird Survey, will be able to enter and review their data online. Visitors can access raw data from the various surveys (with appropriate permissions if required).



World Seabird Conference

www.worldseabirdconference.com

The first World Seabird Conference was held in September 2010 in Victoria, BC. The conference was a resounding success with over 800 delegates from over 40 countries attending. Over 200 scientific talks and 360 posters were presented. Several workshops were held to generate input and discussion on improving access to, and use of, information and data on seabirds. Research topics covered a vast array of subjects such as: Long term monitoring, Fisheries bycatch, Effects of climate change, Migration, Contamination, Population modelling, Marine debris, Protected areas and much more. Complete abstracts are available online.



IBA Canada Program

www.ibacanda.ca

The Canadian Important Bird Area website has been given a new look. The updated website includes the full list of IBA site summaries, new pages on the IBA Caretaker program, how to become involved in bird conservation and links to further information. You can click on the interactive map to see where IBAs in Canada are located. Site summaries give information on location, habitat, a list of the bird species for which the site was designated and other birds of interest, and conservation threats.

Coming Soon to a Beach Near You: The Beached Bird Survey Program Expands in 2009-2010



Over the last year, the Beached Bird Survey (BBS) program has seen an exceptionally positive response. There are now over 60 volunteers involved in this program. In 2009, 317 Beached Bird surveys were completed covering a total of 650 km of BC's coastline!

Volunteer participation has increased substantially in many areas on Vancouver Island. For example, the Comox Birders group of the Comox Valley Naturalists Society has established nine new Beached Bird Survey sites in the Comox area, where previously we had no coverage at all. On the Gulf Islands, we have four sites now being surveyed on Hornby Island and three on Gabriola. On the mainland, coverage has improved in the Vancouver area, in Kitsilano and Burrard Inlet, with many new volunteers involved. Thanks to the Stanley Park Ecological Society who help coordinate volunteers, the beaches around Stanley Park in Vancouver are now surveyed regularly. We are also very pleased to have new sites on the central coast. Wayne Jacob with the Hakai Beach Institute and the Wuikinuxv First Nation recently joined the program and established two sites on Calvert Island, located about 100 km north of the tip of Vancouver Island, and another site at Koeye Bay.

The most active region for beached birds in 2009 was definitely the west coast of Vancouver Island. During November-December of 2009, 149 beached birds were found on beaches in the Tofino-Ucluelet area. The highest number of beached birds reported during a single survey on the west coast was 55 Northern Fulmar by Peter Clarkson on Long Beach. This translates to 18.3 birds/km! The next most active region was Boundary Bay-Beach Grove where Anne and Len Murray found 9 beached birds, or 2 birds/km, during one survey in October 2009. There were several other areas where a few beached birds were reported during 2009 including Little Campbell River in White Rock (Gareth Pugh), Esquimalt Lagoon (Beth Mitchell), Tribune Bay on Hornby Island (Ilze Raudzins), Goose Spit (Art Martell), Sunset Beach in Stanley Park (Janet Schindler & Eckhardt Ferdinandi), English Bay (Jeff Pisiso) and North Beach on Saltspring (Ling Weston).

In total, 242 beached waterbirds and 23 different species were found during 2009. A Rock Pigeon and Ring-necked Pheasant were also reported but have not been included in this summary since they are terrestrial species. By far, the most common species was Northern Fulmar making up almost 70% of the total birds found. This is followed by birds of unknown species (7%).

A key piece of information that volunteers report from these surveys is whether any oil is seen on the beach. This gives us an idea if oiling events have occurred even when no birds are found. In 2009, oil sheen was observed during five separate surveys at two locations: False Creek and Coal Harbour. This may not be unexpected since these areas are located near busy marinas and areas of high shipping activity in Vancouver Harbour. During these five same surveys, no beached birds were found. In general, it appears that the incidence of oiled birds has declined in recent years and no oiled birds were found in 2009. We plan to look at this trend in more detail with Environment Canada scientists.

We are very pleased to report that several projects are continuing in conjunction with the Beached Bird Survey program. One such project is a collaborative initiative with Canadian Wildlife Service and the Ministry of Agriculture & Lands in which fresh carcasses are submitted to the lab for various analyses and to determine cause of death, also known as 'Dead Bird CSI'. This project has seen great success.



Volunteers examine a salmon shark found during a Beached Bird survey on Long Beach, Tofino (Parks Canada)

In 2009, BBS volunteers collected more than 40 carcasses which were submitted to the lab. We are seeing quite a range in causes of death such as disease, predation, trauma (shot) and drowning/fisheries bycatch.

Another project that had a great start in 2009 focuses on plastics ingestion in seabirds. Results from this research were presented by Stephanie Avery-Gomm at the first World Seabird Conference held in Victoria September 7-11, 2010. Further details about this project are on pages 14-15 of this newsletter.

A more recent project in August-September 2010 involved conducting high frequency Beached Bird surveys in the Boundary Bay area to assess possible bycatch effects during commercial sockeye net fisheries. Several carcasses were collected and sent to the lab and results will be available later this fall.

The Beached Bird Survey program is an excellent example of how Citizen Science can provide much-needed information to answer a variety of conservation questions. Anyone can participate; no special skills are needed. The results of this program are clearly helping to improve our understanding of waterbird mortality on a number of different fronts. Thanks go to all those who contributed to this program!



Double-crested Cormorant found on Hornby Island in November 2009. Cause of death was determined to be drowning, likely from net entanglement (I. Raudzins)

Total Carcasses Found by Species and Region in 2009

Region	North Coast	S. Vancouver Island & Gulf Islands	West Coast Vancouver Island	Boundary Bay	Lower Mainland	Sunshine Coast	TOTAL BIRDS
Common Loon			1				1
Red-necked Grebe				2			2
Unknown Grebe		2					2
Laysan Albatross			1				1
Northern Fulmar			168				168
Double-crested Cormorant		1					1
Pelagic Cormorant		1			3		4
Unknown Cormorant		1					1
Great Blue Heron					1		1
Canada Goose		1			1		2
Mallard		1		3			4
Northern Pintail				6			6
White-winged Scoter				3			3
Bufflehead		1					1
Unknown Duck				1		1	2
Bald Eagle		1			1		2
Black Oystercatcher			1				1
Red-necked Phalarope			1				1
California Gull			1				1
Glaucous-winged Gull			3	1	1		5
Herring Gull	1						1
Mew Gull					1		1
Western Gull			1		1		2
Unknown Gull		2	2	3			7
Common Murre			1				1
Pigeon Guillemot				1			1
Northwestern Crow		1			1		2
Species Unknown		1	16	1			18
TOTAL BIRDS	1	13	196	21	10	1	242

Welcome New Volunteers

A hearty thank you to all current volunteers participating in the BC Beached Bird Survey and a warm welcome to new participants:

Stephanie Avery-Gomm, Lynn Bieber-Weir, Jamie Boyd, Andrew Clarke, Barry & Marlene Hall, Wayne Jacob and others from Wuikinuxv First Nation, Malcolm Jolly, Heather Kay, Daniel Lien, Carie McAlister, Art & Sue Martell, Janice Melvin, Norma Morton, Heather Reid, David Robinson, Janet Russwurm, Bill Stewart, Margaret Taylor, Charley & Amanda Vaughan, Reg Westcott, Marilyn Futer & Bill Campbell, and Anu Rao.

Thanks to Long-time Volunteers

We wish to thank past volunteers who contributed several years of surveys:

Kate Alexander, Steve Baillie, Barbara Begg, Lee Beliveau, Jason Beukens, Robert Boelens, Alan Burger, John Butterworth, Doug Burles, Thomas & Evelyn Constable, Bruce Cousens, Kathy Doyle, Anne Drummond, Dalyce Epp, Amanda Erickson, Janet & Jerry & Justine Etzkorn, Janet Gray, Brent & Sylvia Hacking, Helen Heffernan, Silva Johannson, Paul Jones, Kevin & Nuala Jordan, Annemarie Koch, Beth Mitchell, Anne & Len Murray, Louise Paterson, Allen Poynter, Barry Price, Geoff Robins, Neil Robins, Bernard Schroeder, Maggie Stronge, Andrea Tanaka, Tauno Tuominen

Reminder: Please report dead marine mammals to the BC Marine Mammal Response Network

The BCMMRN is a collaborative program between government agencies, research, conservation and outreach groups, wildlife rescue organizations and BC citizens. The goal of the program is to help distressed marine mammals and sea turtles, and to collect information from dead animals that are found. The network responds to reports of dead, injured, sick and harassed marine mammals.

Last year, many Beached Bird Survey volunteers observed and recorded observations of dead seals, including numerous pups and adults. If you spot a dead seal or any other marine mammal on the beach, please contact the MMRN at their 24-hour toll-free number **1-800-465-4336** and leave a message about what you saw and the location. Or email Lisa.Spaven@df-mpo.gc.ca.



Steller Sea Lions at Snake Island, an Important Bird Area near Nanaimo (T. Middleton)

Special Feature: Plastics Ingestion in Seabirds

by Jennifer Provencher, M.Sc. (UVIC), Coastal Waterbird Volunteer & Karen Barry

Before plastics became common place, much of our trash was organic material that broke down, or valuable metals that were recycled. Since the birth of plastics, we now rely on a number of disposable items, from plastic water bottles to takeout food containers, from toys to plastic lawn chairs. We all use plastic each and every day, if not each and every hour. Plastic is durable and cheap to produce. The downside to plastics is where they go once they have fulfilled their purpose.

Each year about 100 million tons of plastic is produced worldwide. The US Environmental Protection Agency has estimated that less than 10% of the plastics made each year are recycled, and once plastic items have missed the recycling truck they end up in the landfill. At the garbage dump, most plastics are buried - away from the heat and light needed to break them down. Another 10% of the trash escapes and ends up in the marine environment. Plastic entanglement by seabirds and other marine animals has long been recognized as a concern, but another threat which is gaining increasing attention is plastic ingestion.

Large-bodied, oceanic seabird species that feed opportunistically at the surface, such as fulmars and albatrosses, are most susceptible to plastic ingestion. When feeding, these birds will scoop up anything that looks like a piece of food. Because most plastics float just below the water's surface, the birds pick up these items as well.

In the Northern Hemisphere, Northern Fulmars (*Fulmarus glacialis*) are particularly good at picking up plastics. In the North Sea, scientist Jan van Franeker and his research group have been studying fulmars as indicators of marine



Laysan Albatross chicks are unknowingly fed plastic debris by their parents on Midway Atoll causing many to die from malnutrition and/or choking. (C. Jordan www.chrisjordan.com)

debris since the 1980s. By collecting beached fulmars in countries around the North Sea, changes in marine debris pollution can be tracked.

A decrease in industrial plastics has been observed as education and outreach programs have targeted reducing industrial plastic loss. However at the same time, there has been an increase in user plastics with many of the fulmars collected in the North Sea containing large amounts of plastics and marine debris.

In Canada, many of us cut up our six pack rings to save our feathered friends from being entangled, but what of the ingestion of plastics by Canadian seabirds?

The first piece of plastic ingested by a fulmar was found by Mark Mallory of Environment Canada in 2003 at Cape Vera, a fulmar colony in the Arctic Archipelago north of Lancaster Sound. Since this time, fulmars from two more Arctic colonies have been sampled and 80% of the birds sampled in 2008 contained plastics of some sort. When the plastic in each bird was weighed, 28% of the birds contained more than 0.1 grams of plastics, the amount established in Europe as biologically significant.

Although the Canadian results are well below those found in the busy North Sea, we are also finding plastics in our Arctic seabirds, which was somewhat surprising since this area is considered remote and pristine. And we are not just finding plastics in fulmars, a species known to ingest debris. Recent studies have shown that Thick-billed Murres (*Uria lomvia*) from Nunavut, a diving seabird species, also had plastics in their stomachs.

What is to be done? The evidence shows that plastics and wildlife do not mix. From the Arctic to the Antarctic, seabirds are consuming floating plastic debris and as long as plastics continue to make their way into the marine environment, this could pose a significant risk to seabirds and other wildlife. Ideally, we can educate ourselves and others about this issue, try to reduce our plastic use and increase how plastics are recycled.

Beached bird surveys in BC are proving to be a highly valuable means of collecting samples for which we can assess plastics ingestion. Further description about how Beached Bird Survey volunteers have recently contributed to this important research can be found on page 14 of this newsletter.



Thick-billed Murre breeding colony on Coats Island, Nunavut (J. Provencher)

Special Feature: Plastics Ingestion in Northern Fulmar collected by BC Beached Bird Survey Volunteers

by Stephanie Avery-Gomm, M.Sc. Candidate (UBC), Beached Bird Survey Volunteer

Ingestion of plastic by marine birds may have serious biological consequences, such as reduced breeding success, decreased growth, choking, ulcers and death. Although plastic ingestion among marine birds has been studied in many parts of the world, little work has been done in Canadian Pacific waters – until now. With the help of BSC Beached Bird Survey volunteers and in collaboration with Environment Canada and the Ministry of Agriculture and Lands' Animal Health Lab, we are learning much about plastics ingestion in seabirds of the North Pacific.

Since this study was first announced in last year's issue of Bird Studies Canada's BC Coastal newsletter, numerous bird carcasses have been recovered by Beached Bird Survey volunteers. In November 2009, a large wreck of Northern Fulmar (Pacific subspecies, *Fulmarus glacialis rogersii*) was reported on the west coast of Vancouver Island by several Beached Bird Survey volunteers in the Tofino-Ucluelet area (Peter Clarkson, Bob Hansen, Robert & Mara Love, Darlene Choquette). These volunteers kindly assisted with the documentation of this event and the collection of nearly 40 carcasses for submission to the lab. Results of the necropsies indicated that the cause of death for these birds was emaciation and/or drowning.

Northern Fulmar have been previously used as an indicator species for trends in plastic pollution in the North Sea and so collection of these wrecked birds and analysis of their stomach contents can provide a comparable indication of plastic pollution in the North Pacific.

The results are startling: Of the 36 Northern Fulmar collected, 97% were found to have ingested plastic!

The number of plastic pieces ingested ranged from 1 to 454 pieces (mean 52.9 ± 103.3 pieces per bird), and the weight of the plastic found in the Northern Fulmar stomachs ranged from 0.002g to 2.89g (mean $0.69g \pm 0.70g$ per bird). The maximum weight of plastics (2.89g) equals 0.4% of the body weight of a 700g adult!

Plastic pieces varied in colour (grey, white, green, red, blue, yellow) and most were user plastics, i.e. garbage, which included fishing line, abrasive sponge, plastic fragments and sheet plastic.



Plastic non-food items found in Northern Fulmar beached on the west coast of Vancouver Island in November 2009 (S. Avery-Gomm)



Northern Fulmar found on Chesterman's Beach, Tofino by Beached Bird Survey volunteers (R. Love & M. Love)

The remaining pieces were industry plastics ("nurdles") which typically enter the marine environment on their way from the manufacturing plant to the factory, where they would be turned into a usable marketable item.

To place these results into context, the most recent documentation of plastic ingestion in the Pacific subspecies described here reported an incidence rate of 84-88% in 1997. In the mid- and high Canadian Arctic, plastic ingestion among Atlantic Northern Fulmar ranges from 31-84%. In the North Sea, as many as 99% of birds have been found to ingest plastic.

Not only that, but 75% (27 of 36) of the Northern Fulmars recovered on the west coast of Vancouver Island contained >0.1g of total plastic, a threshold mass identified as biologically significant by the North Sea plastic monitoring program, OSPAR.

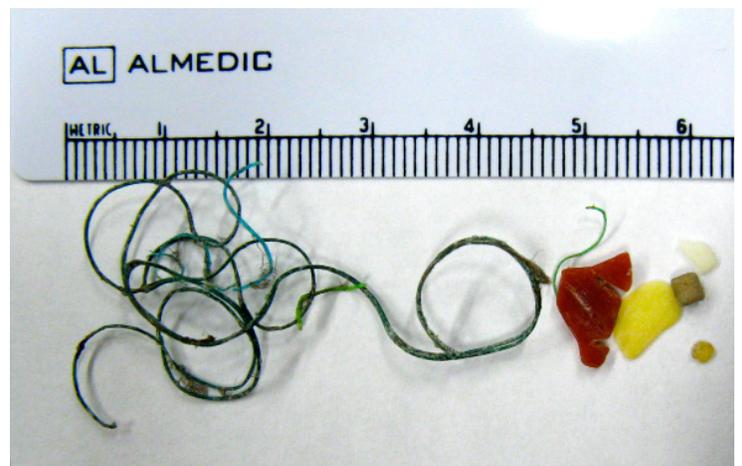
This study confirms marine plastic debris ingestion by Northern Fulmar in the North Pacific Ocean, and indicates that the extent of pollution is high.

The next objective in this line of research is to investigate plastic ingestion in marine birds with breeding populations in BC. Preliminary stomach analysis has been conducted on some other species found in BC including some alcids (Common Murre, Rhinoceros Auklet), Common Loons and grebes, and results suggest that plastic ingestion in these species is lower than in Northern Fulmar. However more samples are needed to better assess the amount of plastic ingestion in birds residing in BC waters.

Bird Studies Canada volunteers and interested individuals can provide invaluable assistance by reporting, collecting and submitting fresh and intact carcasses of any marine birds (appropriate permitting will be arranged). Contact BSC or the BC Wild Bird Mortality Toll-free line at 1-866-431-2473 for more information.

If you are interested in learning more about this study or how to get involved with this project please contact Stephanie Avery-Gomm directly at Stephanie.AveryGomm@gmail.com.

Many thanks to all the volunteers who have provided assistance to this project!



Plastic debris found in Northern Fulmar stomachs collected from the west coast of Vancouver Island (S. Avery-Gomm)

Humboldt Squid Found in the Tofino Mudflats Wildlife Management Area

by Josie Osborne, Raincoast Education Society

Until the summer of 2009, the Humboldt squid (*Dosidicus gigas*) was not a species that any Tofino naturalist or marine biologist thought of often – if ever – when visiting the Tofino Mudflats, an Important Bird Area, or other coastal places on the west coast of BC. But in late Spring 2009, rumours began to surface amongst Tofino's sports fishers that giant squid were attacking their lures – sometimes mangling them into uselessness. Then, the odd fisher began to land squid three to four feet long (1.2 m) which thrashed about, flashing red and white and looking angry. These were Humboldt squid, a large, carnivorous cephalopod (a class of mollusks including octopus, squid and cuttlefish that have arms and tentacles), formerly found only off the coast of South and Central America. One of the largest of the approximately 300 species of squid in the world, it can grow to 2 m (6-7 ft) in length, and is known to be an aggressive feeder, spending the day at great depths and coming up to the ocean's surface at night to feed on a wide range of fishes, crustaceans, and squids (including members of its own species!) using its sharp beak and hooked suckers on eight long arms and two even longer tentacles.

None of the wild squid fishing stories seemed to make it beyond a circle of



fishermen to the larger population of Tofino, until the evening of August 2, 2009, when several dozen Humboldt squid washed ashore on Chesterman Beach on a rising tide.

Humboldt squid stranded on Chesterman Beach, Tofino (J. Osborne)

By August 4, 2009, over 300 squid had stranded on Chesterman Beach, and several dozen more were reported on nearby beaches. In late September 2009, yet another mass stranding event occurred, this time over a much larger geographic range – from Pachena Bay (near Bamfield) through the Long Beach Unit of Pacific Rim National Park Reserve, the northwest coast of Vancouver Island to the BC Central Coast (Rivers Inlet and Hakai Pass). A few weeks later, two squid were spotted on the Tofino Mudflats by sharp-eyed local residents walking the flats in search of Great Blue Herons. Presumably, these squid were carried onto the mudflats on an incoming tide. Although alive when first found, they did not survive long and decomposed over several days and weeks – aided by eagles, shore crabs and a myriad of other species thriving in the mudflats. A Tofino photographer even captured a black bear on film – carrying away a Humboldt squid carcass – perhaps unknowingly documenting the first encounter ever between these two species.



Black bear scavenging a Humboldt squid near Thornton Creek, Ucluelet Harbour (Tofino Photography)

While many scientists believe that El Niño events and general ocean warming associated with long term climate change are partially responsible for bringing the Humboldt squid farther north, they suspect that it's not the full story. Long-term overfishing of the Humboldt squid's predators, such as tuna and billfish, may also be contributing to the squid's range expansion not only because there are less predators to eat the squid (hence increased populations of squid), but also because top predators like tuna and Humboldt squid compete for the same prey. Less competition from tuna means more food for squid, thus increasing squid survival rates.

We are not certain what will happen if the Humboldt squid are here to stay, but we do know that with their arrival in local waters and the stranding of hundreds of squid on our beaches during the summer of 2009, we can no longer deny that the oceans are changing.



New Protection for the Galapagos of the North

by Karen Barry, Peter Davidson & Carita Bergman (Parks Canada)

With its deep sea coral reefs, rich kelp forests and productive eelgrass meadows, Haida Gwaii is often referred to as the Galapagos of the North because the islands and coastal habitats support a stunning diversity of marine plants and animals. In addition to economically important fish and shellfish, this region is home to fragile corals, endangered Steller sea lions, and globally important breeding colonies of many seabirds.

On June 7, 2010, the day before World Oceans Day, a significant step was taken to advance marine conservation in Canada with the announcement of the designation of Gwaii Haanas National Marine Conservation Area (NMCA) Reserve and Haida Heritage Site.

The site is located in the southern archipelago of Haida Gwaii, formerly known as the Queen Charlotte Islands. This new reserve extends 10 km offshore from the current Gwaii Haanas National Park Reserve, so it will also protect 3500 sq. km of marine habitat in Hecate Strait and the Queen Charlotte Shelf natural marine region. In total, the combined existing park reserve and new marine conservation area will protect over 5000 sq. km of spectacular wilderness from alpine mountain tops to the deep sea beyond the continental shelf. This new legislation allows for traditional fishing and recreational use in the area, but prohibits offshore oil drilling in the area. Parks Canada and the Haida Nation will co-manage the conservation zone. This type of designation marks the very first time that an NMCA has been established under the Canada National Marine Conservation Areas Act. Not only is this type of designation a first for Canada, but it's the first of its kind in the world.

The NMCA provides important feeding and staging/congregating areas for hundreds of thousands of

seabirds that breed on the offshore islets of this ocean archipelago. The combined Haida Heritage Site, NMCA Reserve and National Park Reserve will provide



Ancient Murrelet (R. Tizard)

permanent protection for no less than eight Important Bird Areas including Anthony Island, Skincuttle Inlet Islands, Alder Island, Ramsay and Northern Juan Perez Sound Island, Dodge Point and Gogit Passage Island Chain. These IBAs support globally significant breeding colonies of Ancient Murrelet, Cassin's and Rhinoceros Auklets, and Leach's Storm-Petrel.

In 2009 Parks Canada Agency embarked on a five-year program to begin restoration of several globally important seabird colonies on islands in the Gwaii Haanas National Park, including predator eradication, employing techniques to bring seabirds back to former nesting sites, and colony monitoring work. This is taking on even more significance now with the collapse of Cassin's Auklet colonies in the California Current system, including a spate of very poor breeding seasons on Triangle Island off the north coast of Vancouver Island. Given that most of the world's population of Cassin's Auklets breeds in British Columbia, the colonies that appear to be stable or increasing in Gwaii Haanas National Park Reserve and Haida Heritage Site are taking on a very special significance.

From Coast to Coast: The IBA Caretaker Network Spreads Across Canada

by BC IBA Committee (Anne Murray, Krista Englund, Karen Barry & Peter Davidson)



“The success of BC was contagious”, is how Ted Cheskey, national IBA Program Coordinator for Nature Canada described the expansion of the Caretaker Program to other provinces. He goes on to say: “Seeing both the popularity and success of BC Caretakers, learning about similar initiatives in other jurisdictions, and realizing the conservation imperative to revitalize this program, the national partners secured significant funding from various sources to reanimate the National IBA Program around the concept of building and supporting a national IBA Caretaker Network. These efforts led to development of the Important Bird Areas Master Plan for Canada, developed over two years by the national partners (Bird Studies Canada and Nature Canada) with input from regional partners. The plan identifies roles and responsibilities, as well as program goals and targets for site assessment and monitoring, data management, awareness building and conservation action”.

Here in BC, the IBA Caretaker Network continues to be very active. Caretakers are the eyes, ears and hands on the ground and act as local contacts for monitoring and stewardship. A wide range of stewardship activities are taking place at IBAs, such as interpretive signage, developing local government approaches to conservation, producing educational brochures, and monitoring birds. Caretakers have been identified for almost all of the BC sites although a few of the more remote IBAs still need to be matched with Caretakers. We are in process of finding Caretakers for the remaining sites and updating Site Summaries for

all the IBAs in BC. This is where the need for current monitoring information comes in. To update the Site Summaries, information on bird abundance and habitat conditions is needed. Data collected through the Coastal Waterbird Survey and Beached Bird Survey programs, as well as bird observations entered in the online database **eBird Canada** (www.ebird.ca), provide highly valuable information on which the IBA program relies. Anyone who visits an IBA is encouraged to enter their birding observations in eBird.

Many thanks to all the current volunteers involved in the IBA program and to those who have previously contributed to the program in any number of ways. For anyone who would like to become involved as a new Caretaker or would like to join an existing Caretaker group to monitor birds, habitat and other site conditions, please contact: iba@bcnature.ca or 604-985-3057.

IBAs in British Columbia are a partnership program of:



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Black Oystercatcher (T. Middleton)

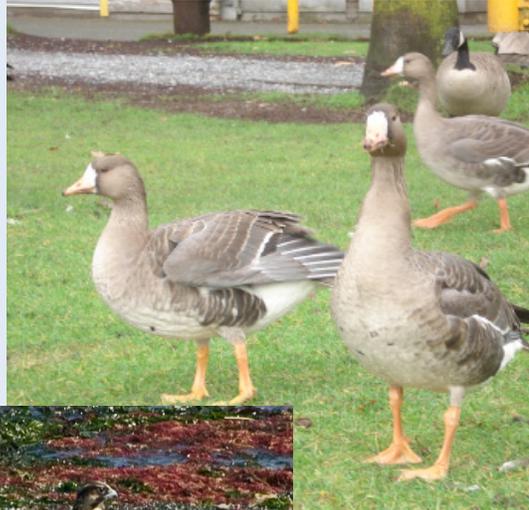


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Surveyor's Scrapbook



Coastal waterbird survey at Port Moody (Krista England)



Greater White-fronted Geese on Granville Island (Eileen Miranda)



Peregrine Falcon captures a gull in Comox (Malcolm Jolly)



Herring spawn season in Baynes Sound (Art Martell)



Dodds Narrows Beached Bird Survey site near Nanaimo (Janice Melvin)

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The BC Coastal Waterbird and Beached Bird Surveys thank the following organizations for their support:

