

## **The First Record of Great Black-backed Gull (*Larus marinus*) in British Columbia.**

**By Rick Toochin and Don Cecile. Submitted: April 15, 2018.**

### **Introduction and Distribution**

The Great Black-backed Gull (*Larus marinus*) is one of the largest gull species in the world (Olson and Larsson 2004). This species' breeding distribution includes parts of Europe from Greenland, Iceland, Faeroe Islands, Shetland Islands, Spitsbergen, northern Scandinavia, and northern Russia south to British Isles, northwestern France, northern Denmark, northern Germany, and Estonia (Olson and Larsson 2004). Approximate southern limits of winter range extend to Mediterranean, Black, and Caspian Seas, and to North Africa (Grant 1986).

In North America, the Great Black-backed Gull occurs throughout the year on the East Coast from Labrador to North Carolina, and in the Great Lakes region. In Canada, this species breeds at the mouth of the Leaf River on the Ungava Bay of northern Quebec, from Cape Chidley in northern Labrador, south along the immediate coasts of Labrador and Quebec, along the St. Lawrence River to Montreal, Anticosti Island, Magdalen Island; Newfoundland, Prince Edward Island, and along the coasts of New Brunswick and Nova Scotia (Godfrey 1986, Erskine 1992a, Gauthier and Aubry 1996b). It also breeds in Ontario at several sites along the northern shore of Lake Ontario and at one site along the eastern shore of Lake Huron (Cadman *et al.* 1987). Does not breed continuously along the coast, especially in areas with steep shores and no islands, as in the upper Bay of Fundy and Cape Breton Island (Erskine 1992a), and some portions of the northern Gaspé Peninsula (Gauthier and Aubry 1996b). It also breeds at inland lakes in eastern New Brunswick, southern Nova Scotia, Newfoundland, and locally in southern Quebec (Godfrey 1986).

In the eastern United States, the Great Black-backed Gull breeds along the immediate coast, particularly on offshore islands, in all states from Maine south to south New Jersey (Good 1998). There are local gaps in this species breeding range where suitable nesting conditions are lacking such as Long Island, New York, where most bred only on the southern and eastern shores (Meade 1988b). South of New Jersey, the Great Black-backed Gull breeds along the Atlantic Coast of Maryland and Virginia on Delmarva Peninsula, coast of extreme North Carolina, and locally along the Chesapeake Bay portion of Maryland, where breeding recently confirmed in Baltimore, Dorchester, and Somerset Counties (Portnoy *et al.* 1981, Robbins 1996a, Good 1998). The Great-black-backed Gull breeding range continues to expand at inland sites, and south along the Atlantic Coast (Good 1998). The first Vermont breeding record was at Lake Champlain in 1983 (Laughlin and Kibbe 1985). The first Delaware breeding record was at the South Mispillion River jetty in 1986 (Hess *et al.* 2000b), but breeding does not yet appear to extend into Delaware Bay (Good 1998). The major breeding colonies in the United States

include Gardiners Island, New York; Smuttynose Island, Maine; and Monomoy Point, in Massachusetts (Buckley and Buckley 1984b).

The Great Black-backed Gull breeds mainly in the coastal belts of temperate and boreal upper middle latitudes, extending into the sub-Arctic and low Arctic (Good 1998). This species breeds on small islands, rocky islets, tops of stacks, salt marshes, dredge-spoil islands, barrier beaches, and dunes on barrier islands (Good 1998). The Great Black-backed Gull breeds in many areas with the Herring Gull (*Larus argentatus*), but prefers more open and higher microhabitats than the Herring Gull (Good 1998). Inland sites on the Great Lakes include islets in freshwater lakes and rivers (Good 1998). Early in twentieth century, Great Black-backed Gulls nested only on tops of grassy islands (Palmer 1949) and meadow habitat continues to be important (Pierotti 1979, Butler and Trivelpiece 1981, Butler and Janes-Butler 1982, Butler and Janes-Butler 1983, Good 1998). This species nests in a variety of habitats, including bare rock (Good 1998), shrub margins (McGill-Harelstad 1985), salt marshes (Burger 1978c), and dunes (Lock 1973, Cavanagh 1992). The Great Black-backed Gull prefers sites on rock outcrops or pinnacles, sometimes near a prominent feature (Pierotti 1979). In dense colonies, highest breeding success is achieved in vegetated area. There are small numbers in cities that will nest on rooftops (Buckley and Buckley 1980a). One of the most important requirements for Great Black-backed Gulls appears to be areas free of, or inaccessible to, terrestrial predators (Good 1998). This species prefers nest sites that are sheltered from the wind; nests not oriented toward prevailing wind are often screened from nearest neighbour (Good 1998). Most Great Black-backed Gulls nest solitarily or in loose colonies (Good 1998). The foraging habitat of this species is typically separate from nesting habitat (Good 1998). The Great-Black-backed Gull uses open areas as roosting sites, including parking lots, fields, helipads, and airport runways (Good 1998).

In Canada, breeding populations of the Great Black-backed Gull are generally increasing (Good 1998). In Newfoundland, on Funk Island, the breeding population increased 35-fold from 1956 to 1987; on Great, Green, and Gull Islands in Witless Bay, the breeding population doubled to 250 pairs from 1970 to 1979 (Montevicchi and Tuck 1987). In Quebec, breeding population of this species has been increasing in sanctuaries on the north shore of St. Lawrence River since the 1950s; and is increasing on Magdalen Island and on the Gaspé Peninsula since the 1970s (Gauthier and Aubry 1996b). In Maritime Provinces, breeding population of the Great Black-backed Gull has increased dramatically during the twentieth century and has expanded from 1 colony on Lake George, Nova Scotia, in 1900 to 34,000 pairs throughout the province in 1986 (Erskine 1992a).

The Great Black-backed Gull is a partial migrant with most birds from the northernmost breeding locations likely leaving these areas during the winter, while populations farther south

show varying degrees of migratory behaviour (Good 1998). Populations from Nova Scotia, and Cape Ann and Boston, Massachusetts, remain around breeding colonies throughout the year, whereas birds from Maine, Gulf of St. Lawrence, and Newfoundland disperse southward, wintering along mid-Atlantic Coast (Powers 1983) or in Great Lakes region (Southern 1980). Populations from the St. Lawrence Seaway disperse to the Great Lakes (Good 1998). Breeding birds found on the Great Lakes remain around breeding colonies or move to St. Lawrence Seaway (Good 1998). Populations in southeast Massachusetts and the mid-Atlantic Coast appear to move south along the coast (Good 1998). The southernmost breeding populations do not migrate, remaining near their colonies (Good 1998).

The Great Black-backed Gull is largely a coastal species during migration with some numbers moving up large rivers and into the Great Lakes (Good 1998). In Beauharnois, Quebec, this species congregates in the fall and winter below dams, where dead and dying alewife (*Alosa pseudoharengus*) has passed through dam turbines (Steeves *et al.* 1989).

In southern Newfoundland, most breeding Great Black-backed Gulls leave their colonies in late August, moving offshore about 50-100 km to deeper waters, where they remain until early April (Good 1998). Banded gulls from the Bay of Fundy move north into Northumberland Strait after breeding; some spend the winter months on the coast of New Brunswick; making long-distance southward flights of up to 2,360 km during the same period and through the winter (Astle and McAlpine 1985). Band recoveries in Great Lakes indicate that Great Black-backed Gulls wintering on the Great Lakes originate from colonies in the St. Lawrence Estuary and Maine (Angehrn *et al.* 1979).

Dispersal of Great Black-backed Gulls may begin as early as late July with some birds leaving the breeding areas in mid-August (Bent 1921). In the Bay of Fundy, banded non-breeding Great Black-backed Gulls appear migratory; many banded adults remain near the breeding grounds throughout year (Astle and McAlpine 1985). Banded adults and sub-adults range westward to the Great Lakes; banded juveniles range farther south to Florida and Georgia (Southern 1980). In the late fall and winter, there is a massive dispersal from the coastal breeding colonies to offshore fishing areas (Powers 1983). Some Great Black-backed Gulls remain in the Atlantic boreal and low-Arctic waters all winter, but farther offshore and farther north (Brown 1986d). Other individuals disperse south to areas of open water in the fall (Good 1998). Sub-adults concentrate along the southern Atlantic Coast during the winter (Southern 1980). In spring, immature birds and sub-adult birds are common in the shelf waters of the Gulf of Maine, Georges Bank, southern New England, and the mid-Atlantic areas north and east of Hudson Canyon (40°N) (Good 1998). The majority of band recoveries are from southeastern Canada and the northeastern United States with a significant proportion of Great Black-backed Gulls

wintering in that region (Southern 1980). The mean distance between banding and recovery sites for the months of December-March was 350-580 km (Southern 1980).

Fall dispersal and migration of Great Black-backed Gulls mainly occurs in September and October (Southern 1980). In southern Quebec, the peak of southward migration occurs between December 27-31 with over 500 birds per/day, with the peak migration month occurring from December 14-January 14 (Steeves *et al.* 1989). In Ohio, the Great Black-backed Gull arrives in the Western Basin of Lake Erie August 20-September 5 with flocks of 10-30 noted before early November (Good 1998). This species is a casual visitor to the Central Basin between the months of August and September and is not regular until October (Peterjohn 1989b). In Illinois, the Great Black-backed Gull arrives in November or December; earlier records have been recorded on August 22-26, September 13, and November 7-9 (Bohlen 1989). In Missouri, there is a single fall record of an immature observed November 7-8 (Robbins and Easterla 1992).

The period of spring migration for Great Black-backed Gulls occurs mainly during the months of March-April (Southern 1980). This species is casual in Texas until April (Rappole and Blacklock 1994). In Alabama, observed until April 24 (Clapp *et al.* 1983c). In Florida, the Great Black-backed Gull is a winter visitor through the month of May (Robertson and Woolfenden 1992a). In Georgia, this species is a winter visitor until March (Clapp *et al.* 1983c). In South Carolina, the Great Black-backed Gull has been recorded through May 12 (Post and Gauthreaux 1989). In Missouri, there are 2 spring records of adults observed on February 27 and March 17 (Robbins and Easterla 1992). The Great Black-backed Gull leave Illinois around the same period the ice breaks up with late records having been found on April 7 and April 20 (Bohlen 1989). In Ohio, this species departs from western Lake Erie in mid-April and the Central Basin by late March with some immatures regularly encountered into April and May (Peterjohn 1989b). In southern Quebec, the mean arrival date during the spring migration period is April 3, with the earliest migrants arriving March 5 (Steeves *et al.* 1989).

Some young remain with parents for several months after fledging and pairs with chicks have been observed foraging in intertidal zones in winter (Good 1998). Juvenile and immature birds congregate around areas where food can be obtained reliably such as intertidal areas, fishing boats, and refuse dumps (Good 1998). Adults and immature birds are often found together at sea near Georges Bank and the Gulf of Maine from September through April (Powers 1983). Most sub-adults do not return to natal colony during the breeding season and may spend the summer months in part or all of their winter range (Bent 1921). In summer, largest proportion of all age classes is near breeding sites with the mean distance between banding and recovery locations 164 km in July (Southern 1980).

The Great Black-backed Gull winters from Newfoundland and Gulf of St. Lawrence, south throughout breeding range and south along the Atlantic Coast to at least central Florida in Brevard County (Robertson and Woolfenden 1992a). During the winter, this species is found more continuously along the coast than during the breeding season (Good 1998). The Great Black-backed Gull also winters in the interior at large lakes, landfills, and along major rivers throughout southeast Maine, southern New Hampshire, Massachusetts (except in the northwest), Rhode Island, Connecticut, western Vermont, New York (except in the Adirondack Mountains), extreme southern Quebec, southern Ontario between western side of Lake Ontario and the northern part of Lake Huron, easternmost Michigan, New Jersey, Delaware, and eastern Maryland (Good 1998). This species is a regular winter visitor throughout the eastern Great Lakes, including Lakes Ontario, Erie, and Huron. The Great Black-backed Gull winters locally along the southern shoreline of Lake Michigan, very rarely west to the western regions of Lake Superior, where most records are from the Duluth Minnesota area (Janssen 1987), and very rarely along the Mississippi River, where several records are from Missouri (Robbins and Easterla 1992). This species' regular winter range also extends inland along the major rivers into southeastern Pennsylvania which are the Delaware, Schuylkill, and Susquehanna Rivers, western Maryland along the Potomac and Patuxent Rivers, eastern Virginia along the James and Rappahannock Rivers, and less commonly in eastern North Carolina. Along Atlantic Coast, the Great Black-backed Gull generally decreases in numbers and becomes more restricted to the coast southward (Good 1998). The Southern limit of the main distribution may be influenced by surface water temperatures; in the waters south of North Carolina, the mean surface water temperature of ocean rises to above 16°C (Root 1988b). The Great Black-backed Gull is also a rare and irregular visitor in the winter from southern Florida (Robertson and Woolfenden 1992a), west along the Gulf Coast to Mississippi (Toups and Jackson 1987), occurring less frequently west to Texas (Rappole and Blacklock 1994), and in Mexico in northern Tamaulipas and the northern Yucatán Peninsula (Howell and Webb 2010).

During the winter, the Great Black-backed Gull is associated with coastal communities and roosts near ports, near docks, and in estuaries (Good 1998). Many birds roost at landfills (Wells 1994). Adults and immatures found at sea near Georges Bank and throughout Gulf of Maine in winter (Powers 1983). In the non-breeding season, nearly all individuals associated with foraging habitats, especially during daylight; roost in areas adjacent to foraging sites (Good 1998).

Vagrant Great Black-backed Gulls are occasionally recorded far from their main breeding and winter ranges (Good 1998). Vagrant records have occurred primarily in the fall and through to the spring east to Bermuda (Amos 1991) and Puerto Rico (Perez-Rivera 1988), south to Belize

(Howell and Webb 2010), and Cuba (Good 1998). The Great Black-backed Gull is casual to very rare in the mid-western states of North America mainly November through March (Howell and Dunn 2007). This species is accidental farther west from Wyoming, Montana and Idaho (E-Bird 2018). In western Canada, a casual migrant in southeastern Manitoba from late March to mid-June and late September to mid-November (Howell and Dunn 2007), north to southwestern Hudson's Bay mainly from Late May to early July, and from Nunavut in July (Howell and Dunn 2007). The Great Black-backed Gull is accidental or casual in Saskatchewan (E-Bird 2018) and in Alberta (Slater 2001, E-Bird 2018).

Along the West Coast of North America the Great Black-backed Gull is an accidental vagrant at any time of year. In California, there is a recently accepted record by the California Bird Records Committee of a well-photographed adult found at the northwestern corner of the Salton Sea in Riverside County May 1-5, 2013 (Tietz and McCaskie 2017). This is the first accepted record for California (Hamilton *et al.* 2007, Tietz and McCaskie 2017). There are no accepted records for Oregon by the Oregon Bird Records Committee (OFO 2016). In Washington State, there is a single accepted record by the Washington Bird Records Committee of a 2<sup>nd</sup> cycle bird photographed in Renton in King County from January 12-February 16, 2004 (Wahl *et al.* 2005, WBRC 2016). The Great Black-backed Gull is an accidental vagrant in British Columbia with a single well-photographed record from the Kamloops area (Campbell *et al.* 1990a). In Alaska, there are several well-photographed records of the Great Black-backed Gull coming from places such as Prudhoe Bay (July 2013), Barrow (October 2015) and Kodiak Island (February-April 1995) (West 2008, E-bird 2018).

### **Identification and Similar Species**

The identification of the Great Black-backed Gull is covered in all standard North American field guides. This is the largest and heaviest gull in North America, and one of the biggest in the world. The Great Black-backed Gull measures 71–79 cm in length, has a wingspan of 152–167 cm, and weighs 1,300–2,000 grams (Good 1998). In the context of British Columbia, this species would tower over any Glaucous-winged Gull (*Larus glaucescens*), Western Gull (*Larus occidentalis*) or hybrid of the 2 species (Sibley 2000). At any age the massive size of the legs, bill and body size are indicators of its presence (Grant 1986). There is no other species in the province that comes close to the proportions of the Great Black-backed Gull and in all ages from 2<sup>nd</sup> cycle to adult, and with pure blackness seen on the mantle (Dunn and Alderfer 2011).

The following description is taken from Olsen and Larsson (2004) unless otherwise stated. For more detailed information, including flight descriptions, it is recommended to also read Grant (1986), Sibley (2000), Howell and Dunn (2007), and Dunn and Alderfer (2011).

Adults in breeding plumage (4<sup>th</sup> year onwards) hold this plumage from March to September. Adult birds have full white heads and show broad white tips on the outer two primaries, which almost merge into each other. The tip of P10 is wholly white. The upperparts are grayish-black and show a very slight contrast to the black of the folded primaries. In North America, this is the largest dark backed gull having chalky or whitish pink legs. At this age birds have a yellowish bill with sub-terminal red spot. The iris is gray or pale yellow that may be flecked with brown. Overall appears heavy and robust; heavy bill with prominent gonydeal angle. In adults, there are no significant seasonal or sexual differences in plumage (Good 1998). From January to May acquires through molt a white head from the slightly streaky head in winter (basic) plumage (Grant 1986).

Adults in winter (basic) plumage (also 4<sup>th</sup> winter) is held from September to March. In winter plumage this species is basically white headed, but close inspection will reveal very fine narrow streaks around the eyes and short brown hind-neck streaks or spots. The eyes are dull yellow, typically appearing small, and beady, set high and well back on the head. The upperparts are grayish-black with prominent white tertial crescents. The folded primaries are black with prominent white on primary, with P10 all white. Younger 4<sup>th</sup> year birds can have a thin black line on the upper mandible tip.

Third winter plumage is held from August to the following April. The saddle and median-coverts are grayish-black, similar in colour to the adult, but is generally browner and duller. These feathers contrast with the lesser and greater-coverts, which are brown and have a slight pale barring. The tertials have brownish centres and irregular white edges. The primaries are black with narrower white tips than found on adult birds, with the white of P10 not reaching the feather tip. The head is dark with faint dark streaking especially on the hindneck. The bill is dull yellow with black sub-terminal markings. It will start to show red on the gonys by late winter and early spring.

Second winter plumage involving more advanced aged birds is held from April to September. At this age birds start to attain adult type upperpart feathers and some coverts of an adult type, but can have slightly paler edgings. The bill is fleshy with a black sub-terminal markings and a broad white tip. The head and under-body are sparsely dark-patterned.

Second winter plumage that involves younger looking birds is held from August to September. These birds are very similar looking to first winter birds, but the bill has a fleshy base and broader white tips on both mandibles. The greater-coverts are often buffish-tinged, with more, finer bars than found on first year birds, and the tertials are blacker and broader, with more

irregular white edges. The primaries are blacker with rounder white tips, creating a row of “new moons” on the wingtip. Birds at this age may acquire a few blackish-gray upperpart feathers that are adult like, but generally shows fewer of these feathers in second year than do other gull species. In flight the rump is whiter with the tail darker forming a band across the tip.

First year plumage is held from October to May. Birds at this age are similar looking to juvenile birds, but upperparts acquire new paler feathers, with blackish sub-terminal markings; often contrasts well with paler juvenile wing feathers. In winter, the head is mainly white and underparts only faintly dark-patterned. The bill is black with a faint pale tip. Compared to juvenile Herring Gull, the plumage is better contrasting, never a uniform grayish-brown at a distance. Birds at this age have a checkered appearance. In flight the rump is white with some dark barring with extends across the tail tip.

Juvenile plumage is held from August to November. Birds at this age are very similar looking to Herring Gull. Great Black-backed Gulls are better marked with checkered upperparts. This creates dramatically contrasting dark coverts with whiter edges and broader pale barring on the greater coverts. There are reduced dark covert barring to isolated dark spots on the inner greater coverts. The tertials are blackish with broad white edges, often with paler sub-terminal markings. The primaries are blackish-brown with pointed tips. The edge to the outer tail feathers is white. In flight the rump and tail-base slightly dark spotted, tail-bar is narrow and most extensive on the mid-tail.

Great Black-backed Gulls in adult plumage are similar to several other North American gull species. Adult Western Gull is very similar in plumage but restricted to coast of western North America and extremely unlikely to be encountered in same place as Great Black-backed Gull. Vagrants of either species could be encountered outside of their normal ranges in interior of North America and do could pose identification challenge (Good 1998). Western Gull is slightly smaller with paler back and wings, pinker legs, and (in northern birds) a darker eye (Sibley 2000). Western Gull also has white sub-terminal spot on outermost primary tip, while entire tip of this feather is white in Great Black-backed Gull (Dunn and Alderfer 2011). Entirely white tip of outermost primary also helps distinguish Great Black-backed Gull from Lesser Black-backed Gull (*Larus fuscus*) (Howell and Dunn 2007). Adult Lesser Black-backed Gull, which occurs in very small numbers throughout North America, but most frequently along East Coast and Great Lakes, is also similar to Great Black-backed Gull (Sibley 2000). Lesser Black-backed Gull is significantly smaller and less robust in proportions, and its legs and feet are (usually) yellow, and (in Basic plumage) it has distinctive black streaking on face (Sibley 2000). The subspecies of Lesser Black-backed Gull typically observed in North America (*Larus fuscus graellsii*) has slate gray, rather than black, back and wings (Olsen and Larsson 2004). Other subspecies of Lesser

Black-backed Gull that have a black back and wings (*L. f. fuscus* or *L. f. intermedius*) are very rarely observed in North America, and differ from Great Black-backed Gull in all respects to that of (*L. fuscus graellsii*) (Olsen and Larsson 2004). The Slaty-backed Gull (*Larus schistisagus*), rare in Alaska, the Pacific Northwest, and elsewhere in North America, is slightly smaller and has distinctly paler back and wings, pinker legs and feet, and (in Basic plumage) streaked head (Olsen and Larsson 2004). For more in-depth identification analysis it is recommended reading Grant (1986), Sibley (2000), Olsen and Larsson (2004), Howell and Dunn (2007), and Dunn and Alderfer (2011). As with any potential rare gull found in British Columbia, obtaining photographs from every angle is highly recommended and often helps rule out any potential hybrid and will also help confirm the identification.

### **Occurrence and Documentation**

The Great Black-backed Gull is an accidental vagrant in British Columbia with a single record of an adult in winter (basic) plumage found and photographed by a few observers in the Kamloops Landfill, near the South Thompson River, from December 18-23, 1988 (Campbell 1989a, Campbell *et al.* 1990b). The bird was originally thought to be an adult Western Gull, but it was photographed with Herring Gulls by Ralph W. Ritcey on December 21, 1988, and the photos were sent to Earl Godfrey at the National Museum of Canada and expert Paul Lehman who both identified it as a Great Black-backed Gull (R. Howie Pers. Comm.). Photos were published in Campbell *et al.* (1990b) and are labeled Royal BC Museum Photo 1243.

This species has progressively been moving westward across North America over the past few decades (Good 1998). It is very likely this species will be found again in British Columbia as it could occur anywhere in the province, especially between the months of November to March. Scrutiny of landfills or anywhere gulls mass in numbers might well produce a future record.

### **Acknowledgements**

We wish to thank Rick Howie for giving us further information on the Great Black-backed Gull that was found in the Kamloops Landfill.

### **References**

- Amos, E. J. R. 1991. A Guide to the Birds of Bermuda. Warwick, Bermuda: E. J. R. Amos.
- Angehrn, P. A. M., H. Bloekpoel and P. Courtney. 1979. A review of the Great Black-backed Gull in the Great Lakes area. *Ont. Field Biol.* 33: 27-34.
- Astle, W. O. and D. F. McAlpine. 1985. Observations on the seabirds of Manowagonish Island, New Brunswick: movements and population changes 1940-1983. *Proc. Nova Scot. Inst. Sci.* 35: 21-25.

- Bent, A. C. 1921. Life histories of North American gulls and terns. U.S. Natl. Mus. Bull. no. 113.
- Bohlen, H. D. 1989. The birds of Illinois. Bloomington: Indiana Univ. Press.
- Brown, R. G. B. 1986d. Revised atlas of eastern Canadian seabirds: I. Shipboard surveys. Environment Canada, Ottawa: Can. Wildl. Serv.
- Buckley, F. G. and P. A. Buckley. 1980a. "Habitat selection and marine birds." In Behavior of marine animals. Vol. 4: marine birds., edited by J. Burger, B. L. Olla and H. E. Winn, 69-112. New York: Plenum Press.
- Buckley, P. A. and F. G. Buckley. 1984b. "Seabirds of the north and middle Atlantic coast of the United States: their status and conservation." In Status and conservation of the world's seabirds., edited by J. P. Croxall, P. G. H. Evans and R. W. Schreiber, 101-133. Cambridge, UK: Tech. Publ. No. 2., Internl. Council Bird Preserv.
- Burger, J. 1978c. Great Black-backed Gulls breeding in a salt marsh in New Jersey. Wilson Bull. 90: 304-305.
- Butler, R. G. and S. Janes-Butler. 1982. Territoriality and behavioral correlates of reproductive success of Great Black-backed Gulls. Auk 99: 58-66.
- Butler, R. G. and S. Janes-Butler. 1983. Sexual differences in the behavior of adult Great Black-backed Gulls (*Larus marinus*) during the pre- and post-hatch periods. Auk 100: 63-75.
- Butler, R. G. and W. Trivelpiece. 1981. Nest spacing, reproductive success, and behavior of the Great Black-backed Gull (*Larus marinus*). Auk 98: 99-107.
- Cadman, M. D., P. F. J. Eagles and F. M. Helleiner. 1987. Atlas of breeding birds of Ontario. Waterloo: Univ. of Waterloo Press.
- Campbell, R. W. 1989a. British Columbia wildlife – spring report 1989. B.C. Naturalist 27(3): 6-8.
- Campbell, R. W., N. K. Dawe, I. McTaggart-Cowan, J. M. Cooper, G. W. Kaiser and M. C. E. McNall. 1990a. The birds of British Columbia, Vol. 2. Diurnal birds of prey through woodpeckers. Victoria: R. Br. Columbia Mus.
- Cavanagh, P. M. 1992. Population dynamics, foraging ecology and management of gulls on Monomoy NWR. Phd Thesis, Univ. of Massachusetts, Amherst.
- Clapp, R. B., D. Morgan-Jacobs and R. C. Banks. 1983c. Marine birds of the southeastern United States and Gulf of Mexico, Part 3. Charadriiformes. Washington, D.C.: U.S. Fish Wildl. Serv., Office of Biol. Serv.

- Dunn, J. L. and J. Alderfer. 2011. National Geographic Field Guide to the Birds of North America. National Geographic Society, Washington D.C. 574pp.
- E-Bird (2018). E-Bird Map Range: Explore Data: Great Black-backed Gull. [Online Resource] Retrieved from <http://ebird.org/ebird/canada/map/gbbgul?neg=true&env.minX=179.3845706628307&env.minY=5.055678836653623&env.maxX=-32.9591793371693&env.maxY=61.210911675687676&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2018> [Accessed: January 13, 2018].
- Erskine, A. J. 1992a. Atlas of breeding birds of the Maritime Provinces. Halifax, Nova Scotia: Nova Scotia Museum.
- Gauthier, J. and Y. Aubry. 1996b. Les oiseaux nicheurs du Québec: Atlas des oiseaux nicheurs du Québec meridional. Environment Canada, Région du Québec: Association Québécoise des groupes d'ornithologues, Société Québécoise de protection des oiseaux, Service Canadien de la Faune.
- Godfrey, W. E. 1986. The birds of Canada. Revised Edition. Ottawa: National Museums of Canada.
- Grant, P. J. 1986. Gulls: A guide to identification. 2nd ed. Vermillion, SD: Buteo Books.
- Hamilton, R. A., M. A. Patten, and R. A. Erickson. 2007. Rare Birds of California: A work of the California rare bird record committee. Western Field Ornithologists, Camarillo, California. 605pp.
- Hess, G. K., R. L. West, M. V. Barhill and L. M. Fleming. 2000b. Birds of Delaware. Pittsburgh, PA: Univ. of Pittsburgh Press.
- Howell, S. N. G. and J. Dunn. 2007. A Reference Guide to Gulls of North America. The Peterson Reference Guide Series. Houghton Mifflin Co., New York.
- Howell, S. N. G. and S. Webb. 2010. A guide to the birds of Mexico and northern Central America. New York: Oxford University Press.
- Janssen, R. B. 1987. Birds in Minnesota. Minneapolis: Univ. Minnesota Press.
- Laughlin, S. P. and D. P. Kibbe. 1985. The atlas of breeding birds of Vermont. Hanover, NH: Univ. Press of New England.
- Lock, A. 1973. A study of the breeding biology of two species of gulls in Nova Scotia. Phd Thesis, Dalhousie Univ., Halifax, Nova Scotia.

- McGill-Harelshtad, P. A. 1985. Mechanisms and consequences of interspecific interactions among gulls. Phd Thesis, Cornell Univ., Ithaca, NY.
- Meade, G. M. 1988b. "Great Black-backed Gull (*Larus marinus*).". In The atlas of breeding birds of New York state., edited by R. F. Andrie and J. R. Carroll, 170-171. Ithaca, NY: Cornell Univ. Press.
- Montevicchi, W. A. and L. M. Tuck. 1987. Newfoundland birds: exploitation, study, and conservation. Cambridge, MA: Nuttall Ornithol. Club Publ. No. 21.
- OFO. 2016. Oregon Field Ornithologists - Records Committee. [Online resource] <http://www.oregonbirds.org/index.html>. [Accessed: July 24, 2017].
- Olsen, K. M. and H. Larsson. 2004. Gulls of North America, Europe, and Asia. Princeton University Press, New Jersey.
- Palmer, R. S. 1949. Maine Birds. Bull. Mus. Comp. Zool., Harvard Univ. 102: 1-579.
- Perez-Rivera, R. A. 1988. Additional records and notes on migratory water birds in Puerto Rico, West Indies. Carib. J. Sci. 23: 368-372.
- Peterjohn, B. G. 1989b. The birds of Ohio. Bloomington: Indiana Univ. Press.
- Pierotti, R. J. 1979. The reproductive behaviour and ecology of the Herring Gull in Newfoundland. Phd Thesis, Dalhousie Univ., Halifax, Nova Scotia.
- Portnoy, J. W., R. M. Erwin and T. W. Custer. 1981. Atlas of gull and tern colonies: North Carolina to Key West, Florida (including pelicans, cormorants and skimmers). Washington, D.C.: U.S. Fish Wildl. Serv., Office Biol. Serv.
- Post, W. and Jr. Gauthreaux, S. A. 1989. Status and distribution of South Carolina birds. Charleston, SC: Charleston Mus.
- Powers, K. 1983. Pelagic distributions of marine birds off the northeastern United States. U.S. Dep. Comm., Nat. Oceanogr. Atmos. Admin.
- Rappole, J. H. and G. W. Blacklock. 1994. Birds of Texas: A field guide. College Station: Texas A&M Univ. Press.
- Robbins, C. S. 1996a. Atlas of breeding birds of Maryland and the District of Columbia. Pittsburgh: Univ. of Pittsburgh Press.
- Robbins, M. A. and D. A. Easterla. 1992. Birds of Missouri: Their distribution and abundance. Columbia: Univ. Missouri Press.

- Robertson, Jr., W. B. and G. E. Woolfenden. 1992a. Florida bird species: an annotated list. Fla. Ornithol. Soc. Spec. Publ. no. 6.
- Root, T. R. 1988b. Atlas of wintering North American birds: an analysis of Christmas Bird Count data. Chicago: Univ. of Chicago Press.
- Sibley, D. A. 2000. The Sibley field guide to birds. Alfred A. Knopf, New York. 545pp.
- Slater, A. (2001) Third Report of the Alberta Bird Record Committee. Alberta Naturalist 31 (1): 4-6.
- Southern, W. E. 1980. "Comparative distribution and orientation of North American gulls." In Behavior of marine animals, edited by J. Burger, B. L. Olla and H. E. Winn, 449-498. New York: Plenum.
- Steeves, J., S. Holohan and R. Barnhurst. 1989. Migration of larids at Beauharnois, Québec, 1967-1980. Can. Field-Nat. 103(1): 23-28.
- Tietz, J. and G. McCaskie. 2017. Update to Rare Birds of California: 1 January 2004 – 3 January 2017. [Online Resource] Retrieved from [http://www.californiabirds.org/cbrc\\_book/update.pdf](http://www.californiabirds.org/cbrc_book/update.pdf) [Accessed: August 2, 2017].
- Toups, J. A. and J. A. Jackson. 1987. Birds and birding on the Mississippi coast. Jackson, MS: Univ. Press of Mississippi.
- Wahl, T. R, B. Tweit, and S. Mlodinow. 2005. Birds of Washington: Status and Distribution. Oregon State University Press, Corvallis, Oregon. 436pp.
- WBRC. 2016. Washington Bird Records Committee – Summary of Decisions. Washington Ornithological Society, Seattle, WA. [Online resource] <http://www.wos.org/wbrcaccepteddec2016.pdf> [Accessed: August 2, 2017].
- Wells, J. V. 1994. Correlates of the distribution and abundance of wintering gulls in Maine. J. Field Ornithol. 65: 283-294.
- West, G. C. 2008. A Birder's Guide to Alaska. American Birding Association, Colorado Springs, CO. 586 pp