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Assessment of the Morphometric Characteristics and Filling Regime of Ponds and Reservoirs of Sn of the Steppe Zone of Ukraine Using Data from Remote Sensing

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Keywords: Remote sensing; Satellite images; Monitoring of artificial reservoirs; Filling regime; Morphometric characteristics

Abstract: At present in Ukraine there are still no official and reliable data on the regime and frequency of filling ponds and reservoirs in the catchment rivers. However, the lack of control over the filling regime and other characteristics of these artificial reservoirs (length, water surface area, water cut- etc.) leads to many abuses in the use of both ponds and reservoirs, and areas of coastal protection strips around them. The catchment area of the sn Kuyalnyk River in the Odessa region is no exception. Today there are 162 significantly changed and artificial massifs of surface waters on the catchm Velykyi Kuyalnyk River, including cascades of channel ponds and reservoirs, dug ponds. The total volume of all these artificial reservoirs is 15.6 millio 76.5% of the river runoff (20.4 million m³) in the average water year. Such significant regulation of runoff has led to the deterioration and degradation ecosystem of the Velykyi Kuyalnyk River and the Kuyalnytskyi Lyman into which it flows. In the paper on the example of 9 artificial reservoirs (7 ponds reservoirs) in the basin of the Velykyi Kuyalnyk River using geodetic tools online viewer USGS Land Look and the archive of space images from radior 1-8 and Sentinel-2 for the period from 1989 to 2021 defined all the years in which these artificial reservoirs were filled with water or were dry. It was f filling of ponds and reservoirs (including those that periodically dried up) occurred during rain floods in spring and summer (sometimes in autumn) fc (from 2-3 days to 1 week). It is determined that there is a close unambiguous relationship between the water surface area and the length of reservoir and the arithmetic mean of the relative deviations does not exceed ±5%. It is recommended to use the above method to establish morphometric chara assess the filling regime of artificial reservoirs according to remote satellite sensing of the Earth during preliminary (reconnaissance) studies and dia monitoring of small rivers. Based on the results of research on the example of theVelykyi Kuyalnyk River, practical recommendations are provided to r existing volume of regulation of runoff of small rivers in the steppe zone of Ukraine. Their implementation will contribute to the future restoration of tl ecological regime in the Velykyi Kuyalnyk River basin.

DOI: https://doi.org/10.3850/IAHR-39WC2521711920221180

Year: 2022