**Czapanskiy, M., et al.** "Sea-ice and macrozooplankton distribution as determinants of top predator community structure in Antarctic winter." Marine Ecology Progress Series, vol. 738, 2024, pp. 57-73.

The study underscores how Antarctic predator communities are structured relative to sea-ice dynamics and hydrographic conditions during winter months. It provides insights into spatial distributions and ecological preferences of key species, highlighting the role of sea ice (marginal, pack, open water) as a critical environmental determinant. Found correlations between predator community structure and environmental variables like sea-ice coverage, temperature, salinity, and chlorophyll a concentration. Pack ice communities correlated with colder, more saline waters compared to open water communities. The research is highly relevant for understanding the implications of climate-driven shifts in sea-ice dynamics on Antarctic marine ecosystems. It highlights the interconnectedness between lower trophic levels (macrozooplankton) and top predators (seabirds, seals) and emphasizes the need for continued monitoring and predictive modeling to inform adaptive conservation strategies.

**Analysis**: Cluster analysis (Ward’s method), indicator species analysis, and NMDS ordination to understand community structure relative to environmental variables. By integrating data from multiple surveys and applying clustering techniques to predator observations, the authors effectively demonstrate how spatial and temporal variability in sea-ice coverage influences predator community structure.

**Carroll G, Holsman KK, Brodie S, et al**. A review of methods for quantifying spatial predator–prey overlap. Global Ecol Biogeogr. 2019;28:1561–1577. https ://doi.org/10.1111/geb.12984

This paper looks at different ways to measure how predators and their prey share space and how these interactions change over time. It finds that no single measurement method works best in all situations. Instead, the choice of method should depend on the specific data you have and what you want to learn about how species interact in their environment. Often, using a mix of methods can give the most complete picture. For example, some methods might show general patterns of where species are found, while others might help understand how similarly different species use their habitat or how likely they are to encounter each other. Combining these methods can give a fuller view of predator-prey relationships and their spatial dynamics.

**Analysis**: They present 10 overlap metrics and their ecological interpretations (Table 1), separating them into descriptive categories to aid with ecological understanding. This is not a comprehensive suite of all available metrics, but instead represents a spectrum of metrics that are commonly used in ecology to measure horizontal overlap between two species distributions, including metrics that are particularly relevant for understanding predator–prey interactions.

**Warwick‐Evans, V., Kelly, N., Dalla Rosa, L., Friedlaender, A., Hinke, J. T., Kim, J. H., ... & Trathan, P. N. (2022).** Using seabird and whale distribution models to estimate spatial consumption of krill to inform fishery management. *Ecosphere*, *13*(6), e4083.

Analysis:

Grant #