Concept of Environmental Flow and Application on Reservoirs Using IHA Software

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Abstract

Today, energy is one of the most basic needs to sustain human life and an important part of this need is supplied from hydroelectric power plants. However, due to inappropriate operation of reservoirs, some effects which damage the nature occur. To minimize these effects, reservoirs need to be operated in such a way as not to affect downstream habitats adversely. In this study, ecological flow rates of the dams situated on Porsuk River and Seydi Suyu Stream are determined and some evaluations are done on how reservoirs are to be operated according to the principles of ecological flow. Streamflow data before and after dam are taken into consideration on these evaluations. When the effects of the dams are investigated on generally the number of dry days and 7 day minimum flows are observed to be decreasing after damming. In addition, it is observed that 3-day maximum flows decreased and base flow indices increase.

Keywords: IHA, Porsuk Dam, Kunduzlar Reservoir, Çatören Reservoir, Ecological Flow.