



Bothnian Bay Life - Integrated Management System for the Bothnian Bay

LIFE00 ENV/FIN/000646



[Project description](#) [Environmental issues](#) [Beneficiaries](#) [Administrative data](#)  
[Read more](#)

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Project description:

Background

The Bothnian Bay, the Northernmost basin of the Baltic sea, is located between Sweden and Finland. With its exceptional marine environment, fauna and flora, it is unique in a European perspective. Covered with ice for several months each year, the Bay is characterised by low biological production, relatively low biodiversity and brackish water with a high inflow of fresh water from a number of rivers. The food web is unique as some 40% of the energy comes from organic substances originating mainly from human transported by rivers. The Bothian Bay is shallow with an average depth of only 40m. Therefore, land uplift is continuously changing the coastal environment. The Bothnian Bay is exposed to pollutants such as metals and stable organic compounds from steel, pulp and paper industries as well as from sewage treatment plants. The agriculture, forestry and peat mining in the catchment area deliver nutrients to the Bay. Water protection measures and improved technology in industries and sewage treatment plants has decreased the point-source loading and the share of non-point loading is nowadays bigger. The impact of sea transport and related construction activities like dredging are also potential threats to the marine environment. Locally, especially along the low Finnish coastline, there are clear signs of eutrophication. The sub-arctic climate contributes to the fragility of the environment. There are differences in coastal water monitoring between the national and statutory control authorities operating in Finland and Sweden. Different databases make it difficult to get an overall view of the state of the Bothian Bay. There was a need to integrate monitoring and activate information

exchange between the two countries.

## Objectives

The main objectives of the project were to get an overall picture of the state of Bothnian Bays' marine and coastal environment and of the factors affecting it. A further objective was to improve and enhance the information exchange between the main actors, which included the authorities, industries and coastal municipalities. Finding practices for closer cooperation between the Finnish and Swedish environmental authorities was also a goal. The project was to develop guidelines for integrated management and monitoring through the creation of a comprehensive data base consisting of the existing local, regional and national databases. One goal was to offer information, environmental data and practical tools for monitoring and management purposes via Internet. The project was intended to contribute to the implementation of the Water Framework Directive.

## Results

The project consisted of three technical tasks, which resulted in a comprehensive Bothnian Bay action plan: 1. The Bothnian Bay Environmental Information Database is a free tool available on the Internet at: [www.ymparisto.fi/perameri](http://www.ymparisto.fi/perameri). Its main parts, "State of the Sea" and "Loading" are composed of five different elements: a) Physico-chemical state, including water quality data from 62 observation points in the Bothnian Bay; b) Results of automatic water quality monitoring and samples collected by the system; c) Rivers showing the material transport and water discharges of 31 rivers and land use in catchments; d) Industries and wastewater treatment plants, including annual loading data and information of 52 plants along the Bothnian Bay coast; e) Top ten lists for rivers, industries and wastewater treatment plants. The database is so far only available in Finnish and Swedish. 2. The BAT (Best Available Technologies) Information Exchange System, designed for the metal industry in the Bothnian Bay area, is composed of a web application interface and a database form interface. The web application interface offers access to the database search function with an ordinary web browser. It is accessible wherever there is an internet connection but is protected for internal use by a password. 3. The Bothnian Bay Water Quality and Ecosystem Model is a tool for expert use in management purposes. It is based on a three-dimensional model on flow and water quality, combined with an ecosystem model. In modelling water quality, the variation of certain parameters such as soluble nutrients and algae are calculated based on factors such as loading, wind, temperature and salinity. The flows are used in calculating the concentrations and spreading of these substances. The ecosystem model shows the variation of nutrient concentrations and algal biomasses in different loading and weather conditions. Three different applications were built for the area with one 'hot spot' area in each of them. The Bothnian Bay Action Plan, is based on a literature survey, results of other subprojects, interviews targeted at experts and actors, and three workshops. It points out the specific characteristics of the Bothnian Bay in comparison with other areas of the Baltic Sea. It identifies and analyses the environmental problems and gives guidelines for harmonized monitoring and status assessment of the Bothnian Bay. The

Action Plan also works out targets and priorities for sustainable development and management of the area. An essential part was to find means to achieve the requirements set by both national environmental goals and EU directives and strategies and to improve information exchange and co-operation between regions and actors around the Bothnian Bay. There was also cooperation with the Oulujoki pilot river basin, part of the network of test areas within the context of the Water Framework Directive. The cooperation of the project partners is continuing with the implementation of the action plan and the updating of the databases. *This project has been selected as one of the 21 "Best" LIFE Environment projects in 2005-2006*

[Top](#)

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Environmental issues addressed:

Themes

Habitats - Marine

Land-use & Planning - Sensitive and protected areas management

Water - Water resources protection

Environmental management - Integrated management

Keywords

monitoring, integrated management, marine environment

Target EU Legislation

- Water
- Directive 83/29 - Waste from the titanium oxide industry (24.01.1983)
- Directive 91/271 - Urban waste water treatment (21.05.1991)
- Directive 91/676 - Protection of waters against pollution caused by nitrates from agricultural so ...
- Directive 2000/60 - Framework for Community action in the field of water policy (23.10.2000)
- Industry and Product Policy
- Directive 96/61 - Integrated Pollution Prevention and Control (IPPC) (24.09.1996)

Natura 2000 sites

Not applicable

[Top](#)

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## Beneficiaries:

Coordinator	North Ostrobothnia Regional Environment Centre
Type of organisation	Regional authority
Description	North Ostrobothnia Regional Environment Centre, NOREC, is one of the 13 regional environmental administration units in Finland. The purpose of NOREC is to serve the general public and to improve the environmental situation in Northern Ostrobothnia according to the principles of sustainable development, while co-operating as widely as possible with the various parties concerned. The Centre is also actively involved in the production of information concerning the relationship between human beings and their natural environment, while seeking to enhance the living conditions in the area.
Partners	The Regional Environment Centre of Lapland, Finland The Regional Environment Centre of West Finland The County Administrative Board of Norrbotten, Sweden The County administrative Board of Västerbotten, Sweden

[Top](#)

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## Administrative data:

Project reference	LIFE00 ENV/FIN/000646
Duration	01-AUG-2001 to 31-JAN -2005
Total budget	1,049,120.00 €
EU contribution	520,000.00 €
Project location	Etelä-Pohjanmaa(Finland Suomi) Vaasan rannikkoseutu(Finland Suomi) Pohjois-Pohjanmaa(Finland Suomi) Lappi(Finland Suomi) Baltic Sea Suomi (SF)(Finland Suomi) Baltic Sea Sverige (S)(Sverige)

[Top](#)

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## Read more:

Brochure	Title: "Bottenviken – vårt gemensamma hav"(410 KB) Year: 2006 No of pages: 6
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Publication: Case study	Title: "Perämeri life : Perämeren toimintasuunnitelma" (21.0 Mb) No of pages: 199
Publication: Layman report	Title: Layman report Year: 2004
Publication: Layman report	Title: Layman Report (3.665KB) Year: 2005 No of pages: 8
Publication: Technical report	Title: "Perämeren ympäristötietokanta - Bothnian Bay. Environmental Information Database." (629 KB) Author: Katajisto Juha /Laine Anne Year: 2004 No of pages: 37

[Top](#)

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[Project description](#) [Environmental issues](#) [Beneficiaries](#) [Administrative data](#)  
[Read more](#)