

WILDLIFE DATA CENTRE

FEATURED SPECIES - HEERMANN'S GULL

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Of the 23 kinds of gulls in British Columbia there is one species that has been coined “antigull” because its appearance is unlike any other gull on the Pacific coast. Also, instead of migrating south after the breeding season it flies north. Heermann’s Gull (*Larus heermanni*) is the only species that does not show the typical gray back and white belly. Adults are unmistakable with their pure white heads and necks, dusky bodies, and black tails. Immatures and juveniles have sooty brown bodies. In all age groups, the Heermann’s Gull is the only gull with a two-toned bill at all ages (Figure 1).

The entire world’s population of Heermann’s Gull nests on a handful of islands in the Gulf of California, Mexico. After the breeding season, in late May, adults and immatures start to migrate north instead of south along the west coast of North America. This “reverse” migration is rare in birds, and unique in Pacific coast gulls. By late June and early July, migrants have reached coastal areas of southern British Columbia, which is the northern limit of their summer exodus.

Heermann’s Gull spends about four months loafing, preening, moulting, and feeding in the province and by the end of October only stragglers remain. Most of the population spends the winter along the coast of western North American in California and Mexico.

This little-studied Pacific gull feeds mainly on



Figure 1. Young or old, Heermann's Gull always has a two-toned bill. Clover Point, BC. 17 August 2003 (R. Wayne Campbell).

small fishes captured offshore over the open ocean but like other gulls it also scavenges along shores when food becomes available. It is attracted to feeding flocks of seabirds, especially flocks with California Gull (*L. californicus*), Glaucous-winged Gull (*L. glaucescens*), and Rhinoceros Auklet (*Cerorhinca monocerata*), from which it often steals food.

Over the 116 years of its known occurrence in the province, the Heermann's Gull visitation period is progressively lengthening; the species is arriving earlier and departing later.

Wildlife Data Centre Provincial Status Designation

Heermann's Gull is *Not in Jeopardy* in British Columbia. Although numbers fluctuate greatly between years in the province the long-term trend along the Pacific coast shows a general increase in the breeding population in Mexico. In addition, the species has recently expanded its breeding range northward into California.

Major conservation concerns in British Columbia include the effect of climate change on food resources, chemical contamination through the marine ecosystem, and protection of major roost sites on offshore islands.

At a Glance

Other names: *White-headed Gull.*

Similar species: In British Columbia, none in appearance, but jaegers exhibit similar behaviour in harassing other seabirds for food.

Heermann's Gull, about the size of a California Gull and considered a "four-year" species, attains its adult appearance 37 to 40 months after hatching. In British Columbia, we do not witness all of the complete moults and sequences of plumage because the species rarely winters in the province, and by the time breeding adults reach our shores they are well into moulting into their winter plumage that commences two months earlier in May. We have included examples of transition plumages, from juvenile to adult, most typical of Heermann's Gulls found in the province.

It should be noted that an unusual plumage variant occurs in Heermann's Gulls. It is estimated that between 0.01% and 0.5% of older birds show white patches in their wings in the region of the primary coverts.

Adult (Non-breeding) (Figure 2)

- dark gray body
- streaked gray-brown head
- black tail with white tip
- white trailing edge on wings
- red bill with black tip

Second-year (Figure 3)

- all dark brown body
- white tail tip
- white trailing edge on wings
- white crescent above and below eyes
- bill with orange base and black tip



Figure 2. The adult Heermann's Gull is unique with its dark gray body, black-tipped red bill, white tail band, and trailing white edge on the wings. This bird no longer has its white head, typical of breeding adults, and is beginning to moult into winter plumage. Clover Point, BC. 11 August 2003 (R. Wayne Campbell).

Juvenile (First-year) (Figure 4)

- all dark brown body
- dark tail tip
- dark trailing edge on wings
- lacks white above and below eyes
- bill with pale base and black tip

In flight (Adult) (Figure 5)

- wings dark gray above and below
- white trailing edge on wings
- black tail with white terminal band
- buoyant flight with long wings

Length

48 cm (19 in)

Wingspan

130 cm (51 in)

Weight

371-643 g (13-22 oz)



Figure 3. Heermann's Gulls starting their second year of life are similar to juveniles in appearance, but the body now has grayish tones, the dark tail has a white tip, and close up there are white crescents visible above and below the eye. Clover Point, BC. 4 August 2003 (R. Wayne Campbell).



Figure 4. Juvenile Heermann's Gulls, only a couple of months old when they arrive in British Columbia, are easily identified by their all dark brown body and pale bill with a black tip. Clover Point, BC. 13 August 1995 (R. Wayne Campbell).



Figure 5. The all grayish-brown body, the white tail band and trailing edge of the wings, and bi-coloured bill are unique for the adult Heermann's Gull in flight. Port Angeles, WA. 11 September 2003 (Michael G. Shepard).

Where and When

World Range

The Heermann's Gull breeds primarily in the Gulf of California, Mexico. Small numbers also breed on several islands off the west coast of Baja California and recently unsuccessful nesting attempts have occurred in San Francisco Bay and off Shell Beach in California. Post-breeding birds migrate northward along the Pacific coast to southern British Columbia in June and July. There are scattered records for post-breeding individuals north along the British Columbia coast to southeastern Alaska. In winter the species mainly occurs along the Pacific coast from Oregon south to Guatemala.

British Columbia

Current Status: Populations fluctuate from year to year depending on breeding success and variation in food abundance. Locally, the Heermann's Gull is considered a *very common* to *abundant* late summer and autumn visitor off southern Vancouver Island, *common* to *very common* along the west coast of Vancouver Island north to the vicinity of Tofino, *uncommon* in the Greater Vancouver area, *rare* anywhere in the Strait of Georgia, and *casual* elsewhere along the south coast in all seasons.

Occurrence: Heermann's Gull is widely distributed in nearshore and offshore areas of extreme southwestern British Columbia, and is rarely encountered elsewhere including heads of long inlets and channels, and far out at sea (Figure 6). It is a very rare visitor in spring, very common to abundant in late summer and autumn, and very rare in winter in marine areas of southern Vancouver Island including Juan de Fuca Strait and Haro Strait from River Jordan east to Sidney. Along the west coast of Vancouver Island, from Port Renfrew north to Tofino and Cleland Island, it is a common to very common late summer and autumn visitor.

Elsewhere along the outer coast the Heermann's Gull is casual in occurrence with vagrant records from Checleset Bay, Cape Scott, and Triangle Island on northwestern Vancouver Island, and at Sandspit, Reef Island, and Rose Spit on the Queen Charlotte Islands.

In the more protected waters of Greater Vancouver, from West Vancouver south to Tsawwassen and White Rock, the species is casual in spring, infrequent but rare in summer and autumn, and casual in winter. It should be noted that Heermann's Gull is an annual autumn visitor, sometimes in relatively large numbers, at Lighthouse Park and Lily Point in Point Roberts, Washington, only 4 km from the southern boundary of British Columbia. Most gulls seen in Greater Vancouver have likely dispersed from this population. In recent years single dark immatures have been spotted in September at inland locations including Coquitlam and on the Fraser River near the Port Mann bridge.

Along the southeast coast of Vancouver Island the species remains very rare north to Campbell River and Discovery Passage but is appearing more regularly in recent years. On the south mainland coast north of Greater Vancouver the Heermann's Gull is very rare with only seven records all from the Sunshine Coast between Port Melon north to Egmont and Earl's Cove. There are no records for the Powell River area or northern Gulf Islands (e.g., Texada Island and Cortes Island). The most northerly record for the mainland coast is off Cape Calvert on Calvert Island.

Frequency and relative abundance terms follow those listed on pages 148-149 in Campbell et al. (1990a).

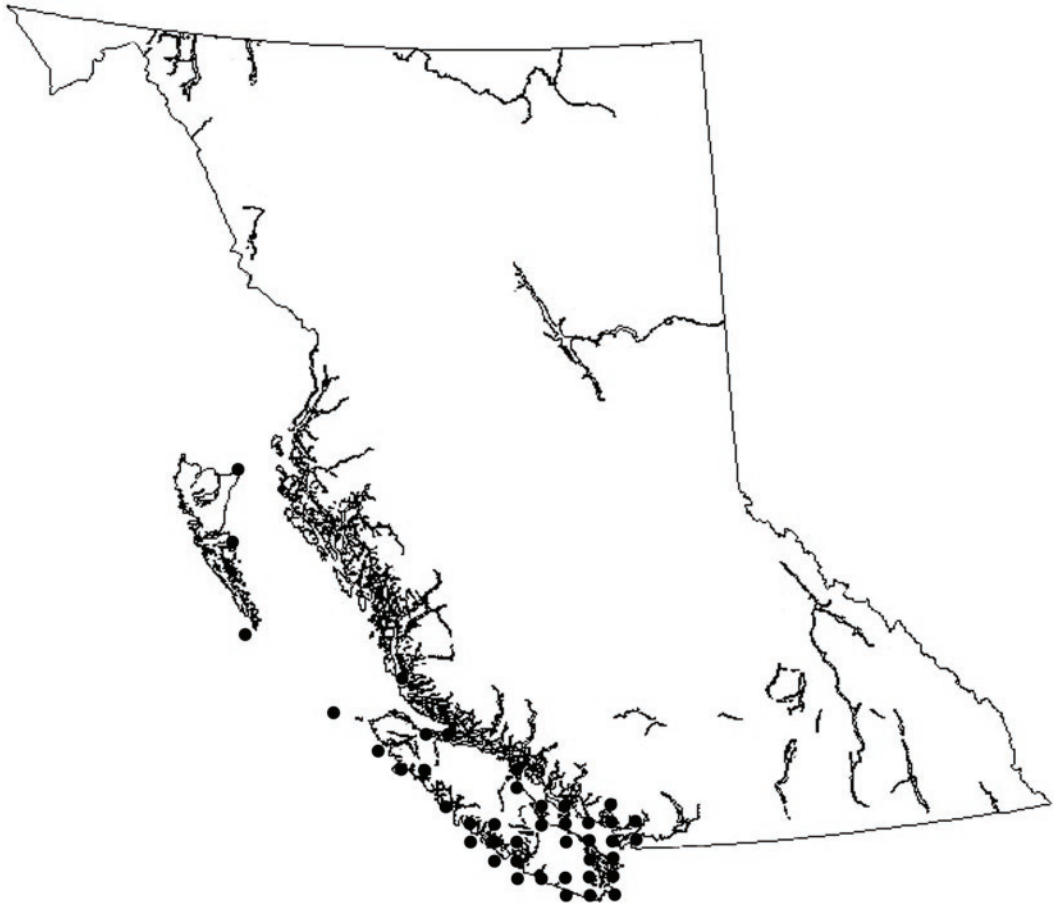


Figure 6. Locations (dots) of confirmed Heermann's Gull occurrences in British Columbia.

Habitat

Foraging and roosting: The coastline of southern British Columbia is ideally suited for Heermann's Gulls. The low, uniform rocky shorelines have extensive rocky intertidal platforms that are covered in kelp in summer and are used for roosting along with numerous small beaches, islets, reefs, rocky headlands, and tidal flats. Currents, tides and winds create areas of upwelling where nutrient-rich waters bring plankton to the surface followed by fishes and the marine animals that feed on them.

During its time in the province, Heermann's Gull frequents marine coasts and offshore environments. It

forages at sea, usually within four to eight kilometres of land, but regularly visits shallower waters surrounding Constance, Swiftsure, Boatswain, and La Perouse banks that are well offshore. Here it usually occurs in mixed species flocks of gulls, shearwaters, jaegers, albatrosses, alcids, and occasionally Brown Pelicans (*Pelecanus occidentalis*). Closer to shore it associates with gulls, cormorants, and alcids often feeding around kelp beds, areas of upwelling, tide rips, and sewer outfalls.

Off southern Vancouver Island most roost sites are near shore on rocky reefs, islets, and jetties, and rocky promontories of larger islands. Floating stipes

in dense beds of bull kelp (*Nereocystis luetkeana*) (Figure 7), sand spits, sand and gravel bars, and less frequently beaches, log booms, tidal flats, coves, and light beacons are also used to loaf and rest. Off the west coast of Vancouver Island, Heermann's Gull roosts on rocky reefs and islets (Figure 8), rocky headlands of larger islands, and less commonly on sandbars and beaches.

Throughout its time in British Columbia Heermann's Gull most often associates with feeding and roosting California Gulls (Figure 9). It is uncommon to find them in harbours and at the heads of long inlets, arms, and channels.



Figure 7. Off southern Vancouver Island, the Heermann's Gull usually roosts with other gulls, especially California Gulls and Glaucous-winged Gulls, on rocky headlands and promontories, and less frequently on floating stipes in dense patches of bull kelp. Clover Point, BC. 27 September 2006 (R. Wayne Campbell).

Annual Occurrence

Heermann's Gull is a migrant species that arrives in British Columbia primarily in mid-summer and departs in late autumn, spending on average about four months in the province. The main visitation period is from mid-July to mid-October (Figure 10). There are records for every month of the year but before late June and after mid-November most occurrences are of stragglers, early arrivals, or lingering departing birds. Recently, however, single birds wintered at White Rock (7 November 2001 to 1 January 2002; Figure 11) and Ogden Point, Victoria (9 January to 25 April 2005).



Figure 8. Along the west coast of Vancouver Island Heermann's Gull prefers to roost on bare rocky headlands of large offshore islands, smaller rocky islets, and reefs. Chesterman Beach, BC. 23 May 1993 (R. Wayne Campbell).



Figure 9. Throughout August, Heermann's Gull always associates with flocks of California Gulls either feeding offshore or loafing in nearshore marine habitats including sandy beaches. Long Beach, BC. 26 August 1968 (R. Wayne Campbell).

While the six months from June through November each have a substantial number of records, the three-month period from July through September accounts for 94 percent of all records (Figure 12). Throughout August, which accounts for 28.4 percent of records, arriving birds are dispersing further and consequently being reported more often.

The distribution by month of records for three regions of the province, where the species is regularly recorded, is shown in Figure 13. Records

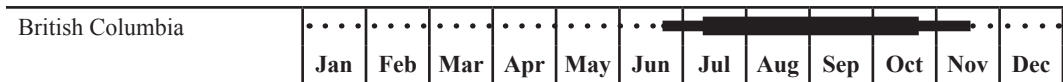


Figure 10. Annual occurrence chronology of Heermann’s Gull in British Columbia, 1891-2006. Thick bars: common; Thin bars: uncommon; Dots: rare.

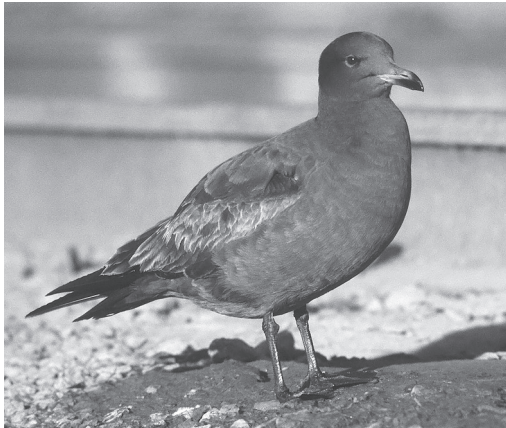


Figure 11. First-winter Heermann’s Gull at White Rock, BC. During this gull’s 56-day visit it became quite tame, and readily accepted handouts of various inappropriate foods from passers-by, and spent most of its time alone. The bird moved away from the railway tracks when trains came along, and flew or swam only when necessary, quickly returning to its usual location near the pier. 24 December 2001 (Jo Ann Mackenzie). BC Photo 1911.

indicate that the species is most commonly reported and observed in the Greater Victoria area, and least commonly encountered in the Greater Vancouver region. General patterns are similar between Greater Victoria and the west coast of Vancouver Island but in the Greater Vancouver area most Heermann’s Gulls are reported from August to September.

Heermann’s Gull has been recorded in British Columbia in every month of the year (Figure 14). Regionally, the gull’s occurrence varies between months and years. Figure 14 shows the annual chronology and relative abundance for four areas, three in which the species occurs regularly. The centre of abundance in British Columbia occurs off extreme southern Vancouver Island where islets,

islands, rocky headlands, spits, beaches, and kelp beds provide roosting sites, and areas of upwelling are used for feeding.

Migration

Heermann’s Gull is a short-distance, partial migrant arriving in British Columbia during a coastal migration of at least 4,100 kilometres from nesting colonies off both coasts of Baja California and mainland Mexico. The movement is essentially a moult migration in which gulls move from breeding grounds to temporary locations where they moult (Figure 15) before returning southward to wintering grounds.

Post-breeding adults and juveniles, as well as immatures, flying as individuals or in small flocks, start their northward migration from Mexico during the latter half of May. By late May the peak movement occurs in southern California and by mid-June peak numbers are passing by northern California (Figure 16). In late July peak numbers are detected in Oregon, where over 100 birds per hour are counted. The movement continues northward along coastal Washington with the first influx of gulls entering southern British Columbia usually during early July and peaking during the first half of August.

During their northward movement along the Pacific coast, populations become progressively smaller as birds remain in parts of the United States in summer (Figure 16).

Most of the population not remaining in the United States enters southern British Columbia in two well-defined routes (Figure 17). The segment with the largest numbers enters Juan de Fuca Strait and over several weeks disperses to suitable habitats off extreme southern Vancouver Island, mainly from Race Rocks east to Victoria and Oak Bay, and southward into the San Juan Islands, Washington. Eastward dispersal continues but weakens considerably through the southern Canadian Gulf Islands towards Point Roberts, Washington

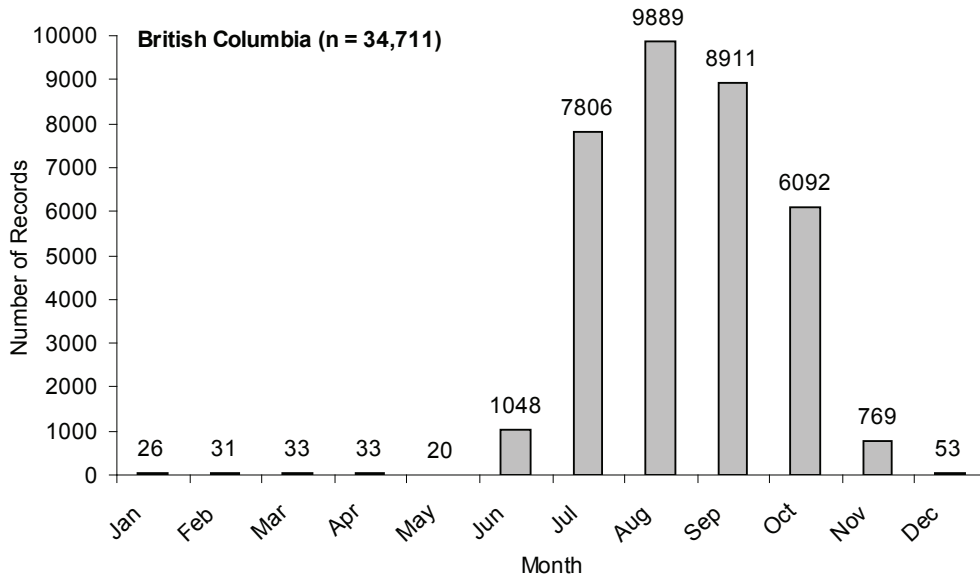


Figure 12. Total occurrence records, by month, for Heermann's Gull in British Columbia, 1891-2006.

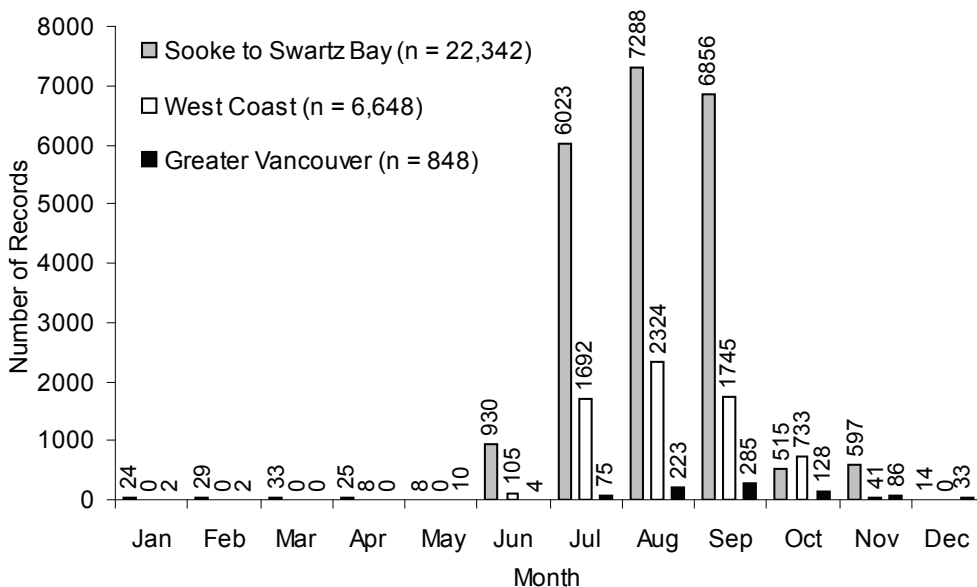


Figure 13. Total occurrence records, by month, for Heermann's Gull in Greater Victoria (from Sooke east to Swartz Bay on the Saanich Peninsula, 1891-2006), the west coast of Vancouver Island (including coastal habitats from Triangle Island south to River Jordan, 1940-2006), and Greater Vancouver (from Lighthouse Park in West Vancouver south to Tsawwassen and White Rock but not including Point Roberts, WA, 1955-2006), British Columbia.

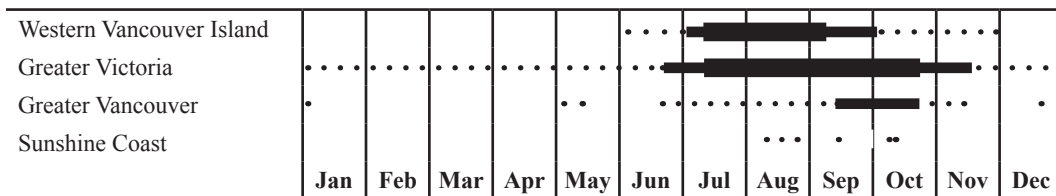


Figure 14. Annual occurrence of Heermann’s Gull in British Columbia at select coastal localities, 1891-2006. Areas include Western Vancouver Island (Port Renfrew north to Cleland Island including Barkley Sound, Ucluelet, and Tofino), Greater Victoria (Sooke east to Sidney and Swartz Bay including offshore islands and the Juan de Fuca Strait), Greater Vancouver (West Vancouver south to Tsawwassen and White Rock, excluding Point Roberts, WA), and the Sunshine Coast (McNab Creek and Port Melon north to Earl’s Cove and Egmont). Thick bars: common; Thin bars: uncommon; Dots: rare.



Figure 15. In August and September the heads of adults are becoming darker and the plumage of most Heermann’s Gulls appears ragged and worn, indicating that its annual moult is well underway. Clover Point, BC. 11 August 2003 (R. Wayne Campbell).

where small numbers occur annually. From here significantly smaller numbers infrequently visit the Greater Vancouver area of British Columbia mainly in the vicinity of rock jetties at the Tsawwassen ferry terminal and Roberts Bank. A few birds venture north along the shores of southeastern Vancouver Island to the vicinity of Campbell River and occasionally wander to the Sunshine Coast.

Populations are larger throughout the San Juan

Islands than in adjacent British Columbia waters. It is not uncommon to find concentrations of 2,000 birds or more in the San Juans.

The second migration route follows the Washington coast northward, direct to the outer southern coast of Vancouver Island. Populations are smaller and not predictable at any one location for any length of time. Cleland Island, northwest of Tofino, is the northern limit of this annual movement. Occasionally one or two birds wander north along outer Vancouver Island to the Queen Charlotte Islands.

There are few instances of what appears to be a deliberate migration, or dispersal, of birds noted in British Columbia and it is difficult to separate such movements from feeding forays. Ron Satterfield (pers. comm.) suggested that two observations at Clover Point (Victoria) of birds flying east, may suggest migrating Heermann’s Gulls. On 29 September 1983 he counted 65 gulls between 0725 and 0740 hr and on 9 November 1983, 25 birds between 0700 and 0800 hr. It has been suggested that in late September and early October birds may stage in the San Juan Islands, especially in the vicinity of San Juan Channel, before migrating south during the latter part of October.

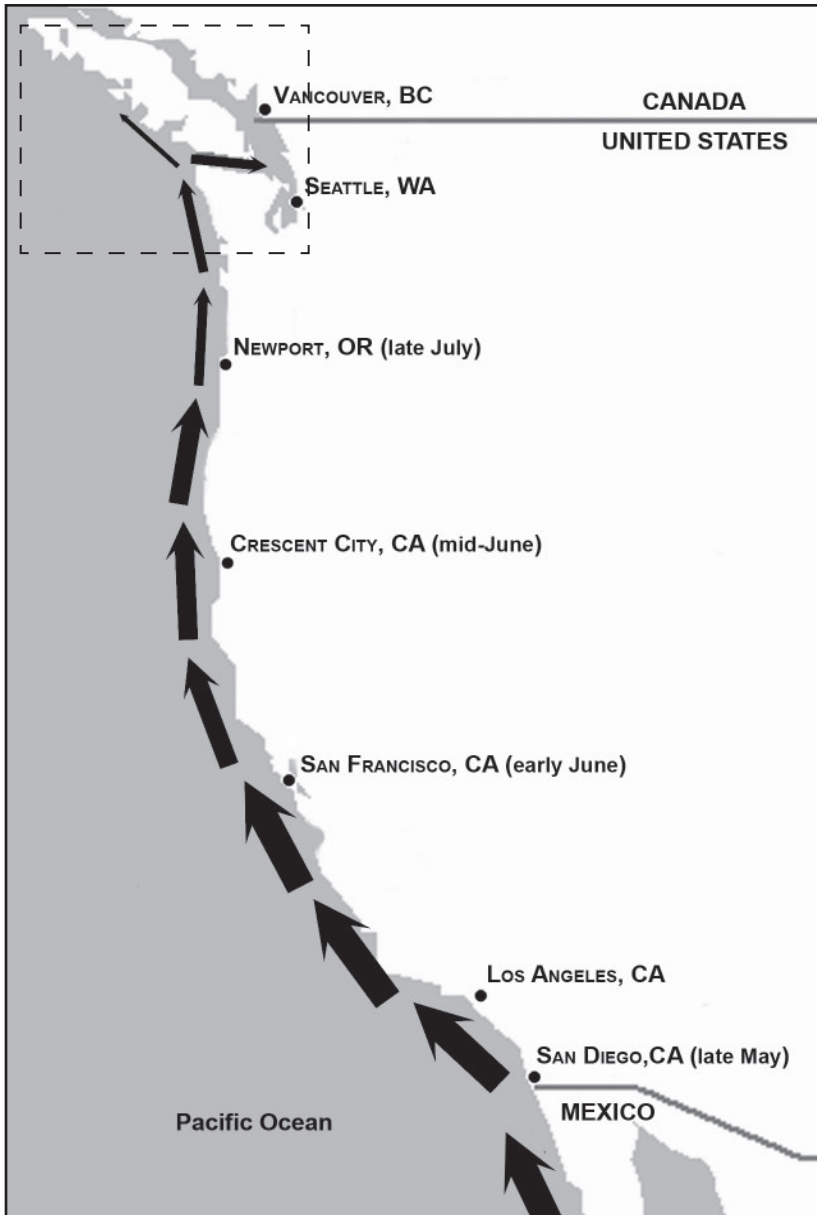


Figure 16. Post-breeding migration of Heermann's Gull from southern breeding grounds in Mexico, northward along the United States west coast, and into British Columbia, Canada. Diminishing widths of the arrows denote relative decreases in total numbers of birds. Approximate dates of peak movements are given for select locations in parentheses. See Page 162 for movement details in southwestern British Columbia (inset).

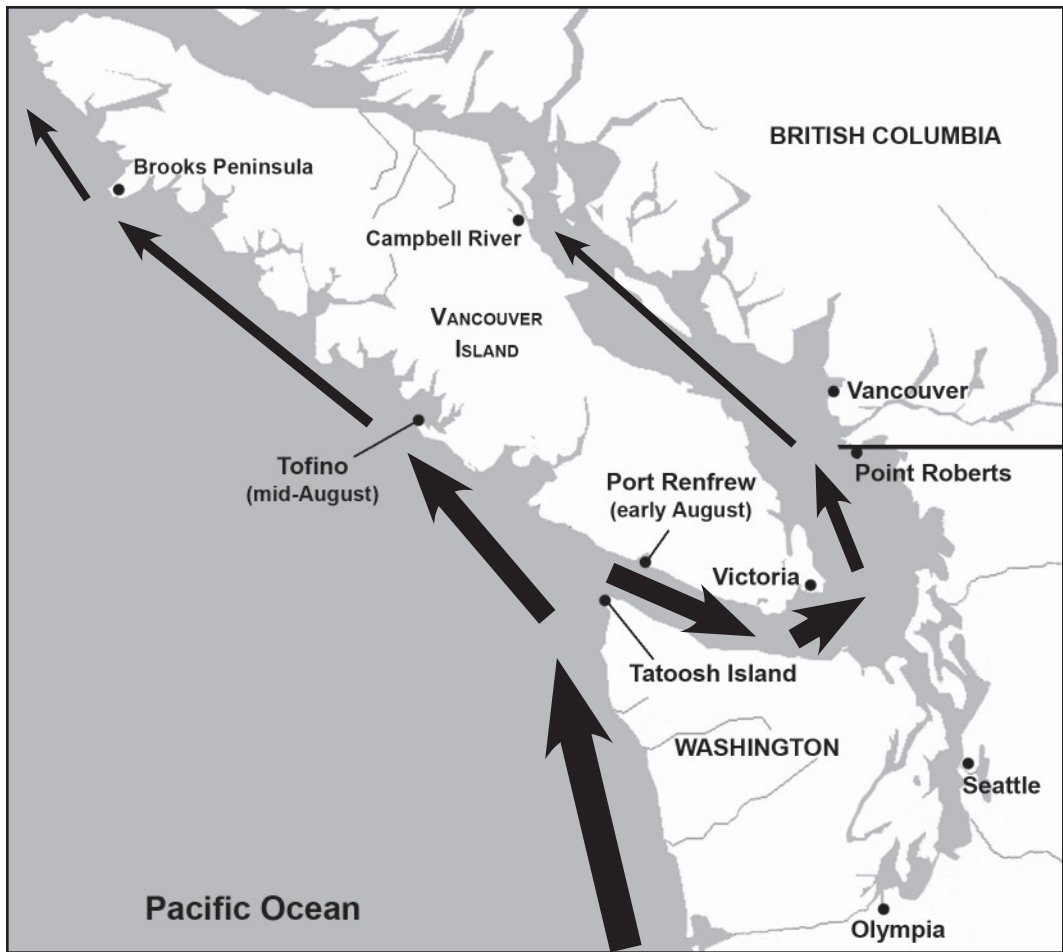


Figure 17. Dispersal of post-breeding migrating Heermann's Gulls in British Columbia and northern United States showing routes, decreasing numbers, and approximate dates of peak movements.

Arrival and Departure Dates

The first Heermann's Gulls (Figure 18) may appear in British Columbia waters anytime in May. Off southern Vancouver Island most of these birds have been single migrants seen offshore feeding with other seabirds in Juan de Fuca Strait and Haro Strait. A few post-breeding birds may appear during the first half of June with the main influx occurring during the first half of July. In recent years a few gulls have regularly shown up in late June.

The earliest dates for birds considered as summer

arrivals in the Greater Victoria area ranged from 2 June to 19 July, a span of 48 days (Table 1). The average arrival date for Greater Victoria, for 86 years for which there are sufficient data between 1891 and 2006, is 5 July.

Along western Vancouver Island the chronology is later with earliest dates ranging from 14 June to 21 July, a span of 39 days (Table 1). The average arrival date for western Vancouver Island, for 26 years for which there are sufficient data between 1940 and 2006, is 8 July.



Figure 18. Since Heermann's Gull is arriving earlier in British Columbia, adults with the typical white heads characteristic of breeding birds are being observed more often. The light gray flecking on this bird's white head suggests that moulting into winter plumage has just started but the body moult, with fading primary and secondary feathers, is well underway. Clover Point, BC. 2 August 2003 (R. Wayne Campbell).

For 12 decades, from 1891 through 2006, the average arrival date for the Greater Victoria area changed from 16 July (1900-1909) to 20 June (1990-1999), a difference of 27 days earlier (Table 2). From 1891 through 1949 the earlier progression in first migrants was fairly gradual and consistent but in the 1970s Heermann's Gulls were arriving consistently in late June. This, in part, may be due to protection of nesting colonies in Baja California and Mexico, good breeding years, and the northward expansion of the species along the west coast of North America.

The average arrival date on western Vancouver Island for seven decades from 1940 through 2006, changed from 20 July to 30 June, a difference of 21 days earlier. (Table 2). The trend is similar in the Greater Victoria area.

The autumn departure in the Greater Victoria area may commence in late September (Figure 19) but occurs mostly in October. The latest departure dates ranged from 14 October to 30 November, a span of 48 days. The average departure date for 86 years between 1891 and 2006 is 29 October (Table 3). The autumn departure on western Vancouver



Figure 19. By September many adult Heermann's Gulls have acquired very dark heads and by the end of the month some have started the southward movement to their wintering grounds. Clover Point, BC. 6 September 2004 (R. Wayne Campbell).

Island is earlier (Table 3). The latest departure dates ranged from 24 September to 28 November, a span of 66 days. The average departure date for 26 years between 1940 and 2006 is 13 October (Table 3).

For 12 decades, from 1891 through 2006, the average departure date for the Greater Victoria area changed from 19 October (1930-1939) to 10 November (1970-1979), a difference of 23 days later (Table 3). From 1891 through the 1950s average departure dates were relatively constant but by 1963 the species was departing regularly in November and continued to do so through 2006.

On western Vancouver Island the trend was similar but all average departure dates occurred in September and October. The average departure date changed from 29 September (1950-1959) to 29 October (1990-1999), a difference of 31 days later (Table 3).

Length of Stay

The annual visitation period for Heermann's Gull in British Columbia, all from the Greater Victoria area, ranged from 92 to 162 days (Table 4) with an

Table 1. Early, late, and average arrival and departure dates for Heermann's Gull in the vicinity of Greater Victoria and along the west coast of southwestern Vancouver Island (Cleland Island and Tofino south to Port Renfrew), British Columbia, 1891-2006. Vagrant spring and winter occurrences are not included. The average date was calculated by assigning numbers for a particular date from a Julian Day Table over the full period of dates.

Location	Total Years	Summer Arrival			Autumn Departure		
		Early	Late	Average	Early	Late	Average
Greater Victoria	86	2 Jun	19 Jul	5 Jul	14 Oct	30 Nov	29 Oct
Western Vancouver Island	26	14 Jun	21 Jul	8 Jul	24 Sep	28 Nov	13 Oct

Table 2. Summer arrival dates of Heermann's Gull, by decade, in the vicinity of Greater Victoria and along the west coast of southwestern Vancouver Island (Cleland Island and Tofino south to Port Renfrew), British Columbia, 1891-2006. Vagrant spring occurrences are not included. Total years with reliable dates within decades were 1890-1899 (4 years), 1900-1909 (6 years), 1910-1919 (4 years), 1920-1929 (5 years), 1930-1939 (6 years), 1940-1949 (6 years), 1950-1959 (8 years), 1960-1969 (10 years), 1970-1979 (10 years), 1980-1989 (10 years), 1990-1999 (10 years), and 2000-2006 (7 years). The average date was calculated by assigning numbers for a particular date from a Julian Day Table over the full period of dates.

Location	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2006
Greater Victoria	15 Jul	16 Jul	15 Jul	11 Jul	12 Jul	9 Jul	4 Jul	1 Jul	26 Jun	22 Jun	20 Jun	27 Jun
Western Vancouver Island	-	-	-	-	-	20 Jul	15 Jul	16 Jul	7 Jul	7 Jul	30 Jun	1 Jul

Table 3. Autumn departure dates of Heermann's Gull, by decade, in the vicinity of Greater Victoria and along the west coast of southwestern Vancouver Island (Cleland Island and Tofino south to Port Renfrew), British Columbia, 1891-2006. Vagrant winter occurrences are not included. Total years with reliable dates within decades were 1890-1899 (4 years), 1900-1909 (6 years), 1910-1919 (4 years), 1920-1929 (5 years), 1930-1939 (6 years), 1940-1949 (6 years), 1950-1959 (8 years), 1960-1969 (10 years), 1970-1979 (10 years), 1980-1989 (10 years), 1990-1999 (10 years), and 2000-2006 (7 years). The average date was calculated by assigning numbers for a particular date from a Julian Day Table over the full period of dates.

Location	1890-1899	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2006
Greater Victoria	26 Oct	25 Oct	20 Oct	21 Oct	19 Oct	21 Oct	24 Oct	2 Nov	10 Nov	8 Nov	5 Nov	8 Nov
Western Vancouver Island	-	-	-	-	-	8 Oct	29 Sep	29 Sep	5 Oct	18 Oct	29 Oct	28 Oct

Table 4. Shortest, longest, and average length of stay for Heermann’s Gull in the vicinity of Greater Victoria and along the west coast of southwestern Vancouver Island (Cleland Island and Tofino south to Port Renfrew), British Columbia, 1891-2006. Vagrant spring and winter occurrences are not included.

Location	Total Years	Length of Stay		
		Shortest	Longest	Average
Greater Victoria	86	92	162	117
Western Vancouver Island	26	66	124	92

Table 5. Average length of stay for Heermann’s Gull, by decade, in the vicinity of Greater Victoria and along the west coast of southwestern Vancouver Island (Cleland Island and Tofino south to Port Renfrew), British Columbia, 1891-2006. Vagrant spring and winter occurrences are not included. Total years with reliable dates within decades were 1890-1899 (4 years), 1900-1909 (6 years), 1910-1919 (4 years), 1920-1929 (5 years), 1930-1939 (6 years), 1940-1949 (6 years), 1950-1959 (8 years), 1960-1969 (10 years), 1970-1979 (10 years), 1980-1989 (10 years), 1990-1999 (10 years), and 2000-2006 (7 years).

Location	1890- 1899	1900- 1909	1910- 1919	1920- 1929	1930- 1939	1940- 1949	1950- 1959	1960- 1969	1970- 1979	1980- 1989	1990- 1999	2000- 2006
Greater Victoria	103	105	98	102	100	105	112	126	138	140	136	135
Western Vancouver Island	-	-	-	-	-	74	78	76	91	104	122	120

average of 117 days. The shortest period was in 1935 (19 July to 18 October) and the longest in 1974 (22 June to 30 November).

On western Vancouver Island, the annual length of stay was much shorter and ranged from 66 to 124 days, with an average of 92 days.

The amount of time Heermann’s Gull spends in British Columbia has fluctuated over the 116 years of records. Although average length of stay varies, the species has shown a steady increase from a low of 98 days (1910-1929) to a maximum of 136 days (1990-1999) in the province (Table 5). The trend on western Vancouver Island is similar, and more steady, with a low visitation of 74 days in the decade 1940 to 1949 to a maximum of 122 days in the decade 1990 to 1999 (Table 5).

Monthly Distribution and Relative Abundance

All occurrences in British Columbia represent the most northern distribution for Heermann’s Gull in North America with the exception of single first-year birds photographed in Ketchikan, Alaska, on 22

August 1991 and from 16 August to 23 September 1994. All winter occurrences (*e.g.*, December through February) for British Columbia are from more protected inside waters of Juan de Fuca Strait and Strait of Georgia.

Numbers of Heermann’s Gulls can change quickly at traditional roost sites (Figure 20) once feeding assemblages of seabirds are spotted. They may or may not return to these roosts or simply follow the food source and roost at other nearby locations. Numbers (and occurrence) are also unpredictable at sea when gulls are foraging. These coincide with local “fish boils” and tide convergence that suddenly provide food. Sometimes very long feeding lines occur at these sites. For example, a long feeding flock totaling 110 birds was tallied during a boat trip from Esquimalt to Christopher Point (Victoria) on 20 October 1984.



Figure 20. Roosting Heermann's Gulls can leave their shore sites very quickly to join feeding frenzies with other seabirds offshore. Clover Point, BC. September 1993 (Mark Nyhof).

The monthly distribution for all records compiled for Heermann's Gull in British Columbia, from 1891 through 2006, is shown in Figures 21 to 32. The general status, distribution, and numbers for each month are briefly discussed in each of the following figure captions.

Figure 21. January: There are three separate occurrences: two of over-wintering immature birds and one of an adult. Localities, from left to right, are from Vancouver Island (Ogden Point: 9 January 2005 to 25 April 2005-1 immature) and the Greater Vancouver region (Tsawwassen: 2 January 1969-1 adult and White Rock: 7 November 2001 to 1 January 2002-1 immature – see Figure 11).

Figure 22. February: The immature found at Ogden Point on 9 January 2005 remained and was present throughout February and frequented the breakwater (see Figure 11) and nearby Holland Point and Glimpse Reefs. On the mainland single birds were reported from Tsawwassen on 22 February 1990 and 23 February 1993.

Figure 23. March: Both occurrences are from southern Vancouver Island. The immature bird at Ogden Point remained throughout the month, frequenting the same localities with one additional sighting of presumably the same individual from nearby Esquimalt Lagoon. Attempts by walkers to feed bread to the gull, sitting among other gulls, were unsuccessful. To the west, a single bird was found at Rocky Point on 8 March 1986.

Figure 24. April: The overwintering immature bird in the vicinity of Ogden Point, present since 9 January, was last seen on 25 April. At River Jordan, near the entrance of Juan de Fuca Strait, a single Heermann's Gull was associating with other gulls from 1-8 April 1987.

Figure 25. May: Occasionally a very early migrant arrives in British Columbia in May. All records are widely scattered throughout the month with most from the Greater Vancouver area. There was no regular pattern of occurrence for the five localities. Records off southern Vancouver Island were of single

birds found offshore foraging with other seabirds in areas of upwelling in Haro Strait and Juan de Fuca Strait.

Figure 26. June: Some early migrants may be noticed during the first three weeks of the month but by the end of the month a small influx, now a regular event, are part of the population that remains for the rest of the summer and autumn. Small numbers of birds are widely dispersed along western Vancouver Island north to Cleland Island, throughout suitable habitat off southern Vancouver Island, and north into the Strait of Georgia.

Figure 27. July: The first large movement, mostly adults, is noticeable and continues to build throughout the month. Substantial numbers can be found roosting locally along western Vancouver Island and southern Vancouver Island. Some individuals have dispersed to many coastal locations around Vancouver Island and two reached the Queen Charlotte Islands at Cape St. James and Rose Spit.

Figure 28. August: Migrants continue to arrive, and build up, at traditional sites on southern and western Vancouver Island with the first noticeable influx of juveniles and immatures as part of the British Columbia population. Dispersants are reported from new locations including Triangle Island off northwestern Vancouver Island and Sandspit on the Queen Charlotte Islands.

Juvenile Heermann's Gulls reported at Sandspit (9 August 1991) and Rose Spit (31 July to 2 August 1994) may be the same individuals that were present in Ketchikan, Alaska, on 22 August 1991 and 16 August to 23 September 1994.

Figure 29. September: Most of the population of adults have now become established at traditional roosting and feeding areas along southern and western Vancouver Island where they continue their moult. In early September, immatures now form a significant part of the population that remains fairly constant through the rest of the month.

Northern dispersal of individuals is minor. Southward migration may commence toward the end of the month but it is not known whether this is a local movement to the San Juan Islands in Washington, or

the actual south-bound migration.

Figure 30. October: Immatures still form a significant part of the population through mid-October after which they decline in proportions quickly. The southward return to wintering grounds in the United States and Mexico is well underway and by the end of the month large roosting aggregations are rare.

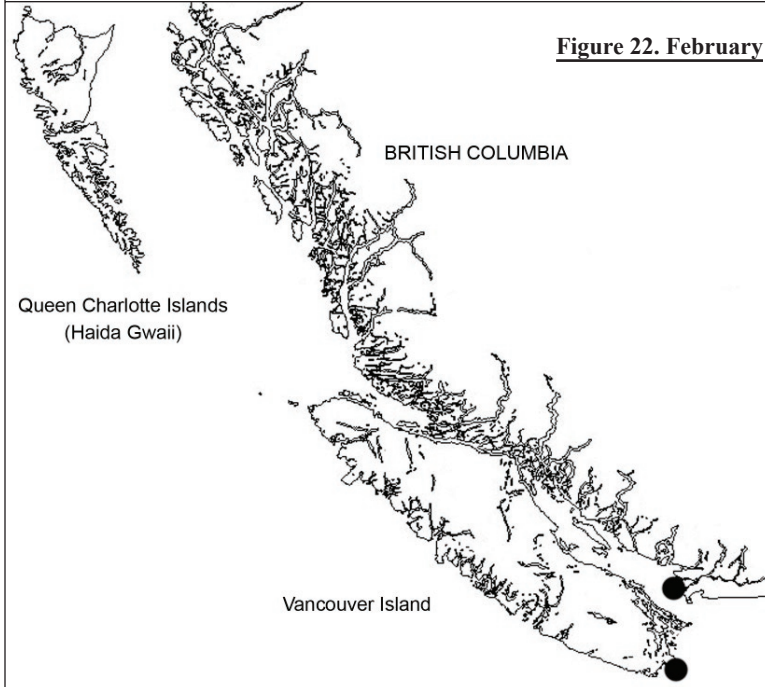
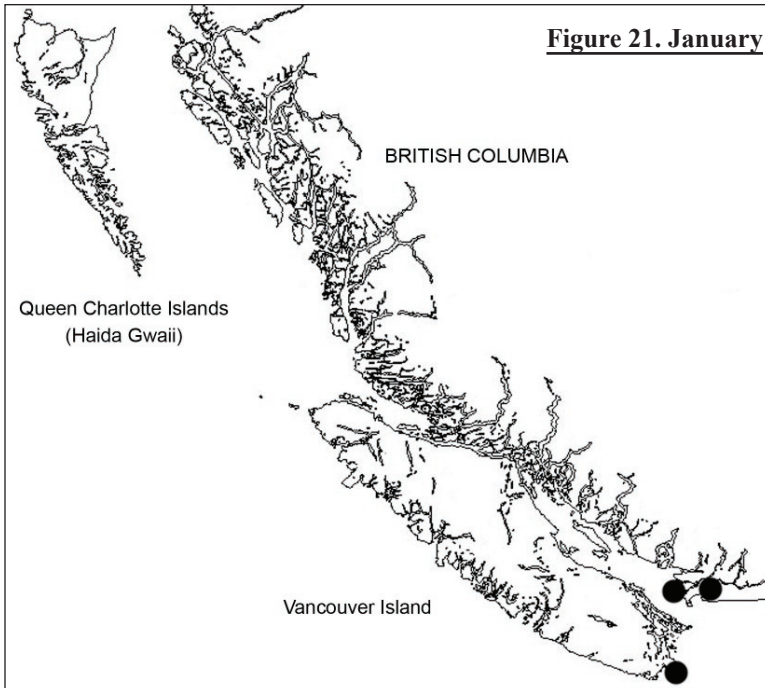
A flock of 38 birds at Cape Calvert, on Calvert Island, on 15 October 1978, is the only record for the central and northern mainland coast of the province.

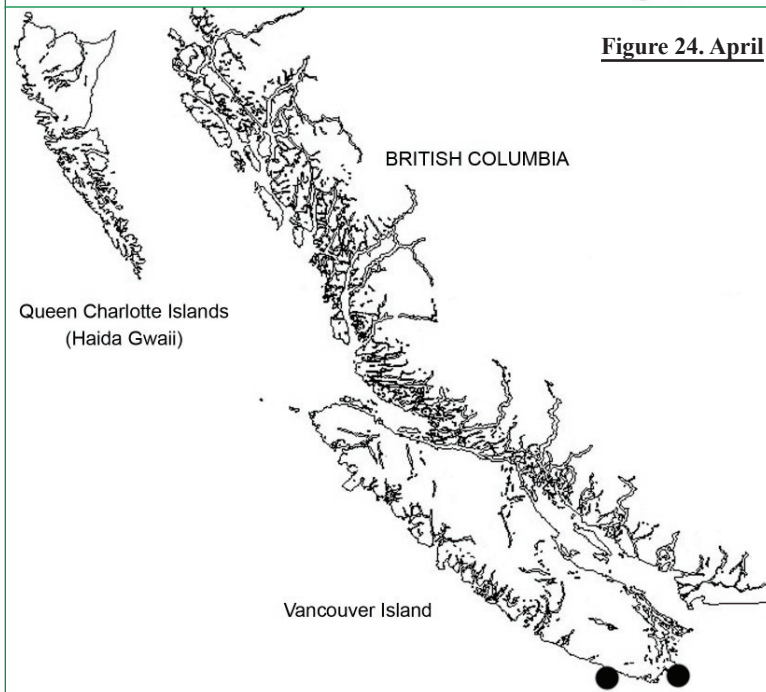
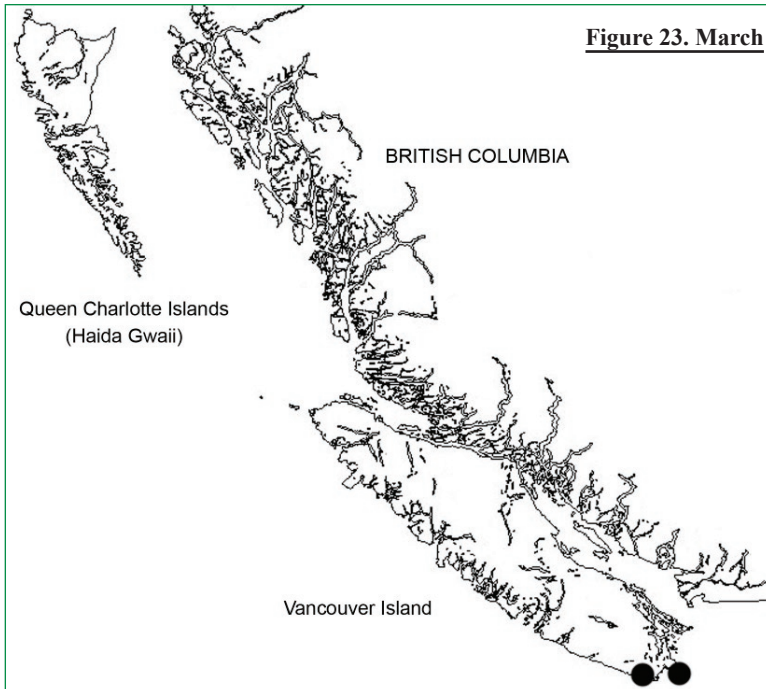
Figure 31. November: By the end of the first week most gulls have left the province. A few may be present towards the end of the month off southern Vancouver Island and infrequently in the Greater Vancouver area.

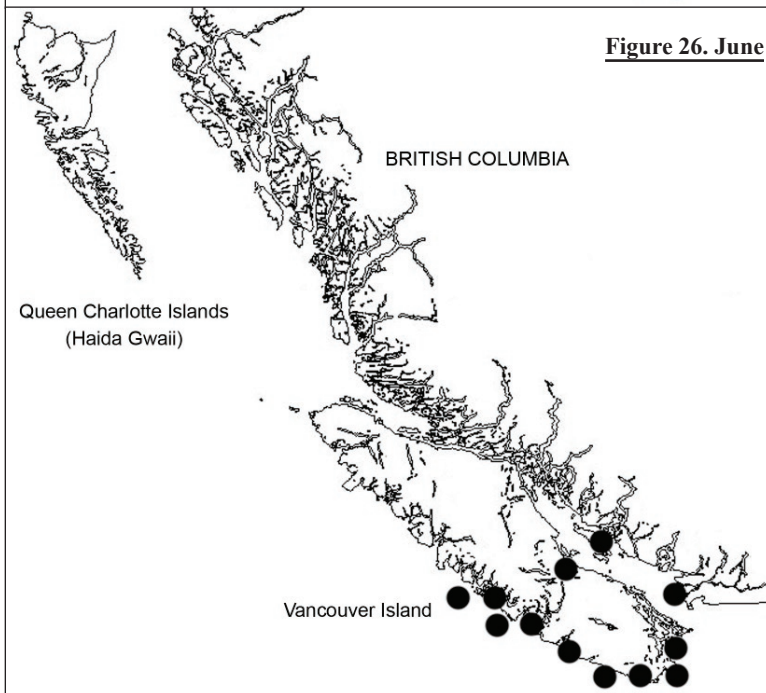
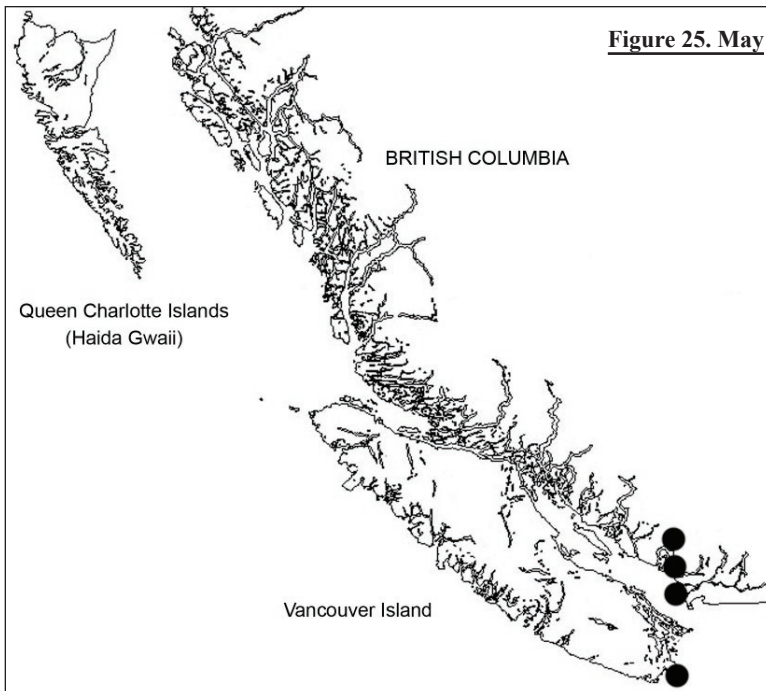
Figure 32. December: Stragglers remain some years into December with single birds reported from Victoria, Ogden Point, Clover Point, Oak Bay, Duncan, Galiano Island, Pender Islands, Active Pass, White Rock, Howe Sound, and the Sunshine Coast.

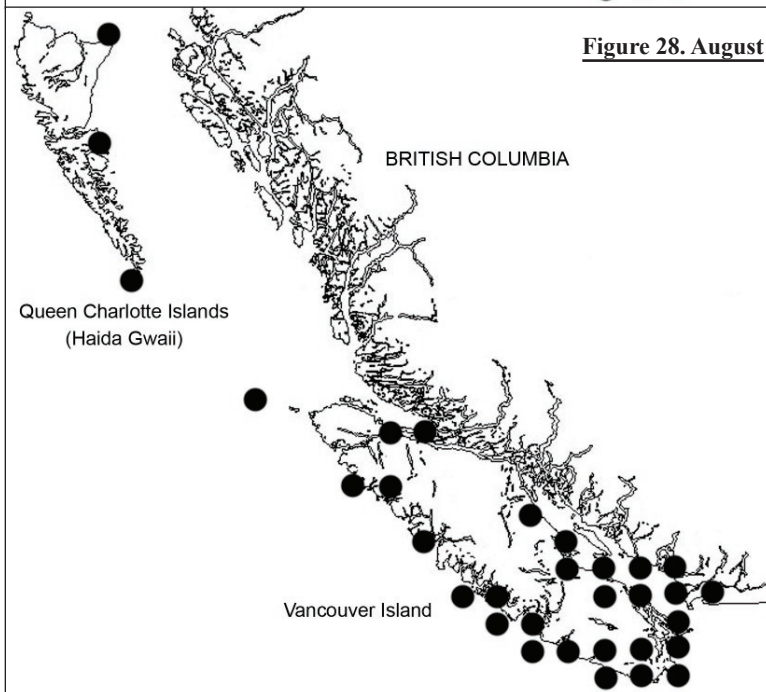
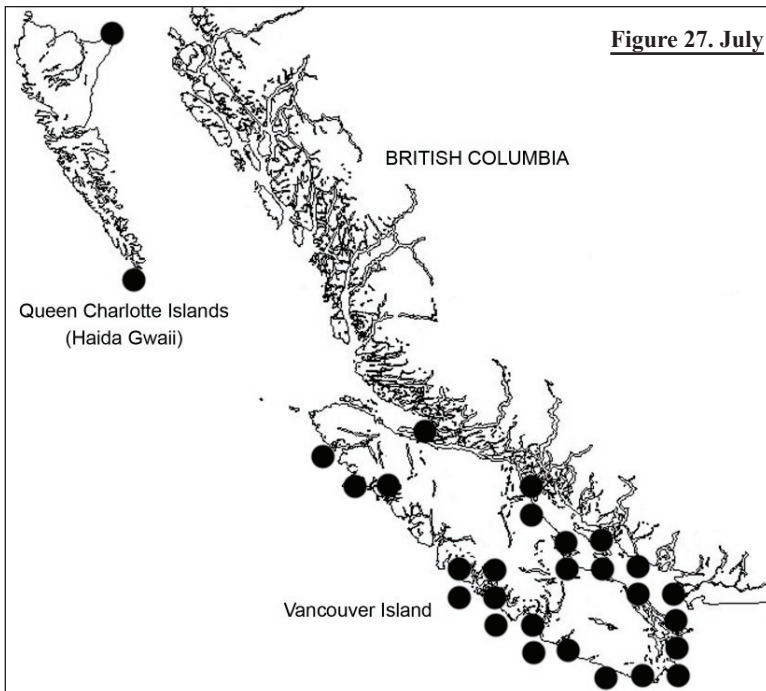
“The study of gulls along the Pacific Coast is difficult for an observer who depends on a field-glass ... he is thankful to find at least one species that is unmistakable in any plumage.”

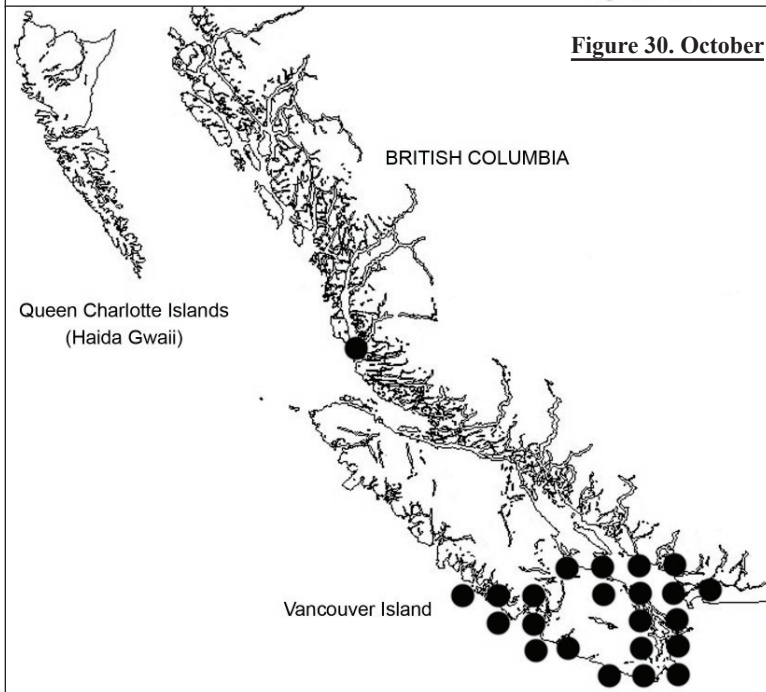
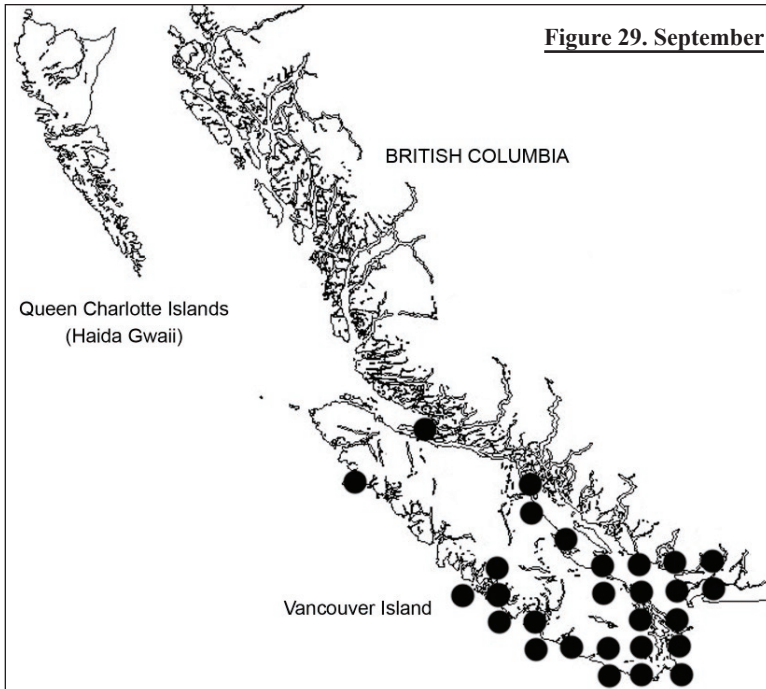
Ralph Hoffmann
Birds of the Pacific States, 1927

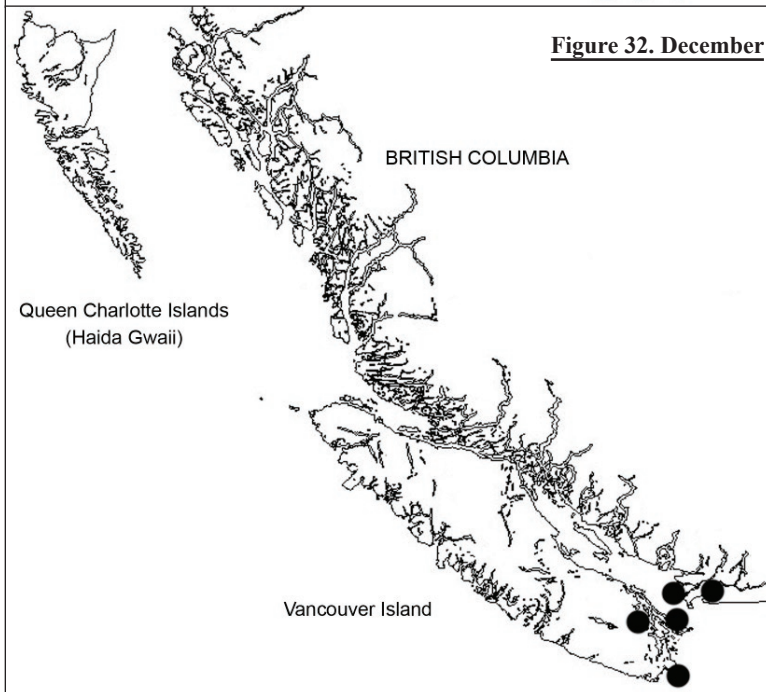
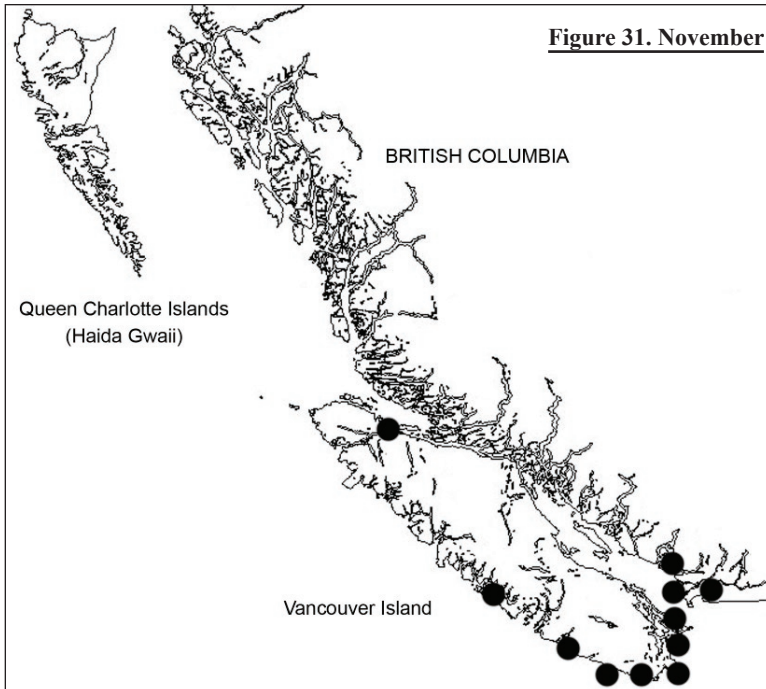












Summer and Autumn Aggregations

Large flocks of Heermann's Gulls containing hundreds of birds have been reported in British Columbia from early July through late October. Most of these aggregations are recorded from nearshore rocky sites (see Figures 7 and 52) where gulls loaf, preen, and progress with moult (Figure 33). The population contains nonbreeding adults, immatures, and juveniles, although the monthly proportion is unknown. The species usually associates with other roosting gulls, especially California Gull, Glaucous-winged Gull, and Mew Gull (*L. canus*). Flocks may suddenly leave roost sites when feeding assemblages of marine birds are noticed at sea and not return until early evening.



Figure 33. Most of a Heermann's Gull's day in British Columbia is spent at a roost site where it rests, preens, and sleeps while progressing with its moult. Clover Point, BC. 6 September 2004 (R. Wayne Campbell).

While there are hundreds of sites that appear suitable for roosting off southern Vancouver Island only 27 have been documented with over 100 birds (Table 6). Some sites are traditional (e.g., Clover Point, Cordova Spit, Oak Bay, and Rocky Point) and are used regularly each year by large numbers of gulls throughout their time in the province. Others (e.g., Becher Bay, Cleland Island, Mandarte Island, and Sidney Island) are used for shorter periods and during specific months, which may be related to seasonal food supplies.

The largest flock reported in the province was a group of 1,112 birds counted at Clover Point on 5 September 1983.

There are only 10 locations in British Columbia where roosting and foraging aggregations of 300 or more Heermann's Gulls have been estimated (Figure 34). Most sites are located off extreme southern Vancouver Island between Becher Bay and Swartz Bay. The only site along western Vancouver Island with consistently large numbers of roosting gulls is Cleland Island/Plover Reefs.

Most roost and loafing sites are used opportunistically after foraging forays (e.g., Piers Island) and may not be used again for many years. But, at the time they did provide sanctuary for Heermann's Gulls. Traditional locations supporting large numbers of gulls include Oak Bay (including Ten Mile Point, headlands of Discovery and Chatham Islands, Chain Islets, and associated reefs), Rocky Point, and Cleland Island. Race Rocks may be another significant site but information is lacking.

There are very few localities where near daily counts of roosting birds in a single year have been documented to show population changes and seasonal activity. In 1970, while studying nesting seabirds on Cleland Island (see Figure 57), northwest of Tofino, BC, from 11 May to 20 August, University of British Columbia field personnel regularly counted Heermann's Gulls roosting on an isolated rocky headland. Michael G. Shepard (see Figure 65) carried out most of the counts.

The first Heermann's Gull showed up on 3 July (Figure 35). Numbers increased gradually throughout the remainder of the month and reached 18 birds on 31 July. The increase continued steadily in early August to a maximum of 110 birds on 7 and 13 August after which numbers quickly tapered off (Figure 35).

Cleland Island, and adjacent Plover Reefs, are used annually for roosting and both represent the most northern large roost site in British Columbia.

Table 6. Maximum monthly counts of Heermann's Gull for 27 locations in coastal areas of southwestern British Columbia where more than 100 birds have been counted in at least one month for the period 1891-2006. Locations are listed alphabetically for southern Vancouver Island and western Vancouver Island.

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Southern Vancouver Island												
Becher Bay							10	18	200	300	45	
Cattle Point						2	8	50	500	12	12	
Chain Islets						2	100	30	25	16		
Chatham Islands							4		60	120		
Clover Point					1	57	225	95	1112	387	30	1
Constance Bank										300		
Cordova Spit						14	127	200	100	22		
Gonzales Point						1	6	25	81	60	5	
James Island							1	375	1			
Mandarte Island							15	3	3	600		
Oak Bay					2	30	150	150	53	500	151	
Piers Island										600		
Race Rocks						1	3	50	55	200	1	
River Jordan						33	31	75	105	100	2	
Rocky Point			1				1	290	750	400	1	
Ross Bay							2	7	161	17	9	
Salt Spring Island							150			15		
Sidney Island							135	110				
Whiffin Spit							3	31	100	28	1	
Western Vancouver Island												
Cape Beale							8	20	220			
Chesterman Beach							4	4	150	60	1	
Cleland Island						20	100	500	10			
Monks Rock							120		200			
Plover Reefs							100	100				
Sandford Island								150	8			
Stubbs Island							42		200	16		
Wickaninnish Island								250	50	1		

Distribution of Age Classes

Different migration strategies have evolved among birds and may include differences among sex and age groups, a phenomenon called "differential migration." The differences in migration patterns between adult and immature (one, two, and three-year old) Heermann's Gulls is poorly understood both on the breeding and wintering grounds and during migration along the Pacific coast. Knowing

the differential rates in migration for various age classes can help unravel some of the questions ornithologists have concerning the nonbreeding component of the gull's life. One contribution we can make from British Columbia is to determine the latitudinal segregation by age for gulls at the northern limit of their annual migration.

Recording the age of Heermann's Gulls throughout their period in British Columbia is

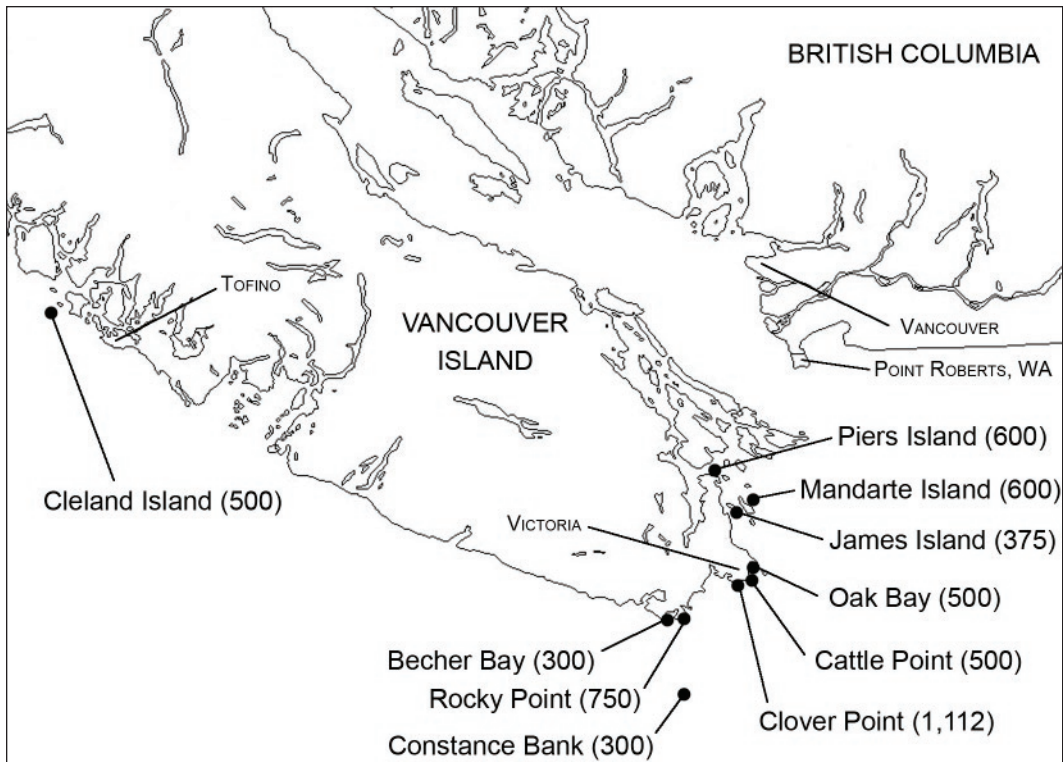


Figure 34. Location and size of major summer and autumn aggregations of Heermann's Gull in British Columbia, 1891-2006. Numbers represent populations over 300 birds.

relatively easy for juveniles and second-year birds but becomes a challenge for birds that are older (Figure 36). Many observers record ages for first-arrival birds, but afterwards the information tapers off. All of what is included in Figure 36 has been extracted from the field notes of the late J. E. Victor Goodwill, Margaret E. Goodwill (see Figure 66), and Ron Satterfield from southern Vancouver Island.

Although Heermann's Gull may arrive in the province throughout June, the first immatures do not appear until the end of the month (Figure 37). The earliest arrival date is 29 June [1992] of four immatures foraging with 24 adults in McNeil Bay. After their initial arrival, numbers of immatures in the population steadily increase through July and August, peaking during week 14 (31 August to 6 September) (Figure 37). The proportion of immatures to adults remains fairly constant from week 15 (7 to

13 September) through week 20 (12 to 18 October) after which numbers decrease substantially.

Figure 38 shows the relative abundance of adult and immature birds, by week, for the period 1 June to 1 November on southern Vancouver Island. On average the total number of adults for the entire period is 3.9 times greater than that of immatures, but there are considerable differences in weekly abundance for the two age groups. Relative to the total number of adult birds, 50% occur in the first 10 weeks (1 June to 9 August), compared to only 14.7% of immature bird abundance. By the 11th week (10 to 16 August), and continuing through to the 20th week (12 to 18 October), the majority of immature birds appear, with 80.2% of their total abundance occurring in that period. At no time do immatures outnumber adults, with the closest ratio being 1.4:1 in week 14 (31 August to 6 September).

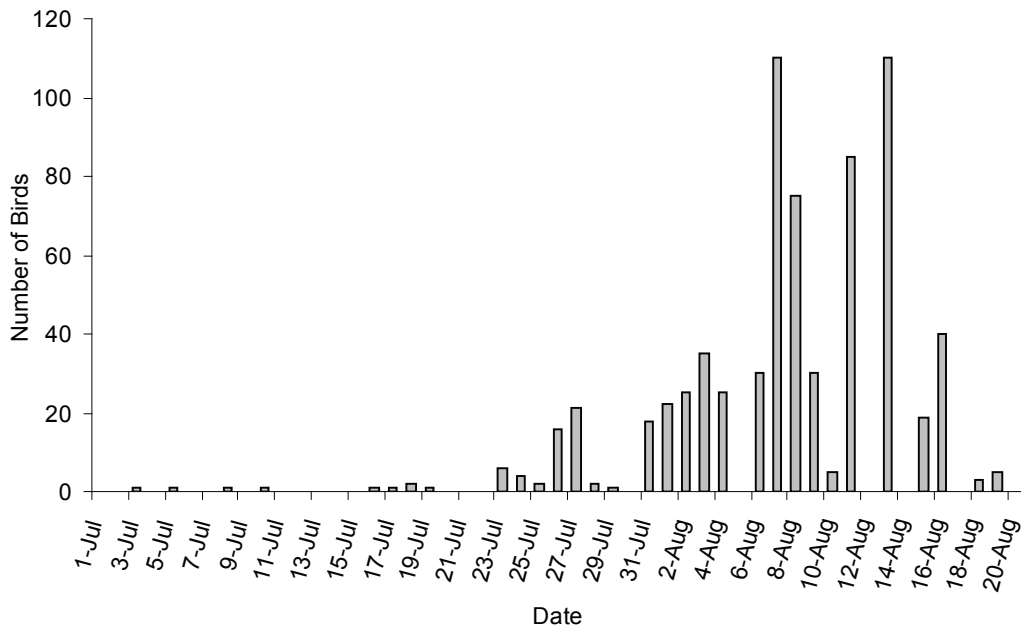


Figure 35. Changes in numbers of Heermann's Gulls roosting on Cleland Island, BC, between 3 July and 19 August, 1970.



Figure 36. Noting proportion of ages of Heermann's Gull throughout their time in British Columbia can be a valuable contribution to determining changes in age-differential migration for the Pacific coast population. First-year (left) and second-year birds are easy to separate, but third and fourth-year (right) birds are more challenging to identify. Clover Point, BC. 26 August 1995 (R. Wayne Campbell).

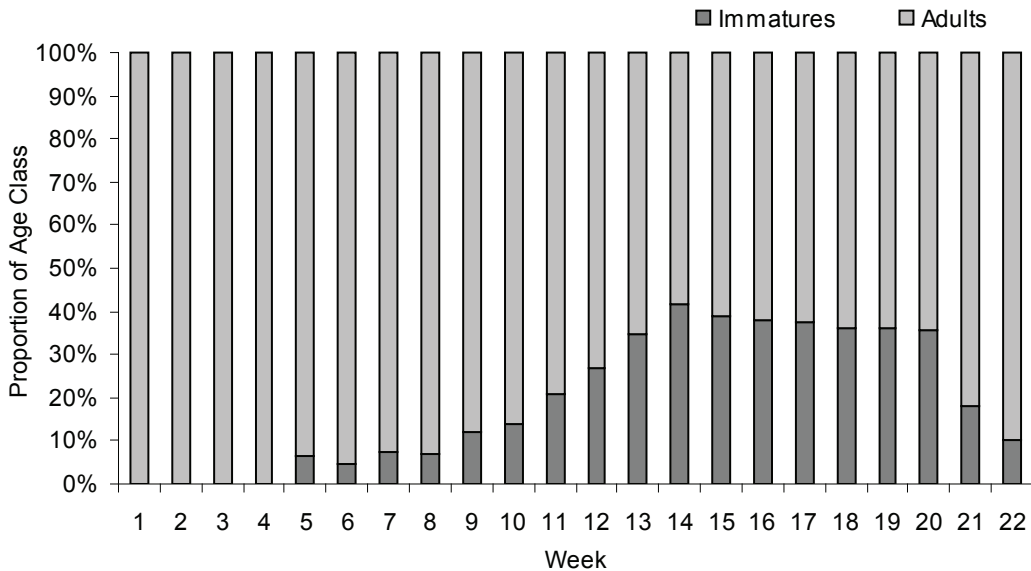


Figure 37. Weekly distribution of age-class (adults and immatures) of Heermann's Gull on southern Vancouver Island, British Columbia, 1970-2006. The 22-week period extends from 1 June to 1 November, the main period of occurrence in the province. Data courtesy of the late J.E. Victor Goodwill.

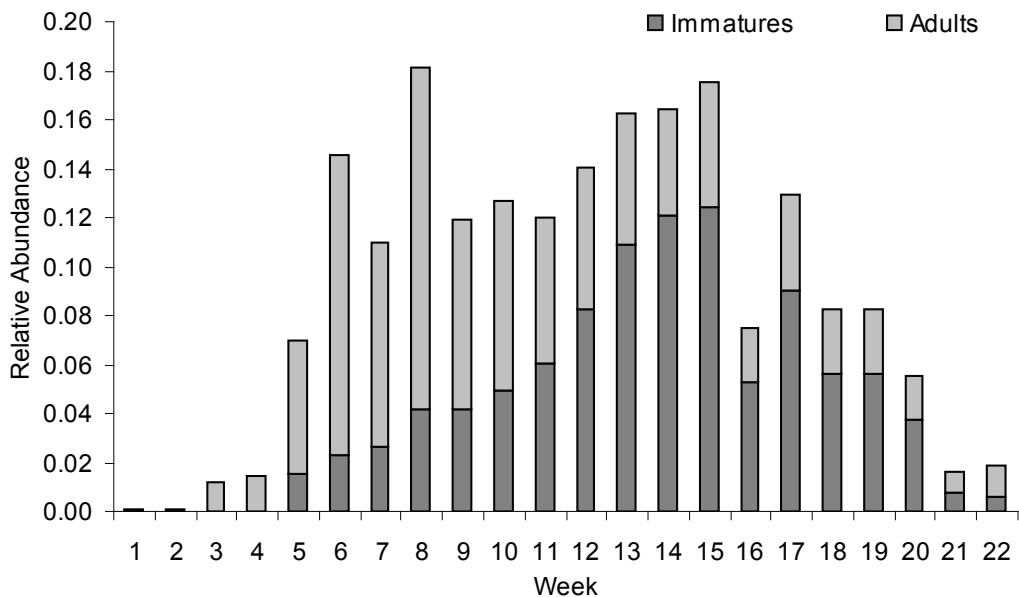


Figure 38. Relative weekly abundance, based on total abundance within each age group, for adult (6,159 birds) and immature (1,593 birds; first- and second-year birds) Heermann's Gulls on southern Vancouver Island, British Columbia, 1970-2006. Data courtesy of the late J.E. Victor Goodwill.

Moulting

After the nesting season, an unknown proportion of Heermann's Gull moves northward from Mexico along the coast of western North America, as far as both coasts of Vancouver Island (see Figure 16). The first post-breeding individuals arrive in British Columbia in late June and most have departed by late October (see Figure 10). Some individuals may be moulting when they arrive or the moult is initiated soon after arrival, to be completed over the next four months before the birds return south to their wintering grounds and eventually to colonies off the west coast of Baja California and in the Gulf of California, Mexico. The population has essentially undergone a northward moult migration. An incomplete moult several weeks later produces the pure white heads characteristic of adults during the breeding season.

The individual photographed at Clover Point on 2 August 2003 (see Figure 18) clearly shows the presence of old (faded) and new flight feathers in the wing. Three adult females in the University of Manitoba Zoology Museum (UNZM) taken in Barkley Sound on 22 August 1976 (UMZM 1090-92) have both old and new flight feathers, whereas all of those feathers on an adult female (UMZM 1175)

found dead at the same site on 21 September 1979 are new, although the outer primaries are not fully grown. That all of these specimens are adult females is apparently coincidental because among 23 sexed and aged specimens from British Columbia in the collection of the Royal British Columbia Museum, adult females only slightly outnumber adult males; three other specimens also sexed were identified by the collectors as juveniles (*i.e.*, individuals in their first year).

Mixed Feeding Assemblages

Post-breeding Heermann's Gulls usually forage opportunistically within sight of land, but some individuals also participate in mixed-species feeding flocks of seabirds (Figure 39). In Barkley Sound, off the west coast of Vancouver Island, British Columbia, Heermann's Gull has been recorded feeding by Glen Chilton, Julie M. Porter, and Spencer G. Sealy in mixed flocks that formed near shore from June through late October, after which time most individuals leave this area. None were recorded on any of the three transects conducted in Barkley Sound along and offshore by S.G. Sealy on 10 January, 13 February and 4 April 1984. Glaucous-



Figure 39. Mixed-species feeding flocks of marine birds, including Heermann's Gulls, can appear suddenly, and disappear as quickly, when food becomes available along lines of tidal convergence, at upwellings, over surface schooling fishes, and even off sewage outlets in urban areas. Clover Point, BC. 21 July 2005 (R. Wayne Campbell).

winged Gulls were recorded on all surveys, and a few Mew Gulls and Thayer's Gulls (*L. thayeri*) were recorded near shore on the January survey (S.G. Sealy, unpubl. data).

In Barkley Sound, mixed-species feeding flocks in summer last for only a few minutes, until the prey, most frequently schools of juvenile Pacific herring (*Clupea harengus*), is forced to submerge, quickly becoming unavailable to species that forage mainly on the surface of the water, such as gulls. Time is of the essence for the species that feed in these flocks, although prey may be concentrated at the surface by diving birds, which prolongs contact with surface-feeding birds. California Gulls are present in most mixed flocks, whereas the number of Heermann's Gulls comprise less than three percent of birds recorded in the flocks. Adults of the small-bodied California Gull and Heermann's Gull are among the first species to join the flocks when they form, whereas the larger Glaucous-winged Gull commonly arrives later. Juveniles do not initiate flocks but are more likely than adults to join them, and in the case of the California Gull, juveniles spend more time foraging to compensate for their inexperience. Young gulls not only gain an abundant and accessible food supply in the flocks, but also a dependable and conspicuous means of locating food because other foraging birds can be cued into readily.

Kleptoparasitism on individuals feeding in the flocks was not observed in the Barkley Sound area, possibly because most of the participating individuals ingested the prey on the spot, rather than attempting to carry it away to distant young. Elsewhere in British Columbia, this behaviour has been observed at sea with both birds and mammals.

Heermann's Gulls also participate in mixed-species feeding flocks south of British Columbia where hundreds, even thousands, of birds may be present. In Monterey Bay, California, this species is present from June through February, with numbers after November possibly augmented by individuals that have moved south from British Columbia and other northerly points. At this location Heermann's Gulls feed predominantly on fishes and squids.

Pelagic Distribution

Off the British Columbia coast, and apparently elsewhere along the Pacific coast of North America

and Mexico, Heermann's Gull is very rarely observed in the pelagic environment.

Michael Force, a British Columbian who has spent a lot of time at sea observing and recording marine birds around the world, and has become a recognized expert on their distribution and abundance, wrote:

“Regarding Heermann's Gull, just a couple of quick comments: in my experience, it is extremely coastal, rarely venturing beyond the continental shelf. Of 99 records of 5,748 individual birds, I have only two sightings (possibly the same bird visiting the ship over a period of several hours) of one that could be considered to be a “pelagic” sighting. We were about 100 nautical miles west of Isla Guadalupe, northern Baja California, 30 July 2006. The Heermann's Gull is common in mixed feeding flocks of California and Western Gulls, Brown Pelicans, and Brandt's Cormorants. Otherwise, it is very closely tied to neritic waters of the continental shelf. I have seen more Laughing (Larus atricilla), Ring-billed (Larus delawarensis), Glaucous-winged, and Herring Gulls hundreds, and even thousands of miles from shore, but never a Heermann's. They just don't seem to get out there. I have seen plenty in the Sea Of Cortez, but even there, it really is not a “pelagic” species.”

Family Life

Feeding and Diet

Different types of seabirds obtain their prey by different methods. Heermann's Gull is a generalist predator that primarily feeds on fishes. Foraging methods include snatching food from the surface of the ocean, jumping below the surface to pluck a fish, scavenging food from rocky shores and intertidal zones, and a few even accept handouts of bread from well-meaning humans. There are no diet studies for British Columbia.

In other parts of its range main fishes include Pacific sardine (*Sardinops sagax*), northern anchovy (*Engraulis mordax*), smelt (Osmeridae), Pacific sand lance (*Ammodytes hexapterus*; Figure 40), and Pacific herring. It also picks up a variety of crustaceans from the surface of the ocean.

Heermann's Gulls also commonly steal food from other birds and mammals, a term known as

kleptoparasitism. The species is a very agile flier, and opportunistic, and has been reported chasing and pirating entire fish, or scraps of food, in British Columbia from Black-legged Kittiwake (*Rissa tridactyla*), Bonaparte's Gull (*L. philadelphia*), Brandt's Cormorant (*Phalacrocorax penicillatus*), Brown Pelican, Common Tern (*Sterna hirundo*), California Gull, Glaucous-winged Gull, Mew Gull, Thayer's Gull, Western Gull (*L. occidentalis*), Northern River Otter (*Lontra canadensis*), Northern Sea-Lion (*Eumetopias jubatus*), California Sea-Lion (*Zalophus californianus*), Northern Elephant Seal (*Mirounga angustirostris*), Harbour Seal (*Phoca vitulina*), Orca (*Orcinus orca*), and feeding and surfacing baleen whales.

There are several reports of Heermann's Gulls in British Columbia watching and following Parasitic Jaegers (*Stercorarius parasiticus*) in their quest to harass other seabirds and then pick up remaining disgorged food items.

Mortality

Dead or dying Heermann's Gulls are rarely encountered in British Columbia and less often reported than most other seabirds. The following information, gathered from diaries and notebooks, injured birds brought to wildlife rehabilitators for care, veterinarians, field observations, museum collections, random beached bird surveys, and published literature provides some information on the kinds of mortality Heermann's Gull encounters

during its non-breeding period in the province.

The causes of 43 incidents reported for six categories include: museum collecting (56%), beached (16%), indiscriminate shooting (15%), found dead, cause unknown (7%), broken wing (2%), entangled in dried surfgrass (*Phyllospadix torreyi*) (2%), and Bald Eagle (*Haliaeetus leucocephalus*) predation (2%).

Lifespan

The oldest bird on record, from band-recovery information, is six years six months.

Conservation and Management

Most of what affects the presence and numbers of Heermann's Gull visiting British Columbia each year occurs on the gull's nesting grounds in Mexico. Here reproductive success is directly linked to food availability and other concerns such as the introduction of non-native species (e.g., rats), human disturbance, egg-collecting, over-fishing (including krill), oil pollution, and mortality from the gill-net fishery.

The largest nesting colony, on Isla Raza, with 90 to 95 percent of the world's population, was established as a wildlife sanctuary by the Mexican government in 1964 to discourage egg-collecting and other disturbances by humans. Since then gull populations have generally increased. The future of Heermann's Gull, like most seabirds, depends more

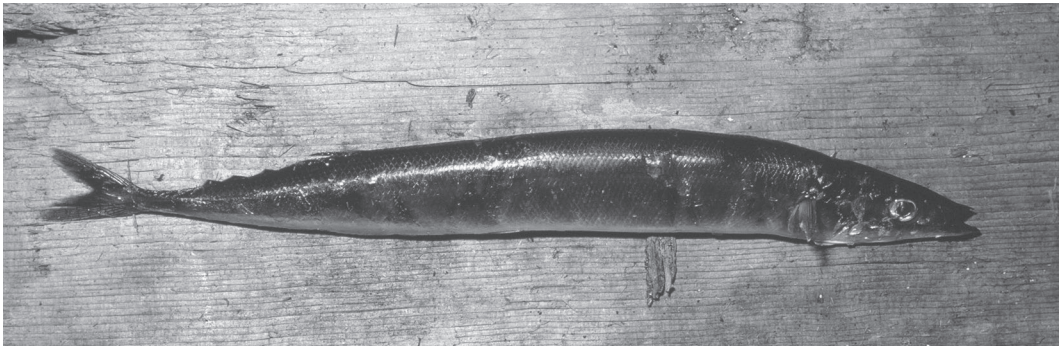


Figure 40. The Pacific sand lance, a schooling fish that is usually localized but widespread, is a major source of food for many seabirds including Heermann's Gulls. The fish size, ideal as a prey species, ranges between 12.7 and 20.3 cm (5-8 in) in length. Cleland Island, BC. August 1974 (R. Wayne Campbell).

on availability of food in an ocean ecosystem that is gradually warming. In time, this species may come to depend more and more on the rich ocean resources of British Columbia for its survival. During the past 10 years, birds arriving in British Columbia are already beginning to explore more regions of the Strait of Georgia and wander farther north along the outer coast.

Beach Recreation and Roosting Gulls

While the species is considered *Not in Jeopardy* in British Columbia, concerns have been raised regarding traditional roosting sites and human disturbance, especially in urban areas. Some suggest that these few sites should be identified followed by an increased public awareness program of the significance of undisturbed roost sites to moulting and resting Heermann's Gulls and other species of marine birds.

Aquaculture

Over the past two decades or so the aquaculture industry in British Columbia has developed very quickly and is expanding. Some marine species being farmed include Atlantic salmon (*Salmo salar*), mussels (*Mytilus* spp.), and Pacific oysters (*Crassostrea gigas*). In 2004, there were 128 marine salmon farm sites in the province and these operations attract gulls and other seabirds. While the full extent of environmental impacts associated with aquaculture are relatively unknown in British Columbia there are both direct and indirect effects on Heermann's Gulls. The only direct effects of aquaculture reported have been shooting and entanglement in nets, which are both rare events. If not managed properly, however, there may be serious impacts on marine ecosystems.

Currently there is considerable concern from scientists and environmental groups about non-native fish species escaping from farms into British Columbia waters. There are other issues as well. In their book *Birding in the San Juan Islands* biologists Mark Lewis and Fred Sharpe provide a good overview of some community concerns in Washington state:

"Aquaculture ventures are often destructive to the ecosystem since they are placed in zones of high biological productivity and therefore compete with local wildlife. This forces marine birds

and mammals to either leave the area or face a barrage of ultrasonic devices, explosives, electric fences, repulsing chemicals, or guns, intended to discourage predation of the industry's product. Birds are particularly susceptible to entanglement in the defensive nets and fences used in aquaculture.

Perhaps the greatest impact of aquaculture, particularly in the case of fish-raising pens, is the continued release of concentrated amounts of antibiotics, excessive food wastes, and feces into the environment. This has been known to cause blooms of dangerous bacteria and plankton in the vicinity of fish farms by altering nutrient levels and complex food webs, just as untreated human sewage does when disposed in our waters. Similar situations are found near seafood farms, processors, and canneries that dump raw fish offal and by-products into the water, thereby threatening the health of marine ecosystems."

Heermann's Gull is a highly opportunistic feeder and exploits nearshore habitats, taking a variety of marine fishes and crustaceans. The species spends most of its day roosting, loafing, and preening because when a source of food is discovered it feeds vigorously for a short time and returns to shore sites having filled its daily energy requirements. Few Heermann's Gulls are attracted to fish farms but indirect effects of contaminants may affect them through the marine food chain.

There may be a conflict with roosting and foraging sites but we are not aware of Heermann's Gulls using artificial structures for roosting or farm operations for foraging in the province.

Climate Change

Many scientists consider climate change the greatest threat to the global environment. Seabirds, in particular, are very sensitive to the impacts of climate change that directly and indirectly affect the marine ecosystem. In some areas surface temperatures have increased, sea levels are rising faster than ever before, and storms and waves are more severe and commonplace. Ornithologists have linked climate change to poor breeding success in seabirds, loss of critical food resources, and changes in their distribution and abundance following northward shifts in plankton and fishes to colder water.

Scientists are working feverishly to determine whether this trend is cyclic or recent. In the meantime, seabirds, including Heermann's Gulls (Figure 41), are highly visible components of marine ecosystems and therefore documenting regional changes in their numbers and behaviour can contribute to a better understanding of this concern.

Chemical Contamination

It is well known that seabirds, because they are easily observed, wide ranging, long lived, and are at the top of the food chain, are valued as bio-indicators of healthy marine ecosystems. There is an enormous amount of research and literature on the occurrence of various chemicals in seabirds, especially organochlorines, and their effects on hormonal interactions, egg shell thinning, and reduced breeding success.

In the Gulf of California, the highest levels of dichlorodiphenyldichloroethylene (DDE) and polychlorinated biphenyls (PCBs) found in the prey species of Peregrine Falcon (*Falco peregrinus*)

occurred in Heermann's Gull and the Black Storm-Petrel (*Oceanodroma melania*). It is not known what effect this may have had on breeding gulls.

Population Trends and Monitoring

There is no long-term information on specific trends or populations of Heermann's Gulls in British Columbia. Numbers and distribution fluctuate greatly between years, seasons, and locations, and no long-term monitoring of a traditional roost site has been undertaken. Data suggest that the species is less common in some years both on western Vancouver Island and off southern Vancouver Island (e.g., 1957, 1965, 1972-73, 1975, 1976, 1982-83, 1987, 1993, and 1997) and this event may be related to the El Niño-Southern Oscillation.

Recently, at-sea surveys have been carried out between 1996 and 2000 in several areas of Pacific Rim National Park Reserve (Figure 42). The "Tofino" route was the most productive for Heermann's Gulls and is the only one included here for representation



Figure 41. The future of many seabirds, including Heermann's Gull, is threatened by global warming and climate change. Clover Point, BC. 17 August 2003 (R. Wayne Campbell).



Figure 42. Locations of transect legs (thick dark line) for “Tofino” seabird surveys. Map courtesy of Pacific Rim National Park Preserve (Parks Canada) and BC Ministry of Environment.

and discussion.

Numbers fluctuated widely between survey years and months (Figure 43). A small influx of gulls usually arrived in late June of most years with numbers dispersing to other roost and feeding locations through much of July. In 1996, a major influx of migrants arrived in late July with similar,

but smaller numbers in other years. Small numbers of gulls sometimes were still present through early September with a spike in numbers later in the month in 1996. This pattern is generally consistent with movements in southern locations off Vancouver Island.

In time, the surveys may contribute more to

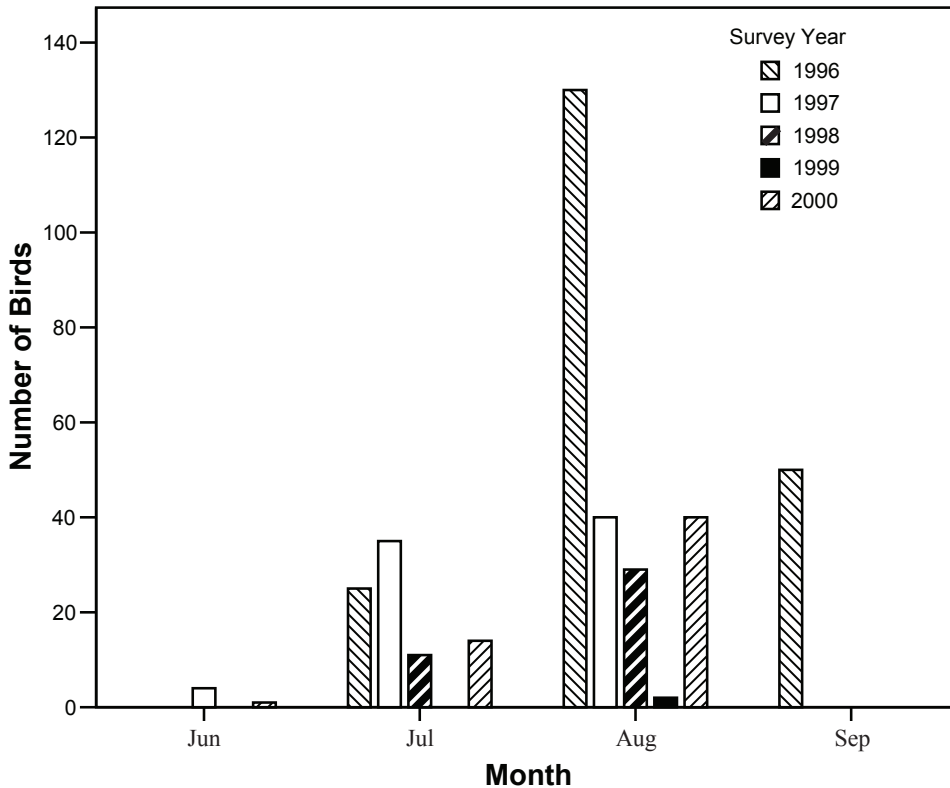


Figure 43. Maximum single-day counts of Heermann’s Gull on the “Tofino” seabird survey. Data courtesy of Pacific Rim National Park Preserve (Parks Canada) and BC Ministry of Environment.

our understanding of the use of littoral areas in the park by migrating and resident Heermann’s Gulls and changes in numbers and distribution related to weather conditions and food resources.

In Mexico, the annual breeding population fluctuates greatly. In 1975 it was estimated at 55,000 pairs and in the 1990s reached a maximum of 150,000 pairs. Historically, commercial egg-collecting severely impacted the colonies with up to 50,000 eggs being collected in a single nesting season. With the protection of the gull’s major breeding colony by the Mexican government in 1964, populations slowly recovered on Isla Raza and numbers started to increase along the Pacific coast.

After egg-collecting was stopped in Mexico, the maximum number of birds occurring in British

Columbia gradually increased after an approximate five-year lag. We defined significant El Niño events using criteria from the International Research Institute for Climate and Society (IRI 2006) as periods when > 60% of the ocean surface in the region of 85°-180°W, 10°S-10°N, was > 28 °C. Thus, for the period 1941 to 2005, 10 significant events have occurred (Figure 44). It is difficult to ascertain whether maximum numbers of Heermann’s Gulls occurring in British Columbia are strongly tied to El Niño events. However, data from the late 1980s and early 1990s suggest a possible correlation, with birds peaking during an event, and then occurring in low numbers for several years, even if another El Niño event occurred shortly thereafter.

Heermann’s Gull (Figure 45) has been reported

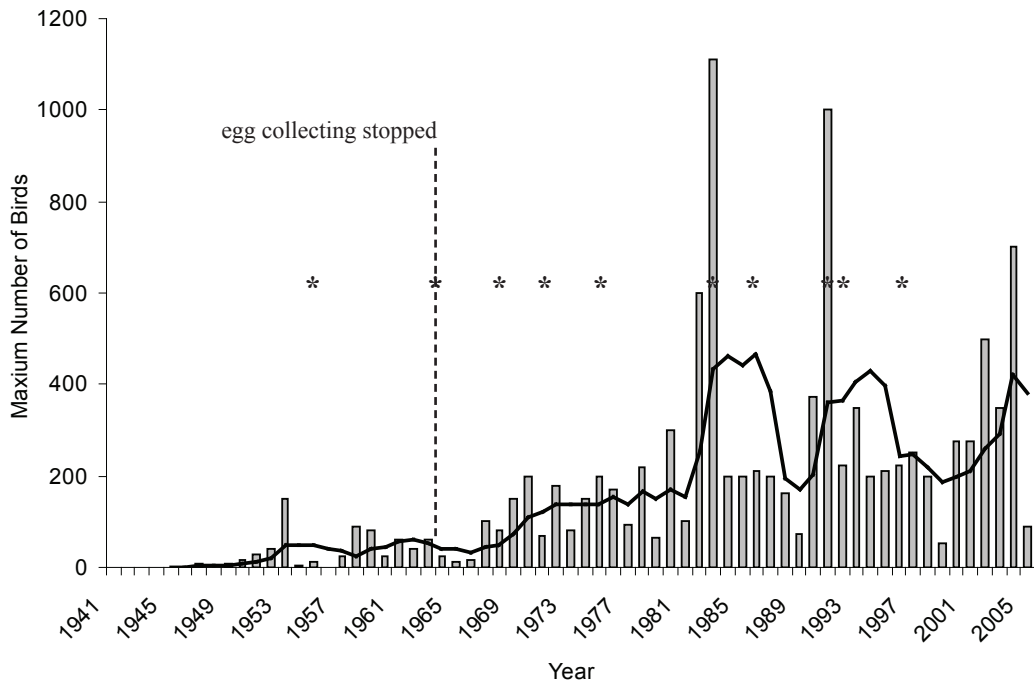


Figure 44. Maximum annual counts of Heermann’s Gull in British Columbia (1941-2005) with 5-year moving average (solid line). * indicates significant El Niño-Southern Oscillation events (see text for description). Note: after egg-collecting was stopped in Mexico, the maximum number of birds occurring in British Columbia gradually increased after an approximate 5-year lag.

annually off southern Vancouver Island since at least 1891. In the Greater Vancouver area, it was first recorded in 1955 (Tsawwassen ferry terminal, 10 August; 1 bird) and irregularly thereafter. It should be noted that Heermann’s Gulls were not recorded in the vicinity of Crescent Beach, BC, north of Point Roberts, WA, from 1940 through 1966 when the late Martin W. Holdum kept daily field notes.

Large numbers of roosting and feeding Heermann’s Gulls (> 100 birds at one site) have been recorded consistently in British Columbia since the early 1970s (Figure 44).

On average, the total number of Heermann’s Gulls in British Columbia each year has ranged between 1,500 and 3,000 birds.

Research Needs in British Columbia

General information needs in British Columbia include conducting thorough counts of roosting birds, including age-classes and associations with other marine species, documenting specific sites and carefully estimating numbers of birds in large feeding flocks, recording migration and local dispersal movements, reporting unusual abnormalities in body parts or plumages, identifying migration corridors for autumn departure and sharing field observations and anecdotal information with others to keep attention on Heermann’s Gull.

Topics could include determining the sequence of moult patterns for gulls at the northern end of their range, contributions to energetics in a marine ecosystem, nearshore versus offshore diet, and various behavioural topics including roosting habits.



Figure 45. Monitoring Heermann's Gull in British Columbia is a challenge because of the unpredictable nature of its ephemeral roosting habits and unpredictable feeding behaviour when following local fish movements. Clover Point, BC. 11 August 2003 (Michael G. Shepard).

Databases

Although Heermann's Gull is restricted to southwestern British Columbia, and does not breed in the province, developing a working database was challenging. The information source was much more restricted, and scattered, than for a more widely distributed species even though many of the same sources had to be searched. Even though the gull is easy to identify, for some reason it is recorded far less often after its initial arrival, and so records are fewer. The single largest gap in the database was the lack of age-class information, especially from late July through mid-October, and pelagic records.

Hundreds of sources were searched for records including catalogues in North American museums, historical ornithological diaries, current notebooks of active birders, scientific publications, unpublished reports, regional annual bird reports (*e.g.*, Victoria and Vancouver), bird lists in natural history society newsletters, and unpublished at-sea surveys by governments and consultants. The task took nearly three months to complete and probably includes over 95% of information that is available for this visitor from the south.

This account is based on 34,711 occurrences and represents an increase of 1,376% over material that was compiled for *The Birds of British Columbia* (Table 7). This more comprehensive database, spanning 116 years, has allowed for a more detailed analysis and insightful understanding of the life of Heermann's Gull away from its breeding grounds.

As with other species, a full-colour version will be available in the member's area of our web site (www.wildlifebc.org) within about six months after publication.

If you would like to contribute records of Heermann's Gulls, or any other wildlife species, please contact us at www.wildlifebc.org for details.

Did You Know?

Runny Nose

Water, water, everywhere but not a drop to drink! For years biologists and bird enthusiasts marveled at how seabirds could live all of their lives in a salty environment and not drink fresh water. We know that too much salt in the system is a killer and most

Table 7. Differences in total text (excluding Tables, Captions, Noteworthy Records, and Literature Cited), distribution information, and size of databases used in Heermann's Gull account published in *The Birds of British Columbia* (BBC) in 1990 with the current account from databases housed in the Wildlife Data Centre (WDC) in 2007.

	Information	Distribution ¹	Database
	Total Words	Occurrence	Occurrence Records
BBC	475	30	2,351
WDC	12,642	44	34,711
Increase (%)	2,561	50	1,376

¹Based on the total number of 1:50,000 National Topographic System grids occupied.

animals must limit the concentration to less than one percent. The marine birds kept their secret until the mid-1950s when physiologist, Knut Schmidt-Nielsen, discovered that ocean roaming birds had salt glands.

The glands are situated in the head and the sole function is to get rid of excess salt in the seabird's body (Figure 46). Salt glands secrete solutions that are nearly pure sodium chloride (NaCl)! The most concentrated salt gland secretions occur in the albatrosses, fulmars, shearwaters, and storm-petrels.



Figure 46. Heermann's Gull with the water dripping from the tip of its bill in the background is getting rid of deadly concentrated salt from its body. Clover Point, 5 August 1995 (R. Wayne Campbell).

What's in a Name?

The scientific (*Larus heermanni*) and English name of Heermann's Gull is derived from two sources. The genus *Larus* translates from Latin as "ravenous seabird, perhaps a mew" and was used by Aristotle probably in reference to a gull. The species name, *heermanni*, is in honour of Adolphus Lewis Heermann who was a surgeon-naturalist in the Army of the United States. He was recognized as an explorer and field naturalist, and in the mid-1880s collected over 1,200 birds from California and Mexico. Adolphus died of a self-inflicted gunshot in 1865.

No Need to be Noisy

On its breeding grounds, the Heermann's Gull is noisy and territorial and this agnostic behaviour

often incites confrontations between dozens of birds. Unlike other gulls in British Columbia, this Mexican visitor is usually silent during its northern summer and autumn visit. Individual gulls may, however, greet each other with a cackling note at roost sites or utter a high-pitched *whee-ee* when fishing at sea but this is a rare event.

Keeping Warm

All birds must maintain a fairly constant temperature throughout their life. When overheated, or chilled, they use various behavioural methods to get rid of heat when they are hot or retain heat when they are cold.

While in British Columbia, Heermann's Gull does not have to endure some of the extreme high temperatures that are characteristic on its breeding grounds. During its post-breeding period, however, birds must retain body heat each evening at roost sites, which are not always in the most protected locations, and often are exposed to heat-sapping winds. The most common method Heermann's Gull uses to keep warm while in the province is to put the bill under the scapulars when resting or sleeping (Figure 47).



Figure 47. To keep a relatively even temperature each day Heermann's Gull tucks its bill and face under feathers on its back to conserve heat when it rests and sleeps. Clover Point, BC. 2 August 2003 (R. Wayne Campbell).

On the Web

Heermann's Gull is not a high-profile species away from its breeding range and very little has been published about its activities during the annual northward dispersal. Some of the websites listed below, however, contain information that may be of interest and include photographs, plumages, state species accounts, migration watch information, and anecdotal items.

Biodiversity Centre for Wildlife Studies
(www.wildlifebc.org)

Patuxent Wildlife Research Centre
([http://bna.birds.cornell.edu/Bna/account/Heermann's Gull](http://bna.birds.cornell.edu/Bna/account/Heermann's%20Gull))

Slater Museum-Birds of Washington
(www.ups.edu)

Southwest Fisheries Science Center
(<http://swfsc.noaa.gov/prd-ecology.aspx>)

Finding Heermann's Gull in British Columbia

Finding Heermann's Gulls in British Columbia is not very difficult but getting good views depends on visiting traditional roost sites during the period when they are most numerous. This Mexican visitor, however, is somewhat unpredictable because it feeds at sea, usually within sight of land, any time during daylight hours, and returns to roost only when it has gorged itself on fishes and crustaceans. Some birders have visited well known Heermann's Gull sites five times in a single day before spotting a bird!

Heermann's Gull is known as a "specialty bird" in the Greater Victoria area because this is the only area in the province where the species can be found with regularity. Even if traditional roost sites are vacant small groups can usually be found from late July through early October flying or sitting on kelp beds and rock outcrops along the entire waterfront from Oak Bay to Ogden Point. By mid-September the birds are more dispersed, although sometimes still locally abundant. Farther west, from Race Rocks and East Sooke to River Jordan, the gull is also plentiful but access to the seashore is more difficult (Figure 48). In the Greater Vancouver area you have to be

lucky to find the gull.

Heermann's Gulls regularly occur only along the southern half of the outer west coast of Vancouver Island and although present in numbers, and widely scattered, there are only a handful of areas that are easily accessible for viewing. The best chance to find them is from the government wharf in Tofino. In the Greater Vancouver area, Heermann's Gull is rare and is not reported every year although it can be found each summer and autumn at Lighthouse Marine Park in Point Roberts, Washington. Locally, the best chance is to search the rock breakwaters and jetties near the Tsawwassen ferry terminal (see Figure 59) and Roberts Bank.



Figure 48. A short hike is needed to visit rocky headlands in East Sooke where Heermann's Gulls roost each year. Pike Point, East Sooke Park, BC. 23 September 2006 (Michael I. Preston).

Locating Heermann's Gulls in action, at feeding frenzies with other seabirds, is worth a trip offshore. Watching the agile, buoyant fliers plucking food from the surface of the ocean or pirating food from other seabirds is a great experience. Taking a commercial whale-watching or scenic cruise from Victoria, traversing outer Barkley Sound from Ucluelet and Bamfield, or the outer coast of Clayoquot Sound from Tofino, can be a good bet from mid-July to mid-September. On occasion, Heermann's actually outnumber other feeding species.

Heermann's Gulls can also be spotted during ferry sailings, especially in August and September.

The MV Coho, travelling between Victoria, BC and Port Angeles, WA, provides the best opportunity for spotting Heermann's Gulls. A ferry trip from Swartz Bay to Tsawwassen, or the Canadian Gulf Islands, can also be productive, especially during the first 20 minutes out of Swartz Bay

While Heermann's Gulls have been seen at hundreds of locations in British Columbia we have listed 27 sites (see Table 6) where there has been a long record of use and where there is a very good chance of finding the bird. These sites also are popular with birdwatchers.

Southern Vancouver Island

Clover Point Park/Ogden Point

Clover Point, off Dallas Road in Victoria, juts into the Strait of Juan de Fuca 13.6 kilometres from the city of Port Angeles and the 2,400 metre-high Olympic Mountains of Washington state.

The city park (Figure 49) is one of the most heavily used parks in Victoria, and the most visited birding location on Vancouver Island. The park consists of a loop road built in 1956 with a grassy centre that is a favourite loafing spot for gulls (rarely Heermann's), Rock Pigeons (*Columbia livia*), and humans. The area with its pathways and lawns is a popular spot to walk, exercise dogs (on leashes), and enjoy something to eat, launch a boat, and fly kites.

Sewage from the City of Victoria was first piped to Clover Point in 1892 and has continued ever since. Presently, Clover Point is the site of one of Victoria's two sewage pumping stations. It was constructed in 1971 and still dumps untreated sewage and storm water runoff directly into the ocean. In the mid-1970s a 2,100-metre outfall pipe was planned to carry raw sewage out into Juan de Fuca Strait but by 1980 only 1,372 metres of pipe had been completed, which remains today. Clover Point was slated for a possible location for a sewage treatment plant mandated for Victoria by the provincial government in July 2006.

Habitats on and around the park include low, rocky headlands, dense kelp beds, long, curved sand beaches with driftlogs, and sandstone sea cliffs. Until 1980, Heermann's Gulls were a common sight, with other gulls, feeding at the sewage outlet but have since moved further offshore to feed. Today, gulls that frequent Clover Point Park use the area primarily



Figure 49. Clover Point Park in Victoria is one of the most popular birding locations in the region.

to loaf, preen, and sleep.

Most of the records in British Columbia have come from Clover Point. Often the first birds reported for a particular year are from the park. The first migrants may appear in early to mid-June with small numbers now regularly appearing later in the month. The first noticeable influx occurs during the second week of July and later in the month substantial numbers are present on the rocky headlands and kelp beds. Populations fluctuate greatly in August and early September and by late September and early October the southward migration is evident (Figure 50). Numbers taper off quickly through the rest of October and into early November. Occasionally stragglers overwinter.

The largest flock (for the province as well) was estimated at 1,112 birds at Clover Point on 5 September 1983. Heermann's Gull has been recorded here from 2 May to 25 December.

Ogden Point (Figure 51) is about three kilometres west of Clover Point and is a major destination for cruise ships and visiting naval vessels. A smooth, rocky breakwater, nearly a kilometre long, is a popular site for walkers and the clear marine-rich waters are used regularly by scuba divers. Frequently Heermann's Gulls are present in the vicinity of the breakwater but a hike from Ogden Point to Clover Point, at low tide, will be more productive. Unlike Clover Point, large numbers of Heermann's Gulls rarely visit this area. The walk passes by Holland Point, Finlayson

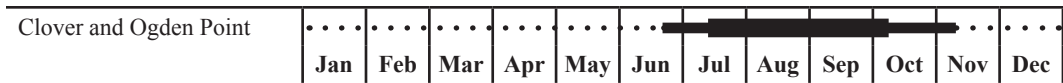


Figure 50. Occurrence chronology of Heermann’s Gull at Clover and Ogden Point, BC showing the peak viewing period between mid-July and early October. The months of August and September are prime viewing times. Thick bars: common; Thin bars: uncommon; Dots: rare.

Point, Glimpse Reefs, and Horseshoe Bay where small numbers of gulls can usually be found from late July through early October. In 2002 an immature wintered here. Heermann’s Gull has been recorded here from 9 January to 14 December (Figure 50).



Figure 51. In Victoria, the long, rock breakwater at Ogden Point, with adjacent kelp beds and tiny islets, is a favourite spot each year to find roosting and feeding Heermann’s Gulls. 8 September 1998 (R. Wayne Campbell).

East Sooke Park/Rocky Point

Most of this locality is included in East Sooke Park, an area of 1,435 hectares. The park was established in 1970 and is accessible from East Sooke Road. Over 50 kilometres of walking and hiking trails wind through forests, over dry hilltops, and along windswept rocky coasts. To the south are the rich marine waters of the Strait of Juan de Fuca and in the background the Olympic Mountains of Washington state.

While distant Heermann’s Gulls can be spotted offshore searching for food, the rocky headlands (Figure 52), especially Pike Point and Rocky Point, should be scanned for roosting gulls. Small

numbers are present in early July but build up during the latter half of the month and by early August roosting groups may reach 100 birds. Numbers fluctuate greatly until mid-October after which the gull becomes scarcer with few remaining by the end of the month. Peak numbers have been seen in late August, mid-September, and mid-October. The largest flock reported was 750 birds on 27 September 2003. Heermann’s Gull has been recorded here from 8 March to 24 November (Figure 53).



Figure 52. Some of the largest concentrations of Heermann’s Gulls in late summer and early autumn in British Columbia are found roosting on rocky headlands along the marine shores of East Sooke. 30 August 1998 (R. Wayne Campbell).

Esquimalt Lagoon

Esquimalt Lagoon (Figure 54) is about a 25-minute drive from downtown Victoria via Highway 1A. The brackish tidal estuary is a federal Migratory Bird Sanctuary. The lagoon itself is 130 hectares in size and with the surrounding dunes, spit, access road, and saltmarsh the area encompasses about 230 hectares. It is a very popular destination for

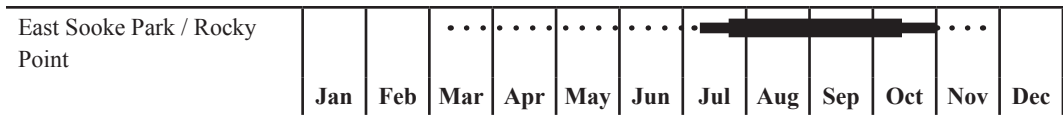


Figure 53. Occurrence chronology of Heermann’s Gull at East Sooke Park, BC., showing the peak viewing period between early August and mid-October. Thick bars: common; Thin bars: uncommon; Dots: rare.

walkers (including those exercising their dogs), photographers, picnickers, and birders. A two-kilometre spit parallels the lagoon and provides easy walking.

The presence of Heermann’s Gulls depends on the time of year and level of the tide. At low tide several small gravel bars are exposed near the bridge and hundreds of California Gulls, Glaucous-winged Gulls, Mew Gulls, and other species loaf, preen, and bathe. These flocks should be carefully searched for Heermann’s Gulls.

Heermann’s Gull rarely visits the lagoon during



Figure 54. Each year, in late summer and early autumn, small numbers of Heermann’s Gulls can be identified among the hundreds of California, Glaucous-winged, and Mew gulls loafing at Esquimalt Lagoon, BC. 14 October 2004 (R. Wayne Campbell).

the first two months of its time in the province but with a telescope small numbers may be spotted at sea foraging with other gulls. The first Heermann’s usually show up in the lagoon in mid-July and may be present in small numbers until early November. The best period to find them is between 7 and 21 September. Heermann’s Gull has been recorded here from 14 July to 9 November (Figure 55).

Oak Bay/ Victoria Golf Course

This 40 hectare (100 acre), 18-hole public/private golf course in Victoria is the oldest in Canada. It was transformed from a farm that was situated on a rocky point overlooking Trial Island and Juan de Fuca Strait. Access to view Heermann’s Gulls can be reached by walking along the edges, not across, the golf course.

A variety of habitats, including low, rocky outcroppings, kelp beds, marine upwellings, and low spits on nearby Trial Island attract roosting and feeding gulls all year. Often the earliest Heermann’s Gulls found in the province each summer are reported from this area and small numbers are present throughout the five months of their visit. Occasionally birds have wintered here. The best time to see them is between late July and early October. Heermann’s Gull has been recorded here from 30 May to 17 December (Figure 56).

West Coast Vancouver Island

Tofino/Chesterman Beach/Long Beach

While Heermann’s Gull is widely distributed along the west coast of Vancouver Island there are very few locations where easy access to the shoreline is possible. Unlike traditional locations off southern Vancouver Island, sites to see Heermann’s Gulls on the west coast are more ephemeral, and unpredictable, and most occur on the outer exposed

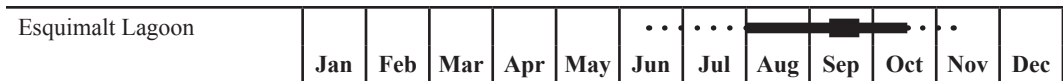


Figure 55. Occurrence chronology of Heermann’s Gull at Esquimalt Lagoon, BC showing the peak viewing period between 7 and 21 September. Thick bars: common; Thin bars: uncommon; Dots: rare.



Figure 56. Occurrence chronology of Heermann’s Gull at the Victoria Golf Course in Oak Bay, BC showing the peak viewing period between 22 July and 7 October. Thick bars: common; Thin bars: uncommon; Dots: rare.

coast. The best places to look for this gull from a land-based site include Tofino, Chesterman Beach, and Long Beach.

Tofino, part of Clayoquot Sound, is referred to as a naturalist’s “Riviera” because of the diversity of wildlife and world-class protected forests within a relatively small area. Each summer the population of this fishing village increases from about 1,600 people to over 25,000 made up mostly of tourists. The best chance to find a Heermann’s Gull here is from the government wharf. The species is unpredictable anytime but often roosting birds can be picked out of flocks of other gulls. A short boat trip, in protected waters through Father Charles Channel, or past rocky headlands of Vargas Island, will be the best chance to find the gull. Charter boat trips from Tofino to nearby, but offshore, Cleland Island (Figure 57) is always productive.

The hard-packed sandy beaches of Chesterman Beach and Long Beach should also be visited. Here, you will have to search flocks of resting California and Glaucous-winged Gulls for a Heermann’s Gull. Late July through mid-September is the prime time. Heermann’s Gull has been recorded here from 1 June to 10 November (Figure 58).



Figure 57. Cleland Island is the only location along the west coast of Vancouver Island where significant numbers of Heermann’s Gull roost each year on rocky islets and outcroppings. 17 June 1975 (R. Wayne Campbell).

Greater Vancouver

Tsawwassen Ferry Terminal/Roberts Bank

If you do not want to take a trip to Vancouver Island, or Point Roberts in nearby Washington state, to see a Heermann’s Gull, the rock jetties at the Tsawwassen ferry terminal and Roberts Bank will be the spots to search. Although Heermann’s Gulls have been reported at Iona Island, Spanish Banks, English Bay, and White Rock in the Greater Vancouver area,

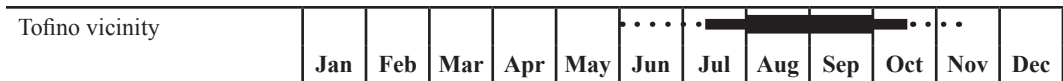


Figure 58. Occurrence chronology for Heermann’s Gull in the vicinity of Tofino, BC showing the peak viewing period between early August and late September. Thick bars: common; Thin bars: uncommon; Dots: rare.

they are a rare sight.

The former locations are only a few miles north of Point Roberts where hundreds of Heermann’s Gulls occur each year. Some of these birds fly northward to roost on rock jetties and breakwaters (Figure 59) and fewer still can be found among other gulls on mud flats at low tide. Although the species appears to becoming a more frequent visitor to British Columbia, the best window of opportunity is from mid-September through early October. Heermann’s Gull has been recorded here from 28 June to 14 November, and also in very early January (Figure 60).



Figure 59. In recent years small numbers of Heermann’s Gulls are being discovered more frequently on the rock breakwater just south of the Tsawwassen ferry terminal. August 1974 (R. Wayne Campbell)

Acknowledgements - Your Data at Work

Heermann’s Gull visits British Columbia for about four months each year and is most often encountered along seashores and nearshore waters of southern Vancouver Island. Most of the information for this account comes from birders and biologists living in the Greater Victoria area although many others have helped with sightings for additional areas of the inner and outer south coast.

This species account has benefited from the following individuals (*deceased) who have observed Heermann’s Gull in British Columbia and have contributed sightings to natural history newsletters and publications (e.g., *Wandering Tattler*), seasonal bird reports for National Audubon Society, or submitted their field notes, results of surveys, and unpublished reports and manuscripts directly to the Wildlife Data Centre in Victoria. Published articles were also an important source of information.

Contributors include: David Aldcroft, David Allinson, *E. M. Anderson, Errol Anderson, Jerry and Gladys Anderson, T. M. Anderson, Gerry Ansell, Carol and Rex Armstead, Douglas Arnet, *Genevieve Arnold, *Dick Asher, Robin Assaly, Ernie Bach, Robin W. Baird, Robert Baker, Stan Baker, Bamfield Marine Station, Frank L. Beebe (Figure 61), Barbara Begg, Alistair Bell, Desmond Belton, Gerry Bennett, Mike Bentley, Marion Benton, Kenneth R. Beckett, Danielle Bellefleur, James Biggar, Maj Birch (Mountaineer Avian Rescue Society), Peter F. Blokker, Jack Bowling (see Figure 67), *Dr. Kenneth

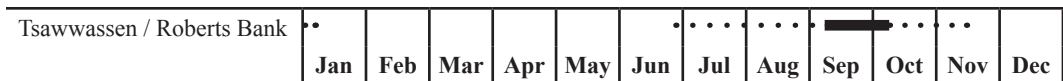


Figure 60. Occurrence chronology for Heermann’s Gull in the vicinity of the Tsawwassen ferry terminal and Roberts Bank, BC showing the peak viewing period between mid-September and early October. Thick bars: common; Thin bars: uncommon; Dots: rare.



Figure 61. Frank Beebe, well respected for his knowledge and classic papers on birds of prey, is also an accomplished bird artist, carver, and field observer. During his collecting trips with the British Columbia Provincial Museum starting in the 1940s he documented the occurrence of Heermann's Gull along the coast. Parksville, BC. 12 April 1996 (R. Wayne Campbell).

C. Boyce, Brad L. Boyle, Tom and Gwen Briggs, Allan and Betty Brooks, Doug Brown, Tom Brown, Valerie Brown, George Bryant, Frank Buffam, Daniel Bastaja, Clyde H. Burton, Giff Calvert, Barry Campbell, Jerry Campbell, R. Wayne and Eileen C. Campbell, Phil Capes, Joan Cartwright, Alice Cassidy, Vi Chungranes, Allan Carl, *G. Clifford Carl, Donald Carruthers, Harry R. Carter, J. Chandler, Chris Charlesworth, Trudy Chatwin, Colin Clark, Chris Cook, *John Comer, Ann Cooper, Dianne Cooper, John M. Cooper, Eric Counsel, James Curry, James Cuthbert, Tye Danlock, *Albert R. and Eleanor Davidson, Gary S. Davidson, Rick Davies, Lyndis A. Davis, *Gwen deCamp, Dept. of Transport

staff, Brent Diakow, Paul Diggle, Steve Diggon, John Dorsey, Adrian Dorst (Figure 62), Rudolf H. Drent, Mike Edgell, Barry Edwards, R. Yorke Edwards, Marnie Eggen, Mel Elias, Alice Elston, Environment Canada, Chris Escott, Lloyd Esralson, Michael Force, Dudley Foskett, J. Bristol Foster, John W. Foster, Peggy Frank, D. H. Franklin, David F. Fraser, *Ralph Fryer, *C. B. Garrett, Tracee O. Geernaert, *J. E. Victor and Margaret E. Goodwill (see Figure 66), Ted Goshulak, Bill Heybroek, Jeff Gaskin, Bryan R. Gates, Grahame E. Gillespie, Mary Goulding, Al Grass, Alex Gray, Tony Greenfield, Sarah Groves, *Charles J. Guiguet, Barbara and Rick Gustafson, Richard Gwillam, Shannon Hackett, Hugh Halliday, Bob Hansen, Barbara Hanwell, Willie Haras, Barry C. Harman, Charles Harper, John Harper, F. Gordon Hart, Eleni Harvalias, David F. Hatler (Figure 63), Marietta Hatler, David and Myrnal Hawes, Robert

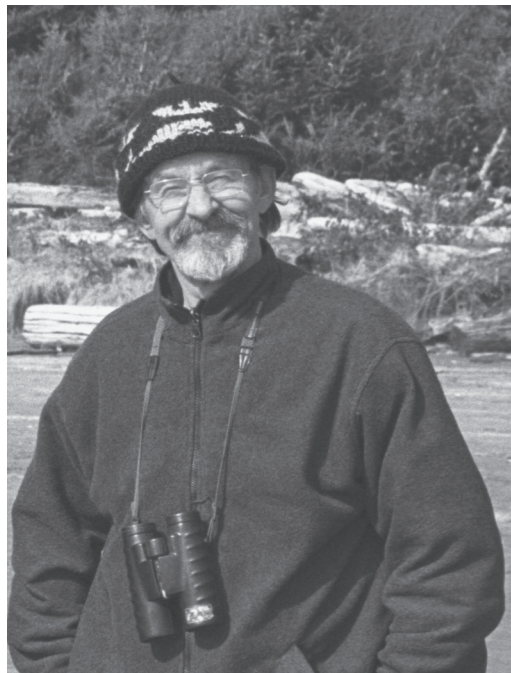


Figure 62. The status of Heermann's Gull, and many other species of birds in the Tofino/Ucluellet region of Vancouver Island, has been determined by Adrian Dorst since the early 1970s. Chesterman Beach, BC. April 2006 (Helen Clay).



Figure 63. David Hatler, incidental to conducting Ph.D. research on coastal Mink (*Mustela vison*) on western Vancouver Island in the late 1960s and early 1970s, pulled together 197 records for Heermann's Gull and provided the first summary of status, distribution, and populations of this attractive gull in Pacific Rim National Park. Off Long Beach, BC. 29 June 1970 (R. Wayne Campbell).

B. Hay, Hugh Hayes, Dorothy Henderson, Werner H. and Hildegard E. Hesse, Mark Hobson, Ralph Hocken, *Martin W. Holdum, Beryl and John Holt, Tracey D. Hooper, Harold Hosford, Susanne Hosie, Richard R. Howie, *William M. Hughes, *Jack E. Hustead, *Doug and Marian Innes, John Ireland, Andrew Jackson, Jukka Jantunen, Margaret Jeal, Richard Jerema, Fran Johnson, Gordon Johnson, Stephen R. Johnson, Stuart Johnson, Edgar T. Jones, Fritz Karger, *Brian Kautesk, Lee E. Kelsey, Ken Kennedy, Elizabeth M. Kerr, Ethel Kippin, Anne Knowles, W. Douglas Kragh, Marilyn Lambert, Bill Lamond, Steve Lawson, Don Lanyon, Martin C. Lee, Sybil Lees, *Enid K. Lemon, Pat Levitt, Eric C. Lofroth, Bob and Doreen Loosmore, Nancy Lovett, John Luce, Betty and Jim Lunam, *Robert E. Luscher, Adrienne Mason, Michael Luz, Jo MacGregor, Wally Macgregor, Hue and Jo Ann MacKenzie, *Rob C. and Margaret Mackenzie-Grieve, Alan L. MacLeod, Patrick W. Martin, W. Martin, Isobel McLeish, Alan MacLeod, Dianne Maloff, Moruyn Marshall, Patrick W. Martin, Joanne McEachern, *Marjorie McFeat, Mike and Barbara McGrenere, William E. McIntyre,

Martin K. McNicholl, Barbara and Michael Meiklejohn, *Arthur L. Meugens, Alex Mills, Cy Morehen, Ken H. Morgan, Bruce Morley, *Keith and Norma Morton, *Allister Muir, *James A. Munro, *Verna Newson, Ivar Nygaard-Petersen, Mark Nyhof (Figure 64), Lowell Orcut, Rod Palm, Parks Canada staff (Ucluelet), *Theed Pearse, Niles Peterson, *Roy Phillips, David Pierce, Alf Porcher, G. Allen and Helen Poynter, Michael and Joanna Preston, Michael Price, Roy Prior, Glen Purdy, *Kenneth Racey, *William S. Rae, Leah R. Ramsay, Laszlo Retfalvi, Tony Roach, Leila G. Roberts, Neil Robbins, Michael S. Rodway, Ruth and Victor Rogers, Donna Ross, Royal British Columbia Museum, Charles Rushton, Glenn R. Ryder, Chris Sandham, *John G. Sarles, Karl Sars, Ron and Joy Satterfield, Barry Sauppe, W. Jack Schick, Madelon A. Schouten, Gerry Schriber, *Zella M. Schultz, Spencer G. Sealy, Gary Searing,



Figure 64. Mark Nyhof, checking the contents of a woodpecker cavity near Oliver, BC, is an experienced naturalist and regularly contributes observations, nest records, photographs, and artwork to the Biodiversity Centre for Wildlife Studies. 28 May 1996 (R. Wayne Campbell).

Don and Barbara Sedgwick, Christopher D. Shepard, Michael G. Shepard (Figure 65), Teresa Shepard, V. Shepard, Chris Siddle, George P. Sirk, *Gertrude Smith, *Glen Smith, *Ian D. Smith, Pam Smith, Ron Snyder, Daphne Solecki, Sheila South, *Win



Figure 65. Mike Shepard (centre) with a group from the University of British Columbia, including Harry Carter and Bruce Ford on his left, on a field trip to Cleland Island, BC. 17 June 1975 (R. Wayne Campbell).

Speechly, Bernie and Prue Spitman, Pam J. Stacey, Andrew Stepniewski, Geoff Stewart, David Stirling, Robert Straith, Kenneth R. Summers, *Harry S. Swarth, Mike Tabak, Jeremy B. Tatum, Gwen Taylor, Keith Taylor, R. Taylor, Howard A. Telosky, Robert L. Thompson, Glen Thomson, Rick Toochn, Neil S. Trenholme, Charles Trotter, Ted Underhill, Linda M. Van Damme, Hank Vander Pol, William A. Verguggue, Bridget and Ken Vogan, John Vooyo, Terrence R. Wahl, Frank Walker, Ken Walton, John G. Ward, Ruben Ware, G. Ross Waters, Brad Watts, Sid and Emily Watts, Robin Weber, Wayne C. Weber, Jack E. and Dorothy Williams, P. Ray and Margaret Williams, Bill Wilson, Douglas J. Wilson, Jim Wilson, Scott Winthrop, Jim Wisnia, Chauncey Wood, Lorna Wood, Mark Wynja, S. Zogaris, and Tim Zurowski.

Annual bird reports for southern Vancouver Island compiled by A.R. Davidson, G. Allen Poynter, David Stirling, and Jeremy B. Tatum, and published by the Victoria Natural History Society, and annual reports for the Greater Vancouver area compiled by R. Wayne Campbell, Rudolf H. Drent, Kyle Elliott,

Wayne Gardner, Bruce A MacDonald, Michael G. Shepard, and Wayne C. Weber, and published by the Vancouver Natural History Society, and in the scientific journal *Syesis* have been an important source of information.

Seasonal reports of noteworthy bird records for British Columbia published in *Audubon Field Notes/American Birds/Field Notes* were co-ordinated by Jack Bowling, Werner and Hildegard Hesse, Thomas H. Rogers, Zella M. Schultz, Chris Siddle, and Wayne C. Weber. Regional reports submitted to provincial co-ordinators, especially from southern Vancouver Island and Greater Vancouver, were compiled by Jerry and Gladys Anderson, Barbara Begg, Jack Bowling (Figure 66), J.B. Crowell, Gary S. Davidson, Lyndis A. Davis, Mike Edgell, David F. Fraser, Bryan R. Gates, Tracee O. Geernaert, J.E.



Figure 66. From spring 1994 to spring 1998, Jack Bowling was the regional editor for seasonal bird reports from British Columbia and the Yukon Territory that were published in the National Audubon Society's *Field Notes* (formerly *American Birds*). His summaries highlighted early and late departure dates, unusual occurrences, and large numbers of Heermann's Gulls found in British Columbia. Stellako River at Francoise Lake, BC. 13 January 2006 (Brien McGaughey).

Victor Goodwill (Figure 67), Dorothy Henderson, Werner and Hildegard Hesse, Margaret Jeal, Anne Knowles, Mike and Barb McGrenere, Ken H. Morgan, M. Timothy Myres, Harry B. Nehls, Leah Ramsay, Chris Siddle, David Stirling, Wayne C. Weber, and Bruce Whittington, and contributed greatly to the database for this species account.



Figure 67. The set of detailed seasonal bird reports by J. E. Victor Goodwill for southern Vancouver Island prepared for *Audubon Field Notes/American Birds* was the single major literature source of information for the Heermann's Gull in a significant part of the gull's range in British Columbia. Some of Vic's reports were 47 pages long and detailed arrival and departure times, numbers, and behaviour for Heermann's Gull during its short visit to the province. His personal field notes, dating back to 1966, accounted for nearly 25 percent of the total database. Here Vic, and his wife Peggy, are scanning the Victoria waterfront for marine birds. Clover Point, BC. 14 October 1990 (R. Wayne Campbell).

At-sea surveys in British Columbia were carried out by Dr. David F. Hatler, Dr. Rudolf H. Drent (Department of Zoology, University of British Columbia), Dr. Glen Chilton (Department of Biology, St. Mary's College in Calgary), Dr. Spencer G. Sealy, Harry R. Carter, and Julie M. Porter (Department of Zoology, University of Manitoba), Trudy Chatwin (British Columbia Ministry of Environment), and Dr. Alan Burger (Department of Biology, University of Victoria), Bob Hansen (Parks Canada, Pacific Rim National Park Reserve), and staff and students of the Bamfield Marine Station. Terrence R. Wahl (Bellingham, WA) provided information for surveys in Juan de Fuca Strait.

Michael Force helped substantiate the status of the pelagic distribution for Heermann's Gull in British Columbia, as well as the west coast of the United States and Mexico. We are grateful to Dr. Lisa Ballance (United States Department of Commerce, Ecosystem Studies Program, Protected Resources Division, Southwest Fisheries Science Centre, National Oceanic & Atmospheric Administration, La Jolla, CA) for permission to use information for this account collected by Michael Force.

Some mortality information was received from Mountaineer Avian Rescue Society.

Clyde H. Burton, Jo Ann Mackenzie, and Mark Nyhof donated photographs that complemented various components of the account.

Eduardo Palacios Castro and Enriqueta Velarde provided information on the status of Heermann's Gull in Mexico.

We are grateful to everyone for their volunteer and professional efforts and support! By working together for a common goal (the bird) we have been able to produce a document that is now a major contribution to the non-breeding component in the life of Heermann's Gull.

Information that we requested from the British Columbia Beached Bird Survey, British Columbia Coastal Waterbird Survey, and Rocky Point Bird Observatory, was not received, and is not included in this account.

Useful References

An asterisk (*) indicates a copy of the publication is filed with the Biodiversity Centre for Wildlife Studies in the Wildlife Data Centre library.

***Aitchison, C.J. (ed.)**. 2001. The birder's guide to Vancouver and the Lower Mainland. Whitecap Books, Vancouver, BC. 240 pp.

***Anthony, A.W.** 1906. Random notes on Pacific coast gulls. *Auk* 23:129-137.

***Baltz, D.M., and G.V. Morejohn**. 1977. Food habits and niche overlap of seabirds wintering on Monterey Bay, California. *Auk* 94:526-543.

Bartholomew, G.A., and W.R. Dawson. 1979. Thermoregulatory behavior during incubation in Heermann's Gulls. *Physiological Zoology* 52:422-437.

***Bell, K.M.** 1973. Birds of Tahsis, Vancouver Island (September 1967 to July 1973). British Columbia Provincial Museum Unpublished Report, Victoria, BC. 5 pp.

***Bent, A.C.** 1921. Life histories of North American gulls and terns. United States National Museum Bulletin 113, Washington, DC. 337 pp.

***Bowling, J.** 1995. British Columbia/Yukon region: Autumn migration: August 1-November 30, 1995. *National Audubon Society Field Notes* 50:99-105.

***Brooks, A., and H.S. Swarth**. 1925. A distributional list of the birds of British Columbia. *Pacific Coast Avifauna* No. 17, Berkeley, CA. 158 pp.

***Burger, J.** 1988. Foraging behavior in gulls: differences in method, prey, and habitat. *Colonial Waterbirds* 11:9-23.

***Campbell, R.W.** 1968. Notes on the vertebrate fauna associated with a Brandt's Cormorant colony in British Columbia. *Murrelet* 49:7-9.

*_____. 1970. Summary of spring and fall pelagic trips from Tofino, British Columbia. *Vancouver Natural History Society Newsletter* 150:13-16.

*_____. 1983. Wildlife atlases progress report. *B.C. Naturalist* 21:4-5.

***Campbell, R.W., and M.G. Shepard**. 1971. Summary of spring and fall pelagic birding trips from Tofino, British Columbia. *Vancouver Natural History Society Discovery* 150:13-16.

***Campbell, R.W., and D. Stirling**. 1968. Pages 25-43 in Notes on the natural history of Cleland Island, British Columbia with emphasis on the breeding bird fauna. Provincial Museum of Natural History and Anthropology Report for the year 1967, Victoria, BC.

***Campbell, R.W., H.R. Carter, C.D. Shepard, and C.J. Guiguet**. 1979. A bibliography of British Columbia ornithology. British Columbia Provincial Museum Heritage Record No. 7, Victoria, BC. 185 pp.

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: Volume 1 – nonpasserines (introduction, loons through waterfowl). Royal British Columbia Museum, Victoria, BC. 514 pp.

***Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall**. 1990b. The birds of British Columbia: Volume 2 – nonpasserines (diurnal birds of prey through woodpeckers). Royal British Columbia Museum, Victoria, BC. 636 pp.

***Campbell, R.W., T.D. Hooper, and N.K. Dawe**. 1988. A bibliography of British Columbia ornithology – Volume 2. Royal British Columbia Museum Heritage Record No. 19, Victoria, BC. 591 pp. (Figure 68).

***Campbell, R.W., M.G. Shepard, and R.H. Drent**. 1972. Status of birds in the Vancouver area in 1970. *Syesis* 5:137-167.

***Campbell, R.W., M.G. Shepard, B.A. MacDonald, and W.C. Weber**. 1973. Vancouver birds - 1972 report and 1974 check list. Vancouver Natural History Society, Vancouver, BC. 96 pp.

***Campbell, R.W., M.G. Shepard, and W.C. Weber**. 1972. Vancouver birds in 1971. Vancouver Natural History Society, Vancouver, BC. 88 pp.

***Chilton, G. and S.G. Sealy**. 1987. Species roles in mixed-species feeding flocks of seabirds. *Journal of Field Ornithology* 58:456-463.

Coues, E. 1862. Revision of the gulls of North America: based upon specimens in the Museum of the Smithsonian Institution. *Proceedings of the Academy of Natural Sciences of Philadelphia* 13:291-312.

Cristol, D.A., M.B. Baker, and C. Carbone. 1999. Differential migration revisited: latitudinal

segregation by age and sex class. *Current Ornithology* 15:33-88.

***Crowell, J.B., and H.B. Nehls.** 1969. The winter season – northern Pacific coast region. *Audubon Field Notes* 23:508-513.

***Davidson, A.R.** 1958. Interesting bird incidents noted this summer. *Victoria Naturalist* 15:14-15.

* _____. 1965. A report of the birds of the lower Vancouver Island region for the year 1964. *Victoria Natural History Society, Victoria, BC.* 12 pp.

* _____. 1966. Annotated list of birds of southern Vancouver Island. *Victoria Natural History Society mimeo report, Victoria, BC.* 22 pp.

***Dickinson, J.C.** 1953. Report on the McCabe collection of British Columbia birds. *Bulletin of the Museum of Comparative Zoology* 109:123-205.

***Dwight, J.** 1925. The gulls (Laridae) of the world;

their plumages, moults, variations, relationships and distribution. *Bulletin of the American Museum of Natural History* 52:63-402.

***Edwards, R.Y.** 1965. Birds seen in Active Pass, British Columbia. Pages 19-23 in *Provincial Museum of Natural History and Anthropology Report for the year 1964, Victoria, BC.*

* _____. 1968. Notes on the gulls of southwestern British Columbia. *Syesis* 1:199-202.

***Edwards, R.Y., and D. Stirling.** 1963. Birds seen from Clover Point, Victoria, British Columbia Provincial Museum of Natural History and Anthropology for the year 1962, Victoria, BC. Pages 19-26. (Figure 69).

***Elliott, K., and W. Gardner.** 1997. Vancouver birds in 1995. *Vancouver Natural History Society, Vancouver, BC,* 92 pp.

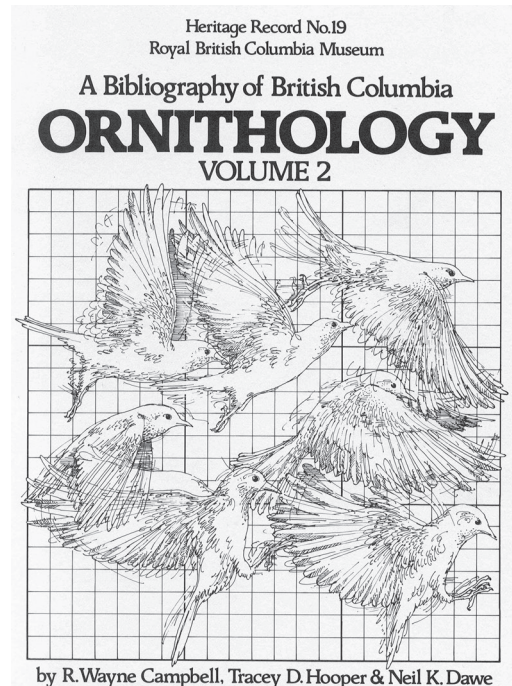
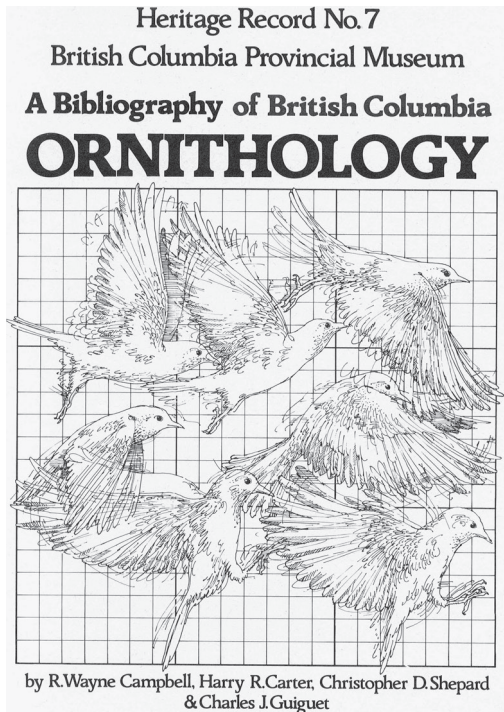


Figure 68. A major source of historical information on Heermann's Gull in British Columbia was extracted from two provincial bibliographies covering published and unpublished literature from 1866 through 1987. Over 150 articles are listed for Heermann's Gull and most are cross-referenced by author, subject, and geographical region, for quick reference.



Figure 69. The first October records for Heermann's Gull on western Vancouver Island were reported by Yorke Edwards in 1966. Tofino, BC. 20 September 1989 (Clyde H. Burton).

***Gabrielson, I.N., and S.G. Jewett.** 1970. Birds of the Pacific Northwest with special reference to Oregon (formerly titled: Birds of Oregon). Dover Publications, Inc., New York, NY. 650 pp.

***Garrett, K.L.** 2001. An unusual plumage variant of the Heermann's Gull. *Western Birds* 32:237.

***Gibson, D.D., and B. Kessel.** 1992. Seventy-four new avian taxa documented in Alaska, 1976-1991. *Condor* 94:454-467.

***Gilligan, J., M. Smith, D. Rogers, and A. Contreras.** 1994. Birds of Oregon: status and distribution. Cinclus Publications, McMinnville, OR. 330 pp.

***Grant, P.J.** 1986. Gulls: a guide to identification. 2nd edition. Buteo Books, Vermillion, SD. 352 pp.

***Grover, J.J., and B.L. Olla.** 1983. The role of the Rhinoceros Auklet (*Cerorhinca monocerata*) in mixed-species feeding assemblages of seabirds in the Strait of Juan de Fuca, Washington. *Auk* 100:979-982.

***Gruson, E.S.** 1972. Words for birds: a lexicon of North American birds with biographical notes. Quadrangle Books, New York, NY. 305 pp.

***Guiguet, C.J.** 1957. The birds of British Columbia (5) gulls, terns, jaegers and skua. British Columbia Provincial Museum Handbook No. 13, Victoria, BC. 42 pp.

***Hatler, D.F., R.W. Campbell, and A. Dorst.** 1978. Birds of Pacific Rim National Park. British

Columbia Provincial Museum Occasional Papers Series No. 20, Victoria, BC. 194 pp. (Figure 70).

***Heinl, S.** 1997. New information on gulls in southeastern Alaska. *Western Birds* 28:19-29.

***Howell, J., D. Laclergue, S.D. Paris, W.I. Boarman, and A.R. Degauge.** 1983. First nests of Heermann's Gull in the United States. *Western Birds* 14:39-46.

International Research Institute for Climate and Society (IRI). 2006. <http://iri.ldeo.columbia.edu>. [Accessed 28 December 2006]

***Islam, K.** 2002. Heermann's Gull (*Larus heermanni*). In *The Birds of North America*, No. 643 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA. 16 pp.

***Hoffman, W., D. Heinemann, and J.A. Wiens.** 1981. The ecology of seabird feeding flocks in Alaska. *Auk* 98:437-456.

***Hubbs, C.L. and G.A. Bartholomew.** 1951. Persistence of a rare generation in the Heermann Gull. *Condor* 53:221-227.

***International Council for the Exploration of the Sea (Oceanography Committee).** 2001. Report of the working group on seabird ecology. International Committee for the Exploration of the Sea Report CM 2001/C:05, Copenhagen, Denmark. 68 pp.

***Jewett, S.A., W.P. Taylor, W.T. Shaw, and J.W. Aldrich.** 1953. Birds of Washington State.

Birds of Pacific Rim National Park

David F. Hatler
R. Wayne Campbell
Adrian Dorst



Figure 70. The Birds of Pacific Rim National Park, now out of print, is still the only source document for historical information on Heermann's Gull on the exposed west coast of British Columbia.

University of Washington Press, Seattle, WA. 767 pp.

***Kermode, F.** 1904. Catalogue of British Columbia birds. British Columbia Provincial Museum, Victoria, BC. 69 pp.

Ketterson, E.D., and V. Nolan. 1983. The evolution of differential bird migration. *Current Ornithology* 1:357-402.

***Lewis, M.G., and F.A. Sharpe.** 1987. Birding in the San Juan Islands. The Mountaineers Books, Seattle, WA. 219 pp.

***Manuwal, D.A., T.R. Wahl, and S.M. Speich.** 1979. The seasonal distribution and abundance of marine bird populations in the Strait of Juan de Fuca and northern Puget Sound in 1978. National Oceanic and Atmospheric Administration Technical Memorandum ERL MESA-44, Boulder, CO. 391 pp.

***Marshall, D.B., M.G. Hunter, and A.L.**

Contreras (eds.). 2006. Birds of Oregon: a general reference. Oregon State University Press, Corvallis, OR. 704 pp.

***Martin, P.W., and M.T. Myres.** 1969. Observations of the distribution and migration of some seabirds off the outer coasts of British Columbia and Washington State. *Syesis* 1:241-256.

***McCarty, J.P.** 2001. Ecological consequences of recent climate change. *Conservation Biology* 15:320-331.

***McLardy, R.** 1983. The eighty-third Audubon Christmas Count – Pender Islands, BC. *American Birds* 37:442-443.

***Mills, E.L.** 1960. Heermann's Gull in Barkley Sound, Vancouver Island. *Canadian Field-Naturalist* 74:162.

***Morgan, K.H.** 1999. Impact of the 1997/98 El Niño on seabirds of the northeast Pacific. Pages 83-87 in H.J. Freeland, W.T. Peterson, and A. Tyler (co-convenors). Proceedings of the 1998 Science Board Symposium on the Impacts of the 1997/98 El Niño Event on the North Pacific Ocean and its Marginal Seas. PICES Scientific Report No. 10. North Pacific Marine Science Organization (PICES), Sidney, BC.

***Munro, J.A., and I. McTaggart-Cowan.** 1947. A review of the bird fauna of British Columbia. British Columbia Provincial Museum Special Publication No. 2, Victoria, BC. 285 pp. (Figure 71).

***Plowden-Wardlaw, W.J.** 1941. Birds collected off the west coast of Vancouver Island. *Murrelet* 22:37.

***Porter, J.M., and S.G. Sealy.** 1981. Dynamics of seabird multispecies feeding flocks: chronology of flocking in Barkley Sound, British Columbia, in 1979. *Colonial Waterbirds* 4:104-113.

*_____. and _____. 1982. Dynamics of multi-species feeding flocks: age-related feeding behaviour. *Behaviour* 81:91-109.

***Poynter, G.A.** 1960. A report on the birds of the lower Vancouver Island region for the year 1959. Victoria Natural History Society, Victoria, BC. 27 pp.

*_____. 1968. Herring ball and sea birds. *Victoria Naturalist* 25:28-29.

*_____. 1972. Heermann's Gull – observations of white wing patches. *Vancouver Natural History Society Discovery* 153:12-13.

***Ringuette, J.** 2007. A history of Beacon Hill



Figure 71. Prior to 1947, Heermann's Gull in British Columbia was considered an autumn visitor to the waters of southern Vancouver Island, appearing from June to August and remaining until late October. Clover Point, BC. September 1993 (Mark Nyhof).

Park (Clover Point and Holland Point history). www.islandnet.com/beaconhillpark/contents.contents.htm.

***Sclater, P.L.** 1859. On a collection of birds from Vancouver's Island. *Proceedings of the Zoological Society of London* 1859 (Part 27):235-237.

***Salo, L.J.** 1975. A baseline survey of significant marine birds in Washington State. Washington Department of Game and Ecology, Olympia, WA.

***Sanger, G.A.** 1970. The seasonal distribution of some seabirds off Washington and Oregon, with notes on their behavior. *Condor* 72:339-357.

***Schreiber, E.A., and J. Burger** (eds.). 2002. *Biology of marine birds*. CRC Press, New York, NY. 722 pp.

***Schultz, Z.M.** 1958. The fall migration – northern Pacific coast region. *Audubon Field Notes* 12:52-54.

***Sealy, S.G.** 1973. Interspecific feeding assemblages of marine birds off British Columbia. *Auk* 90:796-802.

***Shepard, M.G.** (ed.). 1975. British Columbia birds – spring 1975. *Vancouver Natural History Society Discovery* 4:41-44.

* _____. 1976. Summary of pelagic birding trips – fall 1976. *British Columbia Provincial Museum Unpublished Report*, Victoria, BC. 1 p.

***Small, A.** 1994. *California birds: their status and distribution*. Ibis Publications, Vista, CA. 342 pp.

***Stirling, D.** (ed.). 1966. Bird report (Victoria) number 4 – 1965. *Victoria Natural History Society*, Victoria, BC. 6 pp.

***Tanasichuk, R.W.** 1995. The importance of euphausiids to a British Columbian coastal marine ecosystem. Pages 58-61 in T. Pitcher and R. Chuenpagdee (eds.). 1995. *Harvesting krill: ecological impact, assessment, products and markets*. University of British Columbia Fisheries Centre Research Reports 3(3):1-82, Vancouver, BC.

***Tatum, J.B.** 1970. Annual bird report for southern Vancouver Island (1969). *Victoria Natural History Society*, Victoria, BC. 34 pp.

* _____. 1971. Bird report for southern Vancouver Island (1970). *Victoria Natural History Society*, Victoria, BC. 64 pp. (Figure 72).

* _____. 1972. Annual bird report (1971) for southern Vancouver Island. *Victoria Natural History Society*, Victoria, BC. 66 pp.

* _____. 1973. Annual bird report (1972) for southern Vancouver Island. *Victoria Natural History Society*, Victoria, BC. 80 pp.

***Taverner, P.A.** 1918a. Some summer birds of Alert Bay, British Columbia. *Condor* 20:183-186.

* _____. 1918b. Heerman Gull with white primary coverts. *Condor* 20:187.

***Thomson, R.E.** 1981. *Oceanography of the British Columbia coast*. Department of Fisheries and Oceans Special Publication in Fisheries and Aquatic Sciences 58:1-291.

***Velarde, E.** 1999. Breeding biology of Heermann's Gulls on Isla Rasa, Gulf of California, Mexico. *Auk* 116:513-519.

***Vermeer, K., and R. Vermeer.** 1975. Oil threat to birds on the Canadian west coast. *Canadian Field-Naturalist* 89:278-298.

***Wahl, T.R.** 1975. Seabirds in Washington's offshore zone. *Western Birds* 6:117-134.

***Wahl, T.R., B. Tweit., and S.G. Mlodinow** (eds.). 2005. *Birds of Washington: status and distribution*. Oregon State University Press, Corvallis, OR. 448 pp.

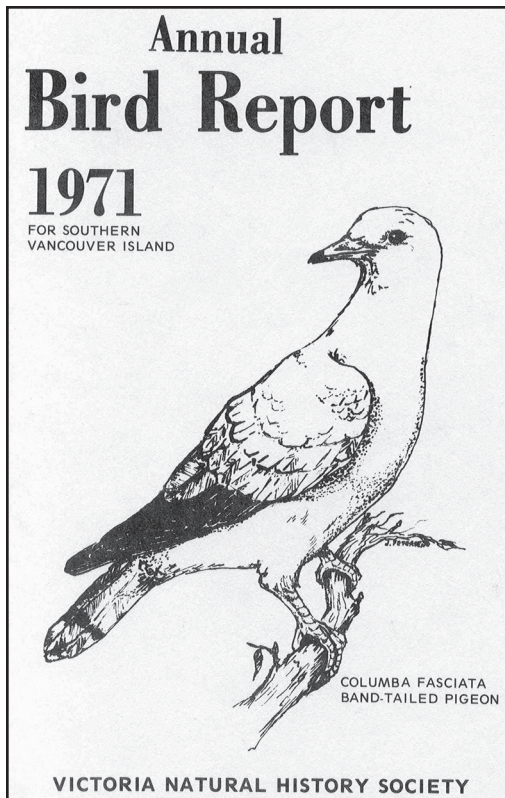


Figure 72. Annual bird reports for southern Vancouver Island in the early 1970s, compiled and edited by Jeremy B. Tatum, are permanent records of bird happenings each year and were useful references for assessing status of Heermann's Gull.

About the Authors

Wayne has written and lectured extensively on wildlife in British Columbia and is co-founder of the Biodiversity Centre for Wildlife Studies.

Michael is a wildlife biologist and keen naturalist, who enjoys writing about, and lecturing on, a variety of wildlife topics, especially conservation and animal behaviour. He is co-founder of the Biodiversity Centre for Wildlife Studies, Editor of *Wildlife Afield*, and Manager of the Wildlife Data Centre. Wildlife photography is one of his passions, and he wishes there were more hours in the day to enjoy it.

Spencer is a professor of Zoology at the

University of Manitoba in Winnipeg. His research has focused on the breeding and feeding ecology of seabirds in British Columbia and the Bering Sea region, social behaviour of foraging in tropical birds, and the behavioral and evolutionary interactions between avian brood parasites and their hosts.

Bob joined Parks Canada in 1975 as a backcountry towerman/patrolman, and after obtaining a diploma in Environmental Science from Lethbridge Community College, he advanced into a Park Warden position. He has worked in a variety of roles in Jasper National Park, Mount Revelstoke/Glacier National Park, and Pacific Rim National Park Reserve. He has had the good fortune of working in the field on a wide variety of research and monitoring programs from Mountain Caribou and Mountain Goats in the Rockies, to seaducks, seabirds, shorebirds, rockfish, whales, carnivores and bears on the west coast.

In the late 1960s Mike Shepard (see Figure 65) began compiling information on wildlife in British Columbia and to this day continues to add observations to his personal field notes. He coordinated, and participated in, numerous pelagic birding trips and during 17 years with his tour company, Swiftsure Tours, acquired a wealth of field experience with Heermann's Gull in the province. He presently works as a biological consultant.