



DGT

WORKSHOP

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Lancaster University

ASSESSMENT OF THE BIOAVAILABLE METAL POLLUTANTS IN SAVA RIVER WATER BY PASSIVE SAMPLERS

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The Sava River catchment area (95551 km²) covers four countries: Slovenia, Croatia, Bosnia and Herzegovina and Serbia and Montenegro. The Sava River (945 km) is the biggest tributary of the Danube River. For the mentioned countries, Sava River covers more than 80% of water supply. In the line with the Water Framework Directive (WFD), a river basin management plan is needed for long-term protection of valuable resources. Protection of water quality, biodiversity and health of aquatic organisms is the main aim of such water management plan. With that in mind, an international EU FP6 project, which involves 11 partners, has been launched on August 1, 2004 for three years. The project entitled **SAva RIver Basin: Sustainable Use, Management and Protection of Resources (SARIB)** (INCO-CT-2004-509160) has the main goal to establish the extent and geographical distribution of river water pollution by different organic and inorganic pollutants, and their impact on the aquatic organisms, specifically fish.

The objective of the specific work package in which our Division participates is to develop and validate new, specific tools for assessment of geographical distribution and time-integrated levels of bioavailable pollutants and to estimate their measurable biological impact on feral fish (European chub (*Leuciscus cephalus*)), from the Sava River. A specific tool (DGT sampler) will be applied for *in situ* assessment of the bioavailable metal fractions in water, i.e. for the time-integrated monitoring of trace metals in the Sava River. During the Workshop, an illustration of the deployment set-up will be presented, as well as the results of trace metal monitoring at the selected deployment sites along the river watercourse. The bioavailable dissolved concentrations of the following trace metals, Cd, Cu, Zn, Fe, Mn, Pb, Ag, accumulated by DGTs, will be analysed, after elution, by the atomic absorption spectrometry (flame and graphite furnace technique). The initial results on the laboratory testing of DGT performance will be also presented as a part of internal quality assurance programme.

DGT deployment sites coincide with the fish catchment sites. In general, they were selected at the locations upstream and downstream of the urban settlements, with different type and degree of industrial activities.

The time-integrated levels of metal pollutants, accumulated from water column by deployed DGT devices, will be compared to the metal concentrations measured in the gill cytosol of the fish caught at the same site, in order to estimate metal bioaccumulation. Metal impact on the fish will be also estimated by means of a metal specific biomarker, i.e. metallothionein. And finally, intersite comparison will be performed to establish spatial distribution of metal pollution along Sava River flow.