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21 June 2010

MEMORANDUM TO:

Atlantic and Mississippi Flyway Co-operators

SUBJECT: 2010 Spring Population Estimates for SJBP Canada Geese.

The following are preliminary results of the 2010 Spring Population Survey for Southern James Bay Population (SJBP) Canada geese. The survey was flown using the OMNR Twin Otter on 13 to 15 May under good to excellent weather conditions with Akimiski Island being surveyed on 14 May. A preliminary assessment from the nesting ecology study on Akimiski Island showed relatively higher nest densities, average to above average clutch sizes but poorer nesting success relative to recent years.

Spring phenology was early in 2010 compared to the long-term and short-term (5-year) average. There was a below average snow pack on SJBP range last winter and April and May were characterized by mostly above average temperatures with a record early melt which is in stark contrast to 2009. Early years are generally associated with above average productivity and this may be the case for the mainland but preliminary observations from the Akimiski Island nesting ecology study suggest that 2010 will be a below average productivity year due to above average egg depredation. Peak hatch was protracted from about 26 to 31 May suggesting that the survey was flown in about the second week of incubation on Akimiski Island which is ideal timing.

With the completion of the SJBP management plan (Abraham et al. 2008), it was decided to use the number of breeding birds (Indicated Pairs X 2) as one of the metrics (among other indicators such as trend and annual change) to measure population status. The estimated number of indicated breeding birds (Table 1) for Akimiski Island (Fig. 1) and the mainland (Fig. 2) were similar to those from 2006 to 2008. Similarly, the estimate of indicated breeding birds for Akimiski Island and the mainland combined (Table 1: 76,355 SE = 9,711) was not significantly different from 2009 (Fig. 3) and was well above the threshold level of 50,000 birds. The total population estimate (Fig. 4, Table 1: 87,270, 95% CL = 66,864 – 107,676) was above that in 2009 but not significantly so. There were roughly average numbers of non-breeding or flocked birds observed, but more than in 2009.

To estimate change in the breeding population from previous years, we averaged the number of indicated breeding pairs for each transect for the previous 5 years (2004 to 2009 excluding 2005 because of issues concerning survey timing that year (Walton and Hughes 2005)). We used a repeated measures regression analysis at the transect level to compare transects for Akimiski Island

and the mainland separately. Model fit was adequate for both locations ($\chi^2_{DF} < 1.8$) using a negative binomial distribution and an auto-regressive covariance structure. There was no significant change detected when comparing indicated breeding pair numbers between 2010 and the previous 5-year average on Akimiski Island (effect size = -0.06, SE = 0.066, 95% CI = -0.189 to 0.070, P = 0.80) or for the mainland (effect size = 0.039, SE = 0.133, 95% CI = -0.221 to 0.300, P = 0.77).

Please contact us if you have any questions about the survey or the results.

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Literature Cited

Abraham, K., W.A. Phelps and J. C. Davies. 2008. A management plan for the southern James Bay population of Canada Geese. Mississippi Flyway Technical Committee, Southern James Bay Population, 49pp.

Walton, L. R. and J. Hughes. 2005. 2005 Spring Populations Estimates for SJBP Canada Geese. Ontario Ministry of Natural Resources and Canadian Wildlife Service, Unpublished Report. 5 pp.

Table 1. Spring Breeding Grounds Survey of SJBP Canada Geese 2010.

Stratum	Area (km ²)	N	Breeding Birds ¹		Non-Breeders		Total Geese ²		
I	120	4	1,982	(784) ³	412	(278)	2,394	(1,054)	
II	2,924	24	11,667	(1,850)	3,616	(1,089)	15,283	(2,588)	
III	65,671 ⁴	50	61,048	(9,492)	6,252	(3,048)	67,300	(10,018)	
IV	585	4	1,638	(401)	655	(378)	2,293	(482)	
Total	69,300	82	76,335	(9,711)	10,935	(3,268)	87,270	(10,411)	
							95% C.I.	66,864 – 107,676	

¹ All values in the table have been corrected using a visibility correction factor of 1.4X. Breeding birds = Indicated Breeding Pairs X 2.

² Total Geese = (Indicated Breeding Pairs X 2) + Non-Breeders.

³ Standard errors in parentheses.

⁴ Starting in 2007, the area surveyed is 20,000 km² smaller than in previous years.

Figure 1. Annual comparison of the estimated population of indicated breeding birds (IBP X 2) of Southern James Bay Canada geese counted in spring on Akimiski Island, NU, 1990 to 2010. Estimates are corrected for visibility (1.4X).

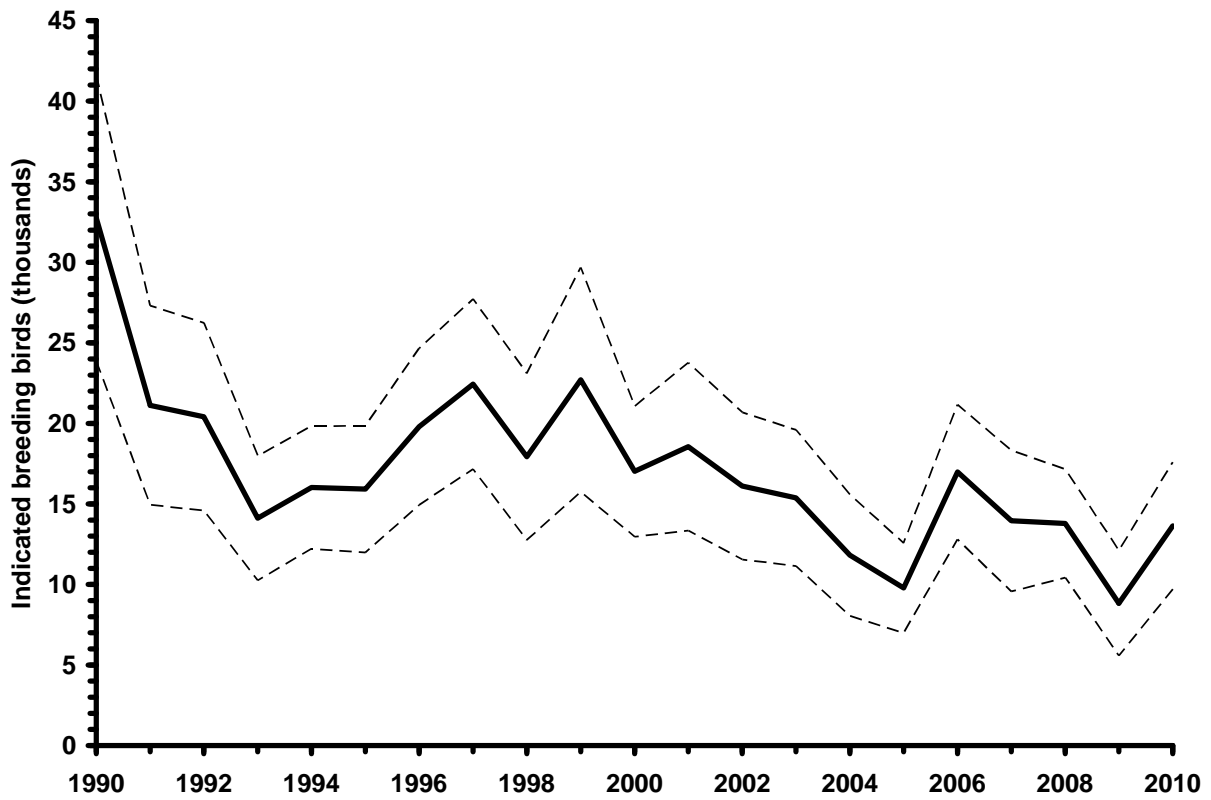


Figure 2. Annual comparison of the estimated population of indicated breeding birds (IBP X 2) of Southern James Bay Canada geese counted in spring on the mainland, 1990 to 2010. Estimates are corrected for visibility (1.4X). The 2005 spring population survey was flown late in the nesting period and perhaps even during the first few days of hatch in Stratum III. Hence, the results from 2005 are considered to be a substantial underestimate, particularly for Stratum III (see Walton and Hughes. 2005 SJBP Spring Survey Memo for more details).



Figure 3. Annual comparison of the estimated population of indicated breeding birds (IBP X 2) of Southern James Bay Canada geese counted in spring on the Hudson Bay Lowland mainland, and Akimiski Island, NU, together, 1990 to 2010. Estimates are corrected for visibility (1.4X). The 2005 spring population survey was flown late in the nesting period and perhaps even during the first few days of hatch in Stratum III. Hence, the results from 2005 are considered to be a substantial underestimate, particularly for Stratum III (see Walton and Hughes. 2005 SJBP Spring Survey Memo for more details).

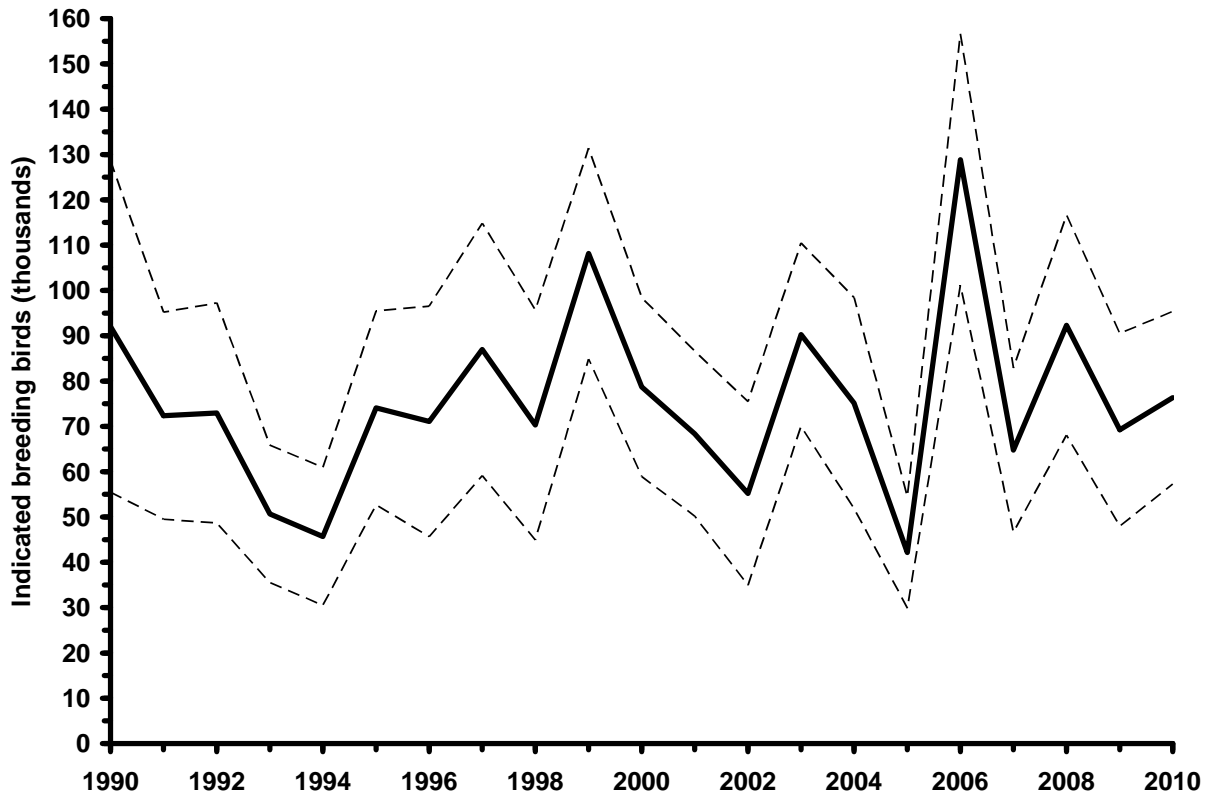


Figure 4. Annual comparison of the total estimated population of Southern James Bay Canada geese counted in spring on the Hudson Bay Lowland mainland, and on Akimiski Island, NU, together, 1990 to 2010. Estimates are corrected for visibility (1.4X). The 2005 spring population survey was flown late in the nesting period and perhaps even during the first few days of hatch in Stratum III. Hence, the results from 2005 are considered to be a substantial underestimate, particularly for Stratum III (see Walton and Hughes. 2005 SJBP Spring Survey Memo for more details).

