

SHOULD ANTHROPOGENIC INFLUENCES BE INCORPORATED IN MARINE HABITAT SUITABILITY MODELS?

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Marine habitat suitability models typically predict the potential distribution of organisms based on environmental characteristics such as salinity, oxygen concentrations, temperature fluctuations or sediment class information. Although the anthropogenic pressure on the marine environment has been exponentially increasing during the last century, global effect of human activities on the distribution of marine organisms remains largely unknown. This research aims at (1) determining to what extent contamination/pollution data can be used to predict the occurrence of marine organisms and (2) evaluating whether the incorporation of anthropogenic chemicals in habitat suitability models increases the performance of these models.

A suite of habitat suitability models, e.g. Classification and Regression Trees and Generalized Linear Models, were used to predict the presence of three marine species from environmental characteristics only. Next, the models were extended with ten anthropogenic chemicals as additional predictors and it was examined if this extension significantly increased model performance.

The modelling techniques proved to be useful to reveal the most important predictors for the occurrence of the selected species. The models with the highest performance were those combining environmental characteristics with anthropogenic chemicals. We conclude that contamination/pollution data increase the performance of habitat suitability models, compared to the use of environmental characteristics only.