

Improving population estimates of threatened spectacled eiders: correcting aerial counts for visibility bias

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Table S1. Comparison of model fit (mean error [ME], root-mean-square error [RMS], and RMS + ME) for spatial interpolation models of Spectacled Eider nest density (nests/km²) across the central portion of the Yukon-Kuskokwim Delta for each of two time periods: 1988–1994 and 1995–2015. Shown are results for untransformed and log-transformed nest density data for ordinary kriging, kernel smoothing, radial basis function, and inverse distance weighted models. Models were cross-validated using 10% of the data and ranked in order of their RMS + ME, with the best-fitting model having the lowest RMS + ME. For both time periods, the log-transformed ordinary kriging model was the highest ranked model.

Model	Log-transformed	Mean error (ME)	Root-mean-square (RMS)	RMS+ME
1988–1994				
Ordinary kriging	Yes	0.005	0.395	0.400
Kernel smoothing	Yes	0.003	0.399	0.402
Inverse distance weighted	Yes	0.033	0.421	0.454
Ordinary kriging	No	0.015	1.289	1.304
Kernel smoothing	No	0.008	1.298	1.306
Radial basis function	No	0.029	1.338	1.367
Radial basis function	Yes	0.029	1.338	1.367
Inverse distance weighted	No	0.095	1.407	1.502
1995–2015				
Ordinary kriging	Yes	0.006	0.578	0.584
Radial basis function	Yes	0.008	0.585	0.593
Kernel smoothing	Yes	0.025	0.585	0.610
Inverse distance weighted	Yes	0.007	0.607	0.614
Ordinary kriging	No	0.018	2.142	2.160
Radial basis function	No	0.019	2.172	2.191
Inverse distance weighted	No	0.018	2.227	2.245
Kernel smoothing	No	0.080	2.166	2.246

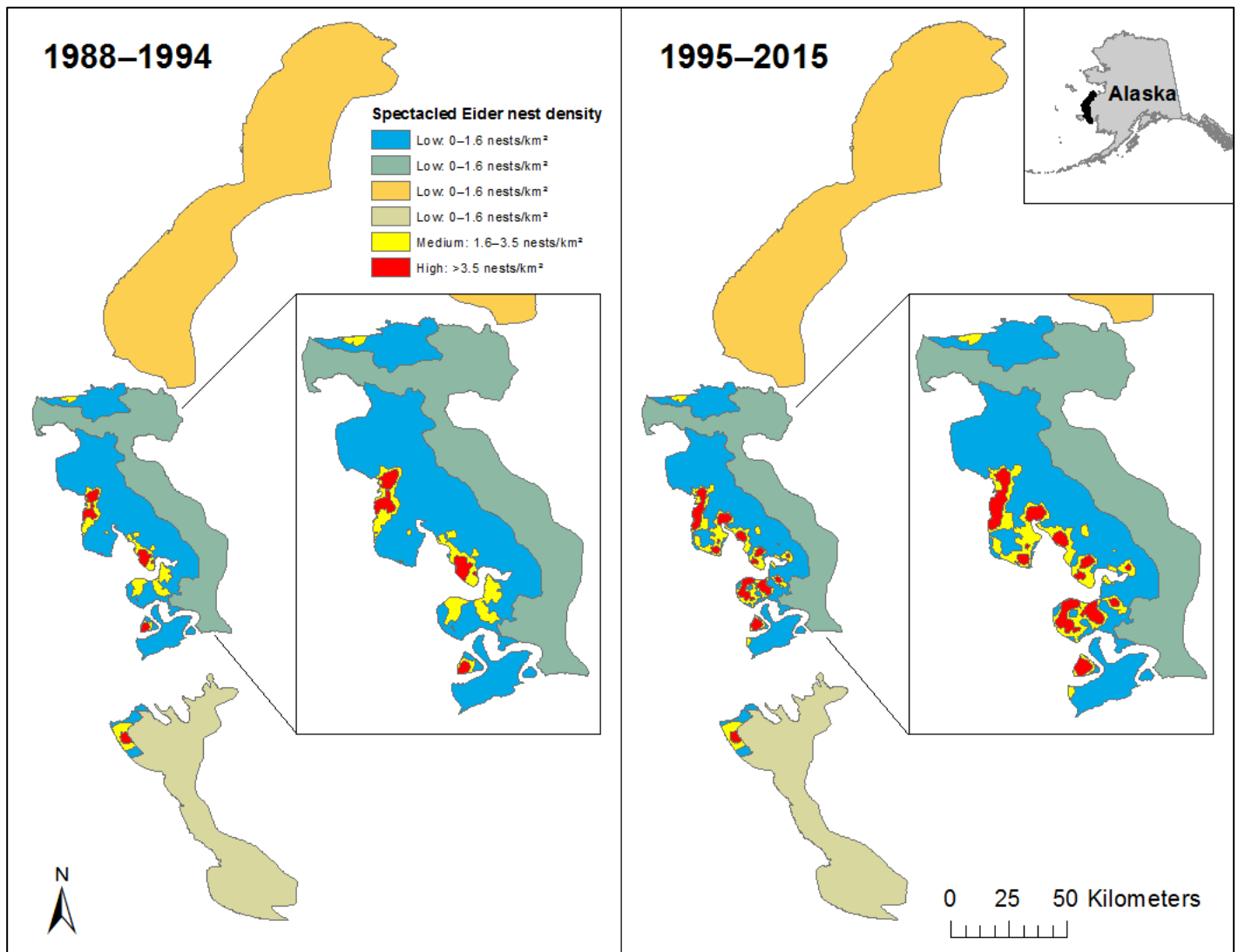


Figure S1. Maps of the Yukon-Kuskokwim Delta, Alaska, showing the 6 strata used to estimate populations of breeding Spectacled Eiders. Strata reflect densities of nesting Spectacled Eiders for two time periods (1988–1994; 1995–2015) and are identical to the kriging stratifications shown in Fig. 3, with the exception that the low-density stratum was further divided into 4 strata.