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Implementing geophysical and geochemical data in multi-criteria analysis for prioritization of munition dump site clearance

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There is about 1,6 million tons of dumped ammunition lying in the German Baltic and North Sea waters, which is not only toxicologically threatening the aquatic ecosystems, but also hindering anthropogenic off-shore activities such as construction of wind parks, pipelines and fisheries. Although, the German federal government is committed to providing considerable funds, the large amount of munition in the German Seas and the complexity of retrieving it, make remediation efforts time consuming and costly. An important question is therefore, “How should dumped munition sites in the German Baltic Sea be prioritized for clearance?”. The focus on the Baltic sea results from the amount of available data.

This poster will showcase how a priority list for the remediation of dump sites of conventional munition in the German Seas will be generated using multi-criteria analysis. This decision depends on a multitude of factors, ranging from the availability of information, geophysical features, collected biological, chemical and toxicological data, level of corrosion, proximity to beaches, severity of contamination, distance to infrastructure as well as the preferences of the stakeholders involved.

To structure the multiple factors and to capture preferences of diverse stakeholders, the Analytic Hierarchy Process (AHP) will be used. AHP helps guide complex decisions regarding a set of alternatives for dealing with a particular problem. This is done by structuring relevant criteria within a hierarchy tree and comparing them pairwise through stakeholder participation. This procedure will aid the computation of a final priority list of which dumping sites to clear first. This result will reflect the priorities of the different groups of involved stakeholders, the multiple factors and it will indicate what kind of additional information may need to be generated for future analysis. The poster will therefore, exemplify how geophysical and geochemical data can be used to assist political decision making.