

## BENTHIC-PELAGIC COUPLING IN THE RECRUITMENT PROCESSES IN THE NORTHERN ADRIATIC MESOPHOTIC BIOGENIC REEFS

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The northern Adriatic mesophotic coralligenous outcrops host very rich and diverse epibenthic assemblages. Several studies quantified the low temporal variability and high spatial heterogeneity of these habitats, while processes driving structuring and differentiation are still poorly understood. To shed light on these processes, temporal and spatial patterns of colonisation were investigated for three years using travertine recruitment panels deployed at 20-25 m depth on three coralligenous outcrops, corresponding to the main typologies of benthic assemblages described in previous studies. Colonisation through planktonic propagules was particularly important in the first year. Pioneer species with high reproduction rate, long distance larval dispersal and fast growth (e.g. the serpulid polychaete *Spirobranchus triqueter* and the bivalve *Anomia ephippium*), were the most abundant in the early stages of recruitment on the two outcrops further away from the coast and with lower sedimentation. Their success may vary according to larval availability and environmental conditions (e.g., sedimentation rates). At these sites early-stage lasted 10±12 months, during which some species from surrounding natural substrates began colonising tiles by settlement of planktonic propagules (e.g., encrusting calcareous Rhodophyta) and lateral encroachment (e.g., sponges and ascidians). As time passed the pelagic larval contribution was less important in maintaining the species diversity of the epibenthic assemblages. Exploring the mechanisms that underlie the formation and maintenance of the species diversity is crucial to improve our understanding of ecological processes and to implement appropriate conservation strategies of the mesophotic biogenic reefs.