

Habitat heterogeneity influences variability and diversity of benthic assemblages

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Understanding causal relationships between structure of habitats and numbers and varieties of organisms is an, as yet unrealised goal of ecology. To unravel these relationships, experiments were done to investigate the effects of heterogeneity (i.e. structural diversity and structural complexity) on diversity and variability of assemblages of gastropods. Experimental habitats were designed to have three levels of structural diversity, combining different types of turfs (i.e. different densities and height of fronds). Experimental habitats were rapidly colonized by numerous species of gastropods, and were sampled approximately eight weeks after being deployed. Independently of the type of artificial turfs combined to form heterogeneous habitats, there was a clear increase in numbers of taxa with an increase of structural diversity. In contrast, assemblages colonizing habitats with greater higher structural diversity were less variable. Fauna responded to structural diversity, at the scale of habitat, but also to the type of artificial turf within each habitat. Interactions between assemblages colonizing different artificial turfs within experimental habitats suggested that influences of heterogeneity are also related to the level of differentiation between different structural components.