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Application of ecosystem principles for the location and management of offshore dumping sites in SE Baltic Region (ECODUMP)

Cross-border dissemination event III & Steering Committee meeting

2014-11-27/28
Palanga
Hotel „Gabija", Vytauto str. 40/S.Dariaus S.Girėno str. 2

Minutes

The 3rd cross-border dissemination event of the ECODUMP project was hosted by project Lead partner (Klaipeda University, KU) in the Conference Hall of „Gabija" hotel (Vytauto str. 40/S.Dariaus S.Girėno str. 2, Palanga, Lithuania). It was the last planned international meeting of project partners from south-eastern part of the Baltic Sea and organisations involved into the dumping related activities from different perspectives. Earlier dissemination events were arranged in Svetlogorsk, Kaliningrad oblast, Russia (2013-06-03/04) and Gdansk, Poland (2013-12-11/12). The event was dedicated to present the main results of the ECODUMP initiative to interested stakeholders and discuss possibilities of future cooperation.

November 27, 2014. 8:30 – 16:00. Cross-border dissemination event III

The meeting was attended by 40 participants, representing partner organizations, associated organizations, comprising of Lithuanian and Polish port authorities as well as scientific institute from Russia, other practitioners supporting the initiative (participants list is attached).

Welcome and opening

The meeting was opened by the project manager Nerijus Blažauskas (KU) by welcoming all the participants and thanking for their active and fruitfull cooperation. Brief highlight of the main project activities and achieved outputs was given as well. Meeting agenda was approved by all participants and confirmed.

Session I

The first session of the meeting addressed existing dumping practices in the south-eastern Baltic Sea, behaviour of dredged sediment during the dumping process as well as the ecological impacts of dumping activities.

Current state and impacts of existing dumping sites in SE Baltic region

Summarized information on current situation of the dumping activities, including the newest results of investigations carried out in frame of the project were presented by Grazyna Dembska (Maritime Institute in Gdansk, MIG). Existing offshore dumping areas in the south-eastern part of the Baltic Sea were introduced and presented in details (start of operation, area, distance from the nearest ports, depths, amount of deposited sediments, type of deposited sediments, etc.). Later on two pilot studies located in Polish and Lithuanian territorial waters were highlighted in details, including scope of completed analysis, number and location of sampling stations and results of the latest investigations (bathymetric maps, concentrations and spatial distribution of pollutants in bottom sediments, changes in relevant legislation). The presenter also emphasized the main processes, which occur during the deposition of dredged material and further storage at the sea bottom and can result in the release of some forms of metals from sediments to the water column.

Simulation of the behaviour of dumped material after the discharge into the marine coastal zone near Baltiysk

Mr. Andrey Sokolov (Atlantic Branch of P.P. Shirshov Institute of Oceanology of RAS, ABIORAS) has presented final results from the study area, located near the Baltiysk harbour entrance channel (Russian part of the Baltic Sea). Main aim of the study completed by ABIORAS within the ECODUMP initiative was to choose the optimal strategy for using dredged material in order to protect the beaches from erosion. This was done with the help of numerical modelling in order to examine the behaviour of the material during and after the dumping event. After the detailed introduction to applied model it was concluded that modelling results have shown, that dumping at the considered location cannot protect the beaches from erosion. Moreover, part of the dumped material are washed away from the site and deposited further in the Baltiysk channel, making the dumping process completely unreasonable.

Review of ecological interactions between dumped sediments and biotic elements of marine environment

Final presentation of the session was dedicated to review the main ecological interactions between the dumped sediments and biotic elements of marine environment, using the example of Gdynia dumping site in Poland. Monika Michalek (MIG) stressed that the scale of dumping impact on benthic organisms are various, but generally it is manifested by decrease in taxonomic diversity of benthic communities caused either by burial or by changing sediment properties on site. Later on results from the assessment of macrozoobenthos at Gdynia dumping site were highlighted and included: similarity within the study area, taxonomic composition, abundance and biomass domination structure, quantitative analysis and ecological status assessment. According to the elaborated conclusions no significant alterations of macrozoobenthic community and structure were found because of the dumping activities, the ecological status of the dumping site was evaluated as "moderate/poor".

Session II

Following session has covered the latest findings from the environmental impact assessment study of new dumping places for Šventoji port (Lithuania), implemented scientific experiments for the re-location of existing offshore dumping site as well as developed monitoring and control programme of the offshore dumping site.

Environmental impact assessment study for the new dumping places

Latest results from the EIA study were presented by Sergej Suzdalev (KU). Main aim of the study was to find suitable places in the Lithuanian territorial waters for dumping of sediments dredged from the Šventoji port area in Lithuania. Four analysed alternatives were presented including main criteria of site selection, location in relation to other sea uses, physical, chemical and biological characteristics. Finally all the alternatives were summarized including positive and negative influences.

Scientific experiments for the re-location of dumping site in Russia

An attempt of the re-location of existing dumping sites in Russian part of the Baltic Sea was briefly presented by Viktoria Topchaya from the ABIORAS. General information (location, area, amount of the dumped sediments since 1958 up to 2012) about "Baltiyskaya" dumping area was presented to participants following the introduction of experimental dumping place, which could be useful for the natural supplement of sediments in the nearshore area and further maintenance of sandy recreational area close to the Baltiysk city. This experimental dumping area was used in 2006 in order to observe changes in lithological composition after dumping procedure and further behaviour of settles sediments. It was observed that after the dumping event prevailing fine sands were replaced by the coarse aleurites, which are not suitable for the beach nourishment purposes. Therefore it was concluded that proposed re-location of the dumping site is inexpedient.

Monitoring and control programme of the offshore dumping sites

Latest version of the document was presented by Grazyna Sapota (MIG). It was mentioned that crucial aspect of the monitoring programme development is determination of the monitoring objectives, which are usually choosen on the basis of EIA or similar studies. Proposition of possible stages of the monitoring process was made including the definition of purposes, components, parameters and tools. Finally monitoring station selection strategy conception was presented. It was concluded that monitoring programme is usually specific to a particular place, but should be also flexible, cost-effective and scientifically based.

Session III

This part of the meeting addressed the newest results of dioxin mapping in the Gdansk basin of the Baltic Sea as well as the final remarks and recommendations for the numerical modelling of disposal operations.

State of the dioxin contamination in bottom sediments from the Polish Baltic sea area

Introduction to the problem of dioxin contamination was given by Grazyna Sapota (MIG). Brief overview of the emissions and discharge sources of dioxins into the environment was followed with main categories of their sources and impacts. Study area in Poland covered port of Gdynia, Gdynia dumping site area. According to the preliminary results highest concentrations of dioxins were identified in bottom sediments from the former shipyard area in port of Gdynia, while content of dioxins in the Gulf of Gdansk and Gdynia dumping area were considerably lower. It was observed however, that the ratio of the PCDD/Fs and dl-PCBs in sediments from Gdynia Dumping Site is similar to the pattern found in the sediments from the Gdynia Port. The results are typical for port sediments and bottom sediments and do not deviate from the literature data of dioxins content in the sediments of the Baltic Sea.

State of the dioxin contamination in bottom sediments from the Lithuanian Baltic sea area

Overview of dioxin contamination in the Lithuanian part of the Baltic Sea was made by Sergej Suzdalev (KU). Sediment sampling was completed in June-July 2014, 42 sediment samples were analysed for the dioxin content. The highest concentrations of dioxins were found in the surface layer of muddy bottom sediments of the Gdansk deep (60-80 m depth). Preliminary analysis of separate congeners showed elevated contents of octa-chloro-dibenzodioxins (OCDD) in most of the sediment samples, revealing unlikely impact of man-made sources. The occurrence of PCDFs in bottom sediments from the Lithuanian Baltic Sea points to the effect of atmospheric sources (possibly combustion gases).

Preliminary recommendations for numerical modelling of disposal operations

Recommendations for numerical modelling were prepared by Tomasz Marcinkowski and Tomasz Olszewski (MIG), based on the results of simulations obtained for the Gdynia dumping area within the project frame. The presentation started with the detailed introduction of model layout and setup, following the main aspects of model validation and calibration. Later on calculation results were visualised to project participants and the main findings explained.

Session IV

Final session of the event has started with the continuation of modelling related issues and was finalised with the view of decision making authority on the ECODUMP initiative in the context of Marine Strategy Framework Directive and closing words of the project manager.

Evaluation of potential spread of dumping material from the existing and new dumping sites using 3D sediment transport model

Final results of sediment spread modelling in the Lithuanian case study areas (existing and potential offshore dumping sites) were presented by Jovita Mėžinė (KU). The presentation covered detailed introduction of the SHYFEM modelling system including validation procedure for the water level, salinity and water temperature. Later on modelling results were introduced separately for the existing dumping sites and potential new dumping sites near the Šventoji harbour area. It was concluded that applied methodology allows to describe the principal processes involved in the sediment spreading and deposition and to reproduce the fate of sediments during disposal and after the sediments being settled. The fine sediments discharged in the existing deep dumping site are spread on a wider area in respect to the shallow site case. Even if most of the sediments discharged in the deep site deposit inside the dumping area, the finest grains are transported by the ambient currents and deposit outside the dumping site. The total sediment spreading area in all the potential new dumping sites goes beyond the dumping site area considerably, however the area with the highest sediment thickness does not differ much from dumping site area.

ECODUMP project in the context of Marine Strategy Framework Directive and recent Polish regulatory developments

Political views on the implemented initiative were given by the invited guest from the Polish Ministry of Infrastructure and Development – Mr. Paweł Banaś. The speaker has evaluated the importance of carried activities in relation to the targets, mentioned in the Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework

Directive). The attention was mainly focused on the need to adopt methodological standards for the assessment of the status of the marine environment, monitoring and environmental targets. In this sense proposed monitoring programme, which was developed within the ECODUMP project, could form an integral part of managing offshore dumping sites. The speech was finalised with the newest information on recent regulatory developments in Polish legislation, related to the management of dredged material (deposition onshore and some forms of the offshore use).

Guideline for the location of new offshore dumping sites

Final presentation of the day was given by the ECODUMP project manager Nerijus Blažauskas from the University of Klaipėda. Possible concept of guiding tools for the location of new offshore dumping sites was presented with the main aim to optimize/balance economical benefits/losses, ensure least negative and maximum positive environmental impacts (ecosystem-based approach), application of recently established Maritime Spatial Planning principles (sustainability: economic prosperity, social well-being and environmental balance). It was concluded that it is absolutely crucial to ensure integrated approach of the developed Guideline for the location of new dumping sites. The proposal was made to use the ready available example of Dumping site selection guiding note, which was elaborated in 2012 by AQUAFACT International Services Ltd and include additional integrated approach concept.

Summary and closing

Nerijus Blažauskas summarised the meeting and stressed the importance of further cooperation among project partners and interested stakeholders. Representatives from the associated partner organisations were invited to be the members of the ECODUMP Advisory Group and continue act on the voluntary basis for activities covered in the project, related to applications of sustainable management of dredged material in the South Baltic region including ecologically sound dumping of clean sediments. The adhesion to the Advisory group was finalised by signing the commitment paper by relevant participants.
Project participants were thanked for the fruitfull participation and the event was closed.

November 28, 2014. 9:00 – 12:00. Project Steering Committee Meeting

The chairman of the meeting was Sergej Suzdalev (KU).

Highlighting progress in project implementation

The progress was evaluated by all the participants by discussing the indicators for each Component, included into the project application form. The summary of the discussion identified no essential problems related to the activities implementation. Project components are implemented according to the schedule. Participants have discussed the deadlines for the preparation of final deliverables (e.g. monitoring programme example and guidelines for the location of new dumping sites). It was agreed that project partners will exchange comments on possible changes in documents content and make needed updates by adding newest information if needed.
Sergej Suzdalev informed that the last electronic newsletter need to be prepared until the end of the project (2014-12-31) and will include highlights from the last Dissemination event as well as information on main project achievements.
Representatives from the Maritime Institute in Gdansk have informed about preparation of scientific article, which will present some of the results from dumping sites investigations in Poland. One article has been prepared in earlier project stages.

Environmental impact assessment study for the new offshore dumping sites in Lithuanian territorial waters is being finalised and upon the end of the project will be submitted to relevant authorities for corrections/approval.
Tomasz Marcinkowski mentioned that modelling reports are now structurized and will be available upon the end of the project. It was decided to use the approaches and results from both study areas (Lithuanian and Polish) for the preparation of the report on application of numerical modelling as a methodological tool for decision support and the way of fixing offshore dumping sites, using Lithuanian experience as a long term phenomena – dealing with the behaviour of processes occurring at the dumping sites during the year or so, while Polish experience addressing the spreading of dumped material immediately after the unloading and after one or two months.
Sergej Suzdalev summed up and closed the meeting.

2014-12-03

Date, Signature of the Organiser (responsible project partner organisation)

NERIJUS BLAŽAUSKAS, project manager

Name and Position of the Signatory (in CAPITAL letters)