

Appendix 1: Redistribution of wintering American Common Eiders (*Somateria mollissima dresseri*)
 Gutowsky SE, Robertson GJ, Mallory ML, McLellan NR, Gilliland SG

Appendix 1: Model results from GLMs with negative binomial distributions and year (trend) effects for Christmas Bird Count (CBC) circles meeting model filtering criteria for the period 1980-1999. Models were run independently for each circle (identified by CBC circle name abbreviation, ‘Abbrev’) with R package ‘MASS’ (Venables and Ripley 2002). We report the beta regression coefficient for year (β), with standard error (SE), the Z-statistic and *p*-value. θ is the dispersion parameter of the negative binomial distribution, reflecting a measure of overdispersion with respect to the Poisson distribution, reported with SE. Smaller values of θ correspond to higher variance and more overdispersion, where variance = $\mu + \mu^2/\theta$. λ was calculated from the year β regression coefficient on the response scale (i.e., exponentiated, where $\lambda = e^\beta$), reported with 95% confidence intervals ([lower confidence limit (lcl), upper confidence limit (ucl)]). Circles are ordered by descending latitude within regions. Region acronyms reflect provinces and states (NS – Nova Scotia, NB – New Brunswick, ME – Maine, NH – New Hampshire, MA – Massachusetts, RI – Rhode Island, CT – Connecticut, NY – New York, NJ – New Jersey, DE – Delaware, MD – Maryland, VA - Virginia) with the exception of GSL (Gulf of St. Lawrence) and SE NL (Southeast Newfoundland, eastward and inclusive of St. Pierre and Miquelon, France).

region	Abbrev	Lat	Lon	$\beta \pm SE$	Z	<i>p</i>	$\theta \pm SE$	λ [lcl, ucl]
GSL	QCFO	48.82	-64.29	0.01 ± 0.03	0.34	0.73	2.38 ± 0.75	1.01 [0.96, 1.06]
GSL	QCPE	48.53	-64.33	0.14 ± 0.05	3.01	0.00	0.81 ± 0.23	1.15 [1.04, 1.27]
GSL	NBIL	47.81	-64.63	0.02 ± 0.07	0.31	0.75	0.35 ± 0.11	1.02 [0.90, 1.16]
GSL	NBCT	46.12	-63.92	0.03 ± 0.03	1.10	0.27	1.78 ± 0.56	1.03 [0.97, 1.10]
SE NL	NLSJ	47.58	-52.72	-0.07 ± 0.04	-1.84	0.07	1.00 ± 0.29	0.93 [0.86, 1.01]
SE NL	FRPM	47.02	-56.30	0.05 ± 0.03	1.54	0.12	1.85 ± 0.59	1.05 [0.98, 1.12]
SE NL	NLCS	46.87	-54.08	-0.04 ± 0.02	-1.67	0.09	3.16 ± 1.03	0.96 [0.93, 1.00]
SE NL	NLCR	46.74	-53.12	-0.05 ± 0.03	-1.92	0.06	2.03 ± 0.63	0.95 [0.89, 1.01]
NS	NSKI	44.99	-64.95	0.03 ± 0.04	0.73	0.47	0.83 ± 0.28	1.03 [0.96, 1.12]
NS	NSBI	44.27	-66.49	-0.03 ± 0.03	-1.30	0.19	2.21 ± 0.66	0.97 [0.91, 1.02]
NS	NSBC	44.23	-64.45	0.02 ± 0.03	0.76	0.45	1.66 ± 0.48	1.02 [0.97, 1.08]
NS	NSYA	43.83	-66.09	0.01 ± 0.04	0.33	0.74	1.82 ± 0.72	1.01 [0.95, 1.09]
NS	NSPH	43.77	-64.97	0.01 ± 0.02	0.62	0.53	3.01 ± 0.92	1.01 [0.97, 1.06]
NB	NBSA	45.18	-67.07	0.03 ± 0.02	1.62	0.11	3.97 ± 1.25	1.03 [0.99, 1.08]
NB	NB05	45.15	-66.45	0.13 ± 0.06	2.36	0.02	0.49 ± 0.15	1.14 [1.02, 1.26]
NB	NBBH	45.05	-66.79	0.23 ± 0.06	4.18	0.00	0.49 ± 0.14	1.26 [1.06, 1.52]
NB	NBGM	44.68	-66.80	0.05 ± 0.03	2.16	0.03	2.35 ± 0.71	1.06 [1.01, 1.11]

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ME	MEMB	44.67	-67.33	0.04 ± 0.05	0.86	0.39	1.30 ± 0.45	1.04 [0.96, 1.12]
ME	MEMJ	44.54	-67.65	0.08 ± 0.05	1.63	0.10	1.14 ± 0.38	1.09 [0.99, 1.20]
ME	MESP	44.43	-68.11	0.02 ± 0.03	0.83	0.41	1.77 ± 0.52	1.02 [0.96, 1.09]
ME	MEMD	44.34	-68.31	0.04 ± 0.02	2.32	0.02	6.47 ± 2.00	1.04 [1.01, 1.07]
ME	METR	44.08	-69.17	-0.06 ± 0.03	-2.13	0.03	1.66 ± 0.48	0.94 [0.87, 1.02]
ME	MEMI	43.76	-69.32	0.01 ± 0.05	0.18	0.86	1.24 ± 0.42	1.01 [0.88, 1.16]
ME	MEPA	43.59	-70.22	0 ± 0.03	-0.05	0.96	2.11 ± 0.62	1.00 [0.94, 1.06]
ME	MEBK	43.44	-70.48	0.11 ± 0.02	4.41	0.00	2.61 ± 0.78	1.11 [1.06, 1.17]
ME	MEYC	43.18	-70.62	0 ± 0.02	-0.01	0.99	4.37 ± 1.34	1.00 [0.96, 1.04]
NH + MA	NHCS	42.98	-70.83	0.09 ± 0.03	2.91	0.00	1.51 ± 0.46	1.10 [1.03, 1.17]
NH + MA	MANE	42.72	-70.90	0.12 ± 0.03	3.51	0.00	1.37 ± 0.40	1.12 [1.06, 1.19]
NH + MA	MACA	42.61	-70.73	0.16 ± 0.04	4.29	0.00	1.10 ± 0.31	1.17 [1.07, 1.28]
NH + MA	MAGB	42.40	-71.10	-0.01 ± 0.03	-0.32	0.75	1.77 ± 0.52	0.99 [0.94, 1.05]
NH + MA	MAQU	42.22	-70.93	0.05 ± 0.02	2.37	0.02	3.62 ± 1.10	1.05 [1.01, 1.09]
NH + MA	MAMA	42.10	-70.65	-0.09 ± 0.01	-7.28	0.00	9.18 ± 2.85	0.91 [0.89, 0.94]
NH + MA	MAPL	41.87	-70.60	-0.05 ± 0.02	-2.08	0.04	2.84 ± 0.87	0.95 [0.91, 0.99]
NH + MA	MACC	41.72	-70.00	-0.03 ± 0.03	-0.95	0.34	1.67 ± 0.49	0.97 [0.91, 1.03]
NH + MA	MAMC	41.70	-70.30	0.01 ± 0.03	0.22	0.83	2.38 ± 0.73	1.01 [0.95, 1.07]
NH + MA	MABB	41.65	-70.62	0.12 ± 0.04	2.84	0.00	0.90 ± 0.25	1.12 [1.03, 1.22]
NH + MA	MANF	41.60	-70.87	0.13 ± 0.07	1.83	0.07	0.31 ± 0.08	1.14 [0.99, 1.30]
NH + MA	MAMV	41.36	-70.52	0.06 ± 0.03	2.04	0.04	1.71 ± 0.50	1.06 [1.01, 1.12]
NH + MA	MANA	41.29	-70.09	-0.03 ± 0.04	-0.84	0.40	1.02 ± 0.28	0.97 [0.91, 1.04]
NH + MA	MATI	41.27	-70.35	-0.17 ± 0.07	-2.58	0.01	0.39 ± 0.11	0.84 [0.75, 0.96]
RI + CT + NY	RINC	41.54	-71.16	0.24 ± 0.05	5.13	0.00	0.71 ± 0.19	1.27 [1.16, 1.38]
RI + CT + NY	RISK	41.43	-71.56	0.36 ± 0.06	6.11	0.00	0.45 ± 0.12	1.43 [1.28, 1.60]
RI + CT + NY	RIBI	41.21	-71.57	0.33 ± 0.08	3.93	0.00	0.23 ± 0.07	1.4 [1.20, 1.59]
RI + CT + NY	NYMK	41.05	-72.00	0.34 ± 0.06	5.89	0.00	0.45 ± 0.13	1.41 [1.26, 1.56]