

The influence of Nemunas water on the bathing water quality in the Curonian Lagoon

Georg Umgiesser^{1,2,*}, Ali Ertürk^{1,3}, Jovita Mėžinė¹, Natalija Čerkasova¹, Marija Kataržytė¹, Gerald Schernewski^{1,4}

¹MARSTEC, Marine science and technology centre, Klaipėda University, Lithuania

²ISMAR-CNR, Institute of Marine Sciences, Venice, Italy

³Istanbul University, Istanbul, Turkey

⁴Leibniz-Institute for Baltic Sea Research (IOW), Rostock, Germany

*georg.umgiesser@jmtc.ku.lt

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The project BaltCoast, funded by EU BONUS, aims to tackle systematic coastal management issues using Systems Approach Framework (SAF). The SAF will be applied through case studies that reflect current Baltic Sea region management challenges and develop a generic tool for integrated system assessment: one of which is bathing water quality and tourism.

Increasing tourism causes demand to re-open closed beaches with insufficient water quality, as well to establish new ones, for example in Curonian lagoon. Our task is to combine traditional monitoring methods, with 3D-hydrodynamic transport models and strain-specific genetic fingerprint methods that will allow us to use it for risk analysis and scenario and will provide a new, transferable bathing water quality management and evaluation system, with high practical relevance for end-users and the implementation of the Bathing Water Directive.

The Nemunas River is entering the Curonian lagoon on its eastern side. Yearly average discharge is over 500 m³/s. This makes the Curonian lagoon basically a freshwater lagoon. The water quality of the Curonian waters is heavily influenced by the quality of the Nemunas River. This is especially true for microbiological pollution that is picked up by the river along its course through its watershed.

A lagrangian model has been used to simulate the spreading of the Nemunas waters inside the Curonian lagoon. The lagrangian particles are subject to biological decay that will simulate the natural pollution reduction of the waters. Study of the particle distribution and concentration close to the Curonian Spit will allow an assessment of the suitability of possible beaches inside the Curonian lagoon.