

RiverWare Interactive Scenario Explorer (RiverWISE) Demonstration

David Neumann, Senior Research Assistant, Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado, Boulder, CO,
david.neumann@colorado.edu

Edith Zagona, Research Professor and Director, Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado, Boulder, CO,
zagona@colorado.edu

Extended Abstract

The RiverWare Interactive Scenario Explorer (RiverWISE) is an easy to use tool that allows stakeholders and other interested parties to explore a RiverWare model, develop alternative scenarios, simulate those scenarios, and investigate and compare the results. RiverWISE is a tool built on top of RiverWare, which models the hydrologic response of a river/reservoir system given inflows and multi-objective operating policies. RiverWISE provides an intuitive, controlled environment for stakeholders to experiment with a special version of a RiverWare model called a WISE file. The RiverWISE tool is freely available; it only requires a downloadable license file from CADSWES and a WISE file to explore.

Using a utility in the RiverWare software, a model developer or author configures and exports a RiverWISE file from a RiverWare model; it includes the object network, baseline input data and operating rules, a set of input variables that can be modified by the stakeholder for scenario exploration, and a set of output variables that can be analyzed. Once exported, the WISE file can be shared with stakeholders who wish to explore the effects of alternative inputs on the outputs and compare with the baseline. This demonstration will touch on the export process but will focus on the stakeholder experience.

We will demonstrate how the stakeholder opens RiverWISE and loads the provided WISE file. RiverWISE allows the stakeholder to explore the model layout and see how features of the basin are represented and connected to other features. Figure 1 shows a screenshot of the RiverWISE interface with the model layout window, model description and scenario list. This tab provides a description, the model time range, and the names of the baseline file and other saved scenarios. Within the layout view, the stakeholder can zoom and pan the model to view the objects and the links. In addition, the stakeholder creates scenarios on this tab, copying the input data from the baseline scenario or any other saved scenario.

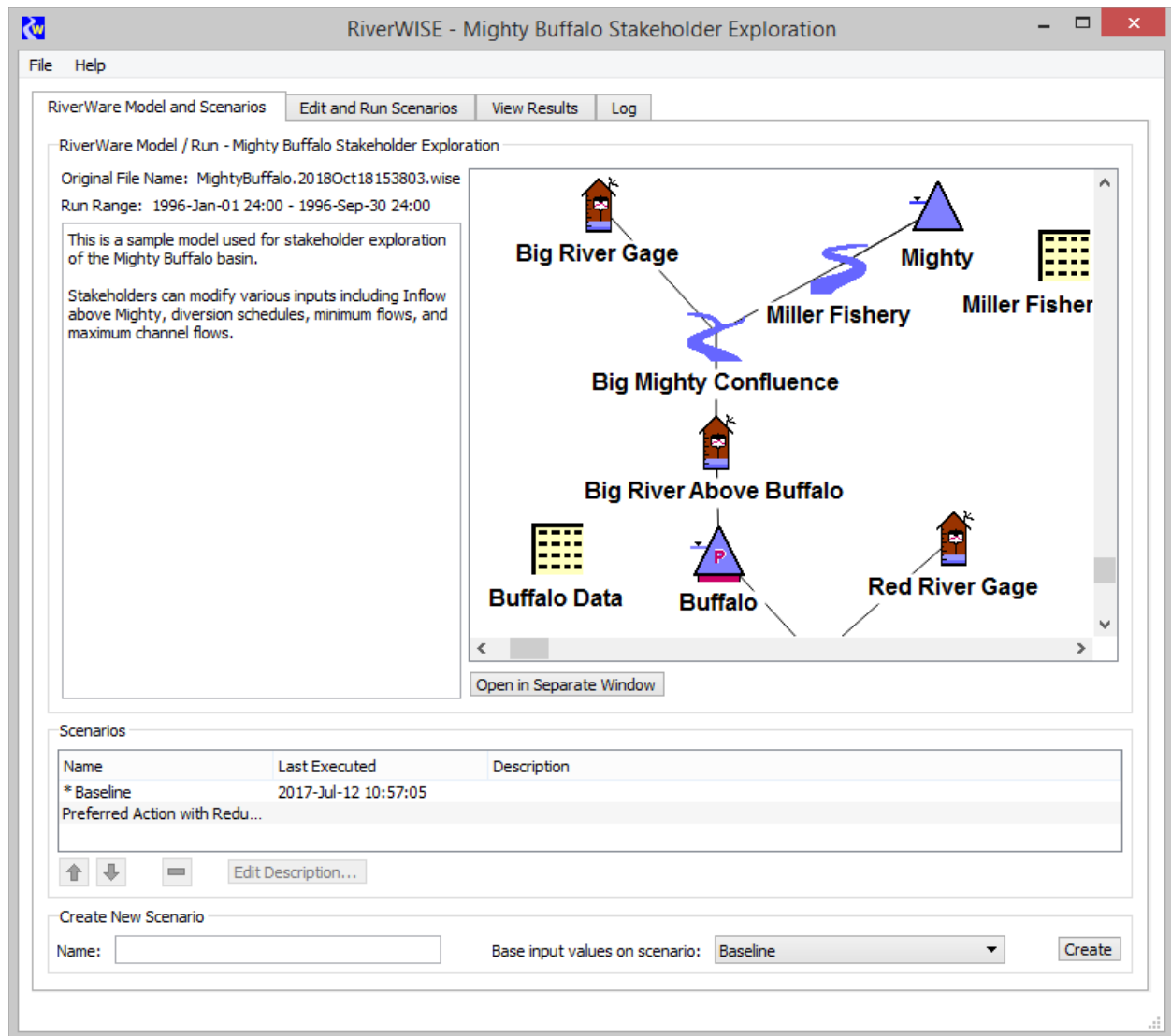


Figure 1. Screenshot of RiverWare Model and Scenario tab

We will show how the stakeholder modifies the input data for a scenario and makes a run on the Edit and Run Scenarios tab, as shown on Figure 2. The stakeholder selects one or more sets of input data and then edits the values either directly, by scaling, or by applying an offset. Values can be copied and pasted to external programs, like spreadsheets, for more complex data manipulation. Plots show how the scenario inputs differ from the baseline or other scenario's input data. The stakeholder uses this tab to make a run by clicking on the green run button.

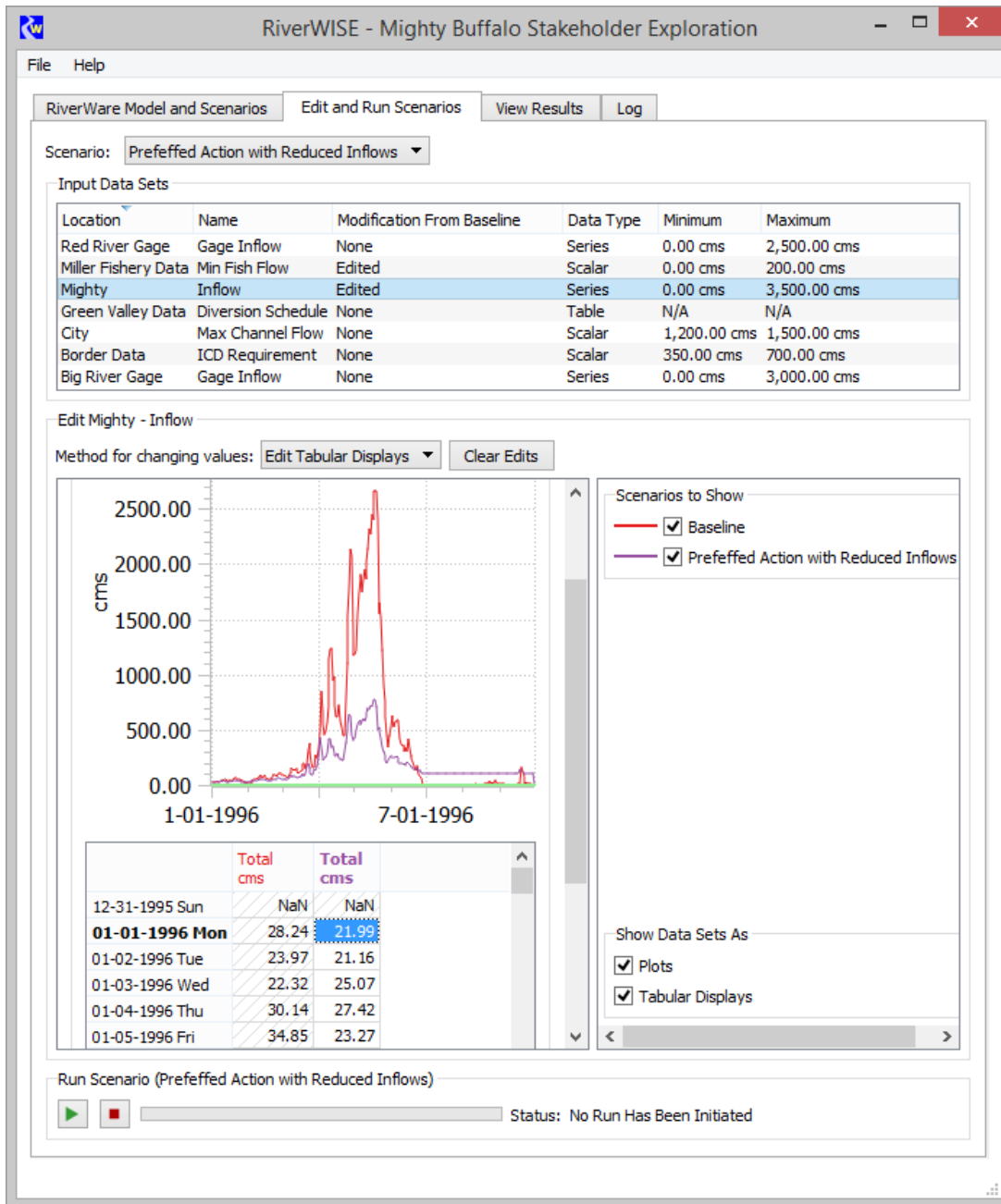


Figure 2. Screenshot of Edit and Run Scenarios Tab

We will show how to view the results of the scenarios, comparing one run to the next. Figure 3 shows a sample View Results tab. The results can be shown as either a plot or tabular data. The user can turn on or off display of different scenarios and data locations to compare the results of the runs. Tabular data and plots can be copied to the system clipboard for sharing results or including in documents or emails.

We will show how to save the resulting WISE file or export the developed scenario for sharing with other stakeholders and model developers. This allows communication among

stakeholders, model developers and other stakeholders; they can all be looking at the same results in the same tool.

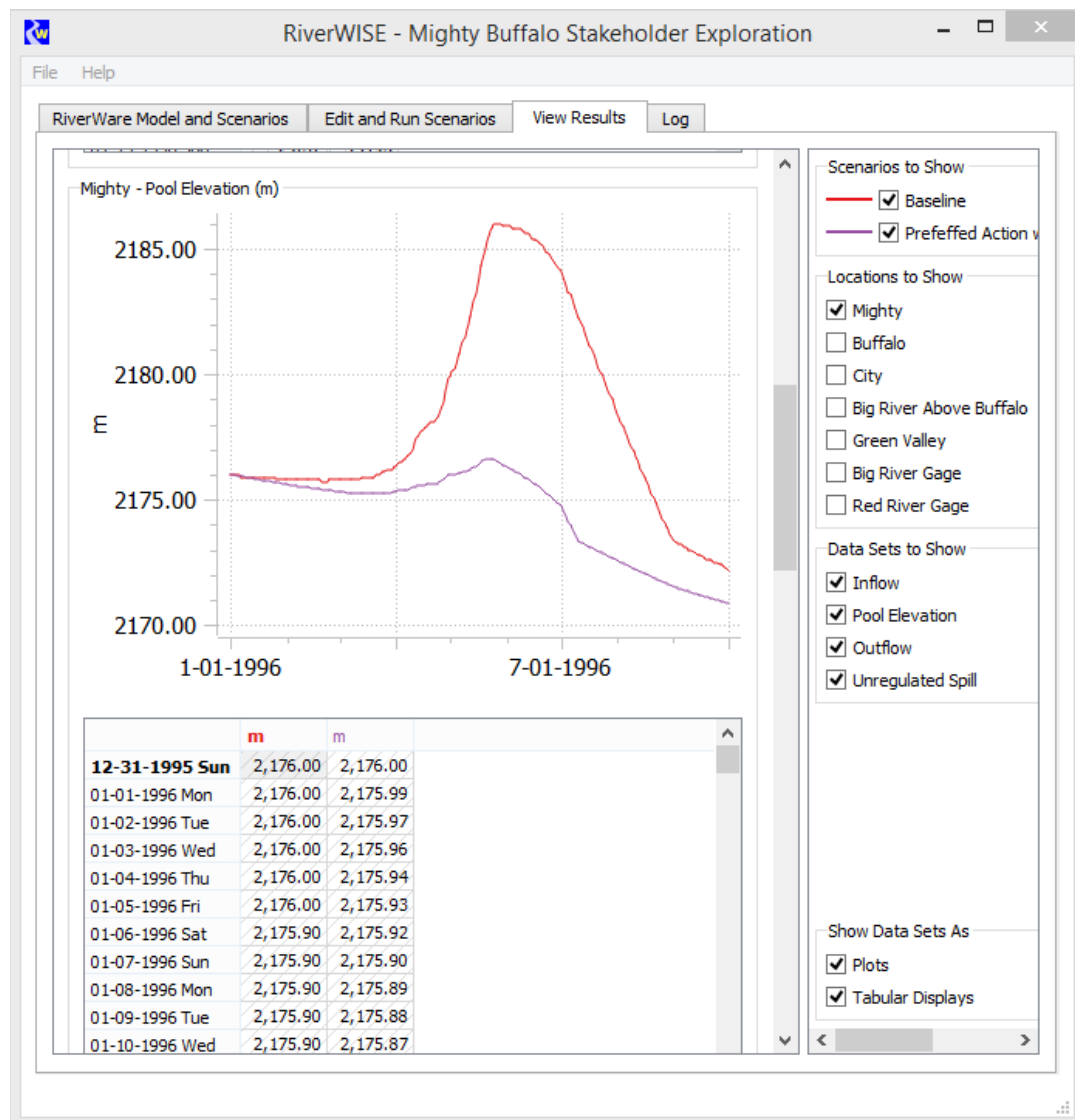


Figure 3. Screenshot of Edit and Run Scenarios Tab

Finally, we will describe applications of RiverWISE on real basins, explaining the types of scenarios analyzed and presenting the experiences of the users.

Free evaluation versions of RiverWISE and the RiverWare software with demo models will be given to interested visitors.

RiverWare is developed by the University of Colorado Center for Advanced Decision Support for Water and Environmental Systems (CADSWES) with sponsorship of the Tennessee Valley Authority, the Bureau of Reclamation and the U.S. Army Corp of Engineers and distributed by the University of Colorado Office of Technology Transfer.