

Figure S1. **Left:** Study area in southern Massachusetts, showing each sampling location (I1, I2, O3, and O4) and three MADMF bottom temperature monitor locations (open triangle: BBay Barge, black triangle: Sippewissett, grey triangle: Cleveland Ledge). **Right:** Daily mean bottom water temperatures at three MADMF Buzzards Bay locations from January 1, 2009 through December 31, 2010 (temperature data recorded bi-hourly via Onset Hobo Pendant temperature loggers). Depth for each monitor in meters. Grey vertical rectangles represent sampling time periods for this study.

Table S1. Parameter estimates for the final logistic model. The “(intercept)” represents the Region 1, season 1 (summer), 2009, and all other estimates are relative to the intercept. The p-value indicates whether the parameter estimate differs from the intercept.

Coefficients:	Estimate	Std. Error	z value	p-value
(Intercept)	-21.985	2.142	-10.265	<0.001
cl	0.287	0.028	10.316	<0.001
region2	7.771	2.764	2.812	0.005
region3	2.484	2.534	0.980	0.327
region4	-0.286	2.730	-0.105	0.917
season2	2.910	3.930	0.740	0.459
year2010	-0.195	0.356	-0.548	0.584
cl:region2	-0.107	0.036	-2.982	0.003
cl:region3	0.009	0.034	0.274	0.784
cl:region4	0.050	0.037	1.350	0.177
region2:season2	-24.843	8.174	-3.039	0.002
region3:season2	-2.918	4.884	-0.597	0.550
region4:season2	-21.817	10.903	-2.001	0.045
season2:year2010	1.349	0.331	4.072	0.000
region2:year2010	0.221	0.472	0.467	0.640
region3:year2010	-0.966	0.388	-2.487	0.013
region4:year2010	-0.754	0.431	-1.747	0.081
cl:region1:season2	-0.028	0.053	-0.534	0.594
cl:region2:season2	0.305	0.098	3.109	0.002
cl:region3:season2	0.009	0.043	0.210	0.834
cl:region4:season2	0.312	0.159	1.968	0.049

Table S2. Analysis of Variance table and coefficient estimates resulting from ANCOVA test of abdomen width (ABD) by Region and carapace length (CL).

Analysis of Variance:

	Df	Sum Sq	Mean Sq	F value	P value
Region	3	12027	4009	675.262	< 0.001
CL_mm	1	235629	235629	39689.305	< 0.001
Region:CL_mm	3	924	308	51.869	< 0.001
Residuals	3635	21580	6		

Coefficients:

	Estimate	Std. error	t value	P value
(Intercept)	-16.108	0.780	-20.651	< 0.001
Region2	1.493	1.242	1.202	0.229
Region3	-4.433	0.950	-4.666	< 0.001
Region4	-7.883	1.028	-7.667	< 0.001
CL_mm	0.838	0.010	80.368	< 0.001
Region2:CL_mm	-0.027	0.017	-1.622	0.105
Region3:CL_mm	0.085	0.013	6.710	< 0.001
Region4:CL_mm	0.131	0.014	9.662	< 0.001

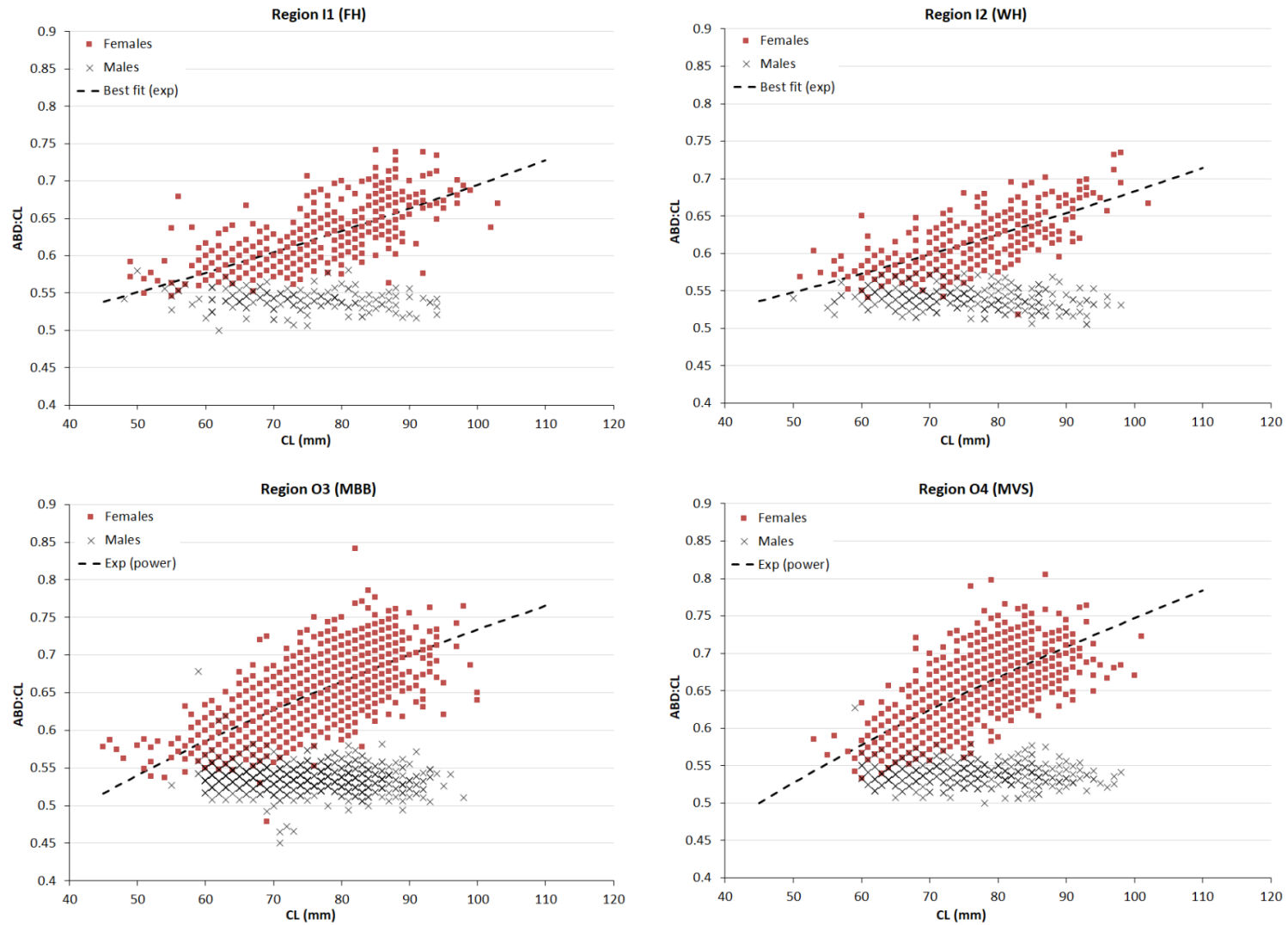


Figure S2. ABD:CL versus CL for males (x) and females (■) in each of the four regions (years combined). Dashed line (Exp) represents the best fit model for female data (see Supplemental Table S2).

Table S3. Model selection criteria (R^2 and AIC) for each of three possible models fit to female ABD:CL vs CL shown in Fig S2. Values in bold indicate the best model according to each criteria (highest R^2 and lowest AIC indicate best model fit).

		Region I1	Region I2	Region O3	Region O4
Exponential		0.548	0.521	0.513	0.522
Power	R^2	0.533	0.504	0.518	0.535
Linear		0.544	0.52	0.517	0.529
Exponential		-2234.259	-1627.793	-5986.194	-5066.413
Power	AIC	-2217.61	-1614.959	-6001.905	-5101.121
Linear		-2229.872	-1624.059	-5997.405	-5085.702

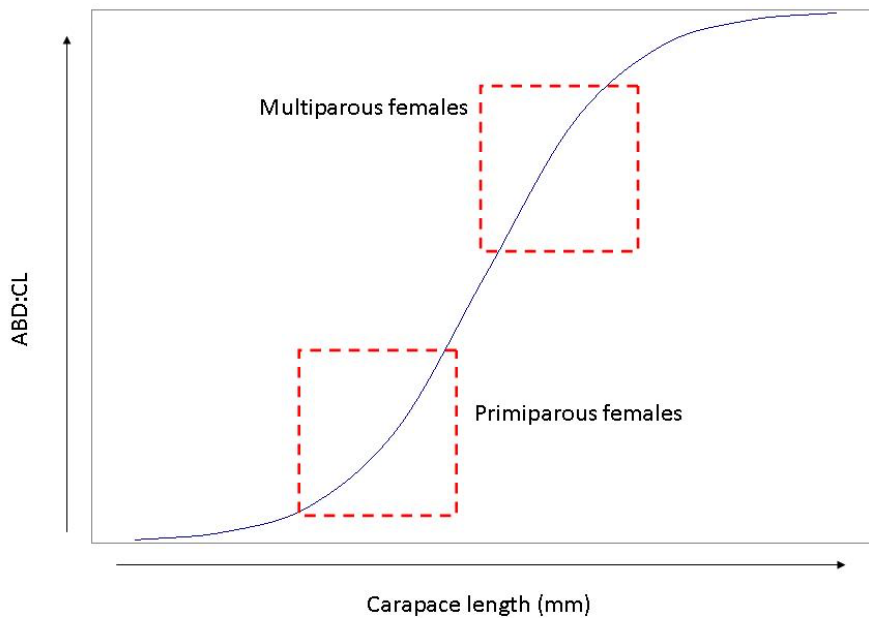


Figure S3. Illustration of the allometric growth curve for female abdominal width (as ratio ABD:CL) with increasing carapace length (CL) that begins one or two molts prior to sexual maturity (Aiken & Waddy 1980) and continues over several subsequent molts before reaching a plateau (returning to isometry, see Cadrin 1995). Dashed boxes outline hypothetical locations along the growth curve of primiparous females and multiparous females, which over a restricted size (CL) range, would appear as power or exponential functions, respectively.

References

- Aiken DE, Waddy SL (1980) Maturity and reproduction in the American lobster. Can Tech Rep Fish Aquat Sci 932:59–71
- Cadrin SX (1995) Discrimination of American lobster (*Homarus americanus*) stocks off southern New England on the basis of secondary sex character allometry. Can J Fish Aquat Sci 52:2712–2723 <https://doi.org/10.1139/f95-860>