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in the marine environment**

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FROM 49TH EUROPEAN
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**PREDATORS MEDIATE THE EFFECT OF FOUNDATION SPECIES
IN SUBTIDAL BARNACLE CLUSTERS**

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Foundation species facilitate dependent organisms directly or alter their interactions with others (for instance, consumers or prey). Although both processes may back up similar community structure, they must be distinguished to understand community functioning. Barnacles *Balanus crenatus* commonly dominate epibenthic patches on mixed sediments in the White Sea subtidal. Their clusters on empty bivalve shells and small stones develop a mobile macrobenthic assemblage different from the one associated with the surrounding unstructured soft sediment. To examine the direct and indirect effects of this foundation species on mobile benthic macrofauna, we conducted field caging experiments using predator-exlosures, enclosures with crabs *Hyas araneus* and shrimps *Spirontocaris phippii*, and open cages (control). Each cage contained initially defaunated clusters of live barnacles and their empty shells (hereafter "dead barnacles"). We also sampled natural epibenthic patches and the adjacent sediment.

After a year of exposure live barnacles in open cages developed a mobile assemblage almost matching the one in natural epibenthic patches. Dominant species displayed different responses to the treatments. Specifically, the abundance of the polychaete *Pholoe minuta* and the clam *Hiatella arctica* was similar in the clusters of live and dead barnacles but decreased in presence of predators. In contrast, the polychaetes *Cirratulus cirratus*, *Pygospio elegans* and the mytilids *Musculus discors* strongly preferred live barnacles

over dead regardless of predator presence. Overall, the assemblages in open cages resembled predator treatments rather than exclosures. Consistent with our predictions, the dependent assemblage was functionally heterogeneous and composed of taxa apparently sensitive either to biogenic (like feces production or flow alteration) or indirect architectural (like shelter provision) effects of the foundation species.

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