APPENDIX 1

Significance of factors affecting movement rates (targets/h) and groundspeed velocity (km/h) of radar targets that we know or believe were eiders ("eiders") migrating near Barrow, northern Alaska, August–September 1997 and 2000. Models examined the effects of the factors period, time of day, session visibility, wind direction (relative wind direction for airspeed), and wind strength. For each response variable, these models have a cumulative Akaike Weight of ≥90%.

Response variable	Model	RSS[a]	*n*	K[b]	AICc[c]	ΔAICc[d]	w_i[e]
Movement rate	Visibility, wind direction, wind strength, wind direction*wind strength	1,117.3	393	8	427.00	0.00	0.373
	Time of day, visibility, wind direction, wind strength, wind direction*wind strength	1,115.9	393	9	428.59	1.59	0.169
	Time of day, visibility, wind direction, wind strength, time of day*wind direction, wind direction*wind strength	1,105.6	393	11	429.18	2.18	0.126
	Time of day, visibility, wind direction, wind strength, time of day*visibility, wind direction*wind strength	1,113.5	393	10	429.86	2.86	0.089
	Time of day visibility, wind direction, wind strength, time of day*visibility, time of day*wind direction, wind direction*wind strength	1,102.5	393	12	430.21	3.21	0.075
	Visibility, wind direction, wind strength, visibility*wind direction, wind direction*wind strength	1,116.0	393	10	430.75	3.74	0.057
	Time of day, visibility, wind direction, wind strength, visibility*wind direction, wind direction*wind strength	1,114.4	393	11	432.31	5.31	0.026

Appendix 1. Continued.

Response variable	Model	RSS[a]	*n*	K[b]	AICc[c]	ΔAICc[d]	w_i[e]
Velocity	Time of day, visibility, wind direction, wind strength, time of day*visibility, time of day*wind direction, wind direction*wind strength	24,814.1	819	12	2,818.06	0.00	0.217
	Time of day, visibility, wind direction, wind strength, wind direction*wind strength	25,022.7	819	9	2,818.76	0.69	0.153
	Time of day, visibility, wind direction, wind strength, time of day*wind direction, wind direction*wind strength	24,899.5	819	11	2,818.82	0.75	0.149
	Time of day, visibility, wind direction, wind strength, time of day*visibility, wind direction*wind strength	24,962.3	819	10	2,818.83	0.76	0.148
	Time of day, visibility, wind direction, wind strength, time of day*visibility, visibility*wind direction, wind direction*wind strength	24,870.6	819	12	2,819.93	1.86	0.085
	Time of day, visibility, wind direction, wind strength, time of day*visibility, time of day*wind direction, visibility*wind direction, wind direction*wind strength	24,750.6	819	14	2,820.10	2.04	0.078
	Time of day, visibility, wind direction, wind strength, visibility*wind direction, wind direction*wind strength	24,969.5	819	11	2,821.12	3.05	0.047
	Time of day, wind direction, wind strength, wind direction*wind strength	25,182.3	819	8	2,821.92	3.85	0.032

[a] Residual Sum of Squares.
[b] Number of estimable parameters in the approximating model.
[c] Akaike's Information Criterion corrected for small sample size.
[d] Difference in value between AIC_c of the current model and that of the best approximating model ($AIC_{c\ min}$).
[e] Akaike Weight—the probability that the current model (*i*) is the best approximating model among those considered.

APPENDIX 2

Model-weighted parameter estimates for factors affecting movement rates and airspeed of radar targets that we know or believe were eiders ("eiders") and flock size and flight altitude of visually identified eider flocks migrating near Barrow, northern Alaska, August–September 1997 and 2000. Models for flock size and flight altitude examined the effects of only wind direction and wind strength.

Response variable	Model parameter	Estimate	SE	*P*
Movement rate	Intercept	0.562	0.407	0.167
	Daytime	–0.061	0.387	0.874
	Visibility good	0.826	0.368	0.025
	Crosswind	–1.591	0.452	<0.001
	Headwind	–0.931	0.448	0.038
	Wind strong	–0.471	0.246	0.056
	Daytime/visibility good	0.649	0.678	0.338
	Daytime/crosswind	0.983	0.642	0.126
	Daytime/headwind	–0.410	0.541	0.449
	Visibility good/crosswind	–0.414	0.749	0.580
	Visibility good/headwind	–0.461	0.880	0.601
	Crosswind/wind strong	1.297	0.453	0.004
	Headwind/wind strong	–0.466	0.410	0.256
Velocity	Intercept	44.447	1.423	<0.001
	Daytime	1.081	1.313	0.410
	Visibility good	3.597	1.448	0.013
	Crosswind	2.074	1.873	0.268
	Headwind	–0.319	1.897	0.867
	Wind strong	3.143	0.442	<0.001
	Daytime/visibility good	–3.210	1.998	0.108
	Daytime/crosswind	–2.527	2.508	0.314
	Daytime/headwind	–2.421	1.294	0.061
	Visibility good/crosswind	–1.332	1.506	0.377
	Visibility good/headwind	–5.076	4.059	0.211
	Crosswind/wind strong	–0.075	0.989	0.940
	Headwind/wind strong	–5.323	1.071	<0.001
Flock size	Intercept	3.610	0.132	<0.001
	Crosswind	0.970	0.205	<0.001
	Headwind	–0.072	0.254	0.776
	Wind strong	0.351	0.183	0.056
	Crosswind/wind strong	0.429	0.430	0.318
	Headwind/wind strong	–0.214	0.479	0.655
Flight altitude	Intercept	2.275	0.095	<0.001
	Crosswind	–0.289	0.162	0.074
	Headwind	–0.607	0.213	0.004
	Wind strong	0.128	0.155	0.408
	Crosswind/wind strong	–0.547	0.329	0.097
	Headwind/wind strong	–0.755	0.395	0.056

APPENDIX 3

Sum of Akaike Weights (Σw_i) for the model parameters in candidate models for each response variable. Not all parameters were used in all models for a response variable.

	Response variable			
Model parameter	**Movement rate**	**Velocity**	**Flock size**	**Flight altitude**
Time of day	0.550	0.962	–	–
Visibility	0.978	0.941	–	–
Wind direction	1.000	1.000	1.000	0.999
Wind strength	0.994	1.000	0.799	0.489
Time of day*visibility	0.193	0.528	–	–
Time of day*wind direction	0.241	0.497	–	–
Visibility*wind direction	0.132	0.251	–	–
Wind direction*wind strength	0.982	1.000	0.162	0.309

APPENDIX 4

Significance of factors affecting flock size and flight altitude of visually identified eider flocks migrating near Barrow, northern Alaska, August–September 1997 and 2000. Models examined the effects of the factors wind direction and wind strength. For each response variable, these models have a cumulative Akaike Weight of ≥90%.

Response variable	Model	RSS[a]	*n*	K[b]	AICc[c]	ΔAICc[d]	w_i[e]
Flock size	Wind direction, wind strength	269.0	198	5	70.99	0.00	0.637
	Wind direction	275.1	198	4	73.31	2.31	0.201
	Wind direction, wind strength, wind direction*wind strength	266.9	198	7	73.73	2.74	0.162
Flight altitude	Wind direction	143.8	187	4	–40.85	0.00	0.511
	Wind direction, wind strength, wind direction*wind strength	139.7	187	7	–39.85	1.00	0.309
	Wind direction, wind strength	143.8	187	5	–38.75	2.10	0.179

[a] Residual Sum of Squares.
[b] Number of estimable parameters in the approximating model.
[c] Akaike's Information Criterion corrected for small sample size.
[d] Difference in value between AIC_c of the current model and that of the best approximating model ($AIC_{c\ min}$).
[e] Akaike Weight—the probability that the current model (*i*) is the best approximating model among those considered.