

GENERAL ASSEMBLY OF NORTH CAROLINA  
SESSION 2009

S

1

SENATE BILL 1170\*

Short Title: Improve River Basin Modeling. (Public)

Sponsors: Senators Clodfelter and Kinnaird.

Referred to: Agriculture/Environment/Natural Resources.

May 18, 2010

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33 that can be withdrawn at a given location without violating the ecological  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  
36 water resource available yield includes consideration of the connections



1 between surface water and groundwater resources in a given geographic  
2 area.

3 (4b) "Surface water resource" means any lake, pond, river, stream, creek, run,  
4 spring, or other water flowing or lying on the surface of the earth.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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