

SUPPLEMENTAL DATA 1

Variance Inflation Factors (VIF) were calculated for the predictor variables used in the Generalized Linear Mixed Models for ecological data. VIF is a suitable metric for comparing multicollinearity between continuous and categorical data. Predictor variables with VIF greater than 5 were excluded from the model construction analysis. In addition, Principal Component Analysis was performed to identify potential relationships among the environmental variables. The first two principal components were found to confirm the values of collinearity indicated by the VIF.

(a) Variance Inflation Factors (VIF) table

Variable	VIF
Water depth	1.49
Distance from the shore	1.77
Salinity	1.59
Temperature	1.32
Humidity	1.05
Wind speed	1.71
Pluviosity	1.68
Low calorie food abundance	1.35
High calorie food abundance	1.09

(b) Principal Component Analysis (PCA) table

Variable	Axis 1	Axis 2
Water depth	0.356	0.253
Distance from the shore	- 0.327	- 0.404
Salinity	- 0.177	- 0.474
Temperature	0.489	0.110
Humidity	- 0.116	0.357
Wind speed	- 0.364	0.321
Pluviosity	0.352	- 0.350
Low calorie food abundance	0.224	- 0.421
High calorie food abundance	0.417	0.038

(c) Principal Component Analysis (PCA) with the two main axis.

