

**Texas A & M University and U.S. Bureau of Reclamation  
Hydrologic Modeling Inventory  
Model Description Form  
July 18, 2007**

**Name of Model: RIOFISH**

**Model Type: Hybrid analytic and statistical model; integrated hydrologic, hydraulic, fish habitat, resource use, and economic benefits**

**Model Objective(s): For use in developing fisheries management plans**

**Agency and Office: Developed at New Mexico State University**

**Technical Contact and Address: Richard A. Cole; 1801 Allison Street, NW; Washington D. C. 20011**

**Model Structure or Mathematical Basis: For the hydrologic part, mass balance. Linear models in other parts.**

**Model Parameters: Streamflow, evaporation, precipitation, diversions**

**Spatial Scale Employed in the Model: Varies from short stream reaches to entire reservoirs located throughout the State of New Mexico in the five major river basins.**

**Temporal Scale Employed in the Model: Varies from two weeks to three months**

**Input Data Requirements: Extensive. For the hydrologic part, U.S.G.S (or other sources) flow and selected materials concentrations.**

**Computer Requirements: Personal computer**

**Model Output: Streamflows, reservoir contents, stream velocity, sediment, phosphorus and nitrogen transport and concentration, water temperature and clarity.**

**Parameter Estimation / Model Calibration: None in current version**

**Model Testing and Verification: Conducted against historic streamflows and reservoir contents**

**Model Sensitivity: Sensitive to choice of evaporation pan coefficient for reservoir content changes**

**Model Reliability: Very**

**Model Application / Case Studies: Applied throughout New Mexico and in the Salt River basin of Arizona**

**Documentation:**

**Cole, R. A., T. J. Ward, F. A. Ward, R. A. Deitner, R. W. Rodden, S. M. Bolton and K. A. Green-Hammond. 1995a. RIOFISH: a statewide comprehensive management system model for New Mexico sportfisheries. WRI Technical Completion Report 291, New Mexico Water Resources Research Institute, New Mexico State University, Las Cruces. 230 pg; Math Appendix**

**Cole, R. A., K. A. Green-Hammond, F. A. Ward, T. J. Ward, and R. A. Deitner. 1995b. User's guide for RIOFISH: a comprehensive management system model for New Mexico sportfisheries. WRRRI Technical Completion Report 292, New Mexico Water Resources Research Institute, New Mexico State University, Las Cruces. 79 pgs.; diskettes.**

**Other Comments: RIOFISH is a high level planning model that requires training to operate effectively**