

{rokbox title=|Two fish species from the temperate reef community studied, East Atlantic peacock wrasse *Symphodus tinca* (foreground) and common two-banded seabream *Diplodus vulgaris* (background) :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-implications-of-using-different-metrics-for-niche-analysis-in-ecological-communities-gouraguine-et-al-2019-meps-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-implications-of-using-different-metrics-for-niche-analysis-in-ecological-communities-gouraguine-et-al-2019-meps.jpg{/rokbox}

Gouraguine A, Melián CJ, **Reñones O**, Hinz H, Baxter H, Cardona L, **Moranta J**, 2019. [Implications of using different metrics for niche analysis in ecological communities](https://doi.org/10.3354/meps13154). Mar Ecol Prog Ser 630:1-12. <https://doi.org/10.3354/meps13154>

Abstract: Explaining the mechanisms driving niche partitioning among species is of great importance in ecology. Unlike the fundamental niche, a species' realised niche can only be measured in situ, as a result of biotic and abiotic interactions defining its size. Following current methodology, the realised niche of a species is often influenced by the rare and divergent individuals of the community sampled. In this study, using fish on coral and temperate reefs as an example, behavioural empirical data were collected to estimate realised niche sizes and niche overlaps. Niche measurements were made using the total area of the convex hull (TA), but as an alternative, a metric not as strongly influenced by sample size, standard ellipse area (SEA), was also used. A comprehensive description is given, and context-dependent pros and cons of using both metrics are discussed. Additionally, an alternative sample size correction was presented for both metrics. The analyses revealed large differences in the sizes of realised niches and their overlaps between species depending on the measurement metric used. Regardless of the species, niche size and overlap were always larger for TA than SEA. Increasing sample size reduced niche size variability for both TA and SEA, but the variation was always smaller for SEA than TA. We successfully adapted the SEA metric for analysis of behavioural niche components and demonstrated that measuring niche sizes using the 2 metrics, each with their own strengths and weaknesses, can produce contradictory results, the ecological consequences of which are likely to be important.

Keywords: Realised niche, Niche variability, Standard ellipse area, Total area of the convex hull, Algal reefs, Coral reefs, Teleostei