

## **Trace metal content and mobility in estuarine sediments of the Krka River (Adriatic Sea, Croatia)**

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Estuaries are an important stage in the global sedimentary cycle, while estuarine sediments are often the sinks of metal contaminants in aquatic system [1]. As a consequence of biogeochemical processes which influence metal mobility, sediments could become secondary source of metal contaminants for the environment. Our research was conducted in Krka River estuary, a typical stratified estuary located on the Eastern Adriatic coast. If Krka River is considered as pristine, the lower part of its estuary, Šibenik Bay, is under anthropogenic influence of the Šibenik town. It is the largest settlement in the region (~50 000 inhabitants) and a main source of contamination. However, most of the town sources of contamination are now closed or modernized. Currently, marina could be a novel source of contamination. The nautical tourism (more than 1000 berths) is considered as a serious seasonal anthropogenic treat for the estuary ecosystem [2].

To define main sources of pollution within the estuary, surface sediment samples were taken on 40 location along the entire estuary and analysed for major/minor/trace elements. Within the estuary, two sediment cores were sampled. Both cores were sliced every 1 cm under inert atmosphere. Porewater and solid fractions were recovered and analysed for major/minor/trace elements and particulate/dissolved organic matter. In addition, DGT probes were used to gain information on geochemical reactions between sediment particles and porewater, with high spatial resolution.

Surface sediment analysis demonstrated that generally there are three main pollution sources: former ferromanganese industry, harbour and marina; which differently contribute to the sedimentary deposits. Mobility in the sediments is controlled by early diagenesis processes.

[1] Chapam & Wang (2001), Environ. Toxicol. Chem. **20**, 3-22. [2] Cindrić et al. (2015), Mar. Pollut. Bull. **94**, 199-216.