



A Contribution to Hydromorphological Typification of Slovenian Streams

P. Repnik (1), A. Bizjak (1,2) and **M. Mikoš** (1)

(1) University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia,

(2) Institute for Water of the Republic of Slovenia, Ljubljana, Slovenia

(matjaz.mikos@fgg.uni-lj.si / Fax: +386-1251-9897)

In the last years, many efforts within water management were oriented towards defining the natural state or “reference conditions” and the degree of alteration caused by a particular anthropogenic pressure to be able to assess the past modification of water bodies.

In order to get a better insight into “reference conditions” of Slovenian streams, we performed a study on hydromorphological (HM) reference conditions and the subsequent HM typification of Slovenian streams. For this purpose a field study was carried out on selected (typical) Slovenian streams having a catchment area of the order of 10 to 100 km² and being spread in all 16 bioregions recognised in Slovenia (using System B from the Water Framework Directive).

Taking into account HM reference conditions and typifications done elsewhere, and following the guidelines of the Water Framework Directive, the field study incorporated field sampling in HM reference sections of 92 selected watercourses. These were chosen according to the known criteria for selecting such reference sites. The field gathering of numerous HM variables demanded preparing of a HM reference record sheet that includes both on- and off-site variables acquired on the basis of the on- and off-site work.

The field inventory was performed using the transect data gathering technique (Bizjak, 2003) that demands an inventory in 6 transects for every HM reference section. The section values that were the input data for the HM typification of the selected HM reference sections were acquired as the average of the transect values. The first two

levels of the Rosgen typification of watercourses (Rosgen, 1996) were taken as the starting point for the typification. With the co-appearance analysis of the HM variables and the use of the geographic information system (software package *ArcGIS v 9*), nine (9) hydromorphological types of Slovenian watercourses were identified. The study has shown that the HM types, identified on the basis of the differences between the key geomorphic and morphological variables, typically differ also on the level of more specific HM variables.