AERIAL SURVEY OF EMPEROR GEESE AND OTHER WATERBIRDS

IN

SOUTHWESTERN ALASKA,

FALL 2009

By

Edward J. Mallek¹
and
Christian P. Dau²

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

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¹U. S. Fish and Wildlife Service
Migratory Bird Management
1412 Airport Way
Fairbanks, Alaska 99701

²U. S. Fish and Wildlife Service
Migratory Bird Management
1011 E. Tudor Road
Anchorage, Alaska 99503
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Abstract: This report presents results of the 31st consecutive, annual fall emperor goose population survey in southwest Alaska. This aerial survey was flown between 29 September and 4 October 2009 from Chagvan Bay to Bechevin Bay, including the entire north side of the Alaska Peninsula and the south side of the Alaska Peninsula, east to Wide Bay. The USFWS Turbine-Beaver (N754) 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 on emperor geese, Pacific brant, Canada geese, and Steller’s eiders. Population estimates for emperor geese, Canada geese, and Steller’s eiders within the entire survey area were 79,647, 46,954 and 57,320, respectively. Two additional replicate surveys of the Izembek NWR area were flown on 4 and 5 October to estimate sizes of the Pacific brant and Canada goose populations. Averages counts for the Izembek area were 144,594 Pacific brant (n=2 surveys) and 45,975 Canada geese (n=3 surveys).

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

INTRODUCTION

Fall distribution, abundance, and population trends of emperor geese and other waterbirds at migratory staging areas throughout southwest Alaska have been annually monitored 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 includes 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.

METHODS

The survey was flown using the USFWS Turbine-Beaver (N754) at a ground speed of approximately 200 km/hr (110 kts) and an altitude of 45m (150 feet) ASL. The 2009 survey route was from Chagvan Bay to the Naknek River, the north side of the Alaska Peninsula south to Bechevin Bay, and the south side of the peninsula east to Wide Bay. Observations were made from both sides of the aircraft and voice recorded into two panel-mounted computers using remote microphones. Computers received input from the aircraft Global Positioning System (GPS) saving 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. Aircraft track was monitored on a computer moving map program to avoid duplication and obtain complete coverage of near shore and estuarine habitats. Whenever possible, flights over estuaries were conducted with <20 knots of wind and at or near high
The greater survey area includes 143 shoreline/estuarine segments (Figures 1-2) which were previously described by Mallek and Dau (2000). In 2009, segments 20 and 22, 29 and 32-34 were flown on 29 September; segments 35-85 on 1 October; and segments 86-137 on 4 October. Two additional surveys of Izembek Lagoon and other estuaries adjacent to Izembek NWR were flown on 4 October (Larned/Bollinger) 5 October (Mallek/Dau). General observations of habitat and survey conditions including wind speed and direction, temperature, sky condition, visibility, and tide stage were recorded en route during all surveys.

SURVEY CONDITIONS

29 September: From Chagvan (Seg. 20) and Nanvak (Seg. 22) bays and the Nushagak Peninsula south to Naknek (Segments 29 and 32-34) winds were southwesterly at 10-20 knots. Sky cover was 600 to 1,000 feet overcast to broken north of Cape Pierce, 1,000 overcast near Nushagak Bay and 10,000 feet scattered along the upper Alaska Peninsula. Visibility was good with only light drizzle at Chagvan Bay and along the Nushagak Peninsula, tides were low and air temperatures were 38-42°F.

1 October: Segments 35 (Egegik Bay) to 85 (Kinzarof Lagoon) were surveyed with winds northwesterly at 5-10 knots north of Izembek Lagoon and southwesterly at 23-30 knots from Izembek south. Tides were high at Naknek becoming mid at Cinder River and low from Seal Islands Lagoon through Izembek Lagoon. Tides along the Pacific side of the peninsula south of Cold Bay were high. Visibility was good and air temperatures increased from 33-40°F throughout the day. Overcast to scattered skies of 2,000 feet or higher persisted throughout the day.

4 October: Segments 86 (Cold Bay) to 137 (Wide Bay) were surveyed with westerly to southwesterly winds of 5-10 knots. Sky conditions were 1,000 to 5,000 feet overcast with good visibility except from Beaver Bay (Seg. 97) to Stepovak Bay (Seg. 107) where ceilings lowered to 400-800 feet overcast and visibility was significantly reduced. Temperature was approximately 40°F throughout the day.

5 October: Segments 60 (Moffet Bay) to 85 (Kinzarof Lagoon) were surveyed with northwesterly winds of 15-20 knots and good visibility. Sky conditions were 1,500 feet scattered lowering to 500 feet overcast and temperature held at 45°F. Visibility was good with slightly deteriorating conditions and mist along the Bering Sea coast (Seg. 66). Tides were high on the Bering side of the Alaska Peninsula and low on the Pacific side.

RESULTS/DISCUSSION

The totals for all species observed during the survey are summarized in Table 1. Estimates of emperor goose population sizes (1979-2009) and corresponding 3-year averages are summarized in Table 2. Figure 3 depicts the 31-year population trend for fall staging emperor geese.

Emperor Goose
The 2009 fall population of emperor geese was estimated at 79,647. Northern Alaska Peninsula estuarine staging sites contained 71,367 (89.6%) of the emperor geese observed (segments 35-59). From Chagvan Bay to Naknek 15 emperor geese (0.1%) were observed (segments 14-34) and 5,402 (6.8%) were observed along the south side of the Alaska Peninsula (segments 86-137). The remainder of emperor geese observations, from the vicinity of Izembek Lagoon and adjacent estuaries, totaled 2,863 (3.6%) (segments 60-85). The 2009 population estimate is 1.9% above the 78,201 observed in 2008 and the current 3-year population average of 77,127 is 0.6% below the previous 3-year average of 77,604 (Table 2). The fall emperor goose population trend continued to indicate an increase of 0.4%/year (Figure 3).

Numbers and proportions of emperor geese at primary staging sites along the Alaska Peninsula in 2009 were as follows: Egegik Bay 2,292 (2.9%, segments 36-37); Ugashik Bay 428 (0.5%, segment 38); Cinder River Estuary 13,130 (16.5%, segments 40-42); Port Heiden 12,090 (15.2%, segments 44-45); Seal Islands 25,237 (31.7%, segment 47); Nelson Lagoon and adjacent estuaries 17,889 (22.8%, segments 50-57, 551-552); Izembek Lagoon and adjacent estuaries 2,863 (3.6%, segments 60-68 and 80-85); Pavlof Bay 2,207 (2.8%, segments 91-93); Chignik Lagoon 430 (0.5%, segment 125) and Wide Bay 1,205 (1.5%, segments 136-137).

Pacific Brant

A total of 120,695 Pacific brant was observed during the emperor goose survey of which >99% (120,592) were in Izembek Lagoon and adjacent estuaries. A replicate count of Izembek Lagoon and adjacent estuaries on 5 October was 168,596. The average fall brant population size in the Izembek area was 144,594 based on these two surveys. The 2009 average count was 11.0% above the 2008 estimate of 130,294 (n=4 surveys) and 8.1% above the 34-year average fall count of 133,704 (1975-2008, Izembek NWR files).

Canada Goose

We observed 46,954 Canada geese during the emperor goose survey with Izembek Lagoon and adjacent estuaries accounting for 90.4% (42,462) of the total birds observed. Replicate counts of Izembek Lagoon and adjacent estuaries (4 and 5 October) provided counts of 49,652 and 45,812. The average Canada goose count estimated from these three surveys (including the Izembek area of the emperor goose survey) was 45,975. The 2009 average count was more than twofold the 2008 estimate of 22,148 (n=4 surveys) and 8.4% above the 34-year average fall count of 42,422 (1975-2008, Izembek NWR files).

Steller’s Eider

We observed a total of 57,320 Steller’s eiders during the emperor goose survey, a greater than twofold increase over the 2008 count of 28,637 and 10.0% below the 1979-2008 average of 63,661. The population trend of Steller’s eiders indicates a 1.6%/year increase based on counts during the fall emperor goose survey (1979-2009).

Numbers and proportions of Steller’s eiders at primary southwest Alaska estuarine staging sites were as follows: Chagvan Bay 1,425 (2.5%, segment 20); Egegik Bay 950 (1.7%, segments 36-37);
Cinder River Estuary 575 (1.0%, segments 40-42); Port Heiden 4800 (8.4%, segments 44-46); Seal Islands 8,170 (14.3%, segment 47); Nelson Lagoon and adjacent estuaries 35,650 (62.2%, segments 50-57, 551-552); and Izembek Lagoon and adjacent estuaries 5,750 (10.0%, segments 60-68 and 80-85).

Replicate counts of Izembek Lagoon and adjacent estuaries (4 and 5 October) provided counts of 4,479 and 13,940, respectively. The average Steller’s eider count in the Izembek area, estimated from these three surveys (including the Izembek area of the emperor goose survey), was 8,056. This estimate is 17.2% above the 2008 estimate of 6,875 (n=4 surveys) and 64.1% below the 34-year average fall count of 22,470 (1975-2008, Izembek NWR files).

AKNOWLEDGMENTS

Lodging and vehicle support provided by Alaska Peninsula/Becharof and Izembek NWRs is appreciated. An additional replicate survey of the Izembek area was flown by Bill Larned (MBM-Soldotna) and Karen Bollinger (MBM-Fairbanks) and their contribution is appreciated.

REFERENCES


King, R.J. and W.D. Eldridge. 1985. Fall survey of emperor geese (Chen canagica) - southwest...


Figure 1. Map of emperor goose aerial survey segments 1-36 in southwest Alaska, 1992-2009.
Figure 2. Map of emperor goose aerial survey segments 36-143 in southwest Alaska, 1992-2000.
Table 1. Waterbird and mammal observations by segment, southwest Alaska 29 September - 4 October 2009.

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Table 1(continuation). Waterbird and mammal observations by segment, southwest Alaska 29 September - 4 October 2009.

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13
Table 1 (cont). Waterbird and mammal observations by segment, southwest Alaska 29 September - 4 October 2009.

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Table 2. Emperor goose fall survey data, southwest Alaska, 1979-2009.

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1 Average count of south side of the Alaska Peninsula used in estimate.
Figure 3. Thirty-one year trend of fall staging emperor geese in southwest Alaska: mean = 75,486, slope = 275, p = 0.24, R square = 0.05, mean annual growth rate = 0.36%.