



Prioritizing hot spot remediation in Vistula Lagoon – PL/RU

1. Policy Objective & Theme

- ADAPTATION TO RISK: Preventing and managing natural hazards and technological (human-made) hazards
- SUSTAINABLE USE OF RESOURCES: Sharing sound use of resources and promoting their low(est) processes/products

2. Key approaches

- Integration
- Knowledge-based
- Ecosystems based
- Socio-economic

3. Experiences that can be exchanged

Compiling data in terms of the historical and current lagoon quality as well as management plans of investments in reduction of point and defused nutrient sources made possible construction and validation of the MIKE 21 eutrophication model for the whole lagoon enabling analyses and visualization of the load reduction consequences. This methodology, in its turn, can show how the cross-border co-operation in simulation modeling facilitates objective prioritization of the hot remediation of hot spots in a trans-boundary transitional water body and its catchment area.

4. Overview of the case

A model system was implemented describing the hydraulic conditions in the Vistula Lagoon and the effects of nutrient loadings on the eutrophic and biological state of the lagoon. The current plans for reducing nutrient loadings for major sources in Poland and Kaliningrad were incorporated and their positive impact on the environmental state of the lagoon was evaluated using the model system. The effects of intervention concerning hot spots in Poland and Kaliningrad in particular were investigated. The investment necessary for implementation of the planned interventions were presented.

5. Context and Objectives

a) Context

After examination of the current loadings, project revealed that the Russian "hot spots" accounted for 3,400 tonnes of nitrogen and 975 tonnes of phosphorus annually, whereas Polish "hot spots" accounted for 745 tonnes of nitrogen and 170 tonnes of phosphorus annually. Implementation of a new waste water treatment plant in Elblag and a radical reduction of fertilizers use in the Polish part of lagoon catchment as well as plans of new investments on both sides of the border were analysed in terms of environmental condition improvement.

b) Objectives

1. To compare the present state of the lagoon with the historical data concerning developments in loadings and changes in the environmental state of the lagoon itself.
2. To analyse the impact of the newly implemented and planned investments focused on reduction of "hot spots" number on lagoon environmental conditions.
3. To identify the investments necessary for implementation of the planned interventions and assess their impact.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

Partners from Denmark, Kaliningrad, and Poland were working together compiling information and data in terms of the historical and current lagoon quality as well as management plans of investments in reduction of point and defused nutrient sources. This study was conducted by the VKI Water Quality Institute as a main contractor and Danish Hydraulic Institute (DHI), Geoscience and Marine Research & Consulting Co. Ltd., Poland (GOEMOR) and P.P. Shirshov Institute of Oceanology RAS, Kaliningrad.

b) ICZM tool

HELCOM in its Baltic Sea Joint Comprehensive Action Programme identified numerous “hot spots” in the drainage basin of the Vistula Lagoon. The Vistula Lagoon itself has been identified as a priority “hot spot” which needs a comprehensive environmental management program. Especially taking into account the limited water exchange between the lagoon and the Gulf of Gdańsk, this situation cause serious problems regarding the environmental conditions. The information about the current state of the Vistula Lagoon based on existing information and field investigations carried out by the Polish and Russian institutions within the project was provided. The current state of the lagoon was compared with historic data concerning developments in loadings and changes in the environmental state of the lagoon itself.

7. Cost and resources

Complete costing is not available

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The project might be described as being extremely effective providing the "whole lagoon" perspective regarding the impact of load reduction on the lagoon environmental conditions. Modelling tool enabled the spatial and temporal analyses of load reduction consequences as well as generated a list of practical management recommendations.

9. Success and Fail factors

a) Success factors

1. Potential environmental effects have been identified and assessed at a strategic level arising from the content of the draft Strategy.
2. The SEA provided existing baseline information pertinent to the strategic issues associated with the implementation of the draft Strategy. As is good practice the level of detail in the SEA is commensurate with the level of detail in the draft Strategy.
3. The SEA helped identify implementation options which presented opportunities for, or environmental constraints against, the development of aquaculture and wild shellfisheries.
4. The SEA assessed the impacts of implementing the draft Strategy.

b) Fail factors

1. The SEA does not replace the need for the collection of detailed environmental data, including the further development of existing carrying capacity models and licence-specific baseline data.
2. The SEA did not conduct detailed surveys or develop a carrying capacity model and did not examine the commercial viability of development or provide cost benefit analysis.
3. Where there are various permutations in the possible implementation of policy, the SEA did not determine how these different management approaches will be implemented.

10. Unforeseen outcomes

None as yet

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13. Sources

Anon. 1997. Prioritizing hot spots remediations in the Vistula Lagoon catchment. Ministry of Environment, Denmark

14. Relevance for cross-border management of transitional waters

Improvement of the environmental conditions of any trans-boundary water body needs to consider activities on both sides of the border and close trans-boundary cooperation at the political and management levels. It is also an issue in the case of the Vistula Lagoon and even when the project results revealed that the reduction of loads on the particular side of the border will cause an improvement of water quality conditions mostly locally, the close cooperation at the level of management plans is absolutely crucial.