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Origin of compartmentalization in food webs

(Digital Appendices)

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E Compartment properties for the niche model

In Fig. E1, we show the results that we obtain with the niche model of Williams and Martinez (Williams and Martinez, 2000) for comparison with those in the manuscript, which we obtain using the generalized niche model of Stouffer et al. (2006). Since the diet contiguity is $c = 1$ in the niche model, these model networks tend to overestimate the modularity of empirical networks.

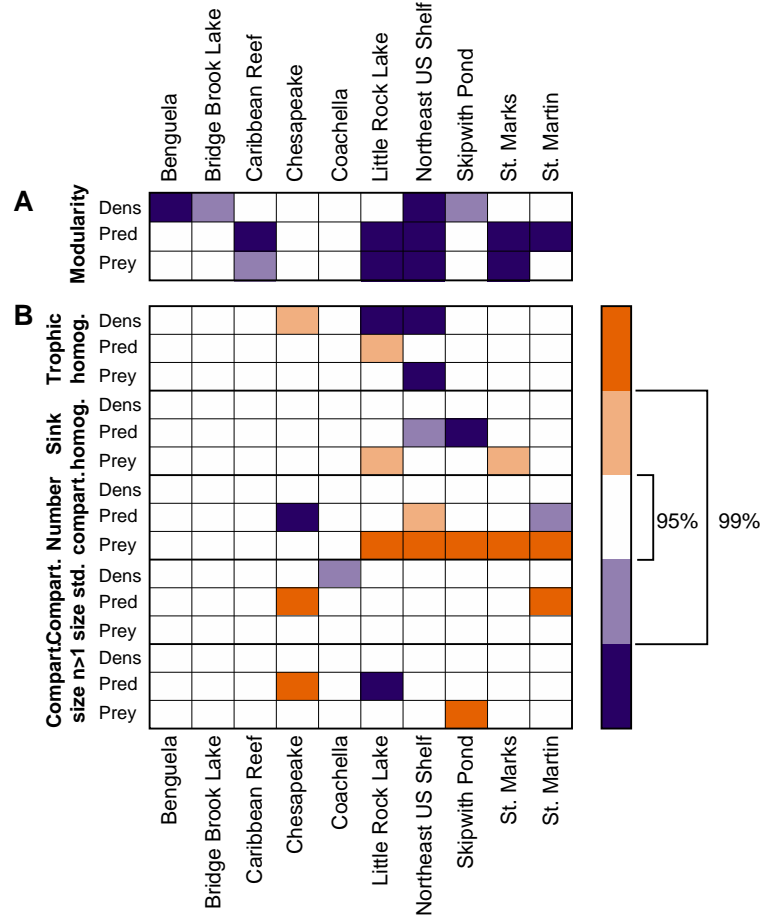


Figure E1: Summary comparison between the compartmentalization of empirical food webs and the compartmentalization of niche model networks. **A**, Modularity. **B**, Trophic-level homogeneity, sink homogeneity, number of compartments, standard deviation of the sizes of the compartments, and average size of compartments containing more than one species. For each property p , we calculate the z -score $z = (p_e - \langle p_M \rangle) / \sigma_{p_M}$, where p_e is the empirical value of the property, $\langle p_M \rangle$ is the mean of the property for the model, and σ_{p_M} is the standard deviation of the property for the model. White cells indicate empirical values within the 95% expectation region of the model ($|z| < 1.960$), light colored cells indicate empirical values within the 95% expectation region ($1.960 \leq |z| < 2.576$), and dark colored cells indicate empirical values outside the 99% confidence region ($|z| \geq 2.576$). Orange cells correspond to empirical values larger than model values, and purple cells to empirical values smaller than model values.

References

Stouffer, D. B., J. Camacho, and L. A. N. Amaral. 2006. A robust measure of food web intervality. *Proc. Natl. Acad. Sci. USA* **103**:19015–19020.

Williams, R. J., and N. D. Martinez. 2000. Simple rules yield complex food webs. *Nature* **404**:180–183.