

INCISION OF THE CHANNELIZED RABA: THE EFFECT OF INCREASED TRANSPORTING ABILITY OF THE RIVER AND DECREASING SEDIMENT SUPPLY

Bartłomiej Wyzga, Institute of Nature Conservation, Polish Academy of Sciences, ul. Lubicz 46, 31-512 Kraków, Poland

The Raba River, southern Poland, was repeatedly straightened and narrowed during the 20th century. Up to 3 m of bed degradation has occurred since the initiation of the channelization works and the incision has been especially intense in the second half of the century, resulting in a number of detrimental effects. A comparison of the geometry and sediments of a natural channel formed during a break in the river-control works at the mid-century with those typifying the pre-regulation channel from the 19th century indicates a reduction in sediment supply to the river. The previous multithalweg channel was now replaced by a single-thread, meandering channel. The coarsening and improved sorting of bed material and the development of bed armouring, lacking in the 19th-century channel, were apparent. Overloose gravels decreased in importance in favour of closely packed gravels. The reduction in sediment supply resulted from alterations in basin management and a change in flood hydrographs and this trend continued in the second half of the century. Under natural conditions, the river would react to the reduced sediment supply by increasing sinuosity and decreasing its gradient. Thus, the rapid incision in the last decades has been the result of an improper channelization which increased sediment-transporting ability of the river at the time of decreasing sediment supply from its catchment.