Bureau of Reclamation
Albuquerque Area Office

State of New Mexico
Interstate Stream Commission

RIVER NOTES

A Newsletter of the Carlsbad Project Water Operations & Water Supply Conservation EIS
July 2003

Pecos River Hydrologic Modeling Tools

To evaluate the hydrological impacts of contemplated management alternatives associated with the EIS, a suite of computer models have been developed to simulate hydrologic processes and water operations in the Pecos River basin, New Mexico. These models and tools comprise the Pecos River Decision Support System (PRDSS). These models provide a quantitative approach for evaluating and comparing a wide range of water operations management scenarios.

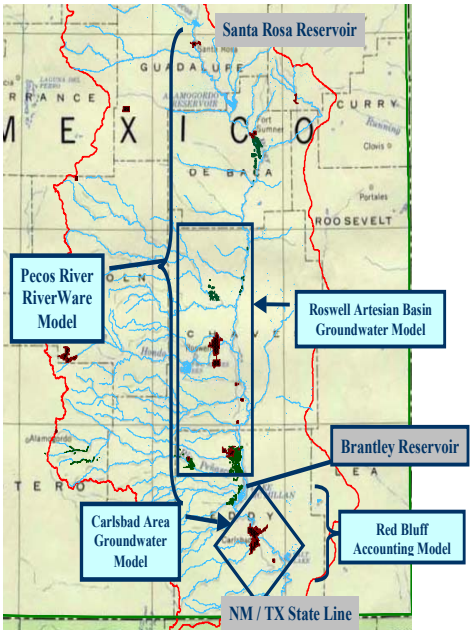
Each model is a simplified computerized representation of each aspect of the more complex real system, since experimentation on the real system would be too expensive and time consuming.

The individual models that comprise the PRDSS have been developed by individuals and agencies over a period of many years. Under the auspices of the Pecos EIS Hydrology Work Group (HWG), these models were further refined. Leadership responsibilities of HWG's activities are shared equally by the Bureau of Reclamation and the New Mexico Interstate Stream Commission, and it includes additional representation from the New Mexico Office of the State Engineer, Carlsbad Irrigation District (CID), U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Pecos Valley Artesian Conservancy District (PVACD), and several contractors to these organizations.

The following four component models are the foundation of the PRDSS. Figure 1 illustrates the approximate spatial extent covered by each model.

The Roswell Artesian Basin Groundwater Model (RABGW) simulates the impacts of well pumping and irrigation return flows in and around PVACD. The aquifer system underlying this region contributes a significant amount of water to the Pecos River in the form of subsurface base inflows.

Figure 1-Approximate Spacial Extent of PRDSS Components



The Pecos River RiverWare Model simulates flows in the river in response to operations of the reservoir system from Santa Rosa Lake to Avalon Dam. Simulation of the system includes various natural hydrologic processes (e.g., evaporation, floods, flow of water into and out of river and reservoir banks, etc.), plus diversions by water users including Fort Sumner Irrigation District and CID operations. This model is critical in understanding how modified reservoir operations to meet ESA requirements may impact surface water supplies.

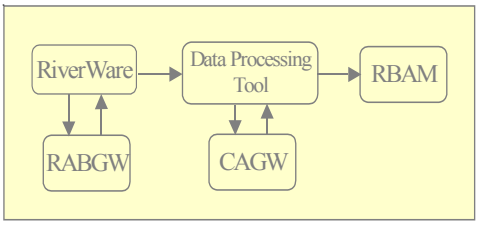
The Carlsbad Area Groundwater Model (CAGW) simulates impacts of surface irrigation and well pumping in and around CID on return flows to the Pecos between Avalon Dam and the United States Geological Survey (USGS) gage near Malaga. These return flows are critically important to the State in meeting its water delivery obligations under the Pecos River Compact.

The Red Bluff Accounting Model (RBAM) provides a monthly and annual analysis of deliveries to the New Mexico-Texas state-line, incorporating data from both the CAGW and RiverWare models.

In addition to these four simulation models, numerous data processing and analysis tools have been developed to support the model simulations. Figure 2 shows the flow of data and information between models. Each model component of the PRDSS has been thoroughly tested. All of the models have been peer-reviewed at least once, and often multiple times.

These models ultimately will help decision makers select the preferred alternative consistent with the EIS goals and objectives.

Figure 2-Flow Chart of Data Coupling Between Model Components



Project Timeline

Publish NOI October 2002 → Public Scoping Meetings October 2002 → Alternative development → Draft EIS → Public Meetngs → Final EIS

Public Scoping Comments

Four scoping meetings for the Carlsbad Project Water Operations and Water Supply Conservation Project were held the week of October 21st in Santa Rosa, Ft. Sumner, Carlsbad, and Roswell, New Mexico. These meetings provided an opportunity for the public to receive information, ask questions, and provide input on the proposed project and environmental impact statement. A total of 94 members of the public attended the scoping meetings

Both verbal and written comments were accepted at the meetings. Although the public scoping period officially closed on December 6, 2002, written comments received through December 18, 2002, were incorporated into the scoping analysis to ensure that public viewpoints would be adequately represented. A total of 121 verbal comments were recorded during the four scoping meetings: 24 comments in Santa Rosa, 42 in Fort Sumner, 38 in Carlsbad, and 17 Roswell. Six written submissions were received over the comment period.

Overall, comments focused on the following eight categories (Figure 1):

1. Ecology of the Pecos bluntnose shiner;
2. Flow requirements;
3. Impacts to property owners, particularly farmers and industries dependent upon the river;
4. Concern over water rights;
5. Watershed management;
6. Obtaining accurate data;
7. Dam operations; and
8. Other.

Fifty-two percent of the comments were information seeking, and 47.7 percent presented an issue. Many of the information seeking questions focused on the ecological needs of the shiner and associated flow requirements; while, issue-related comments were focused on ensuring that impacts to agriculture, irrigation, and water rights would be assessed and minimized.

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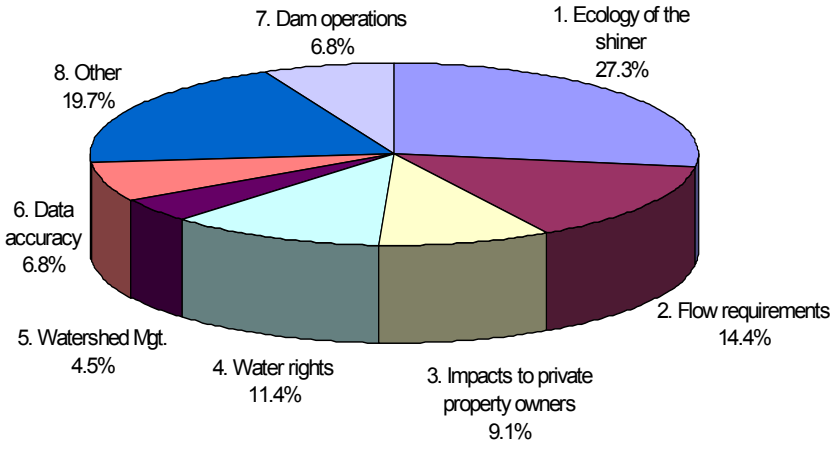
Figure1. Percentage of Comments by Key Topics



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