# Globally consistent reef size spectra integrating fishes and invertebrates

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**Abstract**

The frequency distribution of individual body sizes in animal communities (i.e. the size spectrum) provides powerful insights for understanding the energy flux through food webs. However, studies of size spectra in rocky and coral reef communities typically focus only on fishes or invertebrates due to taxonomic and data constraints, and consequently ignore energy pathways involving the full range of macroscopic consumer taxa. We analyse size spectra with co-located fish and mobile macroinvertebrate data from 3,391 reef sites worldwide, specifically focusing on how the addition of invertebrate data alters patterns. The inclusion of invertebrates steepens the size spectrum, more so in temperate regions, resulting in a consistent size spectrum slope across latitudes, and bringing slopes close to theoretical expectations based on energy flow through the system. These results highlight the importance of understanding contributions of both invertebrates and fishes to reef food webs worldwide.

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