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AERIAL SURVEY OF WINTERING PACIFIC BRANT AND OTHER WATERBIRDS ON AND ADJACENT TO THE IZEMBEK NWR, ALASKA, 2009-2010.

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Abstract: This report presents results of the 2009-10 winter survey of Pacific brant in the Izembek NWR area. Surveys were flown on 1 and 2 February from Moffet Bay to Bechevin Bay, along the north side of the Alaska Peninsula and included Kinzarof Lagoon and Morzhovoi Bay on the south side of the peninsula. Survey aircraft was N9798Z (C206-amphibian) and pilot and observer made observations from respective sides of the aircraft. A peak count of 26,443 brant was made on 1 February. All other waterbird and marine mammal species were counted. Peak counts of emperor geese and Steller's eiders were 1,695 (1 February) and 24,097 (2 February), respectively.

Key words: Survey, Pacific brant, waterbirds, Izembek NWR, Alaska.

INTRODUCTION

Aerial surveys of the wintering population of Pacific brant near the Izembek NWR have been performed since 1980. Distribution, abundance, and population trends along with habitat use in relation to ice cover have been documented. Increasing numbers of wintering brant resulted in the inclusion of this over-wintering population in the annual Pacific Flyway mid-winter index (PF-MWI) beginning in 1986. The concurrent 3-year average of the PF-MWI provides the population management index used in the Pacific brant management plan.

METHODS

The survey was flown using MBM aircraft (N9798Z, C206-amphibian) at a ground speed of approximately 160 km/hr (100 mph) and an altitude of 45m (150 feet) ASL. Surveys were flown on 1 and 2 February from Moffet Bay to Bechevin Bay along the north side of the Alaska Peninsula and in Kinzarof Lagoon and Morzhovoi Bay on the south side of the peninsula (Figure 1). Observations made from both sides of the aircraft were voice recorded into laptop computers and later transcribed with specialized survey programs (J. Hodges, USFWS-MBM, Juneau, AK).

A systematic meandering flight path allowed coverage of all open water areas in estuaries within the survey area. Laptop computers also provided moving map displays which aided in navigation. Observations of habitat and survey conditions including ice cover, wind speed and direction, temperature, sky condition, visibility, and tide stage were recorded en route.

SURVEY CONDITIONS

1 February:

Considerable glare was present during portions of the survey and otherwise conditions were good. Ceilings were scattered to unrestricted and visibility was >45 km. Winds were 15-21 knots and temperatures were 37-39^{o} F. Ice cover in Izembek Lagoon was 5-60 % while Pacific estuaries ranged from <1 to 15 %. Tide levels were medium on both the Bering and Pacific sides of the peninsula.

2 February:

Significant glare was present in excess of that encountered on 1 February. Otherwise, survey conditions were good. Ceiling was unrestricted and visibility was >45 km. Winds ranged from calm to north at 10 knots and temperatures 26-38^{o} F. Ice cover in Izembek Lagoon was 5-60 percent but ice was gray and deteriorating from conditions on 1 February. Ice in Pacific estuaries ranged from <1 to 15 percent. Tide levels were medium on the Bering and low on the Pacific sides of the peninsula, respectively.

RESULTS/DISCUSSION

Pacific Brant

A peak count of 26,443 Pacific brant was observed during the 1 February survey. The 2 February count totaled 20,165 brant. Overall, Izembek Lagoon was less than 50% ice covered during both surveys and most brant were concentrated in the east-central portion of Izembek Lagoon. Distribution by area for the two surveys (1 Feb/2 Feb) was: Izembek Lagoon 22,532/17,555; Kinzarof Lagoon 320/1,375; Big Lagoon (Morzhovoi Bay) 395/325; Hook Bay (Bechevin Bay) 2,750/870; St. Catherine's Cove (Bechevin Bay) 446/40. The peak 2010 count (26,443) was 23.1% above the January 2009 estimate of 21,482. The long-term trend in peak mid-winter counts at Izembek from 1980-2010 indicates a 7.2%/year increase (Table 1, Figure 2) (USFWS 2009, Izembek NWR files). In recent years, varying ice conditions (e.g. severe in 2009 and moderate in 2010) have dictated brant distribution within the survey area. Despite varying ice conditions, brant exhibit strong fidelity and are unlikely to disperse outside the survey area. In recent years (e.g. 2009), severe ice conditions limiting habitat availability appear to have been of short duration. We feel this survey provides comparable annual indices of wintering brant numbers in the Izembek area.

Emperor Goose

The totals were 1,695 and 1,402 emperor geese observed during 1 and 2 February surveys, respectively. The average count of 1,549 is 56.1% below the February 2009 peak of 3,528 and 47.5 % below the 1980-2009 average of 2,950 (Izembek NWR files). Most emperor geese were observed as follows on 1 February/2 February: Applegate Cove (Izembek Lagoon) 40/700, Hook Bay (Bechevin Bay) 635/39, and Kinzarof Lagoon 985/553. Moderate ice conditions in 2010 may have allowed birds to disperse to other

Alaska Peninsula more preferred habitats outside our survey area and severe ice conditions as encountered in 2009 could disperse birds west into the Aleutian Islands. Both conditions could result in fewer emperor geese seen in the survey area. Spring and fall surveys along the Alaska Peninsula suggest most emperor geese prefer habitats outside our winter survey area (Dau and Mallek 2009, Mallek and Dau 2009, Izembek NWR files).

Steller's Eider

We observed a total of 20,330 and 24,097 Steller's eiders during the 1 and 2 February surveys, respectively. The average count of 22,214 is 3-fold the February 2009 peak of 7,003 and 71.9% below the 1980-2009 average of 24,947 (Izembek NWR files). Izembek Lagoon had 90.9 percent of the Steller's eiders observed on 1 February and 87.3 percent observed on 2 February. Ice conditions were moderate in 2010 which permitted assess to preferred habitat within the survey area. Long-term averages of Steller's eider winter counts at Izembek NWR indicate a decline of 1.5%/year (Figure 3) (Izembek NWR files).

RECOMMENDATIONS

Winter counts of brant in the Izembek area should be continued to monitor the local population size and distribution. Distribution of wintering brant in the Izembek area suggests birds are concentrated and more sedentary than in the fall. Historical observations in the Sanak islands, 80 km south of Cold Bay (Dau and Chase 1995), suggest regular wintering by brant (Izembek NWR files) but mingling with the Izembek area population has not been shown. Coordinated surveys of both the Izembek area and the Sanak Islands, during periods of variable ice conditions, are encouraged to help determine the relationship of these populations. Izembek counts will continue to be important when monitoring changes in size and distribution of the overall Pacific population.

It is unknown to what extent eelgrass habitats are being impacted by concentrated winter foraging in areas that are also heavily utilized during fall. Continued research on stability and use of Izembek area eelgrass is important in light of milder winter conditions and increased grazing. An additional concern is that south side Alaska Peninsula estuaries, essential to the increasing population of brant, are state tidelands and some are without special designation or protection. It would be beneficial if the Alaska Department of Fish and Game would consider State Critical Habitat or State Game Refuge designation for all sites important to brant including: Kinzarof Lagoon; Big, Middle and Little lagoons in Morzhovoi Bay; and Hook Bay and St. Catherine's Cove in Bechevin Bay. These areas are especially important when severe ice conditions make Bering Sea estuaries inaccessible.

AKNOWLEDGMENTS

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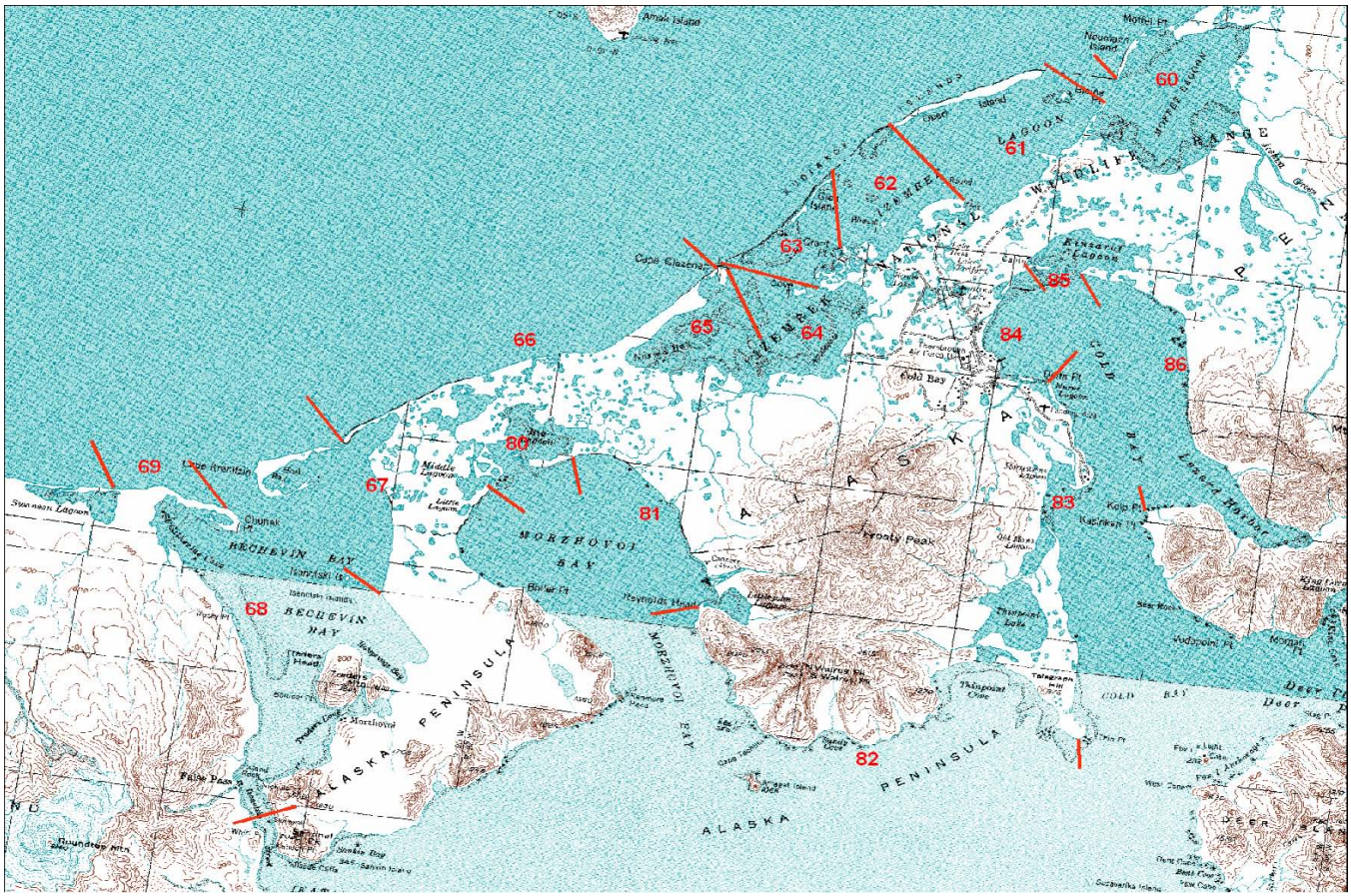

Figure 1. Map of Pacific brant survey area by segment in the Izembek NWR area.

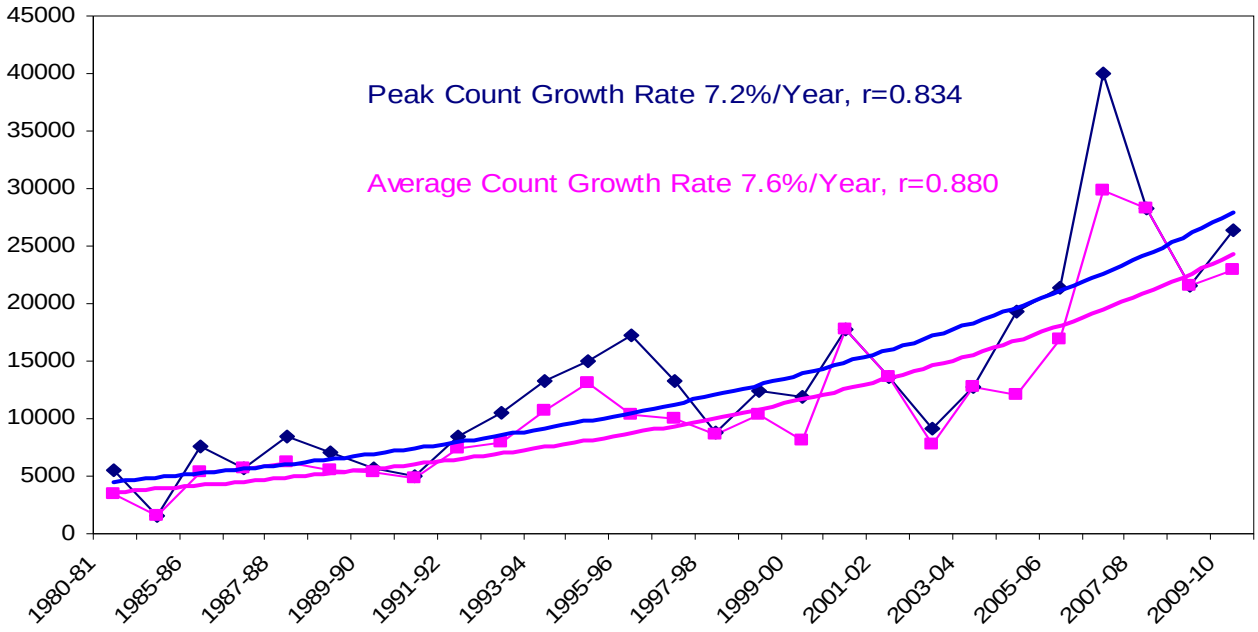

Figure 2. Mid-winter index and average winter brant counts, Izembek NWR, 1981-2010

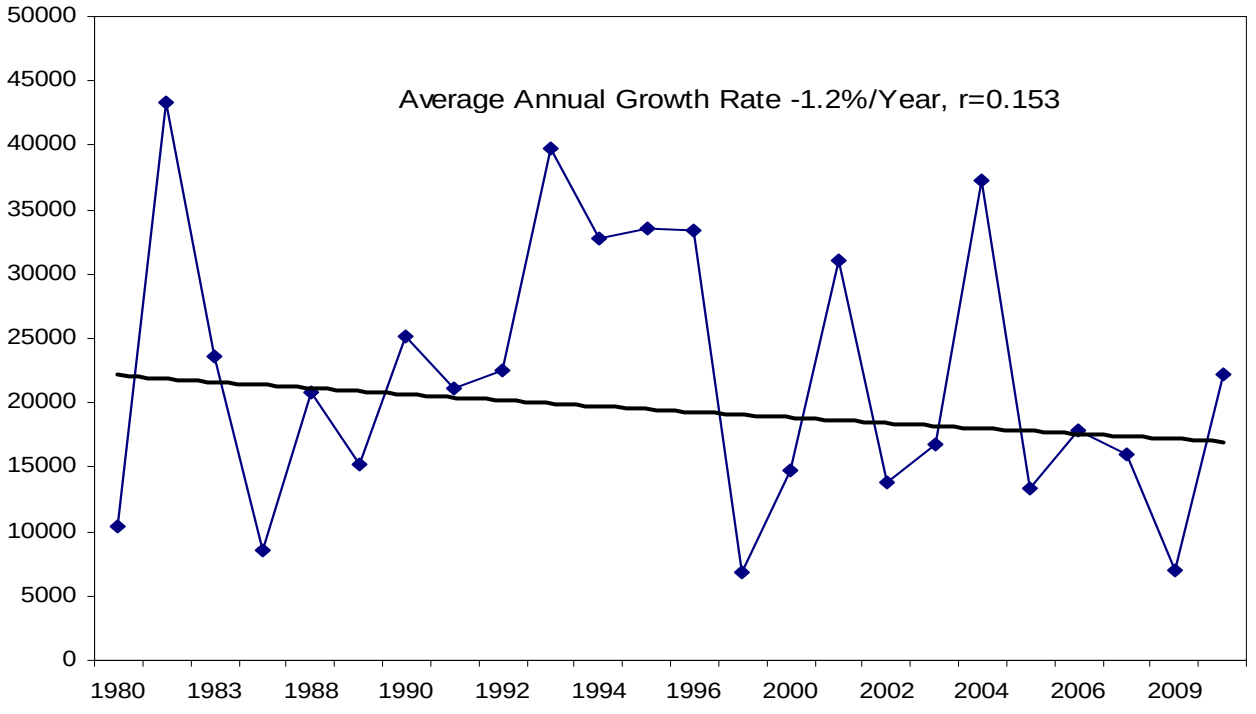

Figure 3. Steller's eider annual winter counts, Izembek Lagoon area, 1 Dec.-31 Mar.

Table 1. Waterbird and mammal observations by segment, Izembek area, 1 February 2010.

Species	Survey Segment										Total
	60	61	62	63	64	65	67	68	80	85	
Bald Eagle adult			1		1	1				1	4
Bald Eagle juvenile			1								1
Pacific Brant		12100	9574	36	726	96	2750	446	395	320	26443
Black Scoter				10	50	3	141	9		1	214
Bufflehead			1	1					4	181	187
Common Loon							4				4
Emperor Goose			15		40		20	635		985	1695
Eurasian Wigeon									125		125
Goldeneye sp.					12		138	350	351	1	852
Greater Scaup	275						20				295
Harbor Seal	85				136						221
King Eider							1	30			31
Large Gull	23	2	211	69	228	10	32	26	14	40	655
Long-tailed Duck	631	104	672	177	127	214	833	61	39	39	2897
Mallard					26		30		100		156
Mew Gull			11						3		14
Northern Pintail									1190		1190
Pacific Loon								1	1		2
Pelagic Cormorant							1				1
Red-breasted Merganser			41	20	422	94	102	80	34		793
Scoter sp.							4				4
Sea Otter			19	31	568	57	43	25	4	1	748
Small Shorebird	3										3
Steller's Eider	2017	2012	6589	457	6666	731	1095	412		351	20330
Steller's Sea Lion								20			20
Tundra Swan						7			6		13
White-winged Scoter		10					30				40

Table 2. Waterbird and mammal observations by segment, Izembek area, 2 February 2010.

Species	Survey Segment										Total
	60	61	62	63	64	65	67	68	80	85	
Bald Eagle adult	2	2	1	1		1	2				9
Bald Eagle juvenile				1							1
Pacific Brant		17170	60	236	69	20	870	40	325	1375	20165
Black Scoter	11	200		318	10	1	281	27		50	898
Bufflehead							1		107	2	110
Common Loon								3	1		4
Common Merganser					6						6
Emperor Goose					700	110		39		553	1402
Eurasian Wigeon									225		225
Large Gull	177	214	75	208	22	42	145	72	468	150	1573
Goldeneye sp.			50		3		96	22	400	42	613
Greater Scaup					350						350
Harlequin Duck							12		66	20	98
Harbor Seal			1		101	2			210	141	455
Long-tailed Duck	452	310	206	703	1	82	1083	215		10	3062
Mallard		20		2				85	593		700
Mew Gull			2	240			1		10		253
Northern Pintail								20	1345		1365
Pelagic Cormorant							4	1			5
Red-breasted Merganser		105			406	34	229	390	428	262	1854
Red-necked Grebe							3				3
Sea Otter	129	6	3	24	144	29	53	58	1	1	448
Small Shorebird			100	100	10	100			20	125	455
Steller's Eider	5104	4940	1250	2260	3682	3800	928	716	270	1147	24097
Surf Scoter							11				11
Tundra Swan									8		8
White-winged Scoter				60			32	3			95