Water quality assessment of manmade lakes by application of WQI and TSI index (Case study: Dez dam reservoir)

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Abstract

Lake dams are manmade water bodies, usually formed by constructing a dam across a flowing river. Dez dam which is located on Karun River is one of the largest Iranian dams. In a field study, EC, Nitrate, Ammonia, Phosphate, Turbidity, TS, Alkalinity, Coliform, Temperature, DO, BOD, chrophlla and disk sechi have measured at five sampling points at 2011-2012 water years. Water Quality Index and TSI have been calculated for all sampling points and quality zonation has been done. The results show that the best water quality index for reservoir water is at second sampling point with amount of 61 which is situated at the center of reservoir, and the worst index is at entering point to the reservoir with amount of 46 at April. The main reason of changes is turnover of thermal stratification. Risk of Eutrophication will treat lake water quality if no entering pollutants control be conducted. Eutrophication will cause serious limitations in land use applicability, turbidity increase, poisonous materials production and increase in sedimentation regime. Experimental results and water quality indexes show that Dez dam quality is suitable for all public usages at the moment; it is obvious that tertiary treatment is necessary for drinking application.

Keywords: Water Quality Index, Dez Dam, Reservoir, Trophic Index, Quality Evaluation.