

Aerial survey of wintering Pacific brant and other species at the Izembek NWR Complex and Sanak Islands, Alaska, March 2013.

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ABSTRACT: This report presents results of the 28-29 March 2013 aerial survey of Pacific brant and other species wintering at the Izembek NWR Complex and in the Sanak Islands. The estimated total 41,821 brant observed included 39,408 in the Izembek NWR Complex and 2,413 in the Sanak Islands. The Izembek NWR Complex includes shorelines and estuaries from Moffet Bay to Bechevin Bay, along the north side of the Alaska Peninsula, and includes Kinzarof Lagoon and Morzhovoi Bay on the south side of the Alaska Peninsula. The Sanak island group, includes Sanak and Caton, as well as associated smaller islets approximately 80 km south of Cold Bay. Totals for emperor geese and Steller's eiders (Izembek/Sanak) were 4,173 (731/3,442), and 24,064 (23,826/238), respectively. Ice cover was essentially absent in both survey areas.

Key words: Winter survey, brant, Izembek NWR, Sanak islands, Alaska. July 2013

INTRODUCTION

Aerial surveys of wintering Pacific brant at the Izembek NWR Complex (hereafter Izembek), including refuge coastlines and adjacent marine estuaries, have been done annually since 1980 (Figure 1). The survey was expanded in 2010 to include the Sanak Islands (hereafter Sanak) (Figure 2). This survey documents winter distribution, abundance, population trend and habitat use by brant and other species. Increasing numbers of wintering brant at Izembek (Ward et al. 2009) result in this population being a large component of the annual Pacific Flyway mid-winter population index (PF-MWI).

Eelgrass beds from Moffet Bay to Bechevin Bay, along the north side of the Alaska Peninsula, and in Kinzarof Lagoon and Morzhovoi Bay, along the south side of the peninsula, are primary foraging areas for brant at Izembek. Brant have historically wintered at Sanak, 80 km south of Izembek but numbers have not been well documented (Jones 1952, 1955). Most brant at Sanak are known to utilize eelgrass beds and other shallow intertidal habitats south of both Sanak and Caton islands.

METHODS

The 2013 winter survey of Izembek and Sanak was flown from 28-29 March by Migratory Bird Management (MBM) personnel using an amphibious Quest Kodiak aircraft (N702FW). Survey ground speed was approximately 175 km/hr (110 mph) and altitude was 45m (150 feet) above sea level (ASL). Approximately four hours of flight time is necessary to survey both areas. Observations made from both sides of the aircraft were voice recorded into panel-mounted

computers for later transcription using programs developed by Jack Hodges (USFWS-MBM, Juneau, AK).

Systematic flight paths provided coverage of all near shore and open water areas along shorelines and within estuaries. Panel mounted computers provided moving map displays and paper topographic maps (scale 1:63,360) aided navigation. Observations of habitat and survey conditions including ice cover, wind speed and direction, temperature, sky condition, visibility, and tide stage were recorded.

SURVEY CONDITIONS

Ice cover was essentially absent (i.e. $\leq 1\%$) in both Bering Sea and Pacific Ocean estuaries at Izembek in comparison to conditions in 2012 when Bering Sea and Pacific side ice was $\geq 95\%$ and 60-85%, respectively. Onshore water bodies at Izembek were frozen in 2013 and lowland snow cover was 10-15%. Air temperature held at 35°F. There was no sea ice near Sanak but onshore water bodies were frozen and there was no lowland snow cover. Tide levels were high in Bering Sea estuaries and low in those along the Pacific side of the Alaska Peninsula and at Sanak.

Visibility was good throughout the survey with overcast ceilings of 500 feet or greater at Izembek and winds of less than 10 mph. At Sanak, scattered ceilings were up to 2,000 feet, wind was calm and there was occasional moderate glare.

RESULTS

Pacific Brant

We observed a total of 41,821 brant (Izembek 39,408, Table 1 and Sanak 2,413, Table 2; Appendix 1). The lack of ice allowed 39,408 (94.2%) of the population to disperse within preferred foraging sites within Izembek Lagoon. Peak winter counts at Izembek indicate an increasing, long-term trend (1980-2013) of 7.8%/year (average 16,192 \pm 4,248 [95% CI]; Figure 3; MBM/Izembek NWR files).

Emperor Goose

We observed a total of 4,173 emperor geese (Izembek 731, Table 1 and Sanak 3,442, Table 2) (Appendix 1). The 2013 Izembek count (731) is 73.4 % below the 1980-2013 average of 2,743 (MBM/Izembek NWR files) which may be due to increased habitat availability (i.e. less sea ice) in preferred estuaries north along the Alaska Peninsula. Izembek winter counts (1980-2013) have been highly variable (range 542-5,139) without a significant trend (average 2,743 \pm 509 [95% CI], -1.3%/year, MBM/Izembek NWR files).

Steller's Eider

We observed an overall total of 24,064 Steller's eiders (Izembek 23,826, Table 1 and Sanak 238, Table 2) (Appendix 1). At Izembek the highest concentrations occurred within Izembek

Lagoon (21,999, 92.3%). We attribute the low count at Sanak (238) to low ice levels at Izembek and at preferred estuaries north along Alaska Peninsula (Mallek and Dau, personal observations). The 2013 Izembek count is 33.5% above the long-term winter (1980-2012) average of $18,021 \pm 4,151$ (95% CI), and the long-term trend is $-2.5\%/year$, MBM/Izembek NWR files).

DISCUSSION / RECOMMENDATIONS

The Izembek count of wintering brant has been used as part of the Pacific Flyway Midwinter Index (PF-MWI) since 1985-86. The Alaska survey was expanded in 2010 to include Sanak (USFWS 2011, Pacific Flyway Data Book). When suitable aircraft and weather conditions are available, the current protocol combining Izembek and Sanak will be followed to provide the Alaska MWI index. Timing of the 2013 survey was delayed, however, it was well in advance of the 15 April modal arrival date for spring migrating brant (range 3 April–11 May, $n=42$ years). Hence, our survey estimated only the number of over-wintering brant.

Sea ice was essentially absent within the survey area during 2013. Ice conditions determine habitat accessibility and resulting brant distribution. Brant exhibit strong site fidelity but larger proportions use sites along the Pacific side of the Alaska Peninsula when Bering Sea side ice conditions are severe. In recent years, estuarine ice conditions have moderated and severe conditions have been fewer and of shorter duration. Moderating weather conditions during winter is one important factor associated with increasing numbers of over-wintering brant (Ward et al. 2009).

Observations at Sanak confirm regular wintering by brant (Jones 1952, 1955, McKnight 1971, Dau and Chase 1995, Dau and Bollinger 2011, Bollinger 2012, Mallek and Dau 2012) (Appendix 1). Our observations indicate that Sanak is used by a larger proportion of brant when ice conditions restrict access to preferred sites at Izembek. We found an average of 78% of brant at Izembek when ice cover was $>50\%$ (Izembek/Sanak surveys 2009-10 and 2011-12) versus 95% when ice was reduced or absent (2010-11 and 2012-13). Despite variable ice conditions observed at Izembek from 2010-13, large proportions of brant still prefer to winter there. Ice conditions during recent surveys at Sanak do not restrict access by brant to preferred eelgrass habitats. Consistent habitat availability and highly variable numbers of brant (Appendix 1) further indicates that Izembek is consistently the most important site for Alaska wintering brant.

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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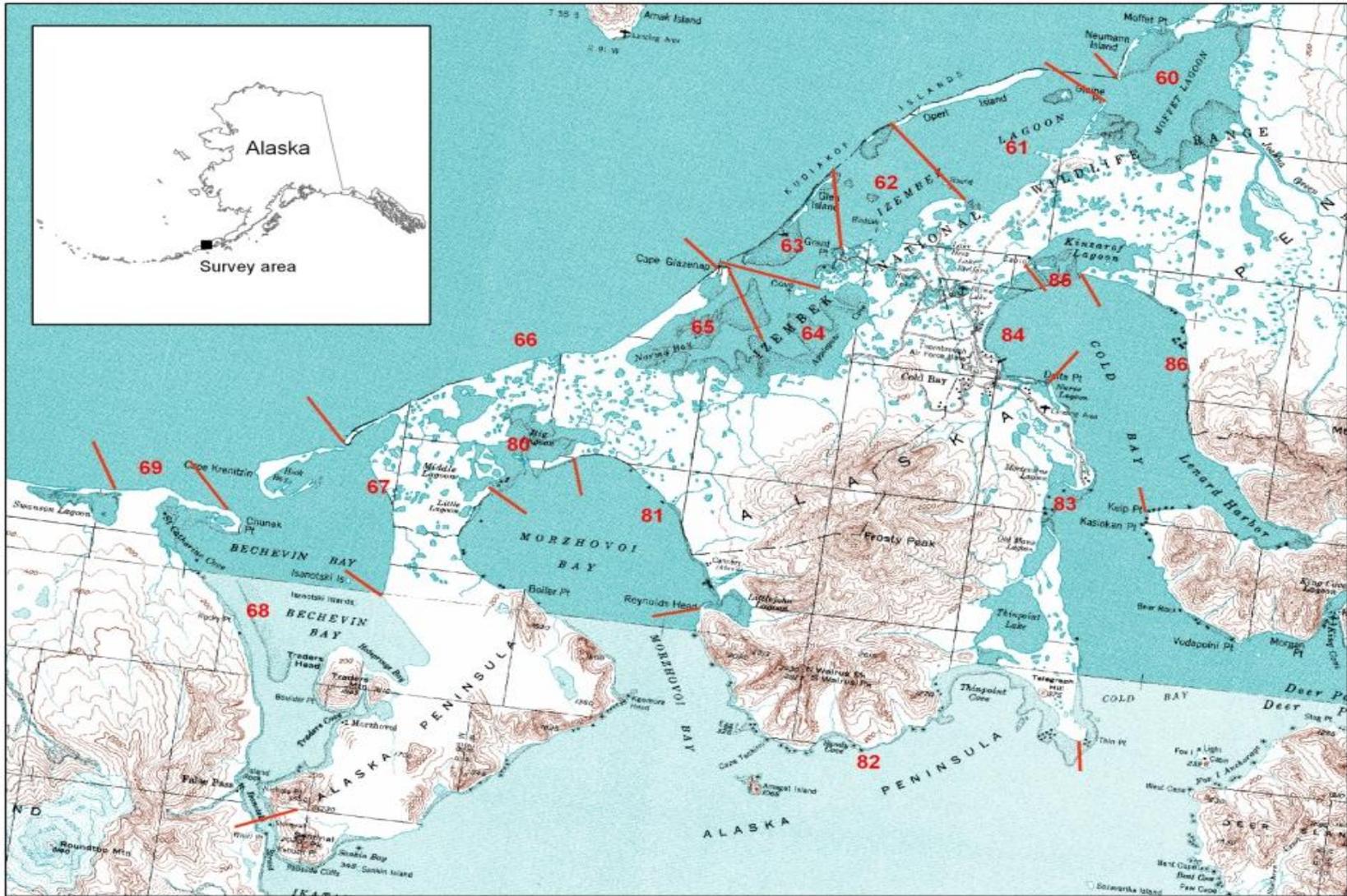


Figure 1. Pacific brant survey area by segment in the Izembek NWR Complex.

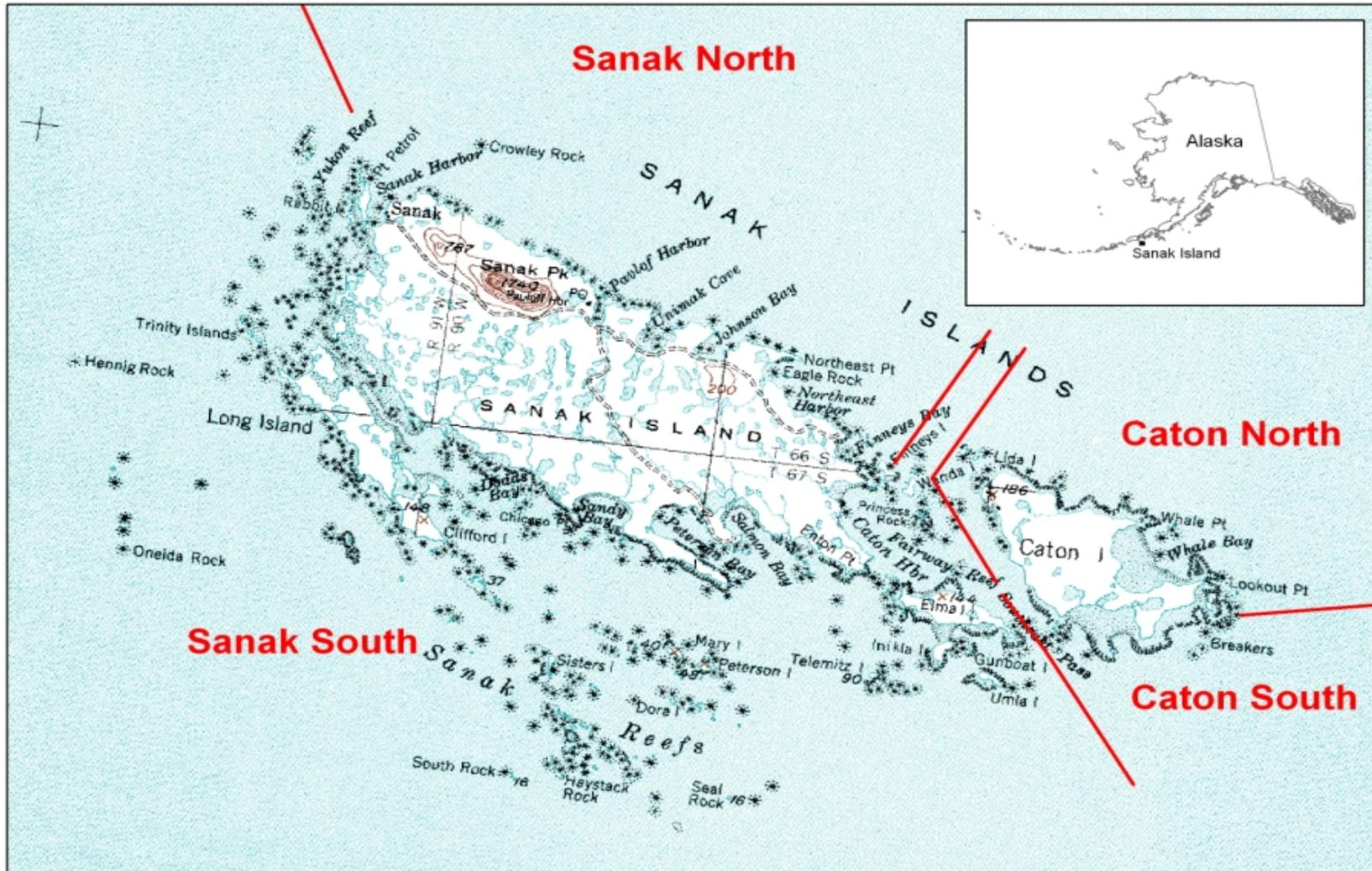


Figure 2. Pacific brant survey areas, Sanak Islands.

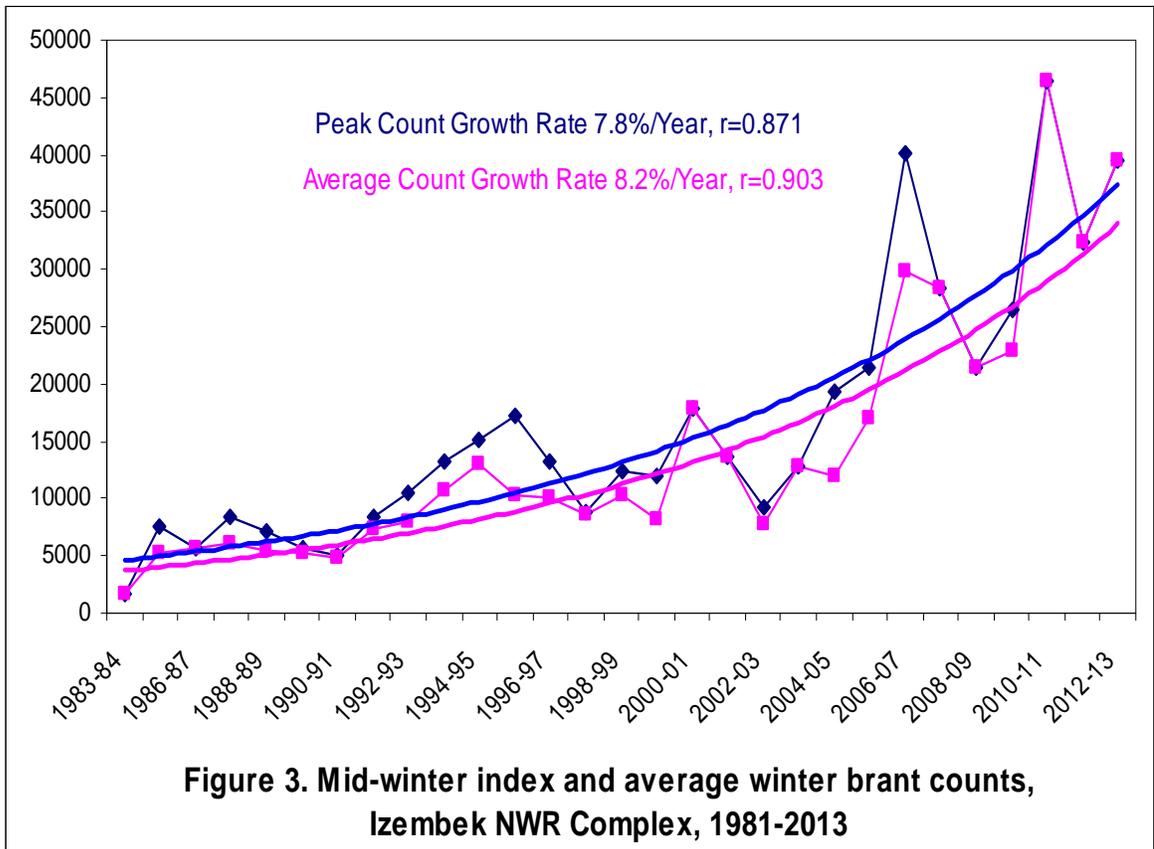


Table 1. Waterbird and mammal observations by segment, Izembek NWR Complex, 28 March 2013.

SPECIES	SEGMENT NUMBER											TOTAL
	60	61	62	63	64	65	67	68	80	81	85	
Bald Eagle	1				1				6	1		9
Bald Eagle (juv)					1	1						2
B. Oystercatcher											7	7
Brant	6747	5478	1416	5045	800	19805			105		12	39408
Black Scoter			125				18	3	7	14	10	177
Common Eider											2	2
Emperor Goose	43			135		320		145	5		83	731
C. Goldeneye						3	7					10
Greater Scaup	200											200
Harlequin Duck					10		52			7	47	116
Harbor Seal				15								15
<i>Large gull ssp.</i>	466	84	208	62	53	235	20	96	238	2	106	1570
L-t Duck	730	233	305		2	53	12					1335
Mallard						40			2		5	47
Mew Gull	450		100	1	150	40						741
Northern Pintail	65				750			135				950
R-b Merganser	28	12			17	51	79	10	308		43	548
Sea Otter	18	42	52	1	77	8	8	1		2	34	243
Steller's Eider	3700	8194	5195		850	4060		1112			715	23826
Surf Scoter					12							12

Table 2. Waterbird and mammal observations by segment, Sanak Islands, 29 March 2013.

SPECIES	Caton North	Caton South	Sanak North	Sanak South	TOTAL
Bald Eagle	2		4	13	19
Bald Eagle (juv)			1	2	3
Brant	1765	105		543	2413
B. Oystercatcher	10		24	70	104
Black Scoter	20	163	25	1567	1775
Bufflehead	0	3		155	158
<i>Cattle</i>			95	443	538
Common Raven				8	8
Emperor Goose	674	1195	131	1442	3442
Greater Scaup		80			80
Harlequin Duck	349	385	268	915	1917
Harbor Seal				90	90
<i>Horse</i>				17	17
<i>Large gull ssp.</i>	367	180	150	500	1197
L-t Duck		6		31	37
Mallard				44	44
Mew Gull			10	25	35
P. Cormorant	19	50	9	65	143
R-b Merganser	50	15	5	241	311
Sea Otter				3	3
<i>Small shorebird</i>	835	850	1	120	1806
Steller's Eider	75	48	0	115	238
Steller's Sealion			7		7
Surf Scoter	6				6
W. Ptarmigan				2	2
W-w Scoter				30	30

Appendix 1. Summary of aerial survey data of the Sanak islands, Alaska¹.

Species	1970	1991	2010			2011 ⁴			2012			2013		
	Sanak	Sanak/Caton ³	Sanak	Caton	Total	Sanak	Caton	Total	Sanak	Caton	Total	Sanak	Caton	Total
Am. Wigeon	0	0	10	0	10				0	0	0	0	0	0
Bald Eagle	0	83	36	4	40				20	2	22	17	2	19
Bald Eagle (juv)	0	0	8	4	12				21	0	21	3	0	3
Brant	0	3052	3871	1432	5303	1237	1280	2517	6103	5893	11996	543	1870	2413
B-I Kittiwake	0	143	0	0	0				0	0	0	0	0	0
B. Oystercatcher	0	0	729	159	888				260	93	353	94	10	104
Black Scoter	0	560	1914	676	2590				396	17	413	1592	183	1775
Bufflehead	0	0	80	61	141				2	22	24	155	3	158
Canada Goose ²	200	0	0	0	0				0	0	0	0	0	0
<i>Cattle</i>	0	414	914	0	914				642	0	642	538	0	538
Common Eider	0	128	0	0	0				0	0	0	0	0	0
Common Loon	0	0	12	2	14				1	0	1	0	0	0
C. Merganser	0	0	3	0	3				15	0	15	0	0	0
Common Murre	0	709	0	0	0				0	0	0	0	0	0
Common Raven	0	25	0	40	40				13	1	14	8	0	8
<i>Eider ssp.</i>	740	0	0	0	0				0	0	0	0	0	0
Emperor Goose	1030	3368	5737	1638	7375	1910	718	2628	6250	2598	8848	1573	1869	3442
Gadwall	0	140	0	0	0				0	0	0	0	0	0
Goldeneye ssp.	0	0	11	45	56				1	0	1	0	0	0
Greater Scaup	0	0	301	65	366				3	215	218	80	0	80
Harlequin Duck	45	13	2778	1528	4306				2084	625	2709	1183	734	1917
Harbor Seal	0	14	197	76	273				200	0	200	90	0	90
Horned Puffin	0	7	0	0	0				0	0	0	0	0	0
<i>Horse</i>	0	15	53	0	53				13	0	13	17	0	17
King Eider	0	358	0	0	0				10	0	10	0	0	0
<i>Large gull ssp.</i>	0	1145	203	28	231				210	188	398	650	547	1197
L-t Duck	145	587	63	3	66				13	0	13	31	6	37
Mallard	45	312	633	33	666				57	310	367	44	0	44

Appendix 1 (con'd). Summary of aerial survey data of the Sanak islands, Alaska¹.

Species	1970	1991	2010			2011 ⁴			2012			2013		
	Sanak	Sanak/Caton ³	Sanak	Caton	Total	Sanak	Caton	Total	Sanak	Caton	Total	Sanak	Caton	Total
Mew Gull	0	0	0	0	0				0	0	0	35	0	35
N. Pintail	0	6125	45	170	215				2110	475	2585	0	0	0
N. Shoveler	0	0	0	60	60				0	0	0	0	0	0
Pacific Loon	0	0	1	0	1				0	0	0	0	0	0
P. Cormorant	0	601	783	397	1180				363	49	412	74	69	143
<i>Puddle duck ssp.</i>	0	255	0	0	0				0	0	0	0	0	0
<i>Puffin ssp.</i>	0	50	0	0	0				0	0	0	0	0	0
R-b Merganser	0	231	558	187	745				35	8	43	246	65	311
R-n Grebe	0	0	2	0	2				0	0	0	0	0	0
<i>Scoter ssp.</i>	555	0	0	0	0				0	0	0	0	0	0
Sea Otter	0	21	2	1	3				0	0	0	3	0	3
<i>Rock Sandpiper</i>	0	8598	1530	510	2040				940	9005	9945	121	1685	1806
Steller's Eider	0	16603	2054	3173	5227	345	742	1087	4063	2394	6457	115	123	238
Surf Scoter	0	0	0	0	0				0	0	0	0	6	6
Tufted Puffin	0	7	0	0	0				0	0	0	0	0	0
Tundra Swan	2	83	29	0	29				20	0	20	0	0	0
Steller's Sealion	0	0	0	48	48				0	0	0	7	0	7
Whimbrel	0	0	10	0	10				0	0	0	0	0	0
W. Ptarmigan	0	0	0	0	0				0	0	0	2	0	2
W-w Scoter	0	64	164	4	168				10	0	10	30	0	30

¹ 22 March 1970 (McKnight 1971); 15 February 1991 (Dau and Chase 1995);

² Possibly brant misidentified as Canada geese.

³ Populations estimated from linear transect sampling including waters 15-30 km offshore.

⁴ Other species data missing.