

GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2009

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SENATE DRS55553-SBz-50\* (04/12)

Short Title: Improve River Basin Modeling. (Public)

Sponsors: Senators Clodfelter, and Kinnaird.

Referred to:

1 A BILL TO BE ENTITLED  
2 AN ACT TO IMPROVE THE DEVELOPMENT OF BASINWIDE HYDROLOGIC  
3 MODELS, TO IMPROVE PUBLIC ACCESS TO WATER AND WATER RESOURCES  
4 FUNDING INFORMATION, AND TO PROVIDE FOR REPORTING ON WATER USE  
5 EFFICIENCY IN THE STATE, AS RECOMMENDED BY THE ENVIRONMENTAL  
6 REVIEW COMMISSION.

7 The General Assembly of North Carolina enacts:

8 SECTION 1. G.S. 143-350 reads as rewritten:

9 "§ 143-350. Definitions.

10 As used in this Article:

- 11 (1) "Commission" means the Environmental Management Commission.  
12 (2) "Department" means the Department of Environment and Natural Resources.  
13 (2a) "Ecological flow" means the stream flow necessary to protect ecological  
14 integrity.  
15 (2b) "Ecological integrity" means the ability of an aquatic system to support and  
16 maintain a balanced, integrated, adaptive community of organisms having a  
17 species composition, diversity, and functional organization comparable to  
18 natural conditions and, when subject to disruption, to recover and continue  
19 to provide the natural goods and services that normally accrue from the  
20 system.  
21 (3) "Essential water use" means the use of water necessary for firefighting,  
22 health, and safety; water needed to sustain human and animal life; and water  
23 necessary to satisfy federal, State, and local laws for the protection of public  
24 health, safety, welfare, the environment, and natural resources; and a  
25 minimum amount of water necessary to maintain the economy of the State,  
26 region, or area.  
27 (3a) "Groundwater resource" means any water flowing or lying under the surface  
28 of the earth or contained within an aquifer.  
29 (4) "Large community water system" means a community water system, as  
30 defined in G.S. 130A-313(10), that regularly serves 1,000 or more service  
31 connections or 3,000 or more individuals.  
32 (4a) "Surface water resource available yield" means the amount of surface water  
33 that can be withdrawn at a given location without violating the ecological  
34 integrity of the river basin in which the water resource is located and without  
35 impeding other allocated or permitted withdrawals in the river basin. Surface



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1 water resource available yield includes consideration of the connections  
2 between surface water and groundwater resources in a given geographic  
3 area.

4 (4b) "Surface water resource" means any lake, pond, river, stream, creek, run,  
5 spring, or other water flowing or lying on the surface of the earth.

6 (5) "Unit of local government" means a county, city, consolidated city-county,  
7 sanitary district, or other local political subdivision or authority or agency of  
8 local government.

9 (6) "U.S. Drought Monitor" means the national drought map that designates  
10 areas of drought using the following categories D0-Abnormally Dry,  
11 D1-Moderate, D2-Severe, D3-Extreme, and D4-Exceptional. The U.S.  
12 Drought Monitor is developed and maintained by the Joint Agricultural  
13 Weather Facility, the Climate Prediction Center, the National Climatic Data  
14 Center, and the National Drought Mitigation Center with input from the  
15 United States Geological Survey, the National Water and Climate Center,  
16 the Climate Diagnostics Center, the National Weather Service, state  
17 climatologists, and state water resource agencies.

18 (7) "Water shortage emergency" means a water shortage resulting from  
19 prolonged drought, contamination of the water supply, damage to water  
20 infrastructure, or other unforeseen causes that presents an imminent threat to  
21 public health, safety, and welfare or to the environment."

22 **SECTION 2.** G.S. 143-355 is amended by adding three new subsections to read:

23 "(o) Basinwide Hydrologic Models. – The Department shall develop a basinwide  
24 hydrologic model for each of the 17 major river basins in the State as provided in this  
25 subsection.

26 (1) Schedule. – The Department shall develop a schedule for basinwide  
27 hydrologic model development. In developing the schedule, the Department  
28 shall consider the need to give priority to river basins or portions of river  
29 basins that the Department determines are likely to have an unacceptable  
30 risk of water shortages.

31 (2) Model. – Each basinwide hydrologic model shall:

32 a. Include surface water resources within the river basin, groundwater  
33 resources within the river basin to the extent known by the  
34 Department, transfers into and out of the river basin that are required  
35 to be registered under G.S. 143-215.22H, other withdrawals,  
36 ecological flow and other instream flow requirements, projections of  
37 future withdrawals, an estimate of return flows within the river basin,  
38 inflow data, local water supply plans, and other scientific and  
39 technical information the Department deems relevant.

40 b. Be designed to predict the flows and available yield of each surface  
41 water resource within the basin that serves as a source of water for a  
42 withdrawal registered under G.S. 143-215.22H.

43 c. Be based solely on data that is of public record and open to public  
44 review and comment.

45 (3) Determination of unacceptable risk of water shortage. – The Department  
46 shall determine whether any river basin or portion of a river basin faces an  
47 unacceptable risk of water shortage. The Department shall develop risk  
48 criteria for the determination of unacceptable risk of water shortages. One of  
49 the risk criteria shall be whether the river basin hydrologic model  
50 demonstrates or projects that the river basin or portion of the river basin does  
51 not or will not have sufficient surface water resource available yield to meet

1 the needs of water withdrawers and instream water uses, including  
2 ecological flow. This risk determination may consider any approved water  
3 shortage response plans and permitted alternative water sources. The risk  
4 determination shall project water supply and demand at each model node for  
5 a period to be determined by the Department, but in no event less than 30  
6 years.

7 (4) Protection of ecological integrity. – The Department shall develop, in  
8 consultation with the North Carolina Wildlife Resources Commission, the  
9 North Carolina Marine Fisheries Commission, the United States Fish and  
10 Wildlife Service, and the National Marine Fisheries Service, ecological  
11 criteria that will protect the ecological integrity of each river basin and each  
12 river subbasin in the State.

13 (5) Interstate cooperation. – To the extent practicable, the Department shall  
14 work with neighboring states to develop basinwide hydrologic models for  
15 each river basin shared by North Carolina and another state.

16 (6) Report. – The Department shall report to the Environmental Review  
17 Commission on the development of basinwide hydrologic models no later  
18 than November 1 of each year.

19 (p) Public Access to Water Resource and Water Infrastructure Funding Information. –  
20 The Department, in conjunction with the North Carolina League of Municipalities, the North  
21 Carolina Association of County Commissioners, and interested private water systems, and with  
22 the assistance of the Environmental Finance Center of the University of North Carolina at  
23 Chapel Hill, shall develop and implement a plan to provide greater public access to water  
24 resource and water infrastructure funding information.

25 (q) Water Efficiency Report. – The Department and the Department of Agriculture and  
26 Consumer Services shall jointly report to the Environmental Review Commission no later than  
27 April 1 of each year on implementation of water efficiency measures required under Section 9  
28 of S.L. 2008-143 and other water efficiency efforts that are being implemented in the State."

29 **SECTION 3.** The first report required by G.S. 143-355(o), as enacted by Section 2  
30 of this act, is due no later than November 1, 2011. The first report shall include the  
31 Department's recommended schedule for river basin model development, the recommended  
32 criteria for determining unacceptable risk of water shortage, the recommended criteria for  
33 ensuring that the ecological integrity of river basins is protected, and a schedule to integrate  
34 river basin hydrologic models and river basin water quality plans. The first report shall also  
35 include an assessment of the resources needed to implement the provisions of this act.

36 **SECTION 4.** This act is effective when it becomes law.