

Supporting Materials

Diet, body condition and seasonal stress in American Black Duck
Anas rubripes and Mallard *Anas platyrhynchos* on Long Island,
New York, during winter

Table S1. Parameter estimates ($\hat{\theta}$), standard errors (s.e.), and 95% confidence intervals (C.I.) derived from candidate models ($\Delta AIC \leq 2$) of $\delta^{13}C$, $\delta^{15}N$, mass, PCV and H/L ratios for American Black Duck and Mallard wintering on Long Island, New York, January–March 2018 and 2019.

Response ^a	Parameter	$\pm$ s.e.	95% C.I.
$\delta^{13}C$	Intercept	−18.350 $\pm$ 0.709	−19.747 to −16.953
	MALL $\times$ date	0.125 $\pm$ 0.030	0.066 to 0.184
	MALL $\times$ sex $\times$ age (F ASY)	−5.938 $\pm$ 1.573	−9.036 to −2.841
	MALL $\times$ sex $\times$ age (F SY)	−6.468 $\pm$ 1.366	−9.157 to −3.778
	MALL $\times$ sex $\times$ age (M ASY)	−5.975 $\pm$ 1.326	−8.586 to −3.365
	MALL $\times$ sex $\times$ age (M SY)	−5.451 $\pm$ 1.406	−8.220 to −2.862
	ABDU $\times$ coastal $\times$ sex $\times$ age (F ASY)	4.106 $\pm$ 1.090	1.960 to 6.253
	ABDU $\times$ coastal $\times$ sex $\times$ age (F SY)	2.845 $\pm$ 1.933	−0.963 to 6.653
	ABDU $\times$ coastal $\times$ sex $\times$ age (M ASY)	3.719 $\pm$ 0.961	1.826 to 5.611
	ABDU $\times$ coastal $\times$ sex $\times$ age (M SY)	3.142 $\pm$ 1.358	0.469 to 5.816
	date $\times$ ABDU $\times$ coastal	−0.132 $\pm$ 0.027	−0.184 to −0.079
	sex $\times$ age (F ASY)	−1.455 $\pm$ 0.545	−2.528 to −0.382
	sex $\times$ age (F SY)	−0.562 $\pm$ 0.557	−1.659 to 0.536

Table S1 (continued).

Response ^a	Parameter	± s.e.	95% C.I.
$\delta^{15}\text{N}$	sex × age (M ASY)	−0.883 ± 0.514	−1.895 to 0.129
	date × year (1)	−0.883 ± 0.514	−0.037 to 0.039
	date × year (2)−0.883 ± 0.514	0.149 ± 0.20	0.111 to 0.187
	year (1)	2.763 ± 0.938	0.917 to 4.610
	Intercept	9.0823 ± 0.252	8.587 to 9.579
	MALL × sex × age (F ASY)	−0.968 ± 0.547	−2.045 to 0.109
	MALL × sex × age (F SY)	−0.788 ± 0.454	−1.682 to 0.107
	MALL × sex × age (M ASY)	−1.435 ± 0.359	−2.142 to 0.727
	MALL × sex × age (M SY)	−1.469 ± 0.450	−2.355 to −0.584
	MALL × year (1)	0.357 ± 0.488	−0.604 to 1.317
	ABDU × coastal × sex × age (F ASY)	1.662 ± 0.469	0.739 to 2.585
	ABDU × coastal × sex × age (F SY)	2.917 ± 1.023	0.902 to 4.932
	ABDU × coastal × sex × age (M ASY)	1.517 ± 0.384	0.762 to 2.272
	ABDU × coastal × sex × age (M SY)	2.611 ± 0.569	1.490 to 3.732
	ABDU × coastal × year (1)	0.863 ± 0.468	−0.058 to 1.784
	sex × age (F ASY)	0.275 ± 0.322	−0.358 to 0.908
	sex × age (F SY)	−0.412 ± 0.328	−1.057 to 0.234
	sex × age (M ASY)	0.824 ± 0.302	0.230 to 1.419
	year (1)	−0.771 ± 0.216	−1.197 to −0.346
Mass	Intercept	1,256.950 ± 27.862	1,202.060 to 1,311.780
	MALL × date × year (1)	2.154 ± 1.134	−0.079 to 4.386
	MALL × date × year (2)	4.607 ± 1.407	1.836 to 7.378
	MALL × sex × age (F ASY)	−92.631 ± 62.227	−215.160 to 29.895

Table S1 (continued).

Response ^a	Parameter	± s.e.	95% C.I.
	MALL × sex × age (F SY)	−59.819 ± 55.337	−168.780 to 49.142
	MALL × sex × age (M ASY)	−52.188 ± 56.017	−162.490 to 58.112
	MALL × sex × age (M SY)	−68.250 ± 59.014	−184.450 to 47.951
	ABDU × coastal × sex × age (F ASY)	−100.90 ± 41.154	−181.940 to 19.871
	ABDU × coastal × sex × age (F SY)	−89.159 ± 73.532	−233.950 to 55.629
	ABDU × coastal × sex × age (M ASY)	−79.659 ± 37.266	−153.040 to −6.282
	ABDU × coastal × sex × age (M SY)	−140.980 ± 48.995	−201.450 to −8.504
	date × ABDU × coastal × year (1)	−0.479 ± 1.357	−3.150 to 2.193
	date × ABDU × coastal × year (2)	3.613 ± 1.032	1.582 to 5.645
	sex × age (F ASY)	−40.321 ± 23.198	−85.999 to 5.356
	sex × age (F SY)	−69.912 ± 23.8402	−116.850 to 22.969
	sex × age (M ASY)	7.323 ± 19.627	−11.323 to 65.969
	date × year (1)	−1.354 ± 0.755	−2.840 to 0.132
	date × year (2)	−4.110 ± 0.808	−5.701 to −2.518
	year (1)	−51.366 ± 37.489	−125.180 to 22.451
PVC	Intercept	50.715 ± 1.266	48.223 to 53.207
	MALL × sex × age (F ASY)	0.473 ± 2.324	−4.104 to 5.049
	MALL × sex × age (F SY)	−0.449 ± 1.927	−4.242 to 3.345
	MALL × sex × age (M ASY)	−0.249 ± 1.532	−3.266 to 2.768
	MALL × sex × age (M SY)	1.034 ± 1.9.30	−2.767 to 4.834
	MALL × year (1)	−0.501 ± 2.060	−4.558 to 3.555
	ABDU × coastal × sex × age (F ASY)	−7.446 ± 2.101	−11.584 to 3.308
	ABDU × coastal × sex × age (F SY)	−7.950 ± 4.330	−16.476 to 0.576

Table S1 (continued).

Response ^a	Parameter	± s.e.	95% C.I.
	ABDU × coastal × sex × age (M ASY)	-15.505 ± 1.697	-18.847 to -12.162
	ABDU × coastal × sex × age (M SY)	-16.774 ± 2.388	-21.476 to -12.072
	ABDU × coastal × year (1)	-1.692 ± 2.109	-5.846 to 2.463
	sex × age (F ASY)	1.221 ± 1.368	-1.472 to 3.914
	sex × age (F SY)	1.355 ± 1.404	-1.409 to 4.120
	sex × age (M ASY)	1.199 ± 1.291	-1.343 to 3.741
	date	0.077 ± 0.030	0.019 to 0.135
	year (1)	-1.302 ± 0.986	-3.243 to 0.639
	Intercept	-0.065 ± 3.301	-6.653 to 6.524
	ABDU × coastal × sex × age (F ASY)	-4.048 ± 5.333	-14.690 to 6.595
H/L	ABDU × coastal × sex × age (M ASY)	-4.022 ± 4.349	-12.703 to 4.658
	ABDU × coastal × sex × age (M SY)	0.175 ± 5.134	-10.071 to 10.421
	ABDU × coastal × date	0.132 ± 0.183	-0.233 to 0.498
	sex × age (F ASY)	-0.551 ± 2.278	-5.098 to 3.995
	sex × age (F SY)	2.042 ± 2.146	-2.240 to 6.324
	sex × age (M ASY)	-0.375 ± 2.012	-4.389 to 3.640
	date	0.150 ± 0.066	0.019 to 0.280

^aModel-averaged parameter estimates are reported for PCV and H/L ratios.

^bAbbreviations: MALL = Mallard; ABDU = American Black Duck; coastal = treatment; date = study date (January–March 2018–2019); ASY = After second year, SY = Second year, M = Male, F = Female.