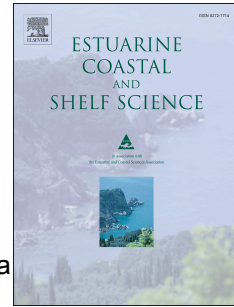


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Understanding the spatial distribution of subtidal reef assemblages in the southern Baltic Sea using towed camera platform imagery

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Abstract

Quantitative sampling of sessile assemblages on temperate subtidal rocky reefs is expensive and severely time-limited by logistics. However, knowledge about distribution patterns of critical and endangered species and habitats at different spatial scales is needed for effective marine management strategies. To gain information of sessile community distribution on broader spatial scales (>1km), visual imaging was employed for the first time on a reef complex in the southwestern Baltic Sea. Analysis of 3000 images along 6 transects (in total 18 km long) from 10 to 40 m depth revealed high natural variation in reef physical structure, with well-defined changes in sessile species richness, cover and composition. Overall 14 morphological groups could be distinguished by imaging and 4 distinct community groups associated with specific habitat requirements were identified. Depth remained the best descriptor. However, data indicate that light intensity, concentration of organic carbon and suspended particulate matter have an effect on reef community distribution. Compared to fully marine conditions, the study revealed a unique zonation pattern in the circalittoral zone of the Fehmarnbelt brackish transition area, with an unexpected reef habitat in the trench. We conclude that towed camera platform imagery might help to close the information gap regarding rocky reefs in the temperate subtidal. It provides a valuable tool to assess the main distribution patterns of sessile assemblages on rough terrain, potentially applicable for management and conservation planning.

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