



## **Using bankfull discharge to quantify the effects of urbanization on river morphology: study of the Yzeron river basin (France)**

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For an homogeneous regional context, many studies have shown that bankfull discharge of non-disturbed alluvial rivers increases with catchments area following simple statistical laws. Some of them highlighted a significant gap to this regional law for streams impacted by human activities development (e.g. dams, channelization). To test the use of bankfull discharge as an indicator of physical disturbance of stream reaches following urbanization, we carried out a comparative analysis on the Yzeron river basin (France; 130 km<sup>2</sup>). It is an homogeneous climatological zone, but it is submitted to heterogeneous and rapid development of urbanization. So, we compared for the same range of catchments sizes and the same geology i) stream reaches located in urban areas and ii) stream reaches located in rural areas. The last group was considered as a reference to diagnose potential impact of urbanization. With field measurements, we determined bankfull discharge magnitude and associated values on 20 stream reaches (from 1 km<sup>2</sup> up to 34 km<sup>2</sup>). To characterize corresponding catchments area, we made use of GIS data (geology, land use, location of road collectors and storm sewers). This presentation describes the main results of this study and the interest to use bankfull discharge in the perspective of river habitat management and restoration required by the European Water Framework Directive.