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Longitudinal sediment-connectivity in a dammed river system using fine sediment analyses – a case study in the Kaja river, Lower Austria

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In the recent past the concept of connectivity gained increased significance for the understanding of the linkage between different subsystems within river channels and catchments. Based on fine sediment (<2mm) analyses the main objective of the presented work is to analyse the impact of a dam on the longitudinal sediment connectivity in a river channel.
The study sites are located alongside the "Kaja" river (lower Austria), which has a catchment area of about 21.3km^2. The river is characterised by a series of dams whereof the present work deals with the so called "Sagteich".
Measurements of suspended load as well as fine sediment samples from pool-sections were collected up- and downstream of the dam. The suspended load concentrations where analysed by weighting the water and sediment amount. The grain size distribution of the sediment samples from the pool-sections were measured with sieving as well as pipette analyses.
The results of the suspended load analysis reveal that the dam is a strong disconnecting factor in longitudinal direction. This disconnectivity cannot be confirmed for fine sediments, which have been determined from the sediment samples collected in the pool-sections. It is argued, that the lateral input of sediments alters the grain size distribution in pool-sections and consequently, any interpretation of longitudinal sediment connectivity, or disconnectivity has to be regarded with reservation in this fraction.