

ECODUMP develops effective decision support tools for proper management of the offshore dumping sites

ECODUMP – activities ongoing

After more than a year since the first ECODUMP Newsletter was prepared we are now happy to provide you with short overview of most important activities, which took place recently.

Offshore dumping practices in south eastern Baltic region

Comprehensive analysis of existing dumping practices in south eastern part of the Baltic Sea was completed by the ECODUMP consortium, led by the Maritime Institute in Gdansk (Poland).

14 offshore dumping areas are located in Polish, Lithuanian and Russian (Kaliningrad oblast) parts of the Baltic Sea. The total amount of sediments deposited in mentioned areas estimated at 60 millions of cubic meters. Intensive spreading of dumped sediments and related contaminants from dumping areas as well as lack of ready legislative instruments are among the most critical problems in south eastern Baltic.



Location of Dumping Sites in Poland



Location of Dumping Sites in Lithuania



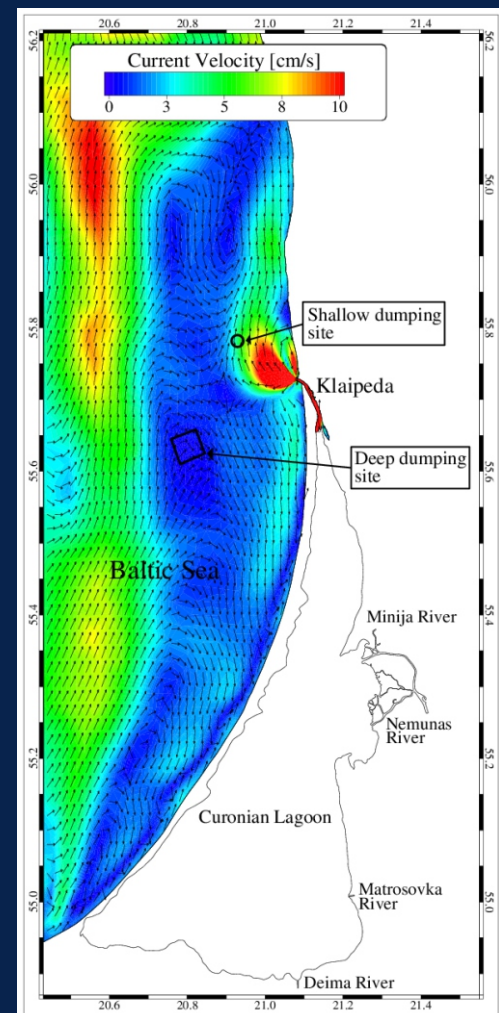
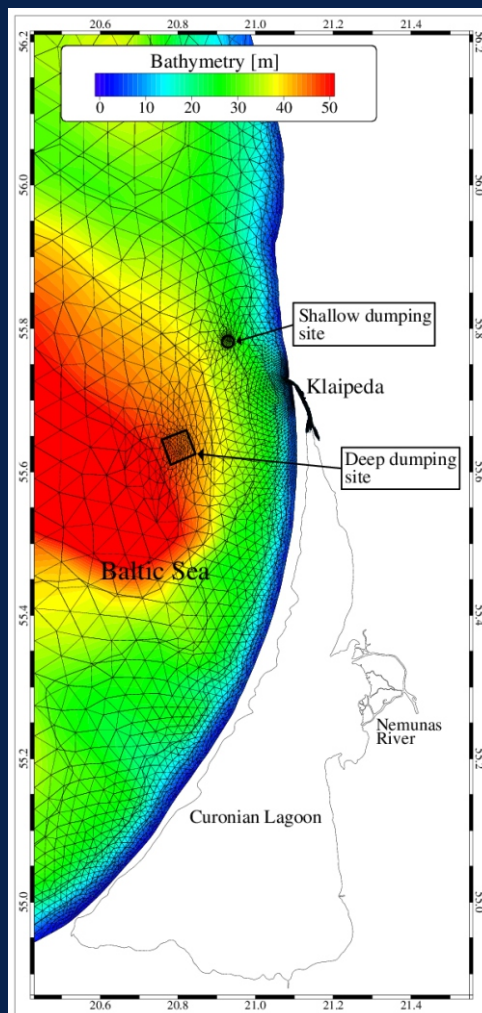
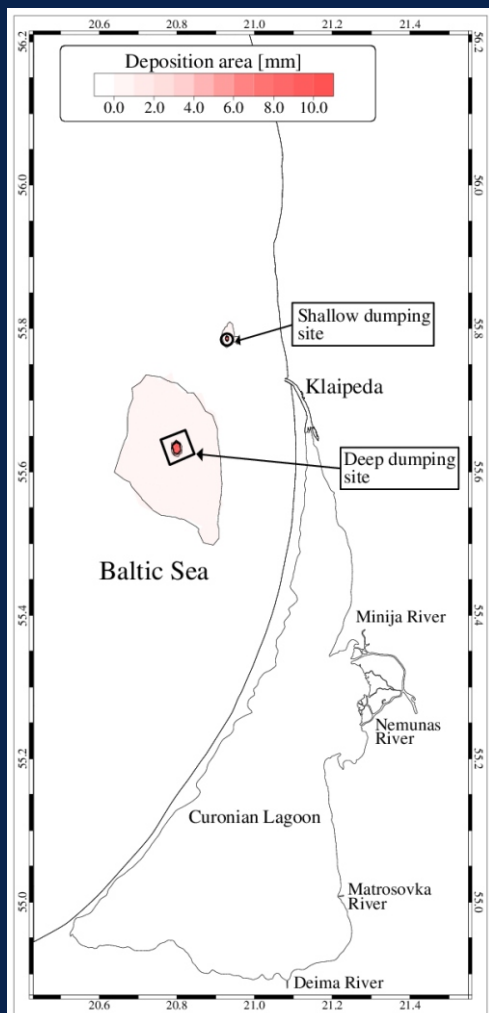
Location of Dumping Sites in Russia



Assessment of the potential spreading of dumped material from Lithuanian dumps

This research activity carried by CNR-ISMAR focused on the assessment of the potential spread of the dumping material (bedload, suspended) from existing dumping sites in Lithuania using 3D sediment transport model. Modelling involve the spread of dredged sediments during disposal and after the sediments being settled with given scenario of multiple dumping events for one year.

The numerical investigations covered two dumping sites operating in Lithuanian territorial waters: III (deepwater) dumping site, used mainly for dumping of till (morainic deposits) and mud dredged from Klaipeda port area, located at 43-48 m depth; IV dumping site, used for the disposal of sandy sediments (fine sand and silty sand) at the depth of 28-34 m.

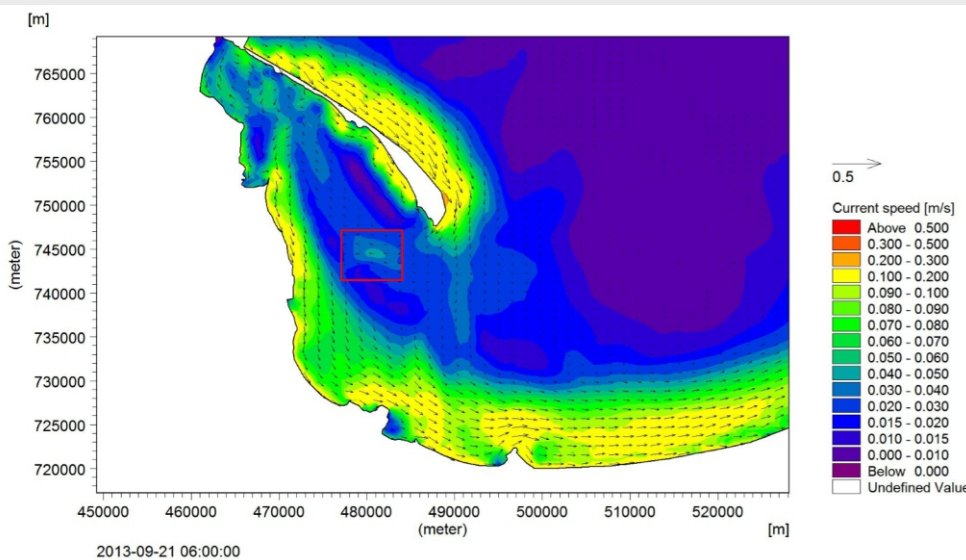


Forecasting sediment dispersion from the Gdynia disposal site in Poland

Numerical modelling related to dumping of dredged material was performed by means of integrated system comprised of modules designed for currents, waves and sediment transport calculation in coastal area and at open sea. Within the framework of the investigation, different scenarios related to dredged material deposition at sea disposal places were prepared. The main objective was a construction of numerical model for forecasting of suspended sediment dispersion in spatial and time domains as well as for the analysis of re-suspension processes caused by hydrodynamic forces.

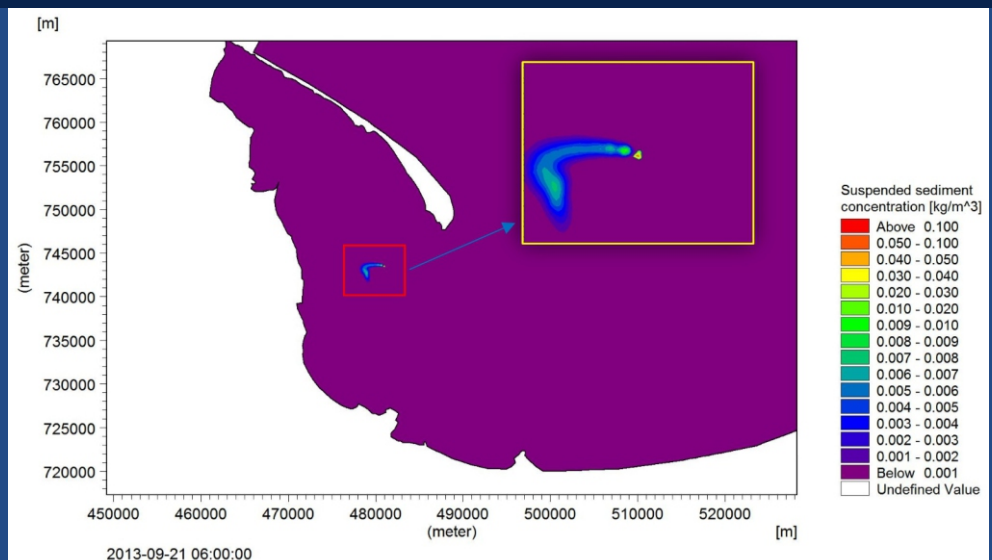
The numerical modelling was applied for the disposal site „Gdynia” - situated in the Gulf of Gdansk. Main conditions of simulated scenarios: disposal place near Gdynia Harbour has area of 850 ha, operational process (during real hydrodynamic conditions) it is dumping from scow every 3 hours by 72 hours of whole work, duration of each dumping lasts about 3 minutes, the scow volume is 660 m³, and the mass of silt is 480t. The full scenario consists of 72-hours of dumping operation and 240-hours of observation of suspended sediment dispersion.

Examples of the numerical calculations results (the operation of dredged material dumping from scows and hydrodynamic conditions at the disposal site) are shown in the pictures below. The first figure shows the average currents circulation in the Gulf of Gdansk, at the specified time step of simulation at the disposal Gdynia site (marked by red rectangular). The second figure presents plan view of the dispersion of suspended sediment concentrations at the same specified time of simulation. The close up of selected disposal region is shown in the yellow frame.



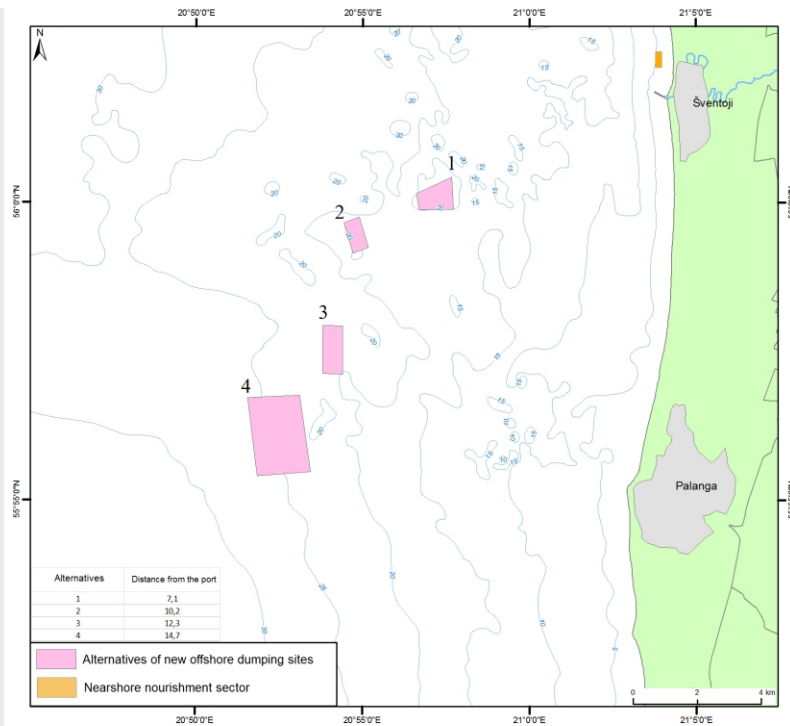
Patterns of current circulation at Gdynia offshore dumping site and nearby areas

Changes in suspended sediment concentration after the disposal of dredged masses



Alternatives for new offshore dumping sites in Lithuanian waters proposed by KU CORPI

In order to ensure the operational capacity of small Šventoji port in Lithuania identification of most suitable solutions for utilization/use of the dredged material is carried out within the ECODUMP initiative. Proposals are developed by ensuring least negative/maximum positive environmental impact on the marine environment and also considering optimized/balanced economic benefits and losses. After the detailed analysis of environmental conditions and existing sea uses in Lithuanian territorial waters of the Baltic Sea experts from Klaipeda University proposed four alternatives of potential offshore dumping areas, which will be analysed in details during the next project stages resulting in the preparation of full scale Environmental Impact Assessment Study.



Proposed alternatives of potential dumping sites for Šventoji port



Moments from the dissemination event

Cross-border dissemination event in Russia

The first cross-border dissemination event of the ECODUMP project was organized by the Atlantic Branch of P.P. Shirshov Institute of Oceanology of RAS (ABIORAS) in the Conference Hall of „Universal” hotel (Nekrasova str. 3, Svetlogorsk, Russia). The main idea of the meeting was to involve relevant Russian authorities into the process of scientific knowledge and experience exchange and to discuss possibilities of further cooperation. As a result the event was mainly focused on dissemination of the “EU approach” of management of dumping sites to non-EU audience of Baltic Sea Region – Russian stakeholders. Dissemination event was held on 3rd of June 2013, while next day was dedicated for the scientific field trip to the most problematic coastal areas of Sambian peninsula with regard to coastal erosion as well as the meeting of Project Steering Committee, comprising from the coordinators of project partners and representatives of interested associated organizations, in order to highlight the progress of project implementation, discuss further activities and budget spending, identify any project management problems.



Partners

Klaipeda University Coastal Research & Planning Institute (Lead Partner)
Maritime Institute in Gdansk

Associated organizations

Maritime Office in Gdynia
Atlantic Branch of P.P. Shirshov Institute of Oceanology of RAS
SE Klaipeda state seaport authority
Ministry of Infrastructure of Poland
Port of Gdynia Authority S.A.
Szczecin and Swinoujscie Seaports Authority

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