

## Comparative analysis EU-member states marine environmental effort in regard to implementation of the water framework directive - the German country study

### Client

COWI Denmark

### Project time

April 2017 bis Oktober 2017

### Aim of the investigation

The seven RBMPs contain descriptions of river basin districts, reports on the implementation status of the WFD, new developments, and the expected outcome of the implementation of the measures.

The essential points of the RBMPs are, among other things, the description of the river basin and an overview of all significant pressures and anthropogenic influences on water bodies, the list of the RBMPs relevant to the water bodies and an overview of the programmes of measures. The programmes of measures meet the requirement of action which is necessary to reduce identified pressures and improve the quality of the water bodies. For this purpose there is a need to implement measures to tackle the existing pressures.

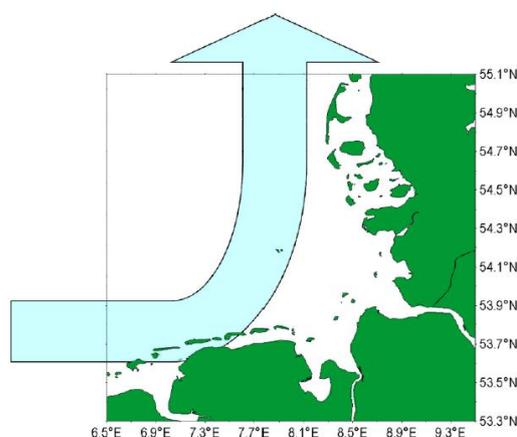


KÜSTENGEWÄSSER		ÜBERGANGSGEWÄSSER	
<b>NORDSEE</b>		<b>NORDSEE</b>	
■ Küstenmeer	■ Küstenmeer	■ T1 Elbe, Weser, Ems	■ T2 Eider
■ N1 Euhalines offenes Küstengewässer	■ B1 Oligohalines inneres Küstengewässer		
■ N2 Euhalines Wattenmeer	■ B2 Mesohalines inneres Küstengewässer		
■ N3 Polyhalines offenes Küstengewässer	■ B3 Mesohalines offenes Küstengewässer		
■ N4 Polyhalines Wattenmeer	■ B4 Meso-Polyhalines offenes Küstengewässer, saisonal geschichtet		
■ N5 Euhalines felsgeprägtes Küstengewässer um Helgoland			

### Methodology and selected data

German RBMPs are oriented towards reducing pressures in water bodies of the rivers and ground water bodies of the inland considering substance loads and development of measures. Transitional and coastal waters only play a minor part in the RBMPs. Hydrology and hydro chemistry are most relevant for the Baltic Sea, since German coastal waters are almost exclusively influenced by the substance inputs from the rivers (including Oder). In the case of the North Sea the external input by the parallel coastal current from Southwest to Northeast is far more important. Considering this current is mostly influenced by the river Rhein, which flows in the North Sea in the Netherlands, the measures in German water bodies are becoming increasingly important. Most relevant river-related management goals are not part of the RBMPs, but part of the more recent national surface water ordinance (OGewV 2016), which is concentration-related for nitrogen to the lacustrine-marine boundary areas at the estuaries. The aim to achieve compliance with this regulation will guarantee in the medium and long term the good status of transitional and coastal waters. This is due to the concentrations (2.8 mg/l for rivers which flow into the North Sea and 2.6 mg/l into the Baltic Sea) which are derived by their impact on the biotic quality criteria under the condition that the external input (for example from UK) complies also with these values (BLMP 2011).

The seven RBMPs in focus of this study don't follow exactly the same structure and methodology that allows identifying nutrient loads to the coastal waters in an easy way. Some RBMPs give specific nitrogen or phosphorus to coast information (e.g. RBMP Ems), however, most link to additional documents (e.g. Weser, Elbe) that are not necessarily available to the public. For Elbe, nitrogen inputs are provided for all surface waters (total N tones per year) (FGG Elbe 2016, p. 14). Thus, it is not really possible to get an easy overview based on the information given in the RBMP documents. Also, the line of arguments regarding nutrient pressures is often referring to concentrations instead of absolute values, making it hard to compare. Part of this issue is also that the used categories for nutrient pathways can slightly vary between the seven RBMP documents.



The total German land-based nitrogen discharges to the coastal waters is divided into sectors. As an average the largest contributor is agriculture. The contribution from sewages is relatively high in the Elbe basin due to freights stemming from neighboring countries. In the case of phosphorus the largest contributors are wastewater including WWTP, storm water overflow and urban runoff, industrial discharge, and wastewater from scattered settlements firstly and secondly agriculture.

In order to get a better illustrated and more up-to-date overview of the nutrient pressures to the coastal water bodies one should rather consider the UBA overview report from 2017. This report differentiates two different components: The first is derived from directly measured nutrient concentrations and discharge rates of the rivers. The second component is composed of nutrient inputs from point and diffuse sources in the North Sea catchment area which are estimated with the help of the model approach "MoRe" (Modelling of Regionalized Emissions). Since the model MoRe does not take the nutrient retention by surface water bodies into account, the results overestimate the loads compared with the calculations based on measured data (see table legend: emissions to surface water bodies). The total nutrient load to coastal waters might, thus, also be overestimated. In general, the RBMPs don't give detailed information on the background loads of nutrients, to answer the question, what the load would have been without certain drivers, such as agriculture.

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