

**GENERAL ASSEMBLY OF NORTH CAROLINA**  
**SESSION 2009**

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**HOUSE BILL 1808\***

Short Title: NC Climate Change Adaptation Strategy. (Public)

Sponsors: Representatives Harrison, Underhill, Wilkins (Primary Sponsors);  
M. Alexander, Carney, Fisher, Gill, Glazier, Hughes, Insko, and Luebke.

Referred to: Environment and Natural Resources, if favorable, Appropriations.

May 19, 2010

A BILL TO BE ENTITLED

AN ACT TO DIRECT THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO DEVELOP THE NORTH CAROLINA CLIMATE CHANGE ADAPTATION STRATEGY, AS RECOMMENDED BY THE LEGISLATIVE COMMISSION ON GLOBAL CLIMATE CHANGE.

The General Assembly of North Carolina enacts:

**SECTION 1.(a)** The North Carolina Climate Change Adaptation Strategy. – The Department of Environment and Natural Resources shall develop the North Carolina Climate Change Adaptation Strategy, a comprehensive strategy to adapt to the impacts to North Carolina associated with global climate change. The Strategy shall consist of an assessment as provided under Section 2 of this act and a comprehensive plan as provided under Section 3 of this act. The North Carolina Climate Change Adaptation Strategy shall include climate adaptation goals and principles that shall be reflected in the comprehensive plan. The Strategy shall identify a mechanism and process to assess whether any modification to the Strategy is needed based on the latest science or information as it becomes available over time, and, if modification is needed, a process to implement the modification. In developing the Strategy, the Department of Environment and Natural Resources shall seek the participation and cooperation of units of local government, the Department of Transportation, the Department of Crime Control and Public Safety, the Department of Insurance, the Department of Administration, the Department of Agriculture and Consumer Services, the Department of Commerce, the Department of Public Instruction, the Department of Cultural Resources, the North Carolina Wildlife Resources Commission, and any other State agency or commission that might have a role or be affected by global climate change. In developing the Strategy, the Department of Environment and Natural Resources may seek the input of any appropriate federal agency, such as the United States Army Corps of Engineers, the Federal Highway Administration, the Federal Emergency Management Agency, the United States Department of the Interior, the United States Environmental Protection Agency (USEPA), the United States Department of Commerce, the United States Department of Defense, or any other federal agency that might have a role or be affected by global climate change; any university; or any nongovernmental organization.

**SECTION 1.(b)** Coordination With Local Government and Public Outreach. – In developing the Strategy, the Department of Environment and Natural Resources shall seek input from units of local government regarding the development of the Strategy and shall coordinate with units of local government regarding local plans or programs pertaining to climate change. In developing the Strategy, the Department of Environment and Natural Resources shall seek input from the public and provide public outreach and education to inform



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1 the general public of the impacts to North Carolina associated with global climate change and  
2 the State's strategy for adapting to these impacts.

3 **SECTION 1.(c)** Technical Advisory Committee. – In developing the Strategy, the  
4 Department of Environment and Natural Resources may establish a technical advisory  
5 committee to assist in developing the Strategy. The technical advisory committee shall consist  
6 of technical experts on North Carolina climate change selected from the scientific community  
7 and associated disciplines within the constituent institutions of The University of North  
8 Carolina. The technical advisory committee may also consist of technical experts on North  
9 Carolina climate change selected from units of local government or nongovernmental  
10 organizations.

11 **SECTION 2.** The North Carolina Climate Change Adaptation Assessment. – In  
12 developing the North Carolina Climate Change Adaptation Strategy, the Department of  
13 Environment and Natural Resources first shall conduct an assessment that, based on the best  
14 available science, accomplishes at least all of the following tasks:

- 15 (1) Identifies the projected impacts to North Carolina's ecosystems associated  
16 with global climate change, including at least all of the following potential  
17 impacts:
  - 18 a. Sea level rise.
  - 19 b. More frequent and intense heat waves.
  - 20 c. Increased air and water temperature.
  - 21 d. Increased intensity and frequency of storms.
  - 22 e. Altered rainfall patterns that may result in droughts, floods, and fires.
  - 23 f. Shoreline erosion that may result in land loss and other ecosystem  
24 change.
  - 25 g. Loss of biodiversity.
- 26 (2) Determines the range of projections of the impacts identified under  
27 subdivision (1) of this subsection and the degree of confidence in these  
28 projections.
- 29 (3) Identifies which resources of the State, including land, water, air, and  
30 biodiversity, are threatened by impacts identified under subdivision (1) of  
31 this subsection, giving consideration to at least all of the following  
32 resources:
  - 33 a. The natural resources of the coastal, Piedmont, and mountain regions  
34 of the State.
  - 35 b. Public, residential, commercial, and industrial buildings.
  - 36 c. Transportation and other essential infrastructure.
  - 37 d. Water supplies.
  - 38 e. Commercial activities, including agriculture and forestry.
  - 39 f. Public health.
  - 40 g. Recreational and conservation lands.
- 41 (4) Identifies which of the impacts identified under subdivision (1) of this  
42 subsection should receive the highest priority to be addressed with  
43 adaptation measures based upon the severity or certainty of the impact and  
44 the level of the threat to the public, natural resources, or the State or local  
45 economies.
- 46 (5) Initiates an economic cost and benefit analysis to determine the potential  
47 costs of maintaining the status quo compared with the costs of implementing  
48 the North Carolina Climate Change Adaptation Plan under Section 3 of this  
49 act.

50 **SECTION 3.(a)** The North Carolina Climate Change Adaptation Plan. –  
51 Concurrent with conducting the Assessment under Section 2 of this act, the Department of

1 Environment and Natural Resources shall develop the North Carolina Climate Change  
2 Adaptation Plan, a comprehensive plan to adapt to the most likely impacts and associated  
3 threats that are identified in the Assessment, for the purpose of maximizing the security of  
4 North Carolina's citizens, natural resources and biodiversity, essential infrastructure, and  
5 economic vitality. The Plan shall provide a strategy that accomplishes at least all of the  
6 following:

- 7 (1) Develops an inventory of existing federal, State, or local programs and plans  
8 that directly or indirectly address adaptation to climate change.
- 9 (2) Identifies needed changes to existing planning tools and identifies new  
10 planning tools that are needed in order to take into account projected impacts  
11 from climate change, including at least all of the following:
  - 12 a. Floodplain mapping.
  - 13 b. Steep slope mapping.
  - 14 c. Basinwide water planning.
  - 15 d. Coastal zone planning.
  - 16 e. Beach and shoreline planning.
  - 17 f. Transportation and other infrastructure planning.
  - 18 g. Planning regarding public health issues, including planning regarding  
19 increased mortality and morbidity from heat waves, additional  
20 disease vectors, and diminished air quality.
  - 21 h. Emergency response and disaster relief planning.
- 22 (3) Identifies needed changes to federal, State, and local policies, programs,  
23 statutes, and administrative rules in order to implement physical or  
24 ecological adaptation measures, stimulate market responses, provide  
25 appropriate incentives, and regulate future activities that may be affected by  
26 global climate change.
- 27 (4) Identifies adaptation measures as short-term, mid-term, and long-term  
28 adaptation measures and establishes a method by which adaptation measures  
29 are to be prioritized.
- 30 (5) Identifies methods to better coordinate and integrate State natural hazard  
31 planning and regulatory programs in the Department of Environment and  
32 Natural Resources and the Department of Crime Control and Public Safety.
- 33 (6) Directs the Department of Environment and Natural Resources or the  
34 Division of Emergency Management of the Department of Crime Control  
35 and Public Safety to integrate post-disaster planning requirements with  
36 hazard mitigation planning requirements into one plan that includes the latest  
37 scientific understanding of sea level rise, erosion, and other coastal hazards  
38 and environmental impacts of global climate change.

39 **SECTION 3.(b)** Considerations in Developing or Modifying the Plan. – When  
40 developing or modifying the Plan, all of the following policy approaches to adaptation may be  
41 considered:

- 42 (1) Developing plans that address how local governments in the coastal plain  
43 can adapt to potential changes in property tax revenue as sea-level increases  
44 lead to land loss.
- 45 (2) Directing the Coastal Resources Commission to increase protection of  
46 coastal wetlands and their ability to migrate inland by the Commission  
47 prohibiting new bulkheads and hardened structures in certain areas of  
48 environmental concern, as designated by the Coastal Resources Commission  
49 under G.S. 113A-113.
- 50 (3) Utilizing the consistency provisions of the Coastal Area Management Act  
51 (CAMA), Article 7 of Chapter 113A of the General Statutes, and the federal

- 1 Coastal Zone Management Act, 16 U.S.C. § 1451, et seq., to help resolve  
2 conflicts between existing State and federal policies and programs.
- 3 (4) Requiring the Division of Coastal Management of the Department of  
4 Environment and Natural Resources to report on the loss of coastal wetlands  
5 due to estuarine shoreline hardening and other uses to the Environmental  
6 Review Commission and any future legislative commission that directly and  
7 primarily addresses issues concerning global climate change.
- 8 (5) Requiring an applicant for a permit under CAMA to mitigate the applicant's  
9 impact on wetlands that may result from any hardening of the estuarine  
10 shoreline outside of areas of environmental concern.
- 11 (6) Authorizing coastal management grants to units of local government to be  
12 used for planning for, and adapting to, sea level rise.
- 13 (7) Making maps of sea level rise available on the Internet for the use of units of  
14 local government, realtors, conservation organizations, and the general  
15 public.
- 16 (8) In order to protect the public recreational beaches, identifying options for  
17 responding to shore zones that are most vulnerable to storms and sea level  
18 rise and develop options that provide for future changes and plans for the  
19 short-term and long-term use of public recreational beaches.
- 20 (9) Promoting the use of any of the following living shoreline management  
21 methods so that estuarine shorelines are able to evolve and migrate in  
22 response to rising sea level:
- 23 a. Restoring, enhancing, protecting, and mitigating existing wetland or  
24 riparian habitat and vegetation.
- 25 b. Constructing and managing new wetlands in upslope regions.
- 26 (10) Developing incentives and regulatory changes to encourage the use of the  
27 Climate Ready Estuaries program, a program developed by the USEPA to  
28 train coastal managers to implement economically viable and  
29 environmentally sound procedures for portions of the estuaries and barrier  
30 islands that are particularly vulnerable to climate variability and change;  
31 implement adaptation strategies; share information, and engage and educate  
32 the stakeholders and other coastal managers.
- 33 (11) Requesting the Albemarle. – Pamlico National Estuary Program, a  
34 cooperative program jointly sponsored by the Department of Environment  
35 and Natural Resources and the USEPA in cooperation with the Virginia  
36 Department on Conservation and Recreation, to review the USEPA's  
37 Climate Ready Estuaries program and plan for and adapt to climate change  
38 and sea level rise.
- 39 (12) Determining any funding needs related to adaptation and mitigation and  
40 considering possible funding resources to address such needs.
- 41 (13) Pursuing federal funding for a southeast regional adaptation study, a study to  
42 assist in the development of relocation and removal strategies that uses the  
43 existing authority of the United States Army Corps of Engineers.
- 44 (14) Developing plans for geo-zoning of the barrier islands and estuarine shore  
45 zone environments within coastal North Carolina.
- 46 (15) Identifying the reasons for and against adopting either a strategy of in situ  
47 management of adaptation measures as opposed to the strategy of retreating  
48 from the high hazard ocean and inlet shorelines and estuarine shorelines.
- 49 (16) Determining possible cost-sharing incentives with landowners for the costs  
50 of implementing ecologically beneficial adaptive strategies for managing  
51 estuarine shorelines in response to rises in sea level.

- 1 (17) Identifying new economic opportunities within the eastern North Carolina  
2 coastal system, the Piedmont, and the mountain regions of the State based  
3 upon the impacts identified under subsection (1) of Section 2 of this act and  
4 the resulting adaptations to these impacts.
- 5 (18) Directing the Coastal Resources Commission to delineate economically  
6 viable and environmentally sound ways to address various scenarios  
7 regarding potential sea level rise in each the short term, the midterm, and the  
8 long term, based on the information in its 2010 Science Panel report.
- 9 (19) Identifying mechanisms for purchasing land or conservation easements on  
10 portions of coastal and inlet hazard zones, as well as other portions of the  
11 low-lying coastal zone, that are identified as at risk.
- 12 (20) Developing and implementing a method of tracking ecosystem changes  
13 resulting from climatic shifts, with specific focus on those resources that  
14 have direct economic priorities, such as tourism, agriculture, silviculture,  
15 and marine fisheries.
- 16 (21) Evaluating the reasons for and against a requirement that sellers of coastal  
17 properties disclose potential hazards to buyers and a requirement that this  
18 disclosure accompany all real estate transfers of properties within coastal  
19 counties that either are directly on ocean, inlet, or estuarine shoreline  
20 frontage or are located within a 100-year floodplain.
- 21 (22) Evaluating the policy proposals, findings, and recommendations that resulted  
22 from the Beach Management Summit, held in 2009 in Beaufort, North  
23 Carolina, hosted by the North Carolina Coastal Federation and the UNC  
24 Center for the Study of Natural Hazards and Disasters, as these pertain to  
25 oceanfront communities adapting to climate change.

26 **SECTION 4.** Continued Coordination With Local Government and Public  
27 Outreach. – Once the North Carolina Climate Change Adaptation Strategy is developed  
28 initially under Section 1 through Section 3 of this act, the Department of Environment and  
29 Natural Resources shall continue to coordinate with units of local government regarding the  
30 implementation of the Strategy and shall continue to provide public outreach and education to  
31 inform the general public of the impacts to North Carolina associated with global climate  
32 change and the State's strategy for adapting to these impacts.

33 **SECTION 5.** Database Framework. – The Department of Environment and Natural  
34 Resources, the universities within The University of North Carolina, and the technical advisory  
35 committee, if a technical advisory committee is established under Section 1(b) of this act,  
36 jointly shall develop a framework for a database to provide to the general public and others  
37 information related to making economically and environmentally prudent adaptation decisions.  
38 This database may include maps, surveys, inventories, and other relevant, useful information.  
39 The Department of Environment and Natural Resources and the technical advisory committee,  
40 if a technical advisory committee is established, may recommend improving the current  
41 permanent monitoring stations and may install new permanent monitoring stations within the  
42 North Carolina coastal zone, as required to develop the database under this section.

43 **SECTION 6.** Report Requirement. – Beginning no later than October 1, 2010, the  
44 Department of Environment and Natural Resources shall submit quarterly progress reports to  
45 the Environmental Review Commission and to any future legislative commission that directly  
46 and primarily addresses issues concerning global climate. No later than January 1, 2013, the  
47 Department of Environment and Natural Resources shall submit a final report that shall include  
48 the North Carolina Climate Change Adaptation Strategy and any recommendations or  
49 legislative proposals to the Environmental Review Commission and to any future legislative  
50 commission that directly and primarily addresses issues concerning global climate change.

1                   **SECTION 7.** Appropriation. – There is appropriated from the General Fund to the  
2 Department of Environment and Natural Resources the sum of fifty thousand dollars (\$50,000)  
3 for the 2010-2011 fiscal year to implement the provisions of this act.

4                   **SECTION 8.** Effective Date. – This act becomes effective July 1, 2010.