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**DYNAMIC MANAGEMENT OF RELEASES FOR THE DELAWARE
RIVER BASIN USING NYC'S OPERATIONS SUPPORT TOOL**

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ABSTRACT: The New York City Department of Environmental Protection (DEP) has initiated design of the Operations Support Tool (OST), a state-of-the-art decision support system to provide computational and predictive support for water supply operations and planning. Using an interim version of the OST, DEP has developed a provisional, one-year Delaware River Basin reservoir release program to succeed the existing Flexible Flow Management Program (FFMP) which expired on May 31, 2011, with cooperation from parties to the 1954 U. S. Supreme Court decree that created the Delaware River Basin Commission (New York, New Jersey, Pennsylvania, and Delaware). The FFMP grew out of the Good Faith Agreement of 1983 among the four Basin states that established modified diversions and flow targets during drought conditions and provided a set of release schedules as a framework for managing diversions and releases from NYC's Delaware Basin reservoirs in order to support multiple objectives, including water supply, drought mitigation, flood mitigation, tailwater fisheries, main stem habitat, recreation, and salinity repulsion. The provisional program (OST-FFMP) defines Upper Delaware reservoir releases based on an expanded set of release schedules and a forecast-based estimation of water availability. Additionally, the OST-FFMP attempts to provide enhanced downstream flood protection by making releases to keep the Delaware System reservoirs at a seasonally varying conditional storage objective. The OST-FFMP approach represents a robust way of managing releases, accounting for future hydrologic conditions by making more water available for release when conditions are forecasted to be wet and protecting water supply reliability when conditions are forecasted to be dry. Further, the dynamic nature of the program allows the release decision to be adjusted as hydrologic conditions change. OST simulations predict that this program can provide substantial benefits for downstream stakeholders while protecting DEP's ability to ensure a reliable water supply for 9 million customers in NYC and the surrounding communities. The one-year program will be evaluated and improved by DEP and the Decree Parties for a more permanent future program. This paper will describe the OST-FFMP program and discuss preliminary observations on its performance based on key NYC and downstream stakeholder performance metrics.

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