Age group counts of Black Brant in Izembek Bay, Alaska

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Summary

The large size of the Black Brant concentration and of the *Zostera* beds in Izembek Bay is noted, together with the timing of the concentration. Low breeding success in part of the nesting grounds prompted inauguration of population studies in Izembek Bay with age group counts, the results of which are presented.

The largest concentration of the Black Brant (*Branta bernicla orientalis* Tougarinov) of eastern Asia and western North America occurs for approximately eight weeks during the fall season in a large lagoon named Izembek Bay, located on the north coast of the Alaska Peninsula near its western extremity. This body of water is shallow, characterized by mud and sand bars exposed at low tide, and extensive beds of the angiosperm *Zostera*, known as eelgrass. The lagoon opens through three gaps between enclosing spits and barrier islands into Bering Sea.

That nearly the whole of the Brant population, along with significant numbers of other waterfowl, concentrate in this lagoon each fall before resuming their south-bound migration is owing to the very large extent of the *Zostera* beds. It is only in Izembek Bay where the very large food requirement of this substantial segment of the Pacific Flyway waterfowl can be met. The average date of arrival from the nesting grounds is 25th August, with departure in an avalanche migration following this by about eight weeks. The precise timing of the southward migration depends upon the development of atmospheric pressure conditions producing favourable winds over the long flight route across the Gulf of Alaska.

Thus each year the bulk of the Black Brant population is available for study in Izembek Bay for approximately two months in fall. This year (1963) a disaster had overtaken the nesting Brant on the Clarence Rhode National Wildlife Range in June in the form of a 'storm tide' (King, 1963). A storm moving across Bering Sea had coincided with spring tides, raising the height of high water to flood the all-important zone occupied by nesting Brant just above mean high water. 'Extensive windrows of debris consisting of huge logs, sticks, thousands of eggs, and downy Brant covered the drift line above the level of the nesting flats' (FWS, 1963). Heavy damage was done to production in this part of the Brant nesting grounds. This prompted a decision to conduct age group counts as a first step in population studies on the Izembek National Wildlife Range.

The count was made in late October, it was in fact begun the very day the southward migration was inaugurated. The effort required just over two weeks as not every day proved rewarding, for storm conditions intervened, and in some cases the birds did not approach the observer closely enough for age determination. Good counts were secured on four days when 5,211 Brant were observed at close range and tallied according to whether they were in first year or adult plumage. First year birds were distinguished by the presence of white edgings to the wing coverts. Other juvenile characteristics, such as the absence of a white neck ring, or the dull black appearance of the plumage as contrasted with the shiny black of the adult, change during the time spent in Izembek Bay and are not considered reliable guides for this purpose.

A good quality 20 power telescope, known to us as a 'spotting scope', was employed mounted on a tripod, leaving the observer's hands free to manipulate a Veeder-Root counter in each hand. The habit of Brant to swim steadily on a fairly definite course when feeding on *Zostera* leaves that are floating free in the water was helpful in conducting the counts. The course of a flock of birds approaching on the water could be anticipated and the telescope swivelled so that a swimming line of birds could be closely observed for plumage characteristics. Birds grazing on an exposed bar, while walking ahead steadily, tended to be more concentrated, hence more difficult to tally. No flying birds were included in the count, but all swimming or walking birds, whether in large or small flocks, that approached the observer closely enough for accurate determination of plumage characteristics were counted.

The counts recorded for the first two days are based on observations made along a half mile strip of beach four miles south-south-east of Grant Point in the part of Izembek Bay known as Applegate Cove. The counts for the last two days were recorded from a point jutting into the Bay two and a half miles east of Grant Point. The effective separation of the two areas over the route taken by flying Brant was

approximately seven miles. These observation points were chosen because of their being free of interference from waterfowl hunters, hence the Brant approached the shore more closely.

The counts are presented as they were recorded, illustrating the size flocks observed. The reader will note the very much larger size of flocks recorded on the final day of the count. This disparity resulted from changes in the tide: on 28th the tide was low while the counts were in progress and the birds were grazing on exposed bars in large, dense flocks.

The sharp difference in percentages of first year birds in the two areas suggests the existence of a regional distribution in the Bay that is, perhaps, a reflection of nesting ground distribution. The movements of Brant in the Bay are so large and continuous as to obfuscate the detection of such a fact prior to completion of this count. Unfortunately, counts were unsuccessful when attempted in other parts of the Bay, for various reasons, nor do we have family size counts. These shortcomings will be remedied, for since nearly the whole of the Black Brant population is available on the Izembek National Wildlife Range a sample taken here on a broad enough base can be expected to furnish the most reliable index possible for this species.

The counts herein presented are surprisingly high in view of the forecast of little or no Black Brant production on the Clarence Rhode Range (FWS, 1963). The implication suggests that production in other nesting areas was high enough to offset this complete loss. If a regional distribution of Brant corresponding to nesting distribution can be demonstrated in Izembek Bay the disparity in production success of the various segments of the population should emerge here also.

date	*number of Brant in flock*	*number of first year Brant*	*percentage of first year Brant*
23 October	94	16	
	125	20	
	136	15	
	124	9	
	205	26	
	38	12	
	79	15	
	140	58	
	151	16	
	1,092	187	17
24 October	213	34	
	346	40	
	52	11	
	313	82	
	31	8	
	251	55	
	1,206	230	19
25 October	304	117	
	48	13	
	150	61	
	513	117	
	58	17	
	111	35	
	47	13	
	84	25	
	1,315	**398**	**30**
28 October	818	239	
	193	36	
	587	153	
	1,598	428	**26**
Total	**5,211**	**1,243**	**23**

References

FISH AND WILDLIFE SERVICE, BUREAU OF SPORT FISHERIES AND WILDLIFE, WATERFOWL STATUS REPORT, 1963. SPECIAL SCIENTIFIC REPORT – WILDLIFE No. 75, pp. 13-16 (relevant data supplied by Ray Woolford; Henry A. Hansen; Peter E. K. Shephard).

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