

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

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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: Vary

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. WRRRI 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