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# Origin of compartmentalization in food webs

(Digital Appendices)

R. Guimerà, D. B. Stouffer, M. Sales-Pardo, E. A. Leicht,  
M. E. J. Newman, and L. A. N. Amaral

## **D   Compartment properties for the generalized niche model**

In the main text we have shown that modularity, as well as niche, trophic, and sink homogeneities, are well explained by the generalized niche model (Stouffer et al., 2006). In Fig. D1 we show that a variety of other compartment properties (the number of compartments, the standard deviation of the number of species per compartment, and the mean size of compartments containing more than one species) are also well explained. Indeed, for all of these properties and for any definition of compartment, almost all the points (88 out of 90) fall within the 99% expectation intervals.

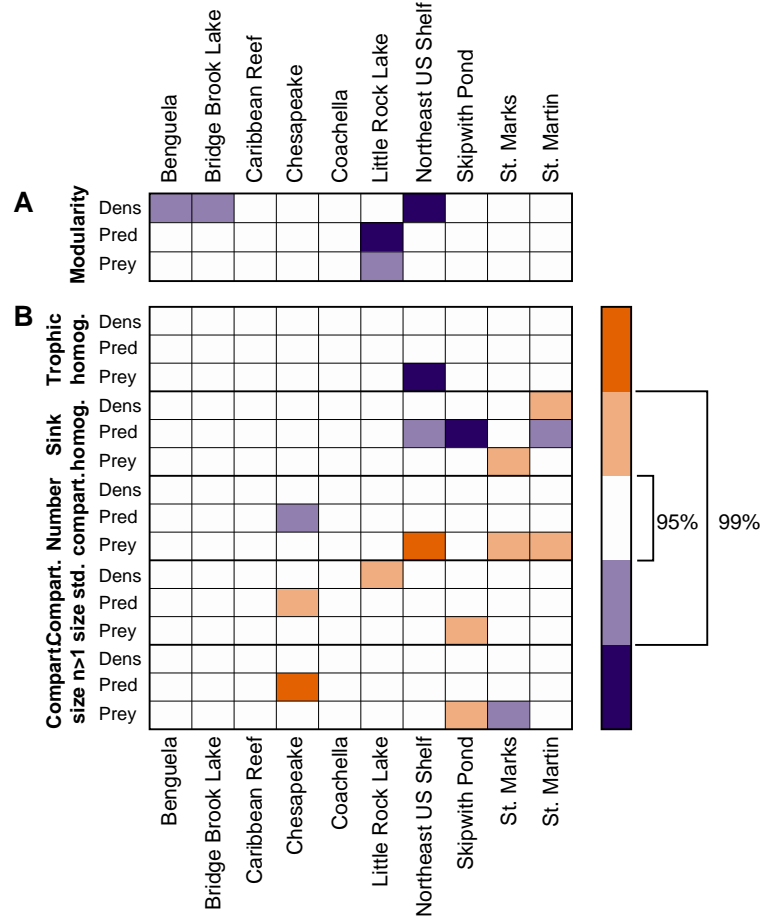


Figure D1: Summary comparison between the compartmentalization of empirical food webs and the compartmentalization of generalized niche model networks. **A**, Modularity. **B**, Trophic-level homogeneity, sink homogeneity, number of compartments, standard deviation of the sizes of the compartments, and 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  $\sigma_{p_M}$  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. Note that **A** and the top two panels of **B** are an alternative representation of Fig. 2 in the main text.

## 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.