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Abstract Booklet



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Subtidal Mapping Program of the Lower Saxony Coastal and Marine Waters (Germany)

The NLWKN-Coastal Research Station of Norderney carries out a long-term project to map the Lower Saxony subtidal waters of Wadden Sea and North Sea, as required by the FFH and MSFD European Directives. Within the project, most efforts are addressed to apply objective mapping methods reducing influences of human subjectivity into the final results. This is a necessary requirement to produce repeatable results, analyse the seabed spatio-temporal variation within continuous monitoring efforts and ensure comparability with results of national and international projects. The scientific Approach carried out by Coastal Research Station is based on the characterization of surficial sediments, bedforms and substrate structures. Recent technological advancements of swath bathymetric systems and subbottom profilers drastically improve the effectiveness of this approach in shallow waters and led to new technological standards for the seabed mapping. Preliminary results show that morphological information can be extracted from DEMs by mean of geomorphometric approach. The morphometrical parameters assume a geological and geomorphological meaning by the quantitative comparison with backscatter intensity, samples and subbottom profiles. A basic requirement for this approach is the ability of swath bathymetrical systems to simultaneously provide bathymetry and backscatter with high spatial precision. This allows to compute absolute backscatter and quantitatively compare morphology and seabed composition. Even though the fast advances of underwater technologies and scientific approaches, a standard procedure for backscatter survey and processing, as well as standard habitat classification schemes, are of primary importance to improve the approach objectivity.

Keywords: Seabed mapping, geomorphometry, backscatter, Lower Saxony