

# Variations in the dispersal curves of macroalgal propagules from a source

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## Abstract

The process of dispersal is critical to marine benthic species (i.e. invertebrates and algae) as a fundamental element of population ecology and a crucial ecological process that maintains the diversity in communities. We simultaneously sampled the abundance of spores inhabiting the water column at different distances from known parent sources at 3 sites along the coast of central Chile. From these data we constructed 258 dispersal curves for common rocky intertidal macroalgae. Only 43.8% of these curves could be predicted by the expected model, which describes the spatial distribution of propagules to be dominated by a larger concentration near the parent individual or "source site", followed by a marked decrease in abundance with increasing distance. The curves that departed from the expected model (56.2%) were grouped into three curve types, according to the number of propagule abundance maxima observed in space. This work suggests that macroalgal propagule dispersal patterns are more variable than previously thought. The existence of several alternative curves to the expected model, as well as the presence of one to several abundance maxima associated with the differential distribution of propagule patches in the water column, suggests the idea that propagules are released in pulses which can be transported variable distances from the source site.