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Molecular techniques for identifying North Sea fauna

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Abstract — Accelerated biodiversity assessment is the key to understanding the relationship between biodiversity and ecosystem functioning, especially in times of rapid climate change and habitat destruction. For the marine fauna of the North Sea, morphological species identification is impaired by the small size of many taxa, morphological convergence, intraspecific variation and larval stages which often elude morphological identification. Accordingly, the use of molecular methods presents highly promising tools for fast and accurate species identification. The aim of the new established research group "molecular taxonomy of marine organisms" at the German Centre of Marine Biodiversity Research is to test and develop molecular methods for the identification of the marine fauna of the North Sea, aiding efforts to monitor biodiversity patterns and changes. The research will focus on the analysis and identification of specimens using DNA barcodes, and environmental samples, in particular zooplankton, using next-generation DNA sequencing techniques. In addition it is planned to develop molecular methods for a fast and routine identification of larvae of selected invertebrate and vertebrate taxa of economic value.

Index Terms — molecular methods, DNA barcodes, North Sea, fauna.

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