BeRMS 2020 – Innovative census of Belgian marine biodiversity

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The Belgian Part of the North Sea (BPNS) harbours a rich biodiversity. A large number of these species has been listed in the Belgian Register for Marine Species (BeRMS), which was published in 2010 by the VLIZ Belgian Marine Species Consortium. However, a significant number of taxonomic groups are not or only insufficiently included in this register. For most of these groups, species identification remains an important bottleneck for ecological research and biodiversity policy. In 2018, the Flanders Marine Institute (VLIZ) initiated a project to update BeRMS and boost the Belgian marine biodiversity research.

With new scientific expertise and possibilities since the first edition of BeRMS, more taxonomic groups can be included in 2018. Another important addition is a time stamp for species records and, where possible, a habitat description. The goal is to establish a current species register for the period 2010-2020 that can be compared with historic observations of the Belgian marine biodiversity and serve as a baseline for future reference. This is highly relevant for descriptor 1 of Good Environmental Status according to the Marine Strategy Framework Directive.

Different activities will feed into the project. A systematic query of data systems such as EurOBIS and the VLIZ Open Marine Archive for species observations in the BPNS will yield information on recent observations. Citizen scientists will contribute to current observations of species and will allow for the observation of rare species. Marine Research Groups will be asked for unpublished species records. The LifeWatch Observatory is a continuous source of species observations and the LifeWatch Taxonomic Backbone will be the backbone of BeRMS. Targeted field campaigns will be undertaken to document poorly known species assemblages.

Novel species identification methods will be applied or developed, such as meta-barcoding or metagenomics approaches and automated image recognition. We will evaluate which types of images (light microscopy, scanning electron microscopy, micro-CT scans) can be made of collected Belgian marine species and document these in a related image bank. Where relevant and useful, we aim to make DNA barcodes available and provide reference to available specimens. Research activities testing conceptual hypotheses on changes in ecosystems or on assessing ecosystem functions related to certain taxonomic groups or habitats will contribute to the update of BeRMS by documenting all sampled species occurrences. As many as possible relevant Belgian Marine Research Groups will be involved in the project via various ways of collaboration.

Keywords: biodiversity; species identification; species observations