



PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

MEMORANDUM

TO: ENVIRONMENTAL REVIEW COMMISSION
The Honorable Jimmy Dixon, Co-Chairman
The Honorable Chuck McGrady, Co-Chairman
The Honorable Trudy Wade, Co-Chairman

FROM: Mollie Young, Director of Legislative Affairs, NCDEQ

SUBJECT: Basinwide Hydrologic Models Report

Pursuant to S.L. 2010-143, Section 2, *“The Department shall report to the Environmental Review Commission on the development of basinwide hydrologic models no later than November 1, of each year.”*

If you have any questions or need additional information, please contact me by phone at (919) 339-9433 or via e-mail at mollie.young@ncdenr.gov.

Cc: Don Van der Vaart, Secretary, NCDEQ
Tom Reeder, Assistant Secretary for Environment, NCDEQ
Jay Zimmerman, Director of Water Resources, NCDEQ
Lanier McRee, Fiscal Research Division, NCGA



**North Carolina Department of
Environmental Quality
Division of Water Resources**

**STATUS REPORT TO THE
ENVIRONMENTAL REVIEW COMMISSION
ON
DEVELOPMENT OF BASINWIDE HYDROLOGIC MODELS
OCT. 1, 2015 THROUGH SEPT. 30, 2016**

Executive Summary

The North Carolina General Assembly directed the N.C. Department of Environmental Quality (DEQ) to develop basinwide hydrologic models, as recommended by the Environmental Review Commission. Session Law 2010-143 requires that DEQ report to the Environmental Review Commission on the development of basinwide hydrologic models no later than Nov. 1 of each year.

The priority for model development by the department is based on three factors:

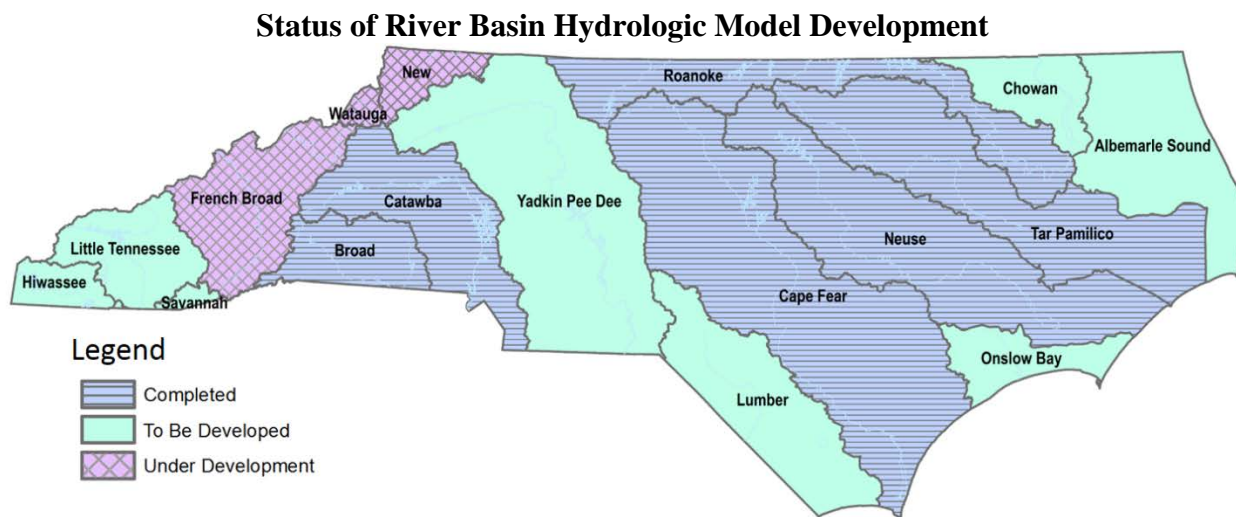
1. The degree to which a river basin or a portion of a river basin is experiencing, or will be likely to experience, water supply shortages;
2. Whether the ecological integrity of surface waters in the river basin is threatened, or will likely become threatened; and
3. A river basin for which an existing hydrologic model has not been developed by the department or others.

All models under development include the incorporation of the water shortage response plans for water systems. Stakeholder meetings are held in each river basin at specific stages of the model development process. The purpose of these meetings is to provide information to water systems and other stakeholders about the collection of model input data and how the model is constructed. Stakeholders have the opportunity to review all of the information in the model related to their water system for accuracy. The N.C. Division of Water Resources (DWR) also provides model demonstrations. A meeting is held in each basin upon model completion to provide training for interested parties in using the completed river basin hydrologic model.

Model Development Schedule

DWR has updated the following table for river basin model development. The table lists the name of the river basin along with the year when the hydrologic model for that basin is proposed to be completed (or has already been completed). The map provided below shows the locations of river basins within the state.

Calendar Year	Status of River Basin Hydrologic Models
Completed models	
2011	Broad and Tar models completed
2012	Broad receives EMC approval; Cape Fear and Neuse combined model begun
2013	Catawba, Roanoke, Cape Fear and Neuse combined models completed
2014	Tar-Pamlico model completed
Schedule for remaining basins	
2017	French Broad, New, and Watauga
2018	Lumber and Yadkin Pee Dee
2019	Hiwassee and Little Tennessee
2020	Albemarle Sound, Chowan, Onslow Bay, and Savannah



South Carolina is developing hydrologic models for all of the South Carolina river basins. DWR will consult with South Carolina to determine if it is in our best interest to adjust modeling schedules in order to cooperate jointly on the remaining shared river basins, which include the Lumber, Yadkin Pee Dee and Savannah River basins.

Environmental Management Commission (EMC) Model Approval

On September 11, 2014, the EMC authorized and directed the DEQ to work with the General Assembly to specifically resolve the inconsistent and incompatible uses of the term "ecological flow" in General Statute §143-355(o)(3). The decision also stated that until the statutory language issue is resolved, the EMC would not be approving hydrologic river basin models. However, the EMC authorized DWR to continue to use the Tar River Basin, the Roanoke River Basin and the Cape Fear-Neuse River Basin hydrologic models in planning decisions and, as required, in order to comply with statutes and rules, to make decisions on permit applications or other matters concerning water allocations. Minutes from this meeting

(http://portal.ncdenr.org/c/document_library/get_file?uuid=2c6a8c00-2fdc-497f-89c8-f06ca9110493&groupId=61581) describe the resulting decision.

Models Being Developed

DWR is in the process of entering into a contract to develop the New, Watauga, and French Broad hydrologic models. It is anticipated that these models will be completed in 2017.

Ecological Flows Science Advisory Board

There has been no additional work by the Ecological Flows Science Advisory Board (EFSAB) during this reporting timeframe.

Session Law 2010-143 mandated that the department create a Science Advisory Board to assist the department in characterizing the natural ecology of the different river basins and to develop procedures for determining the flows necessary to maintain ecological integrity in surface waters. The Ecological Flows Science Advisory Board (EFSAB) was convened according to the guidelines in the legislation, and its first meeting was held in November 2010. The Science Advisory Board met monthly or bi-monthly. All meetings were open to the public and participation was also available through webinars. The board issued a final report in November 2013. The report and more information on ecological flows, Ecological Flows Science Advisory Board, meeting summaries, presentations, and recordings of the meetings are available on the Division's website at: <http://www.ncwater.org/?page=366>.

Summary

This document serves as the sixth report to the Environmental Review Commission on the development of basinwide hydrologic models by the department from Oct. 1, 2015 through Sept. 30, 2016.