

The DSS demonstration cruise on s/y Oceania:

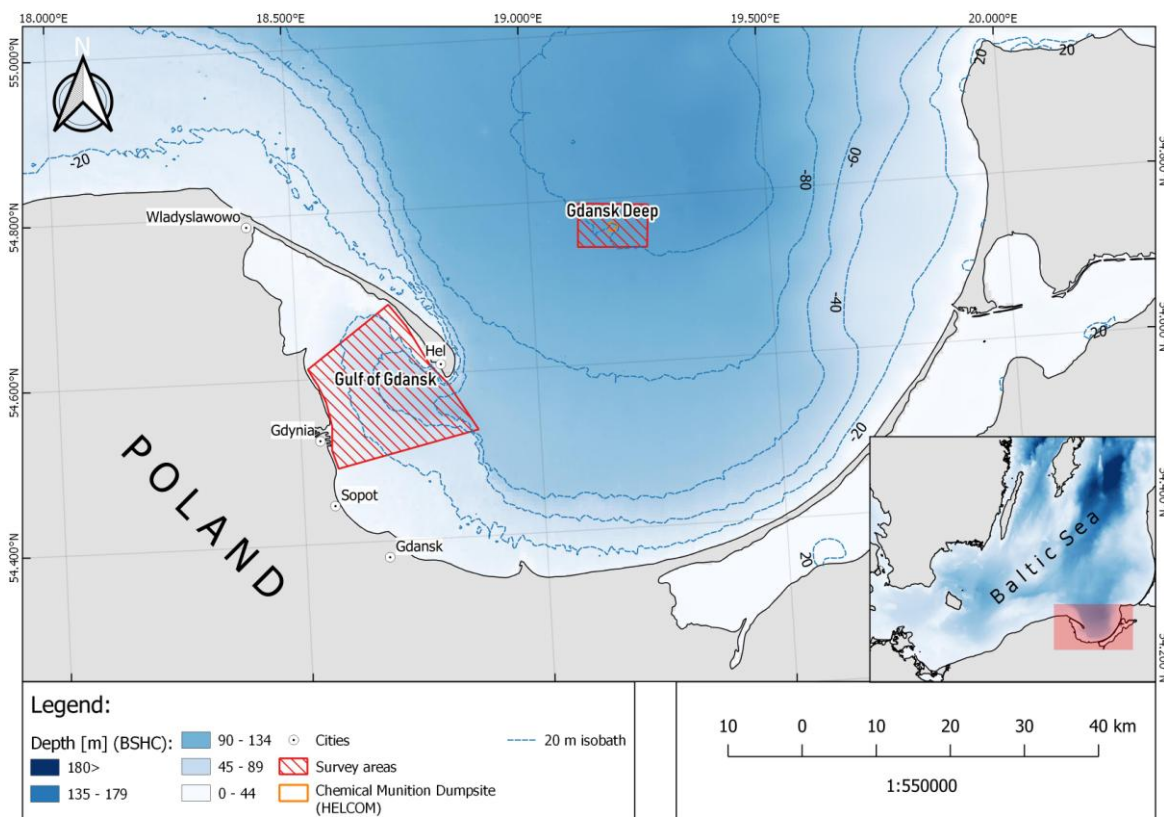
Two cruises will be conducted aboard s/y Oceania in October 2020. Participants willing to participate can enlist to one of two Available slots:

1. 01.10.2020 – 04.10.2020
2. 04.10.2020 – 07.10.2020

Participants will arrive to Institute of Oceanology PAN in Sopot, Poland (www.iopan.pl) on the 1st day, will be given an orientation course and transported to a ship.

During the cruise, participants will be involved in a collection of the data and risk assessment for real munition sites localised in the Gulf of Gdańsk and Gdańsk Deep.

Two training localisations are in the regions where earlier data shows the presence of the chemical weapons degradation products in environmental samples.



Participants will be actively involved in acoustic survey of the area, using AUV (Autonomous Underwater Vehicle), identification using ROV (Remotely Operated Vehicle), as well as the sample collection (marine sediments, water column) and analysis – environmental parameters (temperature, salinity, oxygen, redox, pH), metals (X-ray fluorescence) and Chemical Warfare Agents.

The main goal of the acoustic survey demonstration is to acquaint participants with modern research techniques of the sea bottom, in terms of the detection of submerged chemical and conventional munitions. The survey will be conducted with a high-resolution side-scan sonar (Klein UUV – 3500) and magnetometer, mounted on the autonomous underwater vehicle (AUV). During the cruise, participants will get practical skills in AUV mission planning and sonar data processing. Additionally, they will get knowledge about the construction of the AUV, the way it works, and about all safety issues which are connected with the usage of this kind of equipment in shallow waters (up to 120

meters). Data processing demonstration will include preparing sonar mosaics, interpretation of mosaics, visual presentation of the magnetometer data, creating detected targets catalog and selecting munition-like objects for identification and inspection with the ROV platform.

Visual inspection and identification of selected objects will be conducted with the ROV platform, equipped with state-of-art hydroacoustic gear – BlueView sonar. It will provide high resolution, real-time images of observed underwater targets, even in poor visibility conditions. Identification of detected objects will be carried out live by the participants of the cruise based on video material, data from the BlueView sonar and the ammunition digital catalog. Additionally, a demonstration of sediment samples collected with the ROV platform will be presented. Participants will also take part in the launching and recovery of the ROV system.

Participants will be known with safety protocols connected with sampling in dumped munitions areas. Environmental samples will be collected by batometer, sediment grabbers and ROV. Samples will be scanned by using of UC AP2C Vapor and Liquid Agent Detector on the presence of CWA agents. Heavy metals concentrations in sediments will be determined with a portable X-ray Fluorescence Spectrometer (XRF) S1 Titan 600 (BRUKER). Applicants will be able to participate in all stages of those analysis.

Collected data will be used to improve the already existing database of DAIMON DSS and to provide input for the risk assessment. Therefore, datasets will be prepared on board for later application in the risk management system. A theoretical introduction will be given and practical exercises of the DAIMON DSS will be carried out. The assessment itself is based on the risk originating from single or multiple ammunition objects affecting different goods of protection e.g. fishery, shipping, infrastructure, diving, flora/fauna.



AGENDA 01.10.2020- 04.10.2020

Day 1 (1.10.2020)	
09:00	Welcoming words
09:20	Introduction to the case Project DAIMON overview Cruise layout
10:00	Transfer to the Ship
10:30	Embarkation aboard S/Y Oceania
11:00	Cruise S/Y Oceania
	Safety training Ship safety Overview of chemical safety
2.10.2020	Day2
	Surveying munitions - introduction AUV mission planning AUV Survey AUV data interpretation
3.10.2020	Day3
	ROV Introduction ROV object inspection Sediment sample collection Chemical safety demonstration Demonstration of chemical screening Water sampling Environmental parameters determination
4.10.2020	Day4
08:00	Return To Gdańsk
09:00	Transfer to Sopot
	DSS workshop
	Data interpretation
	Risk Assessment
	Scenarios of environmental risk
12:00	End of training

AGENDA 04.10.2020- 07.10.2020

04.10.2020	Day 1
13:00	Welcoming words
13:20	Introduction to the case
	Project DAIMON overview
	Cruise layout
14:00	Transfer to the Ship
14:30	Embarkation aboard S/Y Oceania
15:00	Cruise S/Y Oceania
	Safety training Ship safety Overview of chemical safety
05.10.2020	Day2
	Surveying munitions - introduction AUV mission planning AUV Survey AUV data interpretation
	Day3
	ROV Introduction ROV object inspection Sediment sample collection Chemical safety demonstration Demonstration of chemical screening Water sampling Environmental parameters determination
06.10.2020	
7.10.2020	Day4
8:00	Return To Gdańsk
9:00	Transfer to Sopot
	DSS workshop
	Data interpretation
	Risk Assessment
	Scenarios of environmental risk
12:00	End of training