



Evaluating the effects of monthly river flow trends on Environmental Flow allocation

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The Natural river flow regime can be changed by the construction of hydraulic structures such as dams, hydropower plants, pump stations and so on. Due to the new river flow regime, some parts of water resources must be allocated to environmental flow (EF). There are more than 62 hydrological methods which have been proposed for calculating EF, although these methods don't have enough acceptability to be used in practical cases and The so other methods are preferred such as holistic, Most hydrological methods do not take basin physiography, climate, location of hydraulic structures, monthly river flow regime, historical trend of river (annually regime), purpose of hydraulic structures and so on, into consideration. In the present work, data from more than 180 rivers from Asia (71 rivers and 16 countries), Europe (79 Rivers and 23 countries), Americas (23 rivers and 10 countries) and Africa (12 rivers and 6 countries) were used to assess EF. The rivers were divided into 5 main groups of regular permanent rivers, semi regular permanent rivers, irregular permanent rivers, seasonal rivers and dry rivers, for each groups EF calculated by some hydrological methods and compared with the natural flow regime. The results showed that besides the amount of EF, the monthly distribution of flow is very important and should be considered in reservoir operation. In seasonal rivers and dry rivers, hydraulic structure construction can be useful for conserving aquatic ecosystems