Table S1. Raw data values of the biological variables, body condition [body condition index (BCI) and maximum half girth to length ratio (GL), physiological parameters of O₂ storage capacity [hematocrit (Hct), hemoglobin (Hb), myoglobin (Mb)] for Beaufort Sea beluga whales (n= 77). *indicates Mb concentrations from thawed samples that were not included in the data analysis.

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Table S2. Multiple linear regression models for the body condition index (BCI) based on maximum half girth and physiological parameters of O₂ storage capacity of beluga whales (n= 77) and ranked by their corresponding AIC$_c$ values. BCI was derived using residuals from the first model. Biological variables including BCI or maximum half girth to length ratio (GL) were used as predictors for models for physiological parameters of O₂ storage capacity. Δ_iAIC$_c$ is the difference between AIC$_c$ for the current model and the minimum of AIC$_c$ among all the models**.** l = log likelihood, K= number of parameters, ω_i = Akaike weight. Best models are bolded. If more than one model had ΔAICc < 2, the most parsimonious model was considered best.
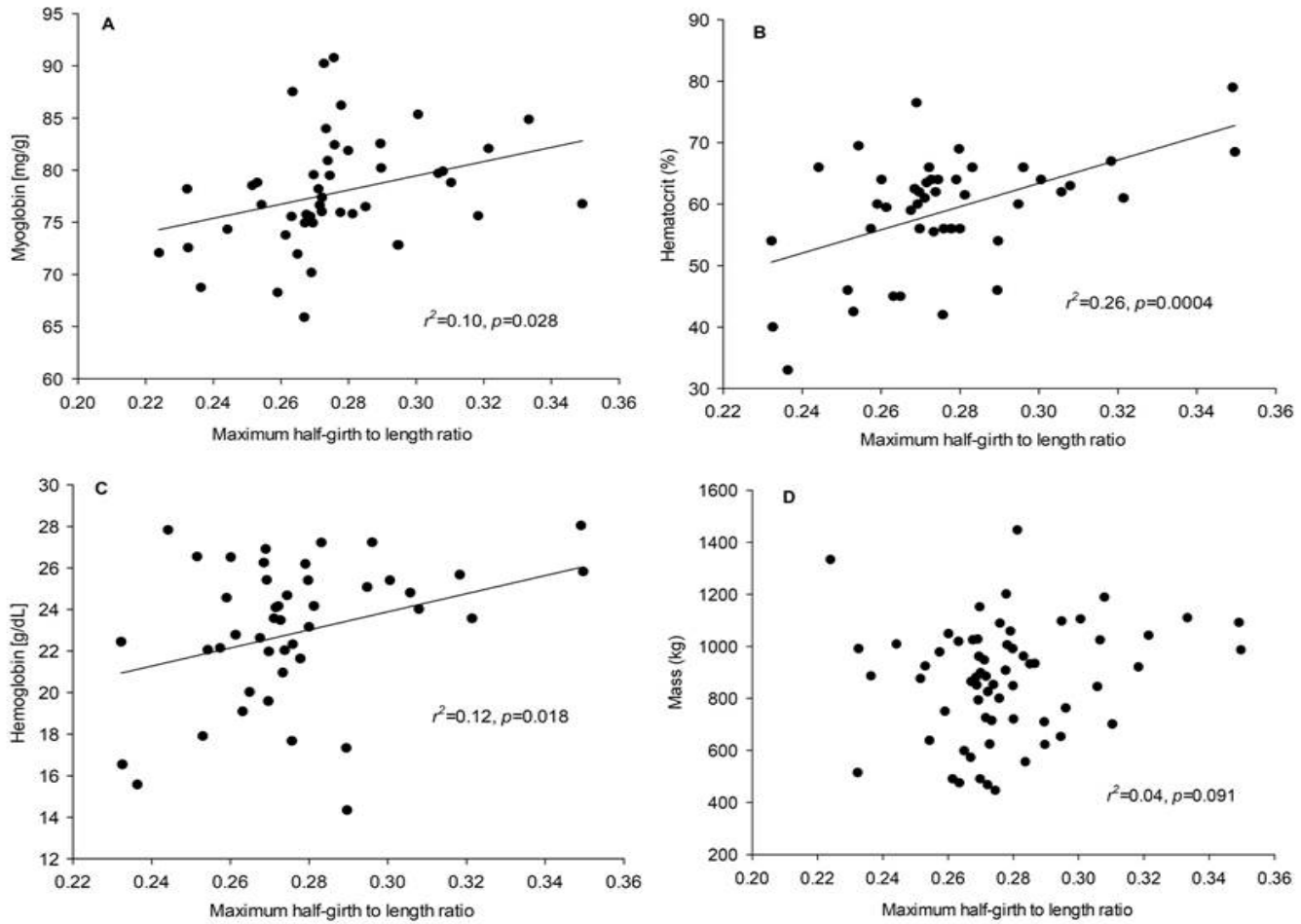
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Figure S1. Relationships between maximum half-girth to length ratios and A) muscle myoglobin concentration (*n* = 47), B) blood hematocrit (*n* = 46), C) hemoglobin concentration (*n* = 46), and D) total body mass (*n* = 64) of Beaufort Sea beluga whales.