

## **Integrated Hydrologic-Economic-Institutional Model of Environmental Flow Strategies for the Rio Yaqui Basin, Sonora, Mexico**

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### **ABSTRACT**

An integrated hydrologic-economic-institutional water model was developed for the Rio Yaqui Basin, located in northwest Mexico, with the objective of assessing the impacts on agricultural economic benefits from strategies for allocating environmental flow. This paper focuses on the creation of simulation models that estimate the agricultural net benefits under different environmental flow scenarios and surface water allocation strategies. The results illustrate a trade-off between interannual variability of environmental flows and variability in agricultural benefits, corresponding to economic risk, for three allocation strategies. Results also show that environmental flow allocations affect groundwater levels through impacts on surface-ground water interactions.