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The Influence of Human Impact to River morphology and aquatic ecology at the Austrian Kamp River

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The Kamp River got international attention in the year 2002 by the catastrophic flood event which happened in August. In the following year the University of Applied Life Sciences got a study assigned which contained process orientated analyses of the total Kamp river system. The first impact which was documented was the partially regulation of the meandering system of the Kamp River in 1900, following on that, the results of this study also showed that the change of the hydrologic characteristic, caused of three large hydropower plants, influenced the river morphology and the habitat quality of the Kamp River drastically. Cutting of smaller- and middle flood events by the reservoirs effected a reduction of the river width, which was emphasised by arising vegetation. Also this reduction of the bankfull discharge led to an earlier flooding of overbank areas. On the basis of this case study the possibilities of integrative evaluation of an ecologically oriented flood protection measure at the Kamp River are discussed. Beside the hydrodynamic modelling of predefined flood events, low and mean flow situations were simulated to evaluate the abiotic conditions for main fish species. Further it was possible to create a digital terrain model (DTM) of the former, natural river bed (1890) which was used as the “Leitbild” situation. It was possible to discuss the success of ecological orientated flood protection measures according to the “Leitbild” situation using ecologic and economic parameters.