Abstract of oral presentation

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Response of phytobenthos parameters to changes in eutrophication level – Gulf of Riga case study.

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Gulf of Riga is a semi isolated part of the Baltic Sea with naturally elevated nutrient concentrations. Benthic macroflora of the area is due to low salinity very poor in species but most of the important, keystone species for the Baltic Sea as bladder wrack (*Fucus vesiculosus*), seagrass (*Zostera marina*) and red algae *Furcellaria lumbricalis* are present. The Gulf of Riga is also known from the literature to host macroalgal communities with highest biomass in the Baltic Sea area. Regular phytobenthos monitoring is carried out in the northern part of the Gulf of Riga since 1995 but historical records on phytobenthos depth distribution and species composition date back to 1959. Data from southern part of the Gulf is available from four single investigations covering the period 1984-1999. Data on nutrient loading was compiled from various sources and covered period 1974-2005. Maximum depth distribution and coverage characteristics of several macroalgal species were related to waterborn nutrient loading from major rivers and also nutrient concentration data from water quality monitoring activities carried out in the area. The strong correlation was described for maximum depth distribution of several red algae species forming the lowest macroalgal belt along the depth gradient and nutrient loading from spring of the same year while relations with measured nutrient concentrations were very weak or not existing. The major decline of bladder wrack population, which took place during the years 1996-1998 was not related to changes in nutrient concentrations or loading and has to be explained by other mechanisms. Based on the analyses of the available macroalgal dataset and loading information the proposal for reference conditions for several macroalgal parameters were made for both southern and northern part of the Gulf of Riga. The study was carried out with support from WB BSRP project.