

ABSTRACT

The subject of the diploma thesis is the change in the spatial distribution of erosion and sediment deposition landforms within the channel of four different-size rivers, and is based on the morphology of the river channel and presence of barriers. The objective of this thesis was to 1) map the spatial distribution of channel bars and locations of bank scour, 2) define the morphologic characteristics including the position with respect to the location of bends and obstructions in the channel of the individual river reaches, and 3) define common patterns, and explain potential differences between the patterns in the rivers of different size. For the purpose of this study a field reconnaissance was carried out on selected reaches of Sazava River, Litavka River, Kocaba River and Lodenice River. The selected sections represent relatively natural parts of river channels with similar geomorphic conditions. The field survey was carried out in two campaigns – in spring and in summer 2015. The results of the survey indicate that channel bends do not play a primary role in the position and morphology of channel bars and locations of bank scour. However, significant sediment deposition or erosion activity was identified near run-of-river dams. In the surveyed reaches of the Sazava and Litavka rivers, channel bars and occasionally areas of bank scour were found up to 100 meters downstream from the run-of-river dams. Other obstructions (e.g. boulders, woody debris, etc.) influence occurrence of channel bars in the Sazava River only. A significant difference in the length of bank scour areas has been identified between the Litavka River and the other rivers, due to the presence of loess soils within the Litavka River valley. During evaluation of the findings, it is necessary to consider the significant difference in size between the two larger rivers, the Sazava River and the Litavka River, and the small difference in size between the two smaller rivers, the Kocaba River and the Lodenice River. In general, the results of the study indicate that the geomorphology of the rivers, including river bends, run-of-river dams, and other obstructions within the channel, is significantly impacted by the length and position of the selected reaches within the overall length of the rivers, as well as the local conditions of the selected reaches (e.g. loess soil within the Litavka River valley, boulders in the channel Stvořidla in Sazava River, etc.).

Key words: geomorphology, channel bars, channel, bank scours