

**Broad River Basin Model
Background and Recommendation
Water Allocation Committee: September 12, 2012**

Background

In May 2010, the N.C. Division of Water Resources (DWR) contracted with Hydrologics, Inc. to develop a river basin hydrological model for the Broad River basin to be used for water resource planning. The modeling software that was utilized to develop the model was Operational Analysis and Simulation of Integrated Systems (OASIS), which contains the following features:

- a. A clickable map-base schematic with around 80 nodes representing reservoirs, withdrawals, dischargers, stream gages and inflow locations;
- b. Operation rules for reservoirs and water supply withdrawals;
- c. Position analysis mode for real time operations;
- d. Model runs that include both existing and future conditions scenarios;
- e. A customized interface including an irrigation withdrawal update table and automatic safe yield analysis; and
- f. Output options including USGS plots and 7Q10 statistics.

During the model building process, DWR held three public meetings in two different locations within the Broad River basin. The main objective of these meetings was to seek and solicit input from the local water systems and the public in an effort to enhance the modeling process. The involvement of the local water systems ensured that the model was based on the most accurate data regarding withdrawals and discharges in the basin. In addition, the last meeting included a training session for anyone interested in learning how to use the finished model.

In February 2012, Hydrologics delivered the final model and since that time DWR has conducted numerous exercises to validate the performance of the model and has also started developing the Broad River Basin Water Resources Plan.

In May 2012, the Technical Advisory Group of the Water Allocation Committee granted DWR approval to proceed with the public comment period for the Broad River Model.

In July 2012, the division published a public notice recommending that the Environmental Management Commission consider the approval of the Broad River Basin Hydrologic Model. This notice provided a 60-day public comment period, which ended on August 30, 2012, as well as further opportunities for model training.

During the 60- day comment period, DWR received one comment from Duke Energy. The comment recommended minor modifications to the model operation rules concerning Duke's facilities at Lake Summit and Gaston Shoals. Duke's recommended changes were incorporated into the model. Furthermore, during the comment period, DWR conducted an additional Broad River Basin Model training session.

Staff Recommendations

Based on the public comments and staff validation of the model, the DWR recommends that the Water Allocation Committee approve the Broad River Basin Model for forwarding to the full Environmental Management Commission. Staff also requests that the Water Allocation Committee recommend that the Environmental Management Commission approve the model.

This summary includes two attachments: a copy of the *public notice* and the report titled *Modeling the Broad River Basin Operations with OASIS*. Additional information and details about the Broad River Basin Hydrologic Model are available on the division's website by going to [http://nwater.org/Data and Modeling/Broad/](http://nwater.org/Data_and_Modeling/Broad/).