

The development of an trans-boundary action plan for the Bothnian Bay – FI/SE

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space

2. Key Approaches

- Knowledge-based

3. Experiences that can be exchanged

The development of a trans-boundary action plan involving a more efficient information exchange and harmonisation of monitoring and management to support the implementation of the Water Framework Directive.

4. Overview of the case

The Bothnian Bay LIFE project developed a database for the exchange of information about the bay's water quality and introduced a plan for the sustainable management of this sensitive northern sea area.

5. Context and Objectives

a) Context

Human activities pose a threat to the marine environment of the Bothnian Bay in the Baltic Sea. Located between Finland and Sweden, the Bothnian Bay is the most northern basin of the Baltic Sea. The bay, which freezes over for several months of the year, is particularly vulnerable due to the scarcity of species living in it, its arctic conditions and its shallow, brackish waters (average depth 40 metres). One major concern, particularly on the Finnish side, is eutrophication. Agriculture, forestry, peat production and scattered settlements increase the leaching of nutrients. Also industry and population centres release nutrients and oxygen-depleting substances. The Finnish coast is shallow and its water exchange less effective than that on the more open Swedish coast. There are also more settlements and agriculture on the Finnish side. Thus the risks for eutrophication are greater. On the open sea, mass occurrences of algae are rare and there is generally enough oxygen in the bottom of the sea. Many rivers emptying into the Bothnian Bay have been harnessed for hydro-power. Wind power construction is increasing, the coast has long been exploited in construction and there is pressure for other natural resources use as well. Shipping traffic and boats also cause additional nutrient loading. Land uplift increases the need for dredging. New species enter the region as a result of human activity which, at worst, can lead to extinction of the scarce native species.

b) Objectives

The goals were to produce an action plan for the Bothnian Bay and improve information exchange and communication on environmental issues between the industrial plants, and municipal and regional authorities of Finland and Sweden. It was also the intention to set guidelines for the Bay's integrated monitoring and management. A further aim was to form a general picture of the present state of the Bothnian Bay and the different factors affecting its environmental state.

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

a) Management

The Bothnian Bay LIFE project was coordinated by North Ostrobothnia Regional Environment Centre. Other participating authorities were West Finland Regional Environment Centre, Lapland Regional Environment Centre, County Administration of Norrbotten and County Administration of Västerbotten.

b) ICZM tools

In both Finland and Sweden, many different national and regional bodies monitor environmental conditions in the bay and the clear need to pool together various information sources was identified. To achieve this aim, an extensive on-line database was built up under the guidance of the North Ostrobothnia Regional Environment Centre (NOREC) in Finland. The database features various indicators of water quality in the bay:

- Physical and chemical data from 62 observation points.
- Results of mobile automatic water quality monitoring.
- Data on the material transport and water discharges of 31 rivers and use of the land in their catchment area.
- Information about the 52 industrial plants and wastewater treatment plants discharging into the bay, including annual loading data.
- Top ten lists of pollutants for rivers, industries and wastewater treatment plants.

In addition to this database, the project also developed a web-based Best Available Technology (BAT) information exchange system for the metal industry and produced an exhibition for dissemination purposes. It further produced a model for estimating the impact of human actions on the Bay's coastal areas. The Bothnian Bay Water Quality and Ecosystem Model allows experts working in the area to assess the impact of pollutant loading on water quality. Assessments are made by calculating likely changes to the concentration of soluble nutrients and algae. Human activity has caused nutrient enrichment that disrupts the bay's ecosystem.

A wide range of experts and stakeholders were consulted before an action plan for the Bothnian Bay was drawn up. The plan outlines targets and priorities for sustainable development and sets guidelines for monitoring and status assessments. It also aims to meet EU and national environmental requirements and to improve information exchange and cooperation in the Bothnian Bay area. It emphasizes five themes: decreasing eutrophication, preventing harmful substances and reducing their effects, comprehensive regional planning, sustainable exploitation of natural resources and readiness for invasive species. In the Action Plan, establishing and extending cooperation concerning environmental issues, making participation easier for citizens and developing various forms of cooperation are considered especially important.

7. Cost and resources

The total budget was €1,049,000

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

NOREC is continuing to cooperate with the project partners to implement the action plan and maintain databases.

9. Success and Fail factors

The patrol boat Turva of the Finnish Frontier Guard was fitted with an automatic water quality measuring system, the results of which supplement the database. The water quality model developed can be used to compare the consequences of different ways of implementing a certain action. These actions include, for instance, selecting the place for an extension of an industrial plant or an outlet pipe. It is also versatile and helped in the planning of both water protection and land use. After the project ended the lack of funding has prevented the updating of the BAT information exchange database.

10. Unforeseen outcomes

The network created between the metal industry and authorities around the Bothnian Bay during the project provides a good basis for BAT information exchange. Making the information exchange more efficient supported the implementation of the EU IPPC Directive, the goal of which is to minimize or prevent emissions to the air, water and soil as well as the production of waste in the EU countries.

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13. Sources

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