

## VABILO

Nacionalni inštitut za biologijo Vas vabi, da se udeležite seminarja,

# »MUSSELS IN ECOGENOTOXICOLOGY – THE DANUBE RIVER CASE STUDY«,

ki ga bosta predstavila



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Seminar bo v petek, 5. april 2019, ob 9.30 na Morski biološki postaji Piran,  
Fornače 41, v Piranu, v sejni sobi v 2. nadstropju.

### Povzetek:

»Aquatic invertebrates are commonly employed as sentinel organisms in assessment of the ecosystem quality. Among this group, mussels are of special interest due to their sedentary way of living, filter feeding and most importantly wide distribution. These features enable their usage for bioindication in great and complex ecosystems such as the Danube River Basin. Many xenobiotics in environment can interact with DNA which can lead to serious consequences at the level of single organism, population and eventually whole ecosystem. The Joint Danube Survey 3, the largest expedition in 2013 was perfect opportunity for assessment of genotoxic pressure along the Danube River. Genotoxicity was assessed by measuring the level of DNA damage in freshwater mussels collected from 34 selected sites along the 2285 rkm.

The level of faecal pollution was studied in parallel with genotoxicological survey using standard indicators total coliforms, *Escherichia coli* and Enterococci. Quantification was performed with Colilert/Enterolert Quanti-Tray 2000 and MPN approach. Quantitative PCR (qPCR)-based assays for analysis of human- or animal-associated genetic Bacteroidetes fecal markers have been used for tracking the source of pollution (microbial source tracking -MST). The human-associated BacHum and HF183II, the ruminant-associated BacR and the pig-associated Pig2Bac fecal markers were selected.

Presence of pollution was especially evident in the countries in which the legislation related to wastewater treatment and management is not fully implemented. The most critical section of the river was Pannonian plain (sector VI). The results of MST revealed the presence of human-associated fecal markers BacHum and HF183II in majority of the analyzed samples. High correlation was observed between the standard fecal indicators and human associated faecal markers.

The highest levels of DNA damage were recorded in organisms from the section VI, which is under the impact of untreated wastewater discharges. Both positive and negative influences of the large tributaries on the level of genotoxicity in the Danube River were evident; ie. in 2013 the Sava River was characterized with lower level of both faecal and genotoxic pollution in comparison with the Danube.«

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