Changes in surface water storage in the Czech Republic over centuries

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The landscape in the area of present Czech Republic underwent significant changes in past. It is almost completely a cultural landscape which is strongly modified by human activities. As the most important activities, agriculture and urbanisation should be mentioned. However, there is one another important factor which played an important role in the formation of present landscape which is the existence of fishponds. First mentions about the existence of fishponds in the area of present Czech Republic date back to the eleventh century. Since that time, the number of fishponds varied a lot due to different reasons. It is impossible to map fishponds in larger areas since the existence of first of them as there are no maps having sufficient detail and accuracy from that era. This paper presents the analysis of historical variation of the number of fishponds in the catchment of Bystřice which is located in eastern Bohemia. The catchment has an area 379 km2 and includes different types of relief from submountain areas in upper part to lowlands in lower part. The analysis was based on old maps from different periods. The oldest period for which complex maps containing fishponds are available is the second half of 18th century. However, these maps have insufficient positional accuracy and therefore it needed to be analysed purely manually. The period considered for the analysis is from this time in which most fishponds were still existing to present. The results show in general that the number of fishponds varied a lot within the analysed period. The more detailed look at the results indicates that those biggest fishponds existing in the beginning of analysed period ceased to exist a long time ago. The total volume of water stored in reservoirs was calculated by the analysis of detail elevation data. The results of this type of analysis indicate a significant decrease of volume of water stored in the landscape.