EKOROB

LIFE+ EKOROB:

Ecotones for reduction of diffuse pollutions

LIFE08 ENV/PL/000519

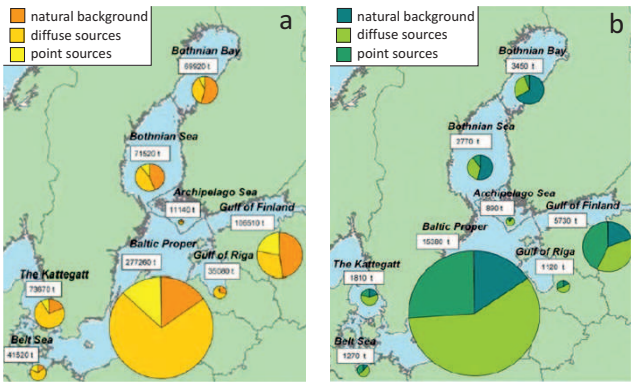
The agricultural land in Europe covers up to 70% of the landscape. In Poland over 60% of phosphorus and almost 70% of the nitrogen load to the Baltic Sea originate from diffuse (non-point) source pollution (**Fig.1**). That is why reduction of nutrient load from a catchment, which stimulates eutrophication and toxic algal bloom appearance in reservoirs, lakes and costal zones, is one of the key challenges with regard to implementation of the Water Framework Directive.
The creation of land-water ecotones has been proved to be an effective tool for reduction of the impact on freshwater ecosystem caused by nutrients from the landscapes. However, very often due to limited space in shoreline zone, ecotones are not effective sufficiently. That is why the goal of the project LIFE+ EKOROB „Ecotones for Reduction of Diffuse Pollutions" is an enhancement of ecotones zone to reduce nitrogen and phosphorus fluxes to reservoirs and the Baltic Sea towards implementation of the Water Framework Directive, achieving good ecological status, and reversing eutrophication of inland water and coastal zone.

The innovative aspects of the EKOROB project are:

1. For agricultural land where high nitrogen input to freshwater appears, a plant buffering zone has been combined with denitrification walls (**Fig.2**)
2. For rural and recreational areas where high phosphorus load has been transported to aquatic ecosystem, a plant buffering zone has been combined with biogeochemical barriers (**Fig.3**)

In both cases, the recreational function of any area has been enhanced by construction of special facilities for bathing, boating and angling. Preliminary results indicate that enhance ecotones may double the efficiency of nutrient reduction and reduce the shoreline space necessary for groundwater purification twice.

Fig.1. Proportion of sources contributing to nitrogen (a) and phosphorus (b) inputs into the Baltic Sea (HELCOM 2004)



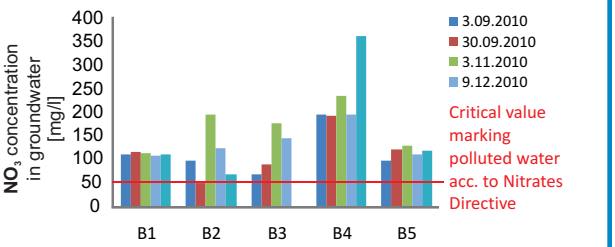
Toxic cyanobacterial bloom in Sulejow Reservoir as consequence of eutrophication (photo. M.Tarczyńska)

IDENTIFICATION OF PROBLEMS

DEVELOPMENT OF SOLUTIONS

Fig.2. Reduction of **nitrogen** pollution from diffuse source by enhancement of plant buffering zones with denitrification walls

(www.geoportal.gov.pl)



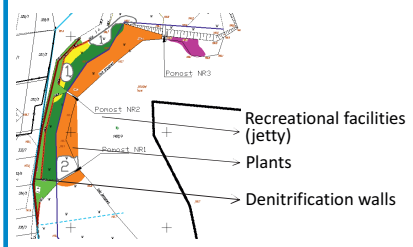


Fig.3. Reduction of **phosphorus** pollution from diffuse source by enhancement of plant buffering zones with biogeochemical barriers

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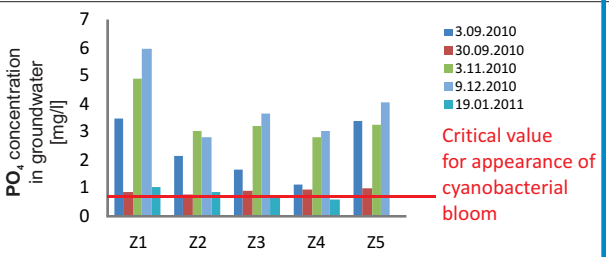

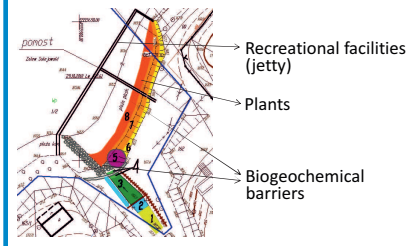

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photo of Pilica River by M.Wysocki