In the middle of XXth Century, right after the end of II World War, the Baltic Sea started to serve its new role as a dumpsite for unused Chemical Warfare. Approximately 50 000 tons of munitions and containers filled with toxic agents such as Sulphur Mustard, Lewisite, Adamsite and Arsine Oil. From the administrative point of view, it was the safest way to dispose those dangerous substances. Today, more than 50 years after sea-dumping operations, our knowledge is much broader, however, there are still many questions that need to be answered. For few following decades, the topic of submerged munitions was taboo, with no information reaching mainstream media, until several accidents involving offshore workers and casual beach users began to be reported.

Our project aims in providing verification of hypothesis that after disposal in the aquatic environment, Chemical Warfare Agents remain toxic. This should be obtained thanks to laboratory aquatic toxicity tests that will be performed in a specialized laboratory. Proposed set of experiments follows OECD guidance, providing standardized results.

To verify the second hypothesis, about a natural capacity of Baltic Sea benthic bacterial assemblages to neutralize CWAs and their degradation products, a quasi in situ experiment will be performed. Experiment design includes collection of sediments samples from the dumpsite area, spiking them with fixed concentration of thiodiglycol (TDG), a hydrolysis product of sulphur mustard, followed
by cultivation for 24 and 240 hours and later chemical and metagenomic analyses of collected material. Such setup should allow us to verify if there are bacterial assemblages that can utilize TDG and making it disappear from the spiked samples, and which species may be responsible for that process. Both experiments, should bring us a step closer to a complete information about an ecological status of sea-dumped CWAs. Laboratory experiments provide standardized results, that should be later useful for many organizations and stakeholders governing the issue. It will also serve as a categorization tool for recognizing threats linked to different types of sea-dumped munitions. Practical knowledge about toxicity of different loads can result in smart-design and decreasing costs of possible remediation of sea-dumped CWA containing objects in the future.