Chemical Munitions – from Search to Monitoring

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After the second world war, roughly 40000 tonnes of chemical munitions were dumped in the Baltic Sea. Due to incomplete archival information, imperfect navigation and improper execution of orders, those munitions are scattered ia vast areas of the Baltic Sea. As a result of CHEMSEA project, ca. 8000 pieces of munitions were found in the Gotland Deep dumpsite, and several hundred objects were recorded also in the Gdańsk Deep and Słupsk Furrow. The amount of munitions in the largest dumpsite of Bornholm Deep is unknown, although according to documents and previous projects (ie. MERCW EU project), ca. 30000 tons of chemical warfare re;lated m,aterial was dumped there. Of the objects found within CHEMSEA project, ca. half was leaking, which was confirmed via the analysis of warfare agents degradation products in the sediments. Benthic fauna was clearly less abundant in the vicinity of the objects, and fish from the dumpsites were characterized with more diseases than from similar areas in the Baltic, outside of dumpsites. This suggest an adverse effects of dumped munitions on the ecosystem. However, no acute toxicity of sediments from the dumpsites was observed during laboratory experiments. In order to observe chronic effects, a longer time series is needed.

Newly established NATO Science for Peace and Security project MODUM aims at the establishment of the monitoring network observing Chemical Weapons dumpsites in the Baltic Sea, using Autonomous Underwater Vehicles (AUV's)and Remotely Operated Underwater Vehicles (ROV's), and utilizing existing research vessels of partner institutions as launching platforms. Project consists of the test phase, which will serve choosing best available solutions for the difficult Baltic Sea environment, Survey phase, which will locate actual objects of concern, and monitoring phase, which will concentrate on the collection of environmental data close to the objects of concern. Project will concentrate on three representative areas chosen during the first phase of the project, and will provide a solution for expanding such a network to all areas of concern in the Baltic Sea area. Performed monitoring activities will include habitat status evaluation, fish health studies and modeling of possible threats to adjacent areas.