

AERIAL SURVEY OF EMPEROR GEESE AND OTHER WATERBIRDS

IN

SOUTHWESTERN ALASKA,

FALL 2012

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Key Words: aerial survey, emperor geese, waterbirds, southwest Alaska.

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Abstract: This report presents results of the 34th consecutive, annual fall emperor goose population survey in southwest Alaska. The 2012 fall emperor goose estimate is 58,683 birds. The survey was flown between 28-30 September from Naknek River to Bechevin Bay including all the north side of the Alaska Peninsula and south side estuaries from Cold Bay west. A USFWS Turbine Kodiak (N736) was used and a left seat pilot/observer and right seat observer made observations along coastlines and over estuaries at an altitude of 45m (150 feet) ASL and airspeed of 200km/hr (110 kts). All species of waterbirds and marine mammals were counted with emphasis was on emperor geese, Pacific brant, Canada geese, and Steller's eiders. The south side of the Alaska Peninsula east of Cold Bay was not flown in 2012 so the most recent 3-year average estimate of 2,488 emperor geese at primary sites was added to this years estimate. Total counts for Pacific brant, Canada geese, and Steller's eiders are 122,740, 32,245 and 29,263, respectively. Additional replicate surveys of the Izembek NWR area were flown on 29 and 30 September to aid in estimating sizes of Pacific brant, Canada goose and Steller's eider populations. Averages counts for the Izembek area (n=3 surveys) are 154,481 Pacific brant, 32,651 Canada geese and 5,170 Steller's eiders.

Key words: aerial survey, emperor geese, waterbirds, southwest Alaska. July 2013

INTRODUCTION

Fall distribution and abundance of emperor geese and other waterbirds have been monitored annually in staging areas of Southwest Alaska since 1979. Data from this survey are used to expand photographic estimates of emperor goose productivity (i.e. percent juveniles) based on the proportional distribution of the population at various fall staging locations. Important data necessary for management of waterbird populations and their habitats are provided by this survey. The survey traditionally included coastline and estuarine habitats from Kuskokwim Bay south and west along the north side of the Alaska Peninsula to Unimak Island, and the south side of the Alaska Peninsula east to Wide Bay. In 2012, the survey included only those areas where aerial age ratio estimates were collected (i.e. Naknek River (Seg. 35) to Bechevin Bay (Segs. 67-68) and south side Alaska Peninsula estuaries west of Cold Bay (Segs. 80-85).

METHODS

The survey was flown using a USFWS Turbine Kodiak (N736) at a ground speed of approximately 200 km/hr (110 kts) and an altitude of 45m (150 feet) ASL. The 2012 survey route included Chagvan and Nanvak bays, the north side of the Alaska Peninsula, and the south side estuaries west of Cold Bay. Observations were made from both sides of the aircraft and voice recorded into two panel mounted computers. The new aircraft was not yet configured to allow use of the Global Positioning System (GPS) to save coordinates for each observation. Computer programs developed by Jack Hodges (USFWS-MBM, Juneau) were used to collect and transcribe these data.

Coastline segments were usually flown 100 meters offshore with deviations to confirm species identification and numbers seaward within 1.6 km (1 mile) of shorelines. In estuaries, a systematic but meandering flight path was followed. In previous surveys, the aircraft track was

monitored on a computer moving map program to help ensure complete coverage of near shore and estuarine habitats. This capability was not yet available in the new aircraft so, as in all previous years, 8"x 11" survey portions of 1:250,000 and 1:63,360 scale USGS topographic maps were used. Whenever possible, flights over estuaries were conducted with <20 knots of wind.

The maximum survey area includes 143 shoreline/estuarine segments (Figures 1-2) which were previously described by Mallek and Dau (2000). In 2012, segments 35 to 59 were flown on 28 September and segments 60-68, 80-85 on 29 September. Survey segments north of Naknek and south side Alaska Peninsula areas east of Cold Bay were omitted in 2012. Replicate surveys of segments 60-68, 80-85 were flown on 29 September (Larned/Wilson, MBM) and on 30 September (Mallek/Dau) to estimate brant staging numbers. General observations of habitat and survey conditions including wind speed and direction, temperature, sky condition, visibility, and tide stage were recorded during surveys.

SURVEY CONDITIONS

28 September: Survey conditions were good with northerly winds 10-15 mph, broken ceilings up to 4,000 feet and 20-30 mile visibility except near Hook Lagoon (Seg. 42) where mist was encountered. Tides ranged from high to medium (ebbing, north to south) from Naknek River (Seg. 35) to Cinder River (Segs. 40-41). Tides were low in Port Heiden (Segs. 44-45) and Seal Islands lagoon (Seg. 47) and medium, but flooding, in the Port Moller complex (Segs. 50-58, 551-552). Air temperatures held at approximately 40°F throughout the day.

29 September: Survey conditions were good with ceilings of 4,000 feet broken, northerly winds of 10-15 mph and temperatures of approximately 45° F. Tides were medium to low on the Bering Sea side of the Alaska Peninsula, including Izembek Lagoon (Segs. 60-65), and high in all Pacific coast estuaries, including Cold (Segs. 82-85), Morzhovoi (Segs. 80-81) and Bechevin (Segs. 67-68) bays.

30 September: Survey conditions were good during a replicate survey (Segments 60-68; 80-85). Ceiling was 3,300 feet overcast with southeast winds of 7 mph and the temperature was 45° F. Tides were low on the Bering side of the Alaska Peninsula and medium to high on the Pacific side.

RESULTS/DISCUSSION

The totals for all species observed during the survey are summarized in Table 1. Estimates of emperor goose fall population sizes (1979-2012) and corresponding 3-year averages are summarized in Table 2.

Emperor Goose

The 2012 fall population of emperor geese was estimated at 58,683, which includes 56,195 birds observed plus the most recent 3-year average of 2,488 birds for south side Alaska Peninsula segments not flown in 2012. Northern Alaska Peninsula estuarine staging sites (Segments 34-65) contained 53,020 (94.4%) of emperor geese observed. During previous survey years, a very

small proportion of the population was observed in northern Bristol Bay ($\leq 0.02\%$) so segments in that area have not been included since 2005 nor has the total population estimate been adjusted. The 2012 total population estimate is 6.2% below the 62,561 observed in 2011 and 21.4% below the reported 33-year average of 74,623 for this survey (1979-2011, MBM files) (Table 2).

Numbers and proportions of emperor geese at primary staging sites along the Alaska Peninsula in 2012 were as follows: Egegik Bay 1,600 (2.7%, Segments 36-37); Ugashik Bay 1,220 (2.0%, Segment 38); Cinder River Estuary 8,539 (14.3%, Segments 39-43); Port Heiden 5,689 (9.5%, Segments 44-45); Seal Islands 12,002 (20.1%, Segment 46-47); Nelson Lagoon and adjacent estuaries 23,563 (39.5%, Segments 50-58, 551-552); Izembek Lagoon and adjacent estuaries 3,531 (5.9%, Segments 60-68 and 80-85); Cold Bay to Wide Bay estimate (3-year avg.) 2,488 (4.2%, Segments 86-137).

Pacific Brant

A total of 122,740 Pacific brant was observed during the emperor goose survey all of which were in Izembek Lagoon and adjacent estuaries. Replicate counts of Izembek Lagoon and adjacent estuaries on 29 and 30 September were 177,954 and 162,750, respectively. The average fall population size brant in the Izembek area was 154,481 based on these three surveys. The 2012 average count was 22.6% above the 2011 estimate of 126,028 (n= 2 surveys) and 15.8% above the 37-year average fall count of 133,421 (1975-2011, MBM R7 files).

Canada Goose

We observed 32,245 Canada geese during the emperor goose survey with Izembek Lagoon and adjacent estuaries accounting for 99.3% (32,004) of the total birds observed. Replicate counts of Izembek Lagoon and adjacent estuaries on 29 and 30 September were 40,290 and 25,658, respectively. The average Canada goose count estimated from these three surveys was 32,651. This 2012 average was 41.0% above the 2011 estimate of 23,165 (n=2 surveys) and 27.2% below the 36-year average fall count of 41,527 (1975-2011, MBM R7 files).

Steller's Eider

We observed a total of 29,263 Steller's eiders during the 2012 emperor goose survey, down 20.0% from the 2011 count of 36,581 and 52.2% below the 1979-2011 average of 61,214. The population trend of Steller's eiders indicates a 0.5%/year increase based on counts during the fall emperor goose survey (1979-2012, MBM R7 files).

Numbers and proportions of Steller's eiders at primary southwest Alaska estuarine staging sites were as follows: Egegik Bay 0 (Segments 36-37); Ugashik Bay 0 (Segment 38); Cinder River Estuary 75 (0.3%, Segments 40-42); Port Heiden 815 (2.8%, Segments 44-46); Seal Islands 4,070 (13.9%, Segment 46-47); Nelson Lagoon and adjacent estuaries 18,925 (64.7%, Segments 50-58, 551-552); and Izembek Lagoon and adjacent estuaries 5,378 (18.4%, Segments 60-68 and 80-85).

Replicate surveys of Steller's eider in Izembek Lagoon and adjacent estuaries on 29 and 30 October were 1,501 and 8,630, respectively. The average Steller's eider count for the Izembek

area, based on the emperor goose survey estimate (5,378) and replicates is 5,170. This estimate is 32.9% above the 2011 estimate of 3,892 (n= 2 surveys) and 75.7% below the 36-year average fall count of 21,275 (1975-2011, MBM R7 files).

The findings and conclusions in this article are those of the author(s) and do not necessarily represent the views of the U.S. Fish and Wildlife Service.

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REFERENCES

- Gill, R.E., Jr. 1981. Fall survey of emperor geese from Hooper Bay to Unimak Island and along the south Alaska Peninsula from Unimak Island to Wide Bay - October 3-8, 1981. Unpub. Rept., USFWS, Anchorage, AK. 7p.
- Gill, R.E., Jr. and B. Conant. 1980a. Aerial water bird survey - Bethel to Bechevin Bay, Alaska (October 1-4, 1979). Unpub. Rept., USFWS, Anchorage, AK. 11p.
- Gill, R.E., Jr. and R. King. 1980b. Aerial water bird survey - Bethel to Bechevin Bay, Alaska (October 4-8, 1980). Unpub. Rept., USFWS, Anchorage, AK. 11p.
- King, R.J. 1986. Memorandum to Chief, Migratory Birds, Anchorage, AK. 1986 fall emperor goose survey. 16 October 1986. 5p.
- _____ (unpublished). Fall population survey of emperor geese (Chen canagica) on coastal southwest Alaska, 1991-1998. File data, USFWS, Fairbanks, AK.
- King, R. J. and K. S. Bollinger. 1982. Fall survey of emperor geese and other associated water birds of coastal southwest Alaska - 6-10 October, 1982. Unpubl. Rept., USFWS, Fairbanks, AK. 8p.
- King, R.J. and D.V. Derksen. 1983. Fall survey of emperor geese of southwest coastal Alaska, 10-16 October, 1983. Unpubl. Rept., USFWS, Fairbanks, AK. 8p.
- _____ 1984. Fall survey of emperor geese of southwest coastal Alaska, 3-8 October, 1984. Unpubl. Rept., USFWS, Fairbanks, AK. 11p.
- King, R.J. and W.D. Eldridge. 1985. Fall survey of emperor geese (Chen canagica) - southwest coastal Alaska, 10-14 October, 1985. Unpubl. Rept., USFWS, Fairbanks, AK. 8p.
- _____ 1987. Fall population survey of emperor geese (Chen canagica) -

southwest coastal Alaska, October 2-5, 1987. Unpubl. Rept., USFWS, Fairbanks, AK. 8p.

King, R.J. and L. Denlinger. 1989. Fall population survey of emperor geese (Chen canagica) in coastal southwest Alaska, October 7-12, 1989. Unpubl. Rept., USFWS, Fairbanks, AK. 17p. (Appendix A summarizes 1988 survey data.)

King, R.J. and A.W. Brackney. 1990. Fall population survey of emperor geese (Chen canagica) on coastal southwest Alaska, October 17-19, 1990. Unpubl. Rept., USFWS, Fairbanks, AK. 15p.

Mallek, E. J. and C. P. Dau. 2000. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 1999. Unpubl. Rept., USFWS, Fairbanks, AK. 19p.

_____ 2002a. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2000. Unpubl. Rept., USFWS, Fairbanks, AK. 15p.

_____ 2002b. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2001. Unpubl. Rept., USFWS, Fairbanks, AK. 16p.

_____. 2002c. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2002. Unpubl. Rept., USFWS, Fairbanks, AK. 15p.

_____ 2003. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2003. Unpubl. Rept., USFWS, Fairbanks, AK. 16p.

_____ 2004. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2004. Unpubl. Rept., USFWS, Fairbanks, AK. 17p.

_____ 2005. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2005. Unpubl. Rept., USFWS, Fairbanks, AK. 17p.

_____ 2006. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2006. Unpubl. Rept., USFWS, Fairbanks, AK. 14p.

_____ 2007. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2007. Unpubl. Rept., USFWS, Fairbanks, AK. 14p.

_____ 2009a. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2008. Unpubl. Rept., USFWS, Fairbanks, AK. 17p.

_____ 2009b. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2009. Unpubl. Rept., USFWS, Fairbanks, AK. 16p.

_____ 2011. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2010. Unpubl. Rept., USFWS, Fairbanks, AK. 14p.

_____ 2012. Aerial survey of emperor geese and other waterbirds in southwestern Alaska, fall 2011. Unpubl. Rept., USFWS, Fairbanks, AK. 14p.

Platte, R.M. 2012. Conversion of spring and fall emperor goose surveys on the coastal Alaska Peninsula to ArcMap file geodatabase. Unpubl. Rept., USFWS, Anchorage. 6p.



Figure 1. Map of emperor goose aerial survey segments 1-36 in southwest Alaska, 1992-2012.

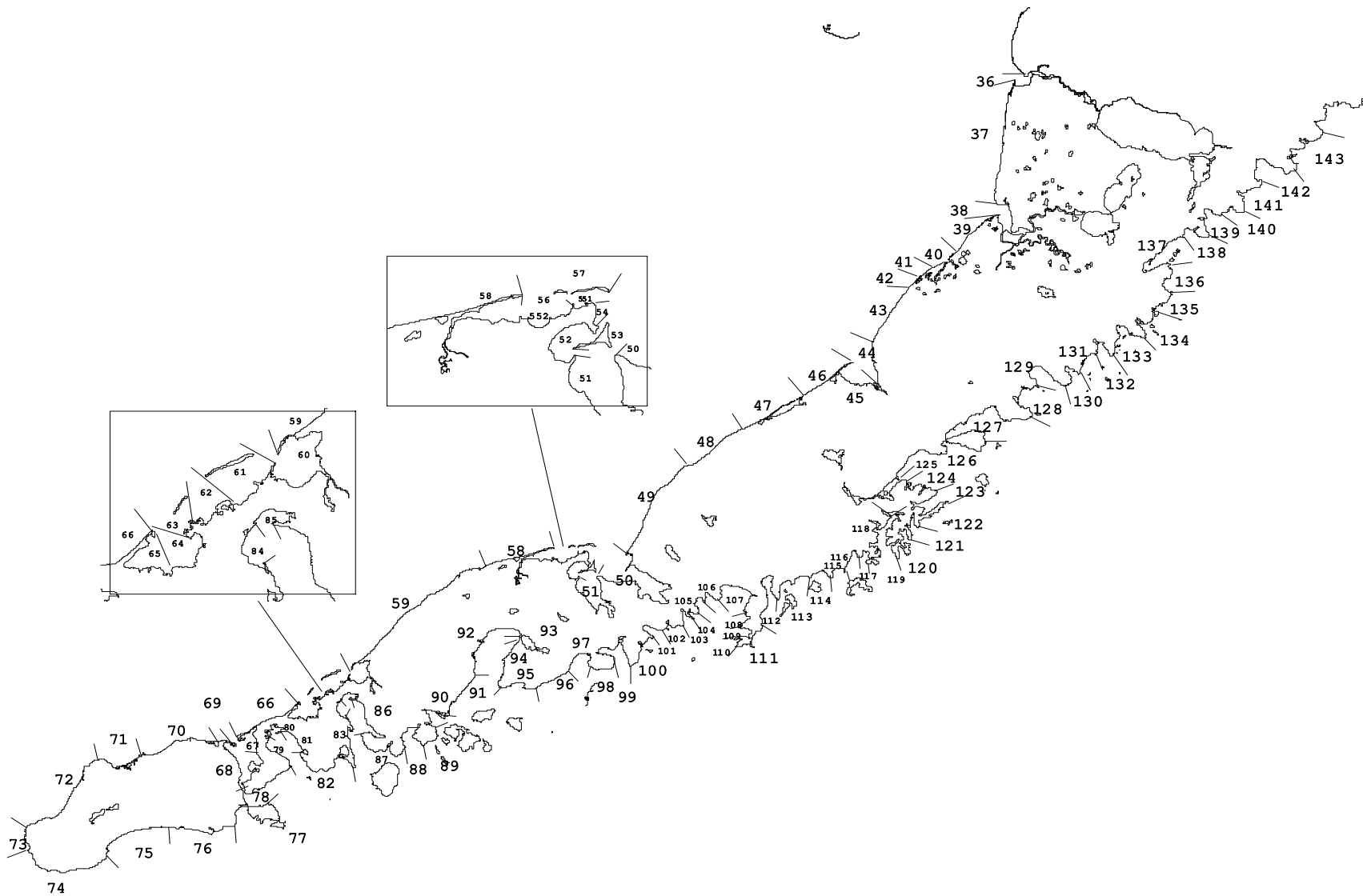


Figure 2. Map of emperor goose aerial survey segments 36-143 in southwest Alaska. 1992-2012.

Table 1. Waterbird and mammal observations by segment, southwest Alaska 28-29 September 2012.

SPECIES	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Am. G-w Teal		40									290					
B. Eagle (ad)		1														1
B. Eagle (juv)	1		1			1										
B-I Kittiwake					1				170				200	70	1803	
Black Scoter	85	4		1	1394				2			1200		35	300	
Bon. Gull																20
Brown Bear									1	1		2			3	
C. Goose				146												50
C. Eider	6										50					
C. Raven				1		2										1
E. Goose	741	859		1220		7612		895	32	1835	3854	23	11979	23	7	1411
G. Scaup	300									204						
Gray Whale											1					
Harbor Seal			2			40					909				40	
Large gull	506	317	84	1549	183	1379	3	63	822	100	2827	58	1048	104	73	556
Lg. shorebird											250					
Mallard	123	1804		1644		173		32		300	40		190			
Mew Gull	1708	1		1129					1		950					510
Med. shorebird	200	110		35												
N. Pintail	1360	2281		609		7252		660		108	3795		1140			
P. Cormorant	31		2		2									1	2	
R-n Grebe											1					
R-t Loon		2									2					
Sabine's Gull											10					
Sea Otter											302					4
Small gull	898	229	200	33		45			540	15	200		510	470	655	
Sm. shorebird	4640	2035		1390		1900		150	50	150	4360		6380			
Steller's Eider						75					815		4070			2500
Tundra Swan						13										
Walrus														3		
W-w Scoter									100		21			10		7

Table 1 (cont). Waterbird and mammal observations by segment, southwest Alaska 28-29 September 2012.

SPECIES	51	52	53	54	551	552	56	57	58	59	60	61	62	63
Am. Green-winged Teal						100								
Am. Wigeon												55		
Bald Eagle adult											2			
Bald Eagle juvenile			3											
Pacific Brant											14983	32982	11757	10530
Black-legged Kittiwake									5	150				
Black Scoter	2	3200					4520			72		5		
Brown Bear							1		1	5	1			
Canada Goose					45						16994	4020	2173	475
Common Eider							250							
Common Raven														
Emperor Goose	1364	602	5	178	4646	2993	2140	10156	68	18	223	131	5	
Greater Scaup	75										400			
Harbor Seal										60				
King Eider							550							
Large gull	59	116			1835	600	6060	10	1	1192	947	1891	1762	100
Long-tailed Duck						50								
Mallard					850	675					2			
Mew Gull		610					300		1					
Northern Pintail		40			2470	3225					1150	1356	500	150
Pelagic Cormorant	1		4											
Red-necked Grebe										1				
Sea Otter	1	3	8							1	2	12	3	
Small gull	150	90					1005	700		60		200		
Small shorebird	2000	5450			650	3500	100			650	2185	150		
Steller's Eider				2250	560	1675	11940				2150	1200		
White-winged Scoter				10					49					

Table 1 (cont). Waterbird and mammal observations by segment, southwest Alaska 28-29 September 2012.

SPECIES	64	65	66	67	68	80	81	82	83	84	85	Total
Am. Green-winged Teal												430
Am. Wigeon												55
Bald Eagle adult						3	2					9
Bald Eagle juvenile	1											7
Pacific Brant	11619	18455		6313	1240	9671					5190	122740
Black-legged Kittiwake				1								2400
Black Oystercatcher								2				2
Black Scoter			216		1		12		28	5		11082
Bonaparte's Gull												20
Brown Bear							1					16
Canada Goose	2820	2367		115	2700	140			50		150	32245
Common Eider												306
Common Loon								2	2			4
Common Raven												4
Emperor Goose				8	389	377	1116	3	958	165	159	56195
Greater Scaup												979
Gray Whale												1
Harlequin Duck			12	21	1	8	6	32	58		12	150
Harbor Seal	1		200								50	1302
King Eider												550
Large gull	68	80	719	32	460	65	100	133	427	11	430	26770
Large shorebird												250
Long-tailed Duck												50
Mallard					50							5883
Mew Gull	800											6010
Medium shorebird												345
Northern Pintail	460	50			300							26906
Pacific Loon					1							1
Pelagic Cormorant							2	12				57
Red-breasted Merganser					150	185	400		25		10	770
Red-necked Grebe												2
Red-throated Loon												4
Sabine's Gull												10
Sea Otter	52	57	10	116	5		5		1		22	604
Small gull				77			60	15				6152
Small shorebird								100	20			35860
Steller's Eider	1403	425					200					29263
Surf Scoter			5									5
Tundra Swan												13
Walrus												3
White-winged Scoter		127				1		14	4			343

Table 2. Fall emperor goose fall survey data, southwest Alaska, 1979-2012.

YEAR	TOTAL	3YR. AVG.	DATES	OBSERVERS	SURVEY AREA
1979	59808	NA	10/1-10/4	B.Conant/R.E.Gill, Jr.	North Alaska Peninsula only
1980	65971	NA	10/4-10/8	R.J. King/R.E. Gill, Jr.	North Alaska Peninsula only
1981	63156	62978	10/3-10/8	R.J. King/R.E. Gill, Jr./D.V. Derksen	Kuskokwim Bay south
1982	80608	69912	10/6-10/10	R.J. King/K.S. Bollinger	Kuskokwim Bay south
1983	72551	72105	10/10-10/16	R.J. King/D.V. Derksen	Kuskokwim Bay south
1984	82842	78667	10/3-10/8	"	Kuskokwim Bay south
1985	59790	71728	10/10-10/14	R.J.King/W.D. Eldridge	Kuskokwim Bay south
1986	68051	70228	10/5-10/11	"	Kuskokwim Bay south
1987	65663	64501	10/2-10/5	"	Kuskokwim Bay south
1988	76165	69960	10/7-10/12	"	Kuskokwim Bay south
1989	70729	70852	10/7-10/12	R.J. King/L. Denlinger	Kuskokwim Bay south
1990	109531	85475	10/17-10/19	R.J. King/A.W. Brackney	Kuskokwim Bay south
1991	75295	85185	10/3-10/8	"	Kuskokwim Bay south
1992	82295	89040	10/10-10/17	"	Kuskokwim Bay south
1993	71051	76214	10/23-10/26	R.J. King/D.A. Dewhurst	Alaska Peninsula only
1994	87086	80144	10/8-10/14	R.J. King/K. Laing	Kuskokwim Bay south
1995	91009	83049	10/14-10/20	R.J. King/K.S. Bollinger	Kuskokwim Bay south
1996	87018	88371	9/28-9/29	R.J. King/W.D. Eldridge	North Alaska Peninsula only ¹
1997	86669	88232	10/3-10/5	R.J. King/C.P. Dau	North Alaska Peninsula only ¹
1998	67744	80477	10/7-10/9	R.J. King/E.J. Mallek	Alaska Peninsula only
1999	60226	71546	10/1-10/5	E.J. Mallek/C.P. Dau	North Alaska Peninsula only ¹
2000	61626	63199	9/26-28,10/2	"	Kuskokwim Bay south
2001	59987	60613	9/26-28,10/1	"	Kuskokwim Bay south
2002	78692	66768	9/29-10/2	"	Kuskokwim Bay south
2003	77290	71990	9/27-10/2	"	Kuskokwim Bay south
2004	93544	83175	9/30-10/3	"	Kuskokwim Bay south
2005	73212	81349	10/4-10/8	"	Alaska Peninsula only
2006	81078	82611	9/26-9/28	"	Alaska Peninsula only
2007	73531	75940	9/26-10/3	"	North Alaska Peninsula only ¹
2008	78201	77604	9/26-9/28	"	Kuskokwim Bay south
2009	79647	77127	9/29-10/5	"	Kuskokwim Bay south
2010	59924	72591	9/30, 10/4	"	North Alaska Peninsula only ¹
2011	62561	67377	9/27-9/30	"	North Alaska Peninsula only ¹
2012	58683	60388	9/28-9/30	"	North Alaska Peninsula only ¹

¹ Average count of south side of the Alaska Peninsula used in estimate.