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Abstracts

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» Are seawalls made of natural substrata better?

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Understanding the impact of sea defence structure on benthic assemblages is crucial if we are to mitigate the impacts of increasing coastal urbanisation. Assemblages on artificial structures commonly represent a subset of those found on natural shores. The lack of complexity of artificial substrata (e.g. concrete) has been pinpointed as one of the main reasons for impoverished assemblages commonly found on artificial structures.

Here we tested the hypothesis that the use of natural substrata in coastal engineering can help mitigate the impacts of coastal urbanisation on marine coastal systems. The structure of intertidal assemblages on artificial (made of concrete) and natural reefs differed significantly, the former being an impoverished subset of the assemblages found on natural shores. Differences were more pronounced upper than lower on the shore. In contrast, seawalls made of natural rock supported assemblages that were intermediate between those found on natural shores and artificial structures. Microtopographical complexity decreased between natural and artificial reefs, suggesting that the abovementioned differences in the structure of benthic assemblages were influenced by substratum complexity. The present study suggests that the impact of coastal engineering on the structure of coastal ecosystems may be reduced by using construction materials that occur naturally on construction sites.

Keywords Coastal Urbanisation · Microtopographical Complexity · Intertidal Assemblages

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