**Reservoir Releases for Environmental Flows: A Comparative Study in Texas USA.**

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The 80th Texas Legislature (2007) established the Senate Bill 3 process for environmental flows in order to determine environmental flow standards for all of the major river basins and bay systems in Texas. The term "environmental flows" is used to describe the inflow needed to maintain ecologically healthy bays and estuaries. The quantity and timing of freshwater inflow from rivers is important to maintaining the natural salinity, nutrient, and sediment loading regimes which ensure healthy ecosystem function. Increasing demands for water coupled with drought conditions may limit the volume of freshwater reaching the estuaries as well as alter the timing in which the water arrives due to upstream reservoir releases. Two estuary/bay systems were selected for comparison for reservoir releases for environmental flow standards: The Nueces Estuary and the Trinity-San Jacinto Estuary in Texas, USA. The Choke Canyon Reservoir and the Wesley E Seale Dam (Lake Corpus Christi) are located on the Frio and Nueces Rivers and are under environmental flow regulations to release a target amount of water (acre-feet) downstream for the Nueces Estuary. Lake Livingston Reservoir is located on the Trinity River and is under environmental flow regulations to release a required amount of water to maintain seasonal inflows (cubic feet per second) at a downstream USGS stream gage to ensure water researches the Trinity-San Jacinto Estuary. Correlations were established between inflow, releases, precipitation, gauged flow, and downstream water rights. These correlations will be used to create a predictive model in which a forecasted amount of precipitation can be used to determine if the environmental flow standard will be met by an estimated reservoir release. The results of this research will contribute to a better understanding of the ability of meeting an environmental flow standard based on correlations in precipitation and water rights use allocations.

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