Delaware River Basin - Planning Support Tool (DRB-PST)

Frequently Asked Questions (FAQs)

1. ***Why is the DRBC switching flow models?***

   The DRBC is not switching models. Delaware River Basin – Planning Support Tool (DRB-PST) is an update of the existing reference model for the Delaware River Basin that now allows for the simulation of the current Flexible Flow Management Program (FFMP), which includes the Forecast-based Available Water Habitat Protection Program that was not simulated in the current reference model. All aspects of the FFMP agreement between the parties of the 1954 U.S. Supreme Court Decree are now simulated.

2. ***How is PST different from OST?***

   New York City (NYC) uses an Operations Support Tool (OST) model to simulate and operate the entire New York City system within the Delaware River Basin and outside the Delaware River Basin. It incorporated the existing DRB-OASIS reference model, but includes the remainder of NYC's water supply system. PST is a revision of the existing reference model and only simulates Delaware River Basin operations.

3. ***Can I simulate NYC's real-time reservoir operations?***

   No. The DRB-PST is a long-term planning model which evaluates the overall performance of reservoir operating programs over a specified period of time, but not in real time.

4. ***How do the results from DRB-PST compare with the reference model and NYC's OST model?***

   The results from the DRB-PST compare favorably with results from the existing DRBC reference model and output from OST long-term planning simulations.

5. ***Is the DRB-PST available to the public?***

   DRB-PST is available to members of the public to use. Users must have a copy of the OASIS software, which is available from Hydrologics (www.hydrologics.net). Interested users should contact Hernan Quinodoz at DRBC for more information. DRB-PST is a complex water resources planning tool. It is recommended that you seek the advice of a professional water resources modeler to use it.

6. ***Can I get trained to use DRB-PST?***

DRBC does not have the resources to train outside persons on the use of DRB-PST or OASIS. However, DRBC staff will answer technical questions related to aspects of the model code related to simulations of the FFMP. DRBC cannot assist in the development of simulation or flow management programs for outside parties. On occasion, DRBC will evaluate simulations performed by outside parties by unanimous consent of the Decree Parties. For training on model use, please contact Hydrologics (www.hydrologics.net) or a professional water resources modeler.

7. ***How do I evaluate flow management options with DRB-PST?***

Unless trained in the use of OASIS or similar water resources planning models, it is recommended that you consult a professional water resources modeler.

Additional Technical Notes and "What's New"

The Delaware River Basin Commission (DRBC) uses a water supply planning model (known as DRB-OASIS) to evaluate flow management programs in the basin. This model has been made available to interested stakeholders for their own use to test flow management scenarios against a set of existing targets, regulations, and laws that govern the use of water within the Delaware River Basin (DRB). The Delaware River Basin-Planning Support Tool (DRB-PST) is a revised version of the DRB-OASIS Model. A revised model was needed because DRB-OASIS simulated the current Flexible Flow Management Program (FFMP) including discharge mitigation, but did not have the code to simulate the Habitat Protection Program (HPP) based on Forecast-based Available Water.

The current HPP uses predictions of reservoir inflows to determine the amount of water available for fisheries releases from the New York City (NYC) reservoirs. Those inflows are called Forecast-based available water and water is more efficiently used for fisheries, while minimizing the risks to the NYC's water supplies. The HPP was able to be implemented because NYC's Operations Support Tool (OST) had the capabilities to manage the program.

DRB-PST incorporates aspects of OST, which was based upon the DRB-OASIS model, but included the entire NYC system. OST was designed and uses forecasts to determine the amount of available water to release for habitat protection and assesses the risks of reservoir operations to water supplies. DRB-PST incorporates this methodology with simulated forecasts for the long-term water supply planning based on reservoir operations. New and updated model code from OST was shared with DRBC to develop the DRB-PST because the existing model only simulated the FFMP2008 for the Delaware River Basin System.

All models are evolving tools, continually being improved and updated to reflect new programs and fix identified bugs. This revision includes both the new code for simulation of the Forecast-based Available Water (FAW) and updates to the model code. The new aspects of the model and code are listed below.

1. DRB-PST uses simulated forecasts based on past inflows to calculate the Forecast-based Available Water for the Habitat Protection Program of the current FFMP-OST program (FFMP2011 and subsequent extensions).

2. DRB-PST uses a diversion time series from OST output, run in a planning mode, to reflect the amount of water NYC is using from the DRB, but reflecting out-of-basin operations. Other diversion time series or constant diversions may also be used.

3. DRB-PST contains updated diversion capacity curves and limitations, which reflect the physical constraints on the movement of water.

4. Spills from the NYC reservoirs are calculated using a 2-hour time-step instead of the lag method. This results in more accurate spill volumes.

5. The average diversions for NYC are reset after drought exit. Typically, the running average diversion is calculated from June 1 unless drought conditions existed during the period from June 1 through May 31. This feature was not previously required since only flat demands had been simulated.

6. The B-Zone for the NYC reservoirs, a reserve of five percent of useable storage, can now be used for releases and diversions.

7. The B-Zone of 1 BG was retained in Beltzville and Blue Marsh reservoirs to account for the potential use of water by the U.S. Army Corps of Engineers, which controls the use of a portion of the water stored within those lower basin reservoirs.

8. The operational rules for use of the lower basin reservoirs were modified to reflect Section 2.5.5, Table 4 of the DRBC's Water Code. The reference model used a simplification of the rules.

9. PST uses a revised inflow file, which now contains data from Water Years 1927 through 2012, which include the drought of record and more recent hydrology.

(Last Updated 04/07/2015)