



MANTRA-EAST - VISTULA LAGOON PROJECT OBJECTIVES

MAŁGORZATA BIELECKA

**Institute of Hydroengineering of the Polish Academy of
Sciences, Gdańsk, Poland**

(E-mail: *gosia_bk@ibwpan.gda.pl*)



Integrated Strategies for the *Management of Transboundary Waters on the Eastern European fringe – The pilot study of Lake Peipsi and its drainage basin (MANTRA-East)*

Extended by new study area – the Vistula Lagoon



contract EVK1-CT-2000-00076

www.mantraeast.org





OBJECTIVES OF THE PROJECT



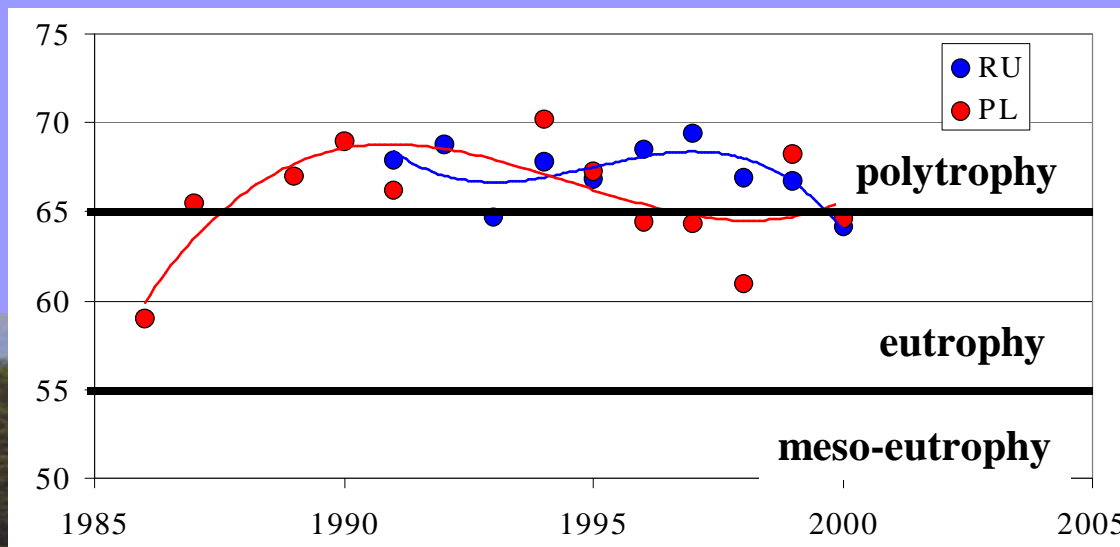
1. Evaluation of criteria for assessment of ecological status in a Water Framework Directive context

- **Collection of all available time series of water quality and biota parameters of the Vistula Lagoon and riverine loads necessary for ecological status assessment, trend analyses, and modelling.** **COMPLETED**
- **Collection of all available publications on water quality and biota of the Vistula Lagoon including Polish, Russian and old German publications and “gray” literature.** **COMPLETED**

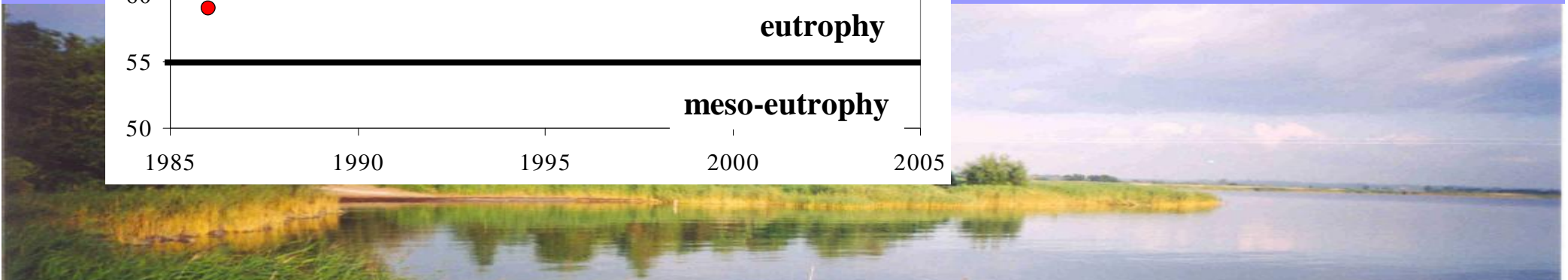


2. Evaluation of criteria for assessment of ecological status in a Water Framework Directive context

- Comparison of monitoring parameters evaluated for freshwater and brackish water bodies, used in ecological status assessments. **COMPLETED**
- Evaluation of the Vistula Lagoon ecological status in a WFD context. **IN PROGRESS**



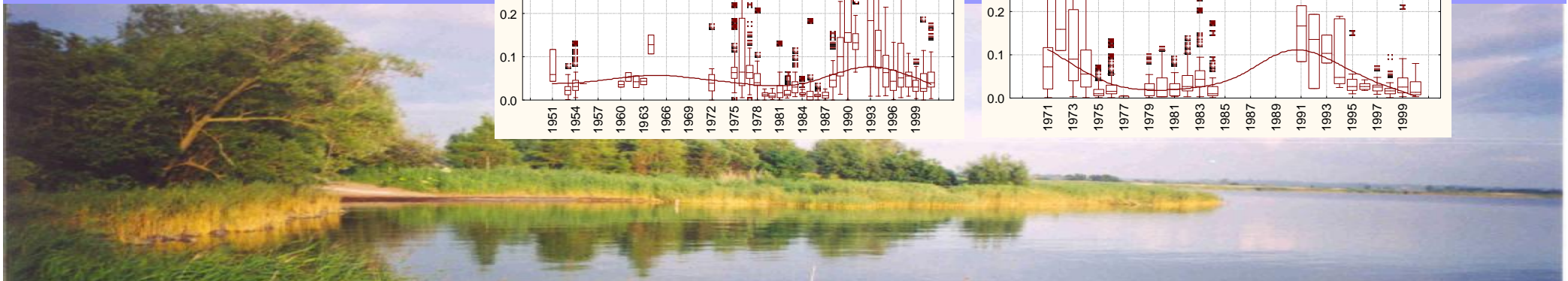
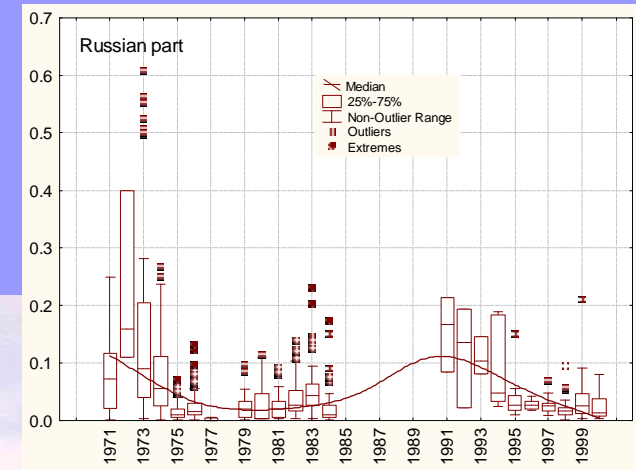
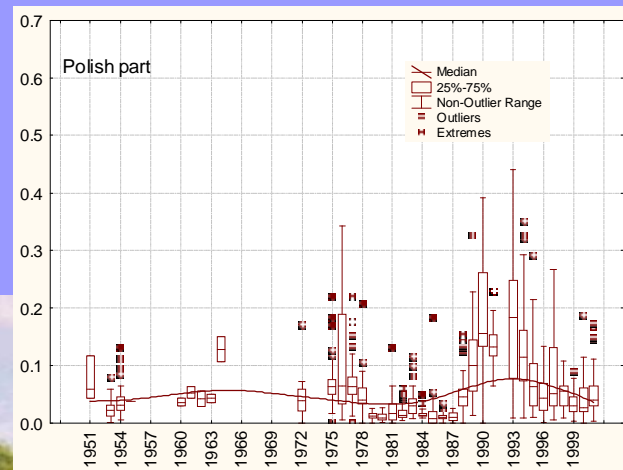
Trophic State Index (chlorophyll *a*)



3. Analysis of trends in water quality and biota in the Vistula Lagoon

- **Quality assurance of the Vistula Lagoon data collection methods** (from 1950s to present time). **COMPLETED**
- **Evaluation of long-term changes in chemical variables, nutrients and biotic parameters.** The degree of changes of different parameters will be qualified and used as a measure of human impact. **IN PROGRESS**

PO₄-P concentrations [mgP l⁻¹] in Vistula Lagoon

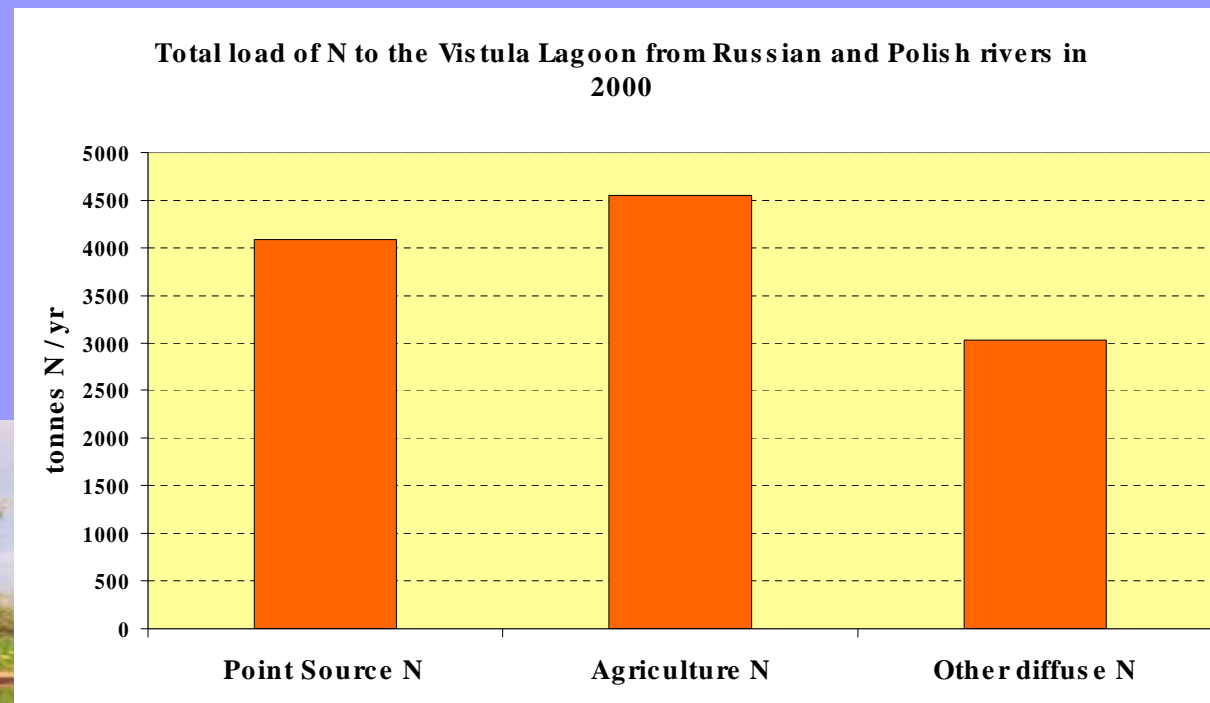


OBJECTIVES OF THE PROJECT

4. Estimation of transfer, retention, and losses of nutrients in Pasleka River basin (characteristic for the Vistula Lagoon drainage basin)

- **Estimation of nutrients load to the Vistula Lagoon on the basis of the Pasleka River as a pilot basin.** Results of modelling system MIKE BASIN, now applied at Pasleka River, will be used.

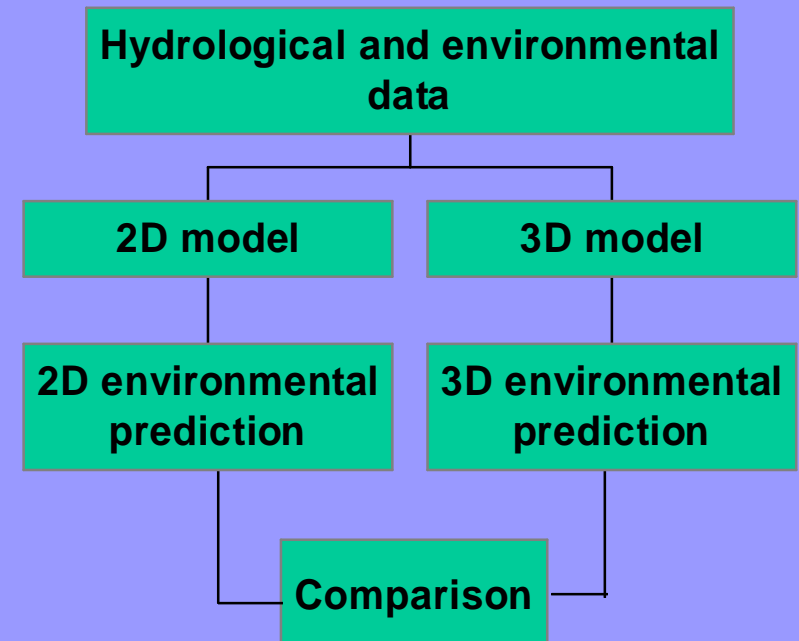
COMPLETED



5. The consequences of river basin inputs to the Lagoon water quality - a modelling approach

IN PROGRESS

- The 3D and 2D water quality models for the Vistula Lagoon will be applied using the same data sets. Calibrated models will assess influence of the climatic conditions versus anthropogenic impact (different scenarios) on the selected water quality indicators. It will be determined where and when it is enough to use 2D model and where and when 3D model is necessary.

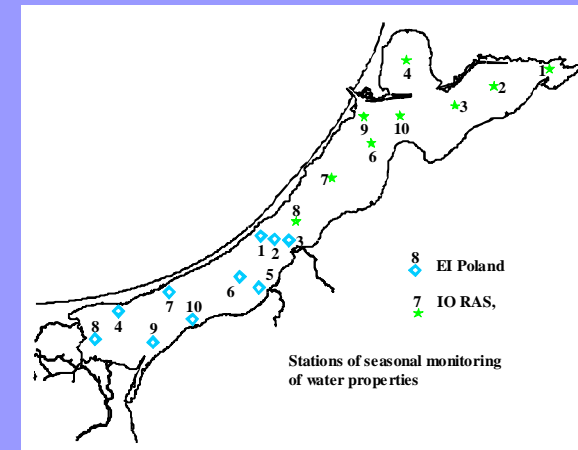
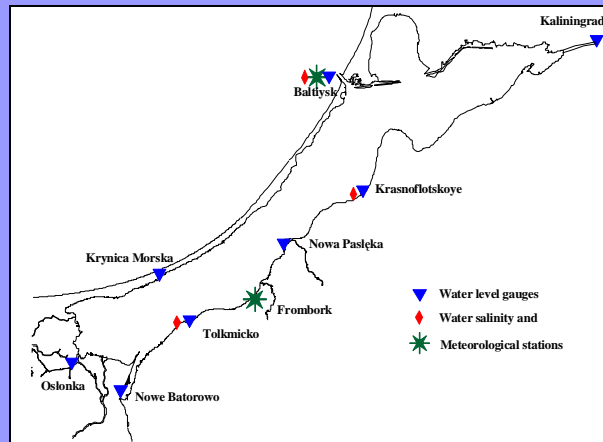


OBJECTIVES OF THE PROJECT

Hydrological and environmental data

Stations of regular monitoring of hydrological and meteorological parameters performed by IMWM (Institute of Meteorology and Water Management, Poland) and HYDROMET (Institute of Hydrometeorology, Russia).

Stations of seasonal monitoring of water salinity (EI – data from Environmental Inspection in Olsztyn, Poland; IO RAS – data from the Shirshov Institute of Oceanology of the Russian Academy of Sciences).





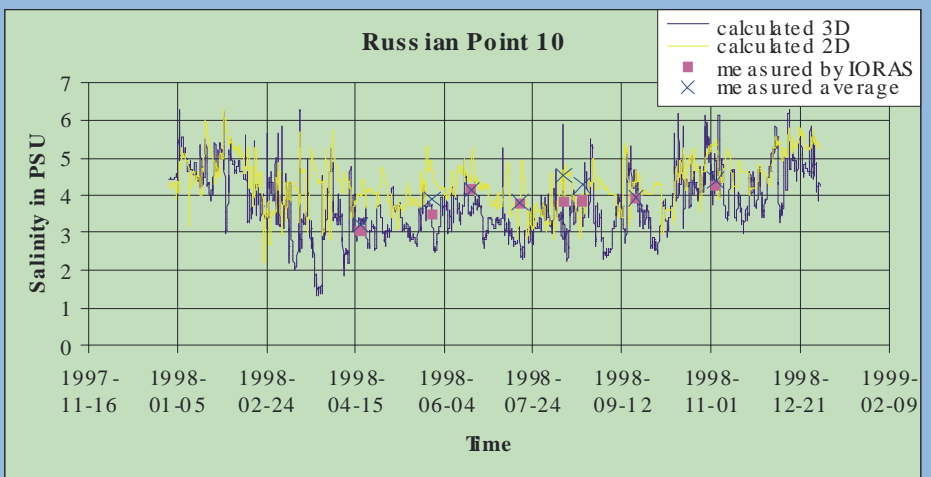
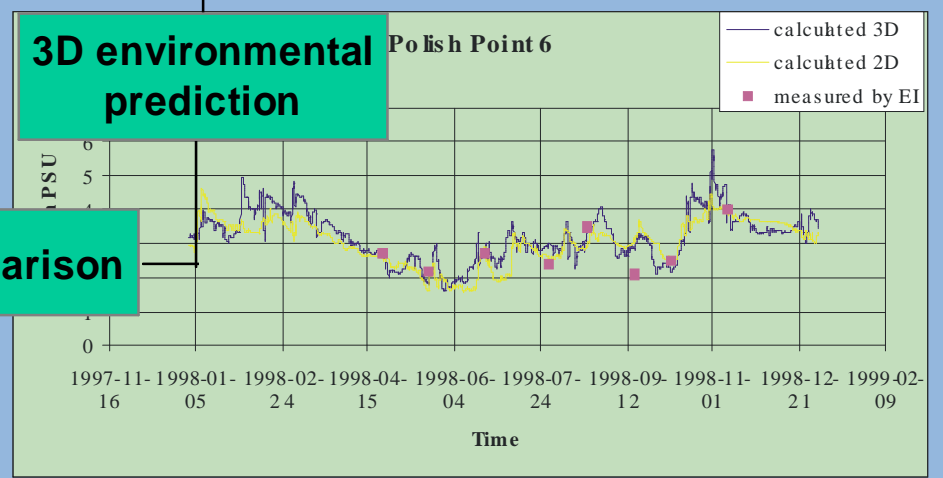
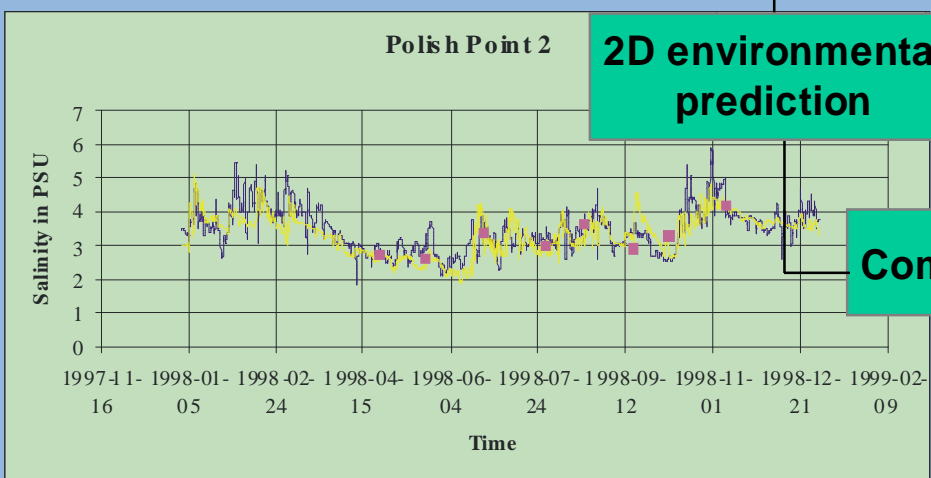
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Hydrological and environmental data

2D model

3D model



OBJECTIVES OF THE PROJECT

Hydrological and environmental data

2D model

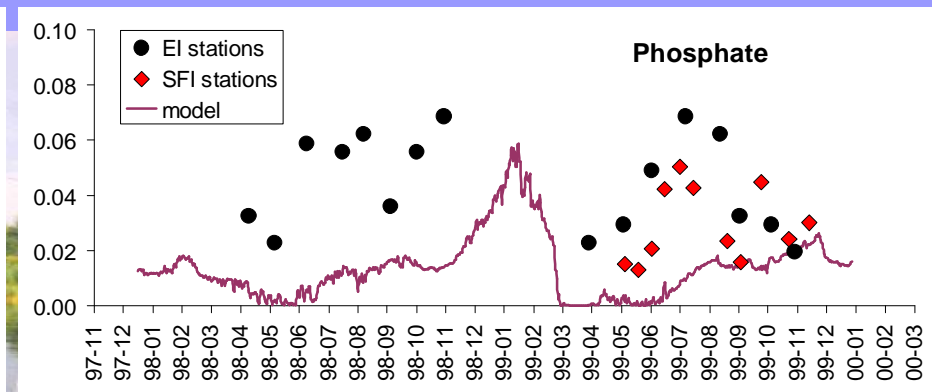
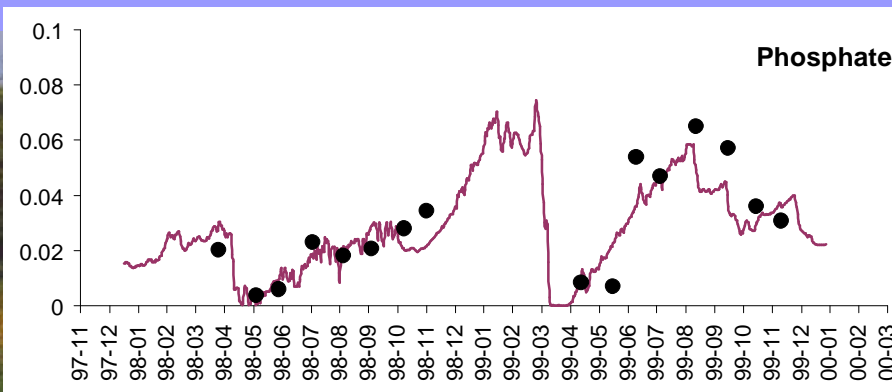
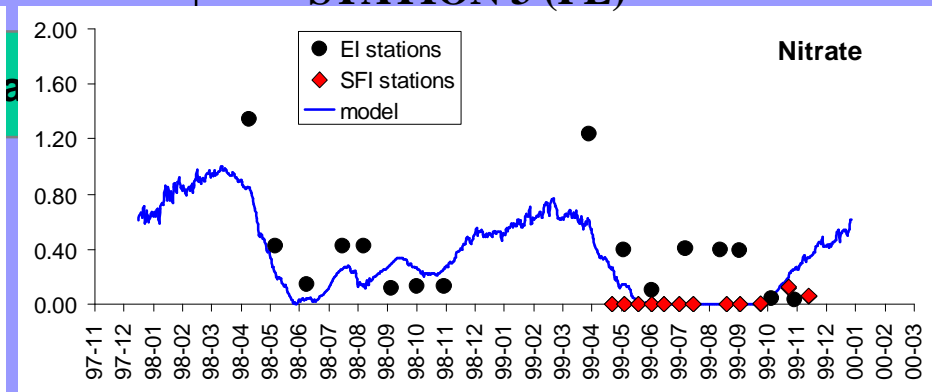
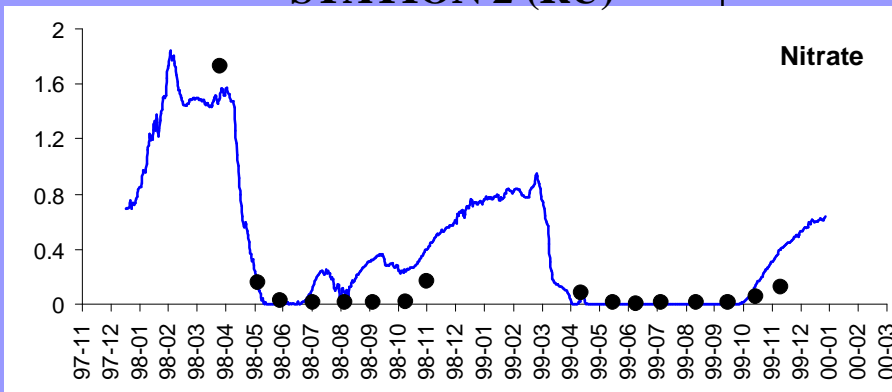
3D model

2D environmental prediction

3D environmental prediction

STATION 2 (RU)

STATION 3 (PL)



OBJECTIVES OF THE PROJECT

Hydrological and environmental data

2D model

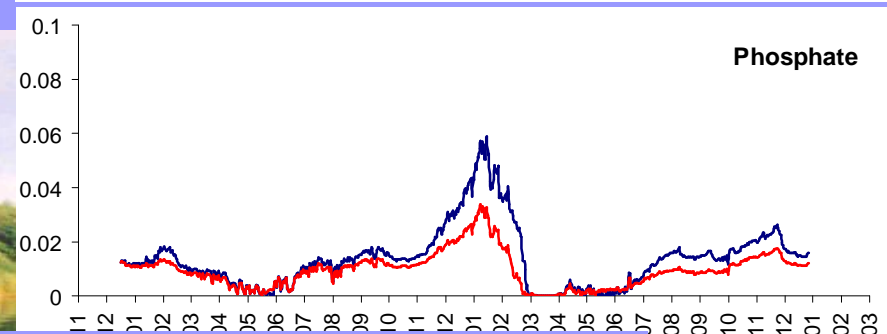
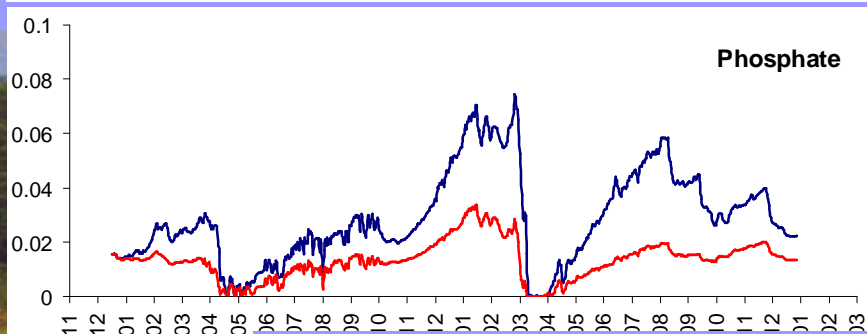
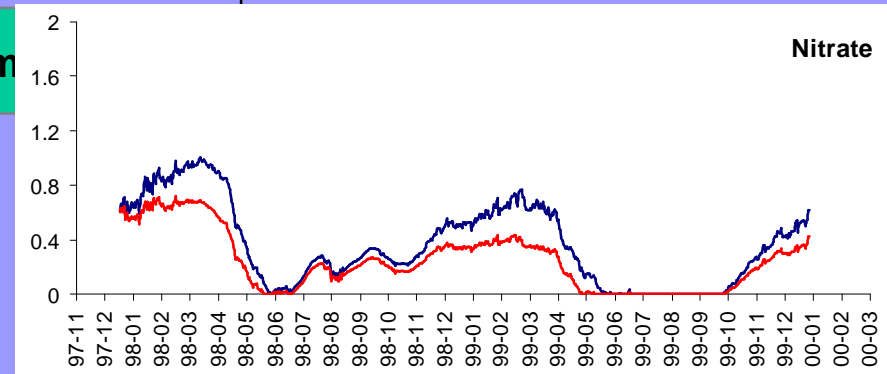
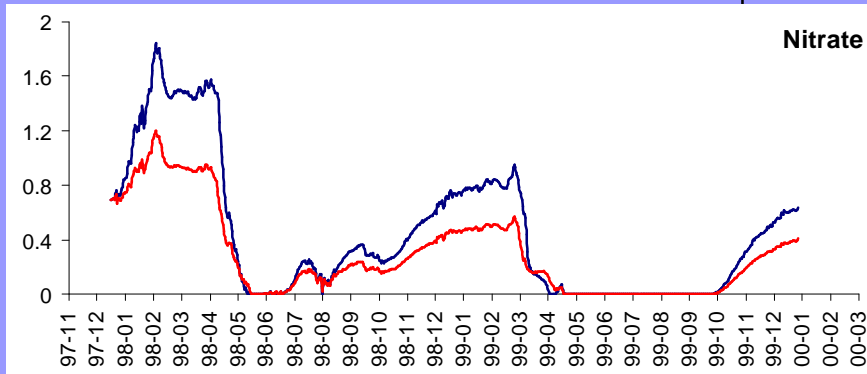
3D model

2D environmental prediction

3D environmental prediction

STATION 2 (RU)

STATION 3 (PL)



BAU SCENARIO – blue line

TD SCENARIO – red line

OBJECTIVES OF THE PROJECT

WHAT IS MISSING?

Evaluation of the Vistula Lagoon ecological status in a WFD context.

Reference conditions have to be established

Hydrological and environmental data

2D model

3D model

2D environmental prediction

3D environmental prediction

Comparison

