

# Marine Birds

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## What is happening with marine birds?

If you are out on the waters of Howe Sound, you are more likely to see and hear marine birds than any other wildlife. Marine birds animate Howe Sound with sounds of gulls, roosting cormorants at Horseshoe Bay, and great rafts of scoters and goldeneye that provide a magnificent shoreline spectacle during the winter months. Because marine birds are highly visible, changes in their populations are easier to observe than other species and they've become important indicators of environmental stress.<sup>2</sup> But recent reviews of marine birds throughout the Strait of Georgia and Salish Sea have identified long term declines in a number of species that raise serious concerns.<sup>3,4</sup> A recent assessment compares changes in marine bird counts in Howe Sound to changes noted in the Strait of Georgia and finds that changes in Howe Sound winter bird counts tend to parallel, with a few exceptions, the trends in nearby coastal marine birds as documented for the Strait of Georgia.<sup>5</sup>

Most of what we know about marine birds in Howe Sound comes from the observations of volunteers over many years. Volunteers conduct annual Christmas bird counts and monthly counts at several locations within Howe Sound. For example, in December 2015 and January 2016, groups in Lower Howe Sound (including parts of Bowen, Keats and Gambier Islands), Squamish (including the estuary and called Upper Howe Sound) and the Sunshine Coast (including the western shores of Howe Sound between Gibsons and Port Mellon) conducted counts as part of the Audubon Society's Christ-

mas Bird Count.<sup>6</sup> The count in Lower Howe Sound involved 68 people and observed 78 species, among others, 1,071 surf scoters, 1,012 Barrow's goldeneye, 104 double-crested cormorants, 30 marbled murrelets, and 14 horned grebes. Twenty-one observers with the Squamish Environment Society counted 72 species including 117 bufflehead, 4,217 glaucous-winged gulls, 36 great blue herons, 25 pelagic cormorants and 27 double-crested cormorants.



Lighthouse Park Preservation Society members conducting a monthly bird count in 2016. (Photo: Suann Hosie)

## Why are marine birds important to Howe Sound?

Marine birds include shorebirds, seabirds, and sea-ducks.<sup>7</sup> Seabirds, such as cormorants, gulls, guillemots, murrelets, and murrelets, spend most of their lives at sea but come ashore to breed, typically in colonies on islands. Sea ducks, such as goldeneyes, scoters, mergansers, harlequin ducks, and buffleheads are marine birds but typically breed inland. Shorebirds, such as sandpipers and plovers live along shorelines and forage on intertidal invertebrates.

Marine birds play a variety of roles in the Howe Sound ecosystem as carnivore hunters of fish and invertebrates, herbivore grazers, scavengers of carrion, and as prey. The overall number of marine bird species in Howe Sound is about 130, and Christmas bird surveys typically observe about 11,000 individual marine birds representing 73 different species. About 23 species breed or are suspected to breed in Howe Sound.<sup>8</sup> Several sites in Howe Sound are especially important

for marine birds. Christie Islet is a federally listed Migratory Bird Sanctuary, the only site in the Vancouver area where substantial numbers of seabirds nest, including pelagic cormorants, double-crested cormorants, and glaucous-winged gulls.<sup>9</sup> The lower reaches of the Squamish River, its tributaries, and estuary are designated an Important Bird Area by BirdLife International.<sup>10</sup> This area is deemed globally significant for Bald Eagles that congregate in winter, nationally significant for Great Blue Heron, and breeding grounds for several species of ducks and geese. Old growth forests are critical nesting habitat for marbled murrelets, and the murrelet populations on Howe Sound likely reflect access to such nearby forests on the Sunshine Coast,<sup>11</sup> and perhaps Gambier Island and the North Shore Mountains.

# Is there a particular importance or connection to First Nations?<sup>12</sup>



Great Blue Heron. (Photo: Gary Fiegehen)

Long ago, within Squamish Nation society, there was strict division of labour. Men hunted, fished and made tools; women cooked, gathered berries and roots, weaved baskets, mats and clothing, as well as looked after the children. Among the Squamish people, the power to hunt was considered a special gift reserved only for the guardian spirits. Grouse and waterfowl were an important source of food, while other birds provided feathers for ceremonial purposes. Ducks were hunted at night in special narrow canoes, which were very fast. The hunters attracted the ducks to the canoes with small fires, lit on top of mud and kept going under a small peaked hut made out of three cedar slabs tied together.

# What is the current state of marine birds in Howe Sound?

A more comprehensive report on marine birds in Howe Sound has been produced by the senior author.<sup>4</sup> Seasonal abundance checklists provide information on the abundance of individual species throughout the year, whether breeding occurs locally, and the habitats where each species is found. Seasonal abundance checklists are qualitative and different observers over time can gain different impressions of abundance. Such local checklists have been produced for the Squamish Estuary,<sup>13</sup> the upper Howe Sound Region and Squamish River Watershed,<sup>14</sup> and the Sunshine Coast, including the shorelines of West Howe Sound between Gibsons and Port Mellon.<sup>15</sup> The seasonal abundance of marine birds is well established in Upper Howe Sound based on monthly bird counts since the early 1990s in the Squamish estuary (Table 1). Seasonal abundance of marine birds in Lower Howe Sound (south of Brunswick Point) is not well documented; as an approximation, we have included data from the Sunshine Coast checklist (Table 1). The checklist for this adjacent area

includes surveys of the western shores of Howe Sound between Gibsons and Port Mellon.

Bertram's report on the Strait of Georgia (SoG) showed statistically significant changes for a number of marine bird species in Christmas Bird Counts between 1978 and 2008.<sup>2</sup> The double-crested cormorant (up 171 percent in SoG) breeds in Howe Sound and is commonly observed. The Canada goose (up 114 percent) also breeds in Howe Sound and is listed as common in Upper Howe Sound. Species that experienced the most precipitous declines in the SoG study include the western grebe (down 86 percent), the common murre (down 84 percent), marbled murrelet (down 69 percent), canvasback (down 63 percent), the greater scaup and lesser scaup (analyzed together and down 51 percent), the black scoter (down 47 percent) and the glaucous-winged gull (down 37 percent). The direction and significance of trends in the SoG<sup>2</sup> are corroborated for the Canada goose, the western grebe,



Gull with bait fish. (Photo: Lance Barrett-Lennard)

**TABLE 1**

Seasonal abundance of select marine bird species in Upper Howe Sound and Sunshine Coast based on checklists from 2011 to 2014.<sup>12,13,14</sup> (Upper Howe Sound means north of Porteau Cove; Sunshine Coast – West Howe Sound includes the west shore of Howe Sound from Gibsons to Port Mellon.) **C:** Common (more than 20 birds/day); **FC:** Fairly common (6–20 birds/day); **U:** Uncommon (1–5 birds/day); **R:** Rare (1–10 birds/year, every year); **Ca:** Casual (not seen every year in season indicated); **Ac:** Accidental (one record only for season indicated); **Ir:** Irruptive (significant fluctuation in numbers); **c/w:** Count week observation only (no numerical record); **\***: Breeds or suspected to breed in Howe Sound.

	SEASONAL ABUNDANCE OF SELECT MARINE BIRDS BY CHECKLIST DISTRICT							
	MAR – MAY		JUN – AUG		SEPT – NOV		DEC – FEB	
	SUNSHINE COAST – WEST HOWE SOUND	UPPER HOWE SOUND	SUNSHINE COAST – WEST HOWE SOUND	UPPER HOWE SOUND	SUNSHINE COAST – WEST HOWE SOUND	UPPER HOWE SOUND	SUNSHINE COAST – WEST HOWE SOUND	UPPER HOWE SOUND
<b>GEESE &amp; SWANS</b>								
Canada Goose*	C	C	C	C	C	C	C	C
Trumpeter Swan	FC	FC	–	U	FC	Ir	U	FC
<b>DUCKS</b>								
American Wigeon	C	C	R	FC	C	C	C	FC
Mallard*	C	C	FC	C	C	C	C	C
Northern Pintail*	U	C	U	FC	C	Ir	R	FC
Green-winged Teal	FC	C	U	C	C	C	U	FC
Ring-necked Duck*	U	FC	U	U	U	Ir	U	FC
Greater Scaup	U	FC	–	U	U	U	U	U
Lesser Scaup	U	FC	–	U	U	U	U	U
Harlequin Duck*	C	FC	FC	FC	C	U	C	FC
Surf Scoter	C	FC	U	U	C	Ir	C	Ir
Black Scoter	FC	Ca	–	Ac	FC	–	FC	Ca
Bufflehead*	C	C	–	U	C	C	C	C
Common Goldeneye*	FC	C	–	U	FC	C	FC	C
Barrow’s Goldeneye*	C	C	U	U	C	C	C	C
Hooded Merganser*	FC	U	FC	U	FC	FC	FC	FC
Common Merganser*	C	C	C	C	C	C	C	C
Red-breasted Merganser	FC	U	–	–	FC	U	FC	Ir
<b>LOONS</b>								
Pacific Loon	FC	Ca	–	–	FC	Ca	FC	Ca
Common Loon*	C	U	U	U	FC	U	FC	U

GREBES								
Horned Grebe	FC	FC	-	U	FC	U	FC	FC
Red-necked Grebe	FC	R	-	R	FC	R	FC	R
Western Grebe	U	U	R	U	U	Ir	U	Ir
CORMORANTS								
Brandt's Cormorant	FC	Ac	U	Ca	FC	Ca	FC	Ca
Double-crested Cormorant*	C	C	U	FC	C	C	C	C
Pelagic Cormorant*	C	U	U	U	C	FC	C	FC
WADERS								
Great Blue Heron*	FC	FC	FC	C	FC	C	FC	FC
PLOVERS								
Killdeer*	C	FC	C	FC	C	FC	C	FC
OYSTERCATCHERS								
Black Oystercatcher*	C	FC	U	FC	C	U	C	FC
SANDPIPERS								
Surfbird	C	Ca	U	Ca	C	Ca	C	Ca
Western Sandpiper	U	Ir	FC	Ir	U	C	-	Ca
Least Sandpiper	U	Ir	FC	R	U	R	-	-
Long-billed Dowitcher	U	U	FC	U	FC	FC	-	-
Wilson's Snipe	U	U	-	U	U	U	U	Ir
GULLS, TERNS, JAEGERES								
Bonaparte's Gull	FC	Ca	FC	Ca	C	Ca	U	Ca
Mew Gull*	C	C	U	U	C	C	C	C
California Gull	C	Ac	C	Ca	C	Ca	U	Ca
Herring Gull	U	R	R	R	U	R	U	R
Thayer's Gull	U	U	-	Ac	U	U	U	Ir
Glaucous-winged Gull*	C	C	C	C	C	C	C	C
ALCIDS								
Common Murre	U	U	U	Ac	U	Ca	U	Ca
Pigeon Guillemot*	U	U	U	U	U	-	U	Ca
Marbled Murrelet*	FC	U	FC	U	FC	Ca	FC	Ir
Ancient Murrelet	R	-	-	-	R	-	U	-
Rhinoceros auklet	R	Ca	U	-	U	-	U	R
RAPTORS								
Osprey*	R	U	U	U	R	U	R	Ca
Bald Eagle*	C	FC	FC	U	C	C	C	C
DIPPER & KINGFISHER								
Belted Kingfisher*	FC	U	FC	U	FC	FC	FC	FC
American Dipper*	U	U	U	U	U	U	FC	C



canvasback, great and lesser scaups, the black scoter and the glaucous-winged gull by Crewe et al.'s analysis of Coastal Waterbird Surveys.<sup>3</sup> The western grebe and common murre are uncommon at best in Howe Sound, while the marbled murrelet is fairly common along the Sunshine Coast and West Howe Sound and likely breeds in the limited old-growth forest in the region. Scaups are 'fairly common' in Upper Howe Sound in the spring, but uncommon at other times and elsewhere in the Sound. The Glaucous-winged gull likely breeds in Howe Sound and is commonly observed year round in both Upper Howe Sound and Sunshine Coast. The black scoter, a diving duck/sea duck that feeds on herring spawn among other things, generally uncommon in the Strait of Georgia, is considered fairly common along the Sunshine Coast and West Howe Sound, except in summer when it is not observed.

Locally, the decline in the Pacific herring is identified

as a reason for declines in many fish-eating marine bird species, and Bertram<sup>2</sup> supports this view in his discussion on the Strait of Georgia, although he also highlights competition with seals, gulls, and other species for herring. The seal population in Howe Sound is very robust, especially near the mouth of the Squamish River when fish are present. Other factors discussed are human threats including the herring fishery, habitat alienation by a variety of man-made expansions, toxic compounds including creosoted pilings, bilge discharge and spills, bird harvesting (which is still legal), impacts from climate change,<sup>2</sup> and the overbearing presence of dogs in many shoreline habitats.



Surf scoters enjoying the calm waters around Mickey Island in Lower Howe Sound. (Photo: Bob Turner)

# Who is working on this issue in Howe Sound?

Most of what we know about marine birds in Howe Sound is based on volunteer annual and monthly bird counts at several locations within Howe Sound. There are three Christmas Bird Counts in Howe Sound. The Sunshine Coast count includes the western shores of Howe Sound between Gibsons and Port Mellon within a much larger count area. Hence data specific to the Howe Sound portion of that count have not been obtained for this report. The Lower Howe Sound count, now under the direction of Marja de Jong with local leaders on Bowen, Keats and Gambier Islands, only began in 2003 so is limited when assessing long-term trends. The Squamish (Upper Howe Sound) count is now under the direction of Marcia Danielson, while historic count data were compiled by Wisnia<sup>16</sup> (1980 – 2001) and Ricker<sup>17</sup> (2002 – 2015).

Monthly bird counts in the Squamish River estuary by the Squamish Environment Society, in Lighthouse Park by the Lighthouse Park Preservation Society, and in Lower Howe Sound by the Pacific Wildlife Foundation provide data to the ongoing British Columbia Coastal Waterbird Survey, a long term citizen science monitoring program run by Bird Studies Canada to assess population trends and ecological needs of marine birds, and involves more than 200 different monthly counts throughout the Strait of Georgia.<sup>18</sup>

Monthly boat surveys during 2015 in among the outer islands of Howe Sound by the Pacific Wildlife Foundation (PWF) observed a surprising abundance of marbled murrelets,<sup>19</sup> a federally listed Species at Risk.<sup>20</sup> Publication of PWF's survey results is pending. There is a clear need for the collection of monthly marine bird survey data in Lower Howe Sound that would support the development of a seasonal bird checklist for that area.

Legal protections to stymie bird declines include various regulations, creation of land reserves, quotas on bag limits and commercial fish catch, and various restoration and monitoring efforts. In this vein the Squamish Estuary has been at the forefront of habitat improvement and protective changes. A forceful Squamish Environment Society, Squamish River Watershed Society, and local Stream Keepers group have been instrumental in improving the protection and restoration of the Squamish Estuary and in the monthly monitoring of its bird populations.<sup>21</sup> A portion of the estuary is now a Nature Trust Conservation Area<sup>22</sup> and a larger part is the designated Squamish (Skwelwil'em) Wildlife Management Area.<sup>23</sup>



# What can you do?

SOME ACTIONS CONTRIBUTED BY CORI



## Individual and Organization Actions:

- Bird watching is one of the fastest growing hobbies in North America.<sup>24</sup> Whether you are a beginner or advanced, you can join one of the annual Christmas Bird Counts that occur in West Vancouver, Bowen Island, Squamish, and the Sunshine Coast, or the more frequent monthly bird counts with the Squamish Environment Society or Lighthouse Park Preservation Society. It is a great way to learn from people who know more than you.
- If you are a knowledgeable birder, you can submit your observations directly through eBird, the online repository for worldwide bird observations managed by the Cornell Lab of Ornithology.<sup>25</sup> Any unusual sightings require an accompanying photograph to be accepted by eBird.
- Keep your practices friendly to marine birds. During the spring and summer, stay away from offshore rocks that are nesting sites for oystercatchers, gulls, and cormorants. Never take your dog to these islands.
- During the winter, don't disturb flocks of winter birds along the coastline. You may disrupt their feeding or resting and cause them to waste valuable energy.
- Collect lost nets and traps and plastics on beaches that might trap or kill birds.



## Government Actions and Policy:

- Continue to support and facilitate the education, monitoring, and restoration activities of local groups in Howe Sound. Provide funding assistance and partnership opportunities where feasible.
- Increase monitoring and enforcement of illegal bird harvesting.
- Legally recognize and strictly regulate Important Bird Areas as Protected Areas, especially in IBAs that do not have established legal protection (e.g., National and Provincial Parks). Where this is not feasible, consider conservation easements and agreements, private land stewardship, and land acquisition to ensure protection.
- Explore the possibility of increasing the size of the Skwelwil'em Wildlife Management Area or Nature Trust Conservation Area, or create more Wildlife Management Areas to increase protection.

# Resources

## **Audubon Christmas Bird Count**

[audubon.org/conservation/science/christmas-bird-count](https://audubon.org/conservation/science/christmas-bird-count)

## **Results of local Christmas bird counts (Lower Howe Sound, Squamish, Sunshine Coast)**

[netapp.audubon.org/CBCObservation/CurrentYear/ResultsByCount.aspx](https://netapp.audubon.org/CBCObservation/CurrentYear/ResultsByCount.aspx)

## **BC Waterbirds Abundance Maps**

[bsc-eoc.org/volunteer/bccws/index.jsp?targetpg=bccwsmaps](https://bsc-eoc.org/volunteer/bccws/index.jsp?targetpg=bccwsmaps)

## **Bird Studies Canada, Citizen Science**

[bsc-eoc.org/volunteer.jsp?lang=EN](https://bsc-eoc.org/volunteer.jsp?lang=EN)

## **BC Coastal Waterbirds Survey 1995-2010, population trends, Strait of Georgia**

[birdscanada.org/volunteer/bccws/index.jsp?targetpg=index](https://birdscanada.org/volunteer/bccws/index.jsp?targetpg=index)  
and [bsc-eoc.org/birdmon/default/popindices.jsp](https://bsc-eoc.org/birdmon/default/popindices.jsp)

## **Monthly abundance of bird species through the seasons in the Squamish River Area IBA**

[ibacanada.ca/barchart.jsp?siteID=BC023](https://ibacanada.ca/barchart.jsp?siteID=BC023)

## **Lighthouse Park Preservation Society, monthly bird counts**

[lpps.ca/volunteering](https://lpps.ca/volunteering)

## **Pacific Wildlife Foundation**

[pwlf.org](https://pwlf.org)

## **Squamish Environment Society, monthly Estuary Bird Count**

[squamishenvironment.ca/programs/squamish-birders/](https://squamishenvironment.ca/programs/squamish-birders/)

# Footnotes

<sup>1</sup> Although Karl Ricker is the lead author and compiled much of the information presented in this article, he did not see the final version due to a logistics issue.

<sup>2</sup> Morton, B. 2009. Let's hear it for the birdwatchers! *Marine Pollution Bulletin*, 58(1):1-2.

<sup>3</sup> Bertram, D. 2014. The coastal birds, Chapter 7, pp 211-257; in Beamish, R. and G. McFarlane (eds.). *The Sea Among Us – the amazing Strait of Georgia*. Harbour Publishing Co., Madeira Park, B.C. 385 pp.

<sup>4</sup> Crewe, T., K. Barry, P. Davidson and D. Lepage. 2012. Coastal waterbird population trends in the Strait of Georgia 1999–2011: results from the first 12 years of the British Columbia Coastal Waterbird Survey. *British Columbia Birds* 22: 8-35.

<sup>5</sup> Ricker, K. 2016. Marine birds of Howe Sound – their present and change in populations. 13p. Accessed October 20, 2016. <http://www.squamishenvironment.ca/wp-content/uploads/2016/10/Ricker-Marine-Birds-of-Howe-Sound-Population-Trends-.pdf> and <http://www.squamishenvironment.ca/wp-content/uploads/2016/10/Table-1-Seasonal-Abundance-of-Marine-Birds-in-Howe-Sound.pdf>

<sup>6</sup> Christmas Bird Count. Audubon Science Center and Bird Studies (Etudes d'Oiseaux) Canada. Accessed July 2016. [www.christmasbirdcount.org](http://www.christmasbirdcount.org).

<sup>7</sup> Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990. *The birds of British Columbia*. Vol. 1 and 2. Royal British Columbia Museum, Victoria.

<sup>8</sup> Ricker, K. 2016. Squamish Christmas Bird Count – 2002 to 2015 and comparison to data compilation of 1980 to 2001. Prepared for Squamish Environmental Society, 7p.

<sup>9</sup> Environment and Climate Change Canada. Christie Islet Migratory Bird Sanctuary, 1990. Accessed July 2016. <http://www.ec.gc.ca/ap-pa/default.asp?lang=En&n=F2703322-1>.

<sup>10</sup> IBA Site Summary BC023, Squamish River Area, Squamish, British Columbia. Accessed July 2016. <http://www.ibacanada.ca/site.jsp?siteID=BC023>.

<sup>11</sup> Hamer, T. E., and S. K. Nelson. 1995. "Characteristics of marbled murrelet nest trees and nesting stands" in *Ecology and conservation of the marbled murrelet* edited by C. J. Ralph, G. L. Hunt, Jr., M. G. Raphael, and J. F. Platt, 69-82. U.S. Forest Service General Technical Report PSW- GTR-152.

<sup>12</sup> Reproduced with permission from "Where rivers, mountains and people meet", Squamish Lil'wat Cultural Centre.

<sup>13</sup> Dale, C. and K. Ricker. 2012. Checklist of Birds Squamish Estuary, Squamish Environmental Conservation Society, 3rd edition. Accessed Sept 2016. [https://www.dropbox.com/s/3dff53i95df5e51/Squamish\\_Estuary\\_Birding\\_Checklist\\_2012.pdf?dl=0](https://www.dropbox.com/s/3dff53i95df5e51/Squamish_Estuary_Birding_Checklist_2012.pdf?dl=0)

<sup>14</sup> Ricker, K. and C. Dale. 2014. Checklist of Birds Upper Howe Sound Region and Squamish River Watershed, Squamish Environmental Conservation Society, 2nd edition.

<sup>15</sup> Greenfield, T. 2011. Birds of the Sunshine Coast – a checklist. Sunshine Coast Natural History Society and British Columbia Wildlife Watch, B.C. Ministry of Environment, Lands and Parks.

<sup>16</sup> Wisnia, J. 2002. Squamish Christmas Bird Count 1980 – 2001 – a year by data compilation. Squamish Estuary Conservation Society.

<sup>17</sup> Ricker, K. 2016. Squamish Christmas Bird Count – 2002 to 2015 and comparison to data compilation of 1980 to 2001. Squamish Environmental Society.

<sup>18</sup> Crewe et al. 2012

<sup>19</sup> Rob Butler, in discussion with the author, Jan 8 2016.

<sup>20</sup> Species at Risk Public Registry, Marbled Murrelet. Accessed July 21, 2016. [http://www.registrelep-sararegistry.gc.ca/species/speciesDetails\\_e.cfm?sid=39](http://www.registrelep-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=39).

<sup>21</sup> Squamish Environment Society, Squamish Estuary Monthly Bird Count Records. Accessed August 10, 2016. <http://squamishbirds.webs.com/countrecords.htm>.

<sup>22</sup> The Nature Trust of British Columbia, 147 – Squamish Estuary. Accessed August 9, 2016. <http://www.naturetrustbcm.ca/index.cfm/nature-trust-sites/?siteID=E847CE18-CE90-4886-CC46D3CB4DEFAF10>.

<sup>23</sup> Ministry of Forests, Lands and Natural Resource Operations. Skwelwil'em Squamish Estuary Wildlife Management Area. Accessed August 9, 2016. [http://www.env.gov.bc.ca/fw/habitat/conservation-lands/wma/skwelwil\\_em/](http://www.env.gov.bc.ca/fw/habitat/conservation-lands/wma/skwelwil_em/).

<sup>24</sup> Biodivcanada.ca. The 2012 Canadian Nature Survey: Awareness, participation and expenditures in nature-based recreation, conservation, and subsistence activities. Accessed August 11, 2016. <http://biodivcanada.ca/default.asp?lang=En&n=2A0569A9-1>.

<sup>25</sup> eBird. Accessed at August 10, 2016. <http://ebird.org/content/ebird/>.