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The aim of the study is to estimate a flow duration curve (FDC) as a long term hydrological characteristic for a Zwolenka river catchment, located in the centre of Poland, i.e. ca 130 km south of Warsaw. The study has been undertaken to learn the local environmental condition of the European pond turtle, which have their nests in a lower reach of the river valley. A significant part of the river valley here is designed as a protected area “Natura 2000”. The catchment area upstream of the investigated gauging station Siekierki is 194 km². Agricultural areas and fallows dominate within the catchment. The main soils are loamy soils and sands, although, in the valley occurs also peat. The dominant crops are: rye and mixtures of corn and oat. Two nature reserves are located in this area: – Borowiec and Ługi Helenowskie. About 80 species of birds and 19 species of mammals can be observed within the valley.

Mean annual precipitation here is ca. 610 mm and runoff ca. 110 mm.

For estimating the requested FDC, long term data, i.e. a continuous 48 year record of the period 1963-2010, from a near laying catchment of Zagózdzonka River at Plachty gauge (82.4 km²) were used as a base information. This information, as well as a log-log discharge relationship between two catchments, based on 35 hydrometric measurements done simultaneously, as well as peak discharges of corresponding flow hydrographs, allow the estimation of the requested values for the larger, i.e. Zwolenka catchment. In the previous research, based on short term recorded data for those two analysed catchments, Zwolenka and Zagózdzonka, a good correlation between observed discharges (here, Q_Zwolenka in relation to Q_Plachty) has been found, which allows us to assume hydrological characteristics of the Zwolenka river in the function of the Zagózdzonka river.

The upper, middle and lower quartiles (Q25, 50, 75%) of the discharge of Zwolenka at Siekierki are 0,744; 0,535 and 0,387 m³/s, which produce the quartiles of the specific discharges of 3,83; 2,76 and 2,00 l s⁻¹ km⁻² respectively.

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