

Calendar No. 769

110TH CONGRESS }
2d Session }

SENATE

{ REPORT
{ 110-347

CLIMATE CHANGE ADAPTATION ACT

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 2355



JUNE 5, 2008.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

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Mr. INOUE, from the Committee on Commerce, Science, and
Transportation, submitted the following

REPORT

[To accompany S. 2355]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 2355) to amend the National Climate Program Act to enhance the ability of the United States to develop and implement climate change adaptation programs and policies, and for other purposes, having considered the same, reports favorably thereon with amendments and an amendment to the title and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of S. 2355, the Climate Change Adaptation Act, is to provide a national strategic plan for addressing the impacts of climate change within the United States.

BACKGROUND AND NEEDS

The need to address the impacts from climate change on our Nation's coastal and ocean areas is of particular interest to the Senate Committee on Commerce, Science, and Transportation given its oversight role over the National Oceanic and Atmospheric Administration (NOAA). Temperature-related impacts on living marine resources are well-documented and may include significant changes in the distribution, growth, health, and abundance of species. Increased temperatures and loss of sea ice have been documented in both Arctic and Antarctic regions. Arctic sea ice has long been recognized as a sensitive climate indicator. The annual average extent of the Arctic sea ice has decreased 2.7 percent per decade since 1978, and last year's dramatic melt reduced ice coverage to its lowest level since satellite measurements began in 1979. Changes in

sea ice extent, timing, ice thickness, and seasonal fluctuations are already having an impact on the people, plants, and animals that live in the Arctic.

Climate-related shifts in species distribution and abundance have been observed in the temperate regions of the Atlantic and Pacific. Warming is likely to alter coastal weather and could affect the intensity and frequency of severe storms, especially in storm-prone regions, such as the southeast. Melting of glaciers and ice sheets and thermal expansion of ocean waters are predicted to cause sea level rise to continue. According to the Intergovernmental Panel on Climate Change (IPCC), global sea level increased at an average rate of 1.8 millimeters per year from 1961 to 2003. Sea level rise is likely to intensify erosion and endanger coastal structures and wetlands. Rising sea level, higher temperatures, and increased carbon dioxide concentrations are likely to affect the ecology of estuaries, coastal wetlands, and coral reefs. The changing temperature patterns are also likely to alter fish migration patterns, shifting the distribution of commercially important species.

The IPCC regularly assesses the worldwide state of knowledge on climate change and has issued its Fourth Assessment Report over the course of 2007. Working Group II assessed the impacts of climate change in its report, "Climate Change Impacts, Adaptation, and Vulnerability," released on April 6, 2007. The report found that:

- evidence obtained from observations of all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases;
- there is a high confidence, which the IPCC defines as more than 80 percent certainty, that observed changes in marine and freshwater biological systems are associated with rising water temperatures, as well as related changes in ice cover, salinity, oxygen levels, and circulation;
- observed changes to aquatic systems include species' range shifts and changes in algal, plankton, and fish abundance, particularly in high-latitude oceans;
- approximately 20 to 30 percent of plant and animal species assessed at present are likely to be at increased risk of extinction if the global average temperature increase exceeds 1.5 - 2.5 degrees Celsius;
- progressive acidification of oceans due to increasing atmospheric carbon dioxide is expected to have negative impacts on marine shell-forming organisms, such as corals, and their dependent species; and
- adaptation will be necessary to address impacts resulting from the warming which is already unavoidable due to past emissions.

On August 7, 2007, the Government Accountability Office (GAO) issued a report titled "Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources." In November 2006, the GAO, in conjunction with the National Academies, held a workshop of leading experts on science and resource management issues to examine the impacts of climate change on Federal land and water resources, information available to resource managers, and the extent to which climate change im-

pacts are taken into account. The report focused on resources managed by NOAA, the Bureau of Land Management, the Forest Service, the U.S. Fish and Wildlife Service, and the National Park Service.

The GAO report found that resource managers do not have sufficient site-specific information to plan for and manage the effects of climate change on Federal resources. Managers lack the basic tools needed to develop an adequate baseline understanding of existing local species. These tools include monitoring systems and computer models of local projections, without which managers are limited to reacting to already observed climate change effects making it difficult to plan for future changes.

The GAO report also found that resource managers have limited guidance on whether or how to address climate change, and therefore, are uncertain about what actions, if any, they should take. In general, resource managers lack specific guidance for incorporating climate change into their management actions and planning efforts, hampering their ability to address climate change and effectively manage resources. The GAO report also found that the Federal resource agencies studied have not made climate change a priority, and the agencies' strategic plans do not specifically address climate change.

Due to the prolonged residence time of carbon dioxide in the atmosphere, a certain degree of warming is expected for the next 20 to 30 years, even if all anthropogenic sources of greenhouse gases were eliminated today. Therefore, the currently observed or predicted changes to natural resources due to warming are expected to continue over this time period. Resource planning should include actions for adapting to changing conditions.

SUMMARY OF PROVISIONS

S. 2355 would include two main components — a national strategy and agency-specific requirements for NOAA. The bill would require the President to provide the Congress with a national strategic plan to address the impacts of climate change within the United States. The strategic plan would include guidance for integrating climate change considerations in the management of Federally-administered natural resources, as well as recommendations for providing information to and coordinating with State and local governments and nongovernmental entities to support planning efforts for the management of non-Federal resources. The strategic plan would not create a new legal right of action. Rather, the focus of the plan would be on recommending steps for considering climate change impacts in existing authorities.

The bill also would require the Secretary of Commerce to conduct regional assessments to identify key vulnerabilities of coastal and ocean areas and resources from hazards associated with climate change and ocean acidification. Such assessments would include social, physical, and economic impacts on local, State, and regional economies, including the impact on abundance and distribution of economically important living marine resources.

The bill also would require the Secretary of Commerce to prepare an agency-specific coastal and ocean adaptation plan for NOAA that would address coastal and ocean impacts of climate change. The plan would include recommendations regarding potential Fed-

eral flood insurance program modifications, mitigation incentives for coastal land use planning, and coastal hazards protocols. It also would include strategies to address the climate change impacts on living marine resources for which NOAA plays a stewardship role and would require a strategy for integrating climate change considerations into the actions and policies of NOAA and other Federal agencies, as appropriate.

The bill also would establish a grant program through the existing Coastal Zone Management Act grant process to support coastal States in the development and implementation of State plans, taking into consideration hazards planning requirements that States are already developing under the Stafford Act.

The bill would authorize annual appropriations for each of fiscal years 2009 through 2013 of \$25,000,000 for the implementation of the national strategy, \$75,000,000 to carry out the coastal and ocean assessments, and \$150,000,000 for the development of coastal and ocean adaptation plans, of which 75 percent would be provided to the States.

LEGISLATIVE HISTORY

Senator Cantwell, Chair of the Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard, introduced S. 2355 on November 14, 2007. Senators Kerry, Klobuchar, and Lautenberg have subsequently signed on as cosponsors. The bill was referred to the Committee on Commerce, Science, and Transportation. The Committee held two hearings preceding the introduction of S. 2355 that addressed the need for Federal legislation on climate adaptation. On May 10, 2007, the Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard held a hearing on the effects of climate change and ocean acidification on living marine resources. A full committee hearing was held on November 14, 2007, which addressed the need to improve the Federal government's climate change research program and the dissemination of relevant information to decision makers and other end users.

On December 4, 2007, the Committee considered a manager's amendment to this bill in an open executive session. The Committee, by voice vote, ordered S. 2355 to be reported favorably, as amended. The provisions on coastal assessments and coastal planning are based on similar provisions that were passed by the Senate in 2002 and again in 2003 as part of the Energy Policy Act.

ESTIMATED COSTS

In compliance with subsection (a)(3) of paragraph 11 of rule XXVI of the Standing Rules of the Senate, the Committee states that, in its opinion, it is necessary to dispense with the requirements of paragraphs (1) and (2) of that subsection in order to expedite the business of the Senate.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

The reported bill would not authorize any new regulations and therefore would not subject any individuals or businesses to new regulations. The bill would have little, if any, regulatory impact.

ECONOMIC IMPACT

The bill, as reported, is not expected to have a significant impact on the nation's economy.

PRIVACY

The reported bill would not have any adverse impact on the personal privacy of individuals.

PAPERWORK

The reported bill would not increase paperwork requirements for the private sector. The bill would require reports from the Federal government. The legislation also would establish a grant program through the existing Coastal Zone Management Act grant process to provide support to coastal States in developing and implementing their State plans. Applicants to this grant program would have to file documents to apply for this program.

CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides there are no congressionally directed spending items contained in the bill, as reported.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

This section would provide that the legislation may be cited as the "Climate Change Adaptation Act."

Section 2. Amendment of National Climate Service Act of 2007

This section would specify that any changes are in reference to the National Climate Service Act of 2007.

Section 3. Findings

This section would update and expand the findings to reflect recent studies, data, and assessments, including the *Fourth Assessment Report* of the IPCC, the National Research Council report *Evaluating Progress of the U.S. Climate Change Science Program*, and the GAO report *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources*.

Section 4. Definitions

This section would add a definition for "coastal state" based on usage in the Coastal Zone Management Act of 1972 (16 U.S.C. 1453(4)).

Section 5. National Climate Program

This section would establish a National Climate Program to address the emerging needs for climate change information and poli-

cies for adaptation. The program would include a strategic plan to address the impacts of climate change in the United States and establish a National Climate Service within NOAA. S. 2307, a complementary bill introduced by Senators Kerry and Snowe, provides details on the components of the National Climate Service. This section also would require the President to develop five-year strategic plans, define the program roles for the participating Federal officers, departments, and agencies, and provide for program coordination.

Section 6. National Climate Strategy

National Strategic Plan for Climate Change Adaptation. This section would require the President to provide the Congress with a five-year strategic plan for addressing the impacts of climate change within the United States. The plan would be developed in consultation with interested stakeholders and submitted within two years of the date of enactment of the Act.

The strategic plan would require that agencies identify existing capabilities to address climate change on Federally-managed resources and include measures to improve and integrate such capabilities. The plan also would include recommendations for providing information to and coordination with State and local governments, and nongovernmental entities to support planning efforts for the management of non-Federal resources. The plan would not create any new legal right of action. Federal agencies would consider climate change impacts under existing legal authorities and nothing in this section would supersede any existing Federal authority.

Ocean and Coastal Vulnerability and Adaptation. This section would require the Secretary of Commerce to coordinate and support regional assessments of the vulnerability of coastal and ocean areas and resources to the impacts of climate change and ocean acidification. These assessments would be done in conjunction with appropriate Federal, State, and local government entities and would be updated every five years. Such assessments would consider information and assessments developed by the Global Change Research Program and include the ecological, social, and economic impacts on local, State, and regional economies, including the impact on abundance or distribution of economically important living marine resources.

This section would require the Secretary of Commerce to prepare and submit to the Congress an agency-specific plan that includes a coastal and ocean adaptation plan to address the impacts of climate change, ocean acidification, and sea level rise. The plan would include recommendations regarding potential Federal flood insurance program modifications, mitigation incentives for coastal land use planning, and coastal hazards protocols.

This section also would require the Secretary of Commerce, acting through NOAA and in coordination with other relevant Federal agencies, to establish a program to provide technical planning assistance and products to coastal States and local governments to develop their own State and local plans.

Section 7. Coastal and Ocean Adaptation Grants

This section would amend the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) by adding a grant program to provide

support to coastal States in developing and implementing State coastal and ocean adaptation programs.

Section 8. Authorization of appropriations

This section would authorize annual appropriations for each of fiscal years 2009 through 2013 of \$25,000,000 to implement the National Strategic Plan for Climate Change Adaptation, \$75,000,000 to conduct the regional assessments of coastal and ocean vulnerability to the impacts of climate change and ocean acidification, and \$150,000,000 for the development of coastal and ocean adaptation plans, of which 75 percent would be provided to the States.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):¹

NATIONAL CLIMATE PROGRAM ACT

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “National Climate Service Act of 2007”.

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings.
- Sec. 3. Purpose.
- Sec. 4. Definitions.
- Sec. 5. National Climate Program.
- Sec. 6. National Climate Service.
- Sec. 7. Contract and grant authority.
- Sec. 8. Annual report.
- Sec. 9. Authorization of appropriations.”.

SEC. 2. FINDINGS.

The Congress finds the following:

(1) Climate change and related hazards affect public safety, environmental services and security, human health, agriculture, energy use, water resources, wildlife and other natural resources, and other factors vital to national security and human welfare.

(2) The present rate of advance of national efforts in research and development and the application of such advances is inadequate to meet the challenges posed by observed and projected rates of climate change and the increasing demand for information to guide planning and response across all sectors.

(3) The United States lacks adequate research, infrastructure, and coordinated outreach and communication mechanisms to meet national climate monitoring, prediction, and decision support needs for adapting to and mitigating the impacts of climate change.

(4) Information regarding climate change is not being fully disseminated or used, and Federal efforts have given insufficient attention to assessing and applying this information.

¹ The text of the National Climate Program Act of 1978 has been modified to reflect amendments that would be made in that Act if S. 2307, as ordered reported by the Committee on December 4, 2007, were enacted before S. 2355 were enacted. The National Climate Service Act of 2007 is a title in S. 2307 that would amend the National Climate Program Act.

(5) Climate change occur on a global basis making international cooperation essential for the purpose of sharing the benefits and costs of a global effort to understand and communicate these changes.

(6) *Recent scientific reports by the Intergovernmental Panel on Climate Change conclusively found that climate change is occurring, and that impacts from climate change can be expected in even shorter time periods than had been previously predicted.*

(7) *The Panel found that the resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances such as flooding and drought, and other global change drivers such as land-use change.*

(8) *According to the Panel, approximately 20 to 30 percent of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperature exceed 1.5 to 2.5 degrees Celsius.*

(9) *The Panel also found that the progressive acidification of oceans due to increasing atmospheric carbon dioxide is expected to have negative impacts on marine shell-forming organisms, such as corals, and their dependent species.*

(10) *The Panel found that coasts will be exposed to increasing risks, including coastal erosion, over coming decades due to climate change and sea-level rise, and that adaptation costs for vulnerable coasts are much less than the costs of inaction.*

(11) *In its September, 2007, study entitled Evaluating Progress of the U.S. Climate Change Science Program: Methods and Preliminary Results, the National Academy of Sciences concluded that there is a tremendous need to improve the delivery of information to decision makers at the Federal, regional, and local levels on climate change impacts and to take such impacts into account in planning and in managing resources.*

(12) *States and local communities may need Federal assistance in developing and implementing strategies to address the impacts of climate change.*

(13) *In its August, 2007, report entitled Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources, GAO-07-863, the Government Accountability Office found that the Federal Government is not providing the National Oceanic and Atmospheric Administration and other Federal agencies that are responsible for managing natural resources with the proper tools or policy mandates to take the impacts of climate change into account in carrying out their responsibilities to manage public resources.*

(14) *The National Oceanic and Atmospheric Administration, which plays a leading role in the Federal Government's Global Change Research Program, has a key role to play both in predicting impacts of climate change on natural resources and in improving data sharing and archiving of climate change research results to facilitate the delivery of information critical to adaptation and management to end users.*

(15) The National Oceanic and Atmospheric Administration has a key role to play in addressing the impacts of climate change on our Nation's coastal areas and ocean resources.

SEC. 4. DEFINITIONS.

[15 U.S.C. 2903]

In this Act:

(1) ADMINISTRATOR.—The term “Administrator” means the Administrator of the National Oceanic and Atmospheric Administration.

(2) ADVISORY COUNCIL.—The term “Advisory Council” refers to the Climate Services Advisory Council.

(3) CLIMATE CHANGE.—The term “climate change” means any change in climate over time, whether due to natural variability or as a result of human activity.

(4) COASTAL STATE.—*The term “coastal state” has the meaning given that term by section 304((4) of the Coastal Zone Management Act of 1972 (16 U.S.C. 1453(4)).*

[(4)] (5) DIRECTOR.—The term “Director” means the Director of the National Oceanic and Atmospheric Administration’s National Climate Service.

[(5)] (6) GLOBAL CHANGE RESEARCH PROGRAM.—The term “Global Change Research Program” means the United States Global Change Research Program established under section 103 of the Global Change Research Act of 1990 (15 U.S.C. 2933).

[(6)] (7) PROGRAM.—The term “Program” means the National Climate Program.

[(7)] (8) SECRETARY.—The term “Secretary” means the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration.

[(8)] (9) SERVICE.—The term “Service” means the National Oceanic and Atmospheric Administration’s National Climate Service.

[SEC. 5. NATIONAL CLIMATE PROGRAM.]

[15 U.S.C. 2904]

[(a)] ESTABLISHMENT.—The President shall establish a National Climate Program in accordance with the provisions, findings and purposes of this Act.

[(b)] DUTIES.—The President shall—

[(1)] promulgate the 5-year plans described in subsection (d)(9);

[(2)] define the roles in the Program of Federal officers, departments, and agencies, including the Departments of Agriculture, Commerce, Defense, Energy, Interior, State, and Transportation; the Environmental Protection Agency; the National Aeronautics and Space Administration; the Council on Environmental Quality; the National Science Foundation; and the Office of Science and Technology Policy; and

[(3)] provide for Program coordination.

[(c)] NATIONAL CLIMATE PROGRAM OFFICE.—

[(1)] The Secretary shall establish within the Department of Commerce a National Climate Program Office not later than 30 days after the date of the enactment of this Act.

[(2) The Office shall—

[(A) serve as the lead entity responsible for administering the program;

[(B) be headed by a Director who shall represent the Climate Program Policy Board and shall be spokesperson for the program;

[(C) serve as the staff for the Board and its supporting committees and working groups;

[(D) review each agency budget request transmitted under subsection (g)(1) and submit an analysis of the requests to the Board for its review;

[(E) be responsible for coordinating interagency participation in international climate-related activities; and

[(F) work with the National Academy of Sciences and other private, academic, State, and local groups in preparing and implementing the 5-year plan (described in subsection (d)(9)) and the program. The analysis described in subparagraph (D) shall include an analysis of how each agency's budget request relates to the priorities and goals of the program established pursuant to this Act.

[(3) The Secretary may provide, through the Office, financial assistance, in the form of contracts or grants or cooperative agreements, for climate-related activities which are needed to meet the goals and priorities of the program set forth in the 5-year plan pursuant to subsection (d)(9), if such goals and priorities are not being adequately addressed by any Federal department, agency, or instrumentality.

[(4) Each Federal officer, employee, department and agency involved in the Program shall cooperate with the Secretary in carrying out the provisions of this Act.

[(d) PROGRAM ELEMENTS.—The Program shall include, but not be limited to, the following elements:

[(1) assessments of the effect of climate on the natural environment, agricultural production, energy supply and demand, land and water resources, transportation, human health and national security. Such assessments shall be conducted to the maximum extent possible by those Federal agencies having national programs in food, fiber, raw materials, energy, transportation, land and water management, and other such responsibilities, in accordance with existing laws and regulations. Where appropriate such assessments may include recommendations for action;

[(2) basic and applied research to improve the understanding of climate processes, natural and man induced, and the social, economic, and political implications of climate change;

[(3) methods for improving climate forecasts on a monthly, seasonal, yearly, and longer basis;

[(4) global data collection, and monitoring and analysis activities to provide reliable, useful and readily available information on a continuing basis;

[(5) systems for the management and active dissemination of climatological data, information and assessments, including mechanisms for consultation with current and potential users;

[(6) measures for increasing international cooperation in climate research, monitoring, analysis and data dissemination;

[(7) mechanisms for intergovernmental climate-related studies and services including participation by universities, the private sector and others concerned with applied research and advisory services. Such mechanisms may provide, among others, for the following State and regional services and functions:

[(A) studies relating to and analyses of climatic effects on agricultural production, water resources, energy needs, and other critical sectors of the economy;

[(B) atmospheric data collection and monitoring on a statewide and regional basis;

[(C) advice to regional, State, and local government agencies regarding climate-related issues;

[(D) information to users within the State regarding climate and climatic effects; and

[(E) information to the Secretary regarding the needs of persons within the States for climate-related services, information, and data. The Secretary may make annual grants to any State or group of States, which grants shall be made available to public or private educational institutions, to State agencies, and to other persons or institutions qualified to conduct climate-related studies or provide climate-related services;

[(8) experimental climate forecast centers, which shall

[(A) be responsible for making and routinely updating experimental climate forecasts of a monthly, seasonal, annual, and longer nature, based on a variety of experimental techniques;

[(B) establish procedures to have forecasts reviewed and their accuracy evaluated; and

[(C) protect against premature reliance on such experimental forecasts; and

[(9) a preliminary 5-year plan, to be submitted to the Congress for review and comment, not later than 180 days after the enactment of this Act, and a final 5-year plan to be submitted to the Congress not later than 1 year after the enactment of this Act, that shall be revised and extended at least once every four years. Each plan shall establish the goals and priorities for the Program, including the intergovernmental program described in paragraph (7), over the subsequent 5-year period, and shall contain details regarding (A) the role of Federal agencies in the programs, (B) Federal funding required to enable the Program to achieve such goals, and (C) Program accomplishments that must be achieved to ensure that Program goals are met within the time frame established by the plan.

[(e) CLIMATE PROGRAM POLICY BOARD.—(1) The Secretary shall establish and maintain an interagency Climate Program Policy Board, consisting of representatives of the Federal agencies specified in subsection (b)(2) and any other agency which the Secretary determines should participate in the Program.

[(2) The Board shall—

[(A) be responsible for coordinated planning and progress review for the Program;

[(B) review all agency and department budget requests related to climate transmitted under subsection (g)(1) and submit a report to the Office of Management and Budget concerning such budget requests;

[(C) establish and maintain such interagency groups as the Board determines to be necessary to carry out its activities; and

[(D) consult with and seek the advice of users and producers of climate data, information, and services to guide the Board's efforts, keeping the Director and the Congress advised of such contacts.

[(3) The Board biennially shall select a Chair from among its members. A Board member who is a representative of an agency may not serve as Chair of the Board for a term if an individual who represented that same agency on the Board served as the Board's Chair for the previous term.

[(f) COOPERATION.—(1) The Program shall be conducted so as to encourage cooperation with, and participation in the Program by, other organizations or agencies involved in related activities. For this purpose the Secretary shall cooperate and participate with other Federal agencies, and foreign, international, and domestic organizations and agencies involved in international or domestic climate-related programs.

[(2) The Secretary and the Secretary of State shall cooperate with the Office in (A) providing representation at climate-related international meetings and conferences in which the United States participates, and (B) coordinating the activities of the Program with the climate programs of other nations and international agencies and organizations, including the World Meteorological Organization, the International Council of Scientific Unions, the United Nations Environmental Program, the United Nations Educational, Scientific, and Cultural Organization, the World Health Organization, and Food and Agriculture Organization.

[(g) BUDGETING.—Each Federal agency and department participating in the Program, shall prepare and submit to the Office of Management and Budget, on or before the date of submission of departmental requests for appropriations to the Office of Management and Budget, an annual request for appropriations for the Program for the subsequent fiscal year and shall transmit a copy of such request to the National Climate Program Office. The Office of Management and Budget shall review the request for appropriations as an integrated, coherent, multi-agency request.】

SEC. 5. NATIONAL CLIMATE PROGRAM.

(a) *ESTABLISHMENT.*—*There is hereby established a National Climate Program in accordance with the findings and purposes of this Act.*

(b) *PROGRAM ELEMENTS.*—

(1) *IN GENERAL.*—*The Program shall include—*

(A) a strategic planning process to address the impacts of climate change within the United States; and

(B) a National Climate Service to be established within the National Oceanic and Atmospheric Administration.

(c) *DUTIES.—The President shall—*

- (1) *develop the 5-year plans described in section 9;*
- (2) *define the roles in the Program of Federal officers, departments, and agencies, including the Departments of Agriculture, Commerce, Defense, Energy, Interior, State, and Transportation; the Environmental Protection Agency; the National Aeronautics and Space Administration; the Council on Environmental Quality; the National Science Foundation; and the Office of Science and Technology Policy; and*
- (3) *provide for Program coordination.*

* * * * *

SEC. 9. NATIONAL STRATEGIC PLAN FOR CLIMATE CHANGE ADAPTATION.

(a) *IN GENERAL.—Not later than 2 years after the date of enactment of the Climate Change Adaptation Act, the President shall provide to the Congress a 5-year national strategic plan to address the impacts of climate change within the United States. The President shall provide a mechanism for consulting with States and local governments, the private sector, universities, and other nongovernmental entities in developing the plan. The plan shall be updated at least every 5 years.*

(b) *CONTENTS OF PLAN.—The plan shall, at a minimum—*

- (1) *identify existing Federal requirements, protocols, and capabilities for addressing climate change impacts on federally managed resources and with respect to Federal actions and policies;*
- (2) *identify measures to improve such capabilities and the utilization of such capabilities;*
- (3) *include guidance for integrating the consideration of the impacts of climate change on Federally-managed resources, and in Federal actions and policies, consistent with existing authorities;*
- (4) *address vulnerabilities and priorities identified through the assessments carried out under the Global Change Research Act of 1990 and this Act;*
- (5) *establish a mechanism for the exchange of information related to addressing the impacts of climate change with, and provide technical assistance to, State and local governments and nongovernmental entities;*
- (6) *recommend specific partnerships with State and local governments and nongovernmental entities to support and coordinate implementation of the plan;*
- (7) *include implementation and funding strategies for short-term and long-term actions that may be taken at the national, regional, State, and local level, taking into account existing planning and other requirements;*
- (8) *establish a process to develop more detailed agency and department-specific plans;*
- (9) *identify opportunities to utilize observations from both ground-based and remote sensing platforms and other geospatial technologies to improve planning for adaptation to climate change impacts;*

(10) identify existing legal authorities and additional authorities necessary to implement the plan;

(11) identify existing high resolution elevation data and bathymetric data and develop a prioritized plan for filling existing gaps; and

(12) include appropriate steps for partnerships with international organizations and foreign governments on international activities to address climate change impacts, including the sharing of technical assistance and capacity-building expertise..

(c) *INTERIM ACTIVITIES.*—Nothing in this section shall be understood to prevent any Federal agency or department to take climate change impacts into account, consistent with its existing authorities, until the requirements of this section are implemented. Federal agencies are presently encouraged to take climate change into account under all existing relevant authorities to the maximum extent practicable and consistent with those authorities.

(d) *COORDINATION.*—The President shall ensure that the mechanism to provide information related to addressing the impacts of climate change to State and local governments and nongovernmental entities is appropriately coordinated or integrated with existing programs that provide similar information on climate change predictions.

(e) *RELATIONSHIP TO OTHER AUTHORITIES.*—Nothing in this section shall supersede any Federal authority in effect on the date of enactment of the Climate Change Adaptation Act or create any new legal right of action.

SEC. 10. OCEAN AND COASTAL VULNERABILITY AND ADAPTATION.

(a) *COASTAL AND OCEAN VULNERABILITY.*—

(1) *IN GENERAL.*—Within 2 years after the date of enactment of the Climate Change Adaptation Act, the Secretary of Commerce shall, in consultation with the appropriate Federal, State, and local governmental entities, coordinate and support regional assessments of the vulnerability of coastal and ocean areas and resources, including living marine resources, to hazards associated with climate change, and ocean acidification including—

(A) variations in sea level including long-term sea level rise;

(B) fluctuation of Great Lakes water levels;

(C) increases in severe weather events;

(D) natural hazards and events including storm surge, precipitation, flooding, inundation, drought, and fires;

(E) changes in sea ice;

(F) changes in ocean currents impacting global heat transfer;

(G) increased siltation due to coastal erosion;

(H) shifts in the hydrological cycle; and

(I) alteration of ecological communities, including at the ecosystem or watershed levels.

(2) *FACTORS.*—In preparing the regional coastal assessments, the Secretary shall take into account the information and assessments being developed pursuant to the Global Change Re-

search Program. The regional assessments shall include an evaluation of—

(A) observed and projected physical, biological, and ecological impacts, such as coastal erosion, flooding and loss of estuarine habitat, saltwater intrusion of aquifers and saltwater encroachment, coral reef bleaching, impacts on food web distribution, impacts on marine habitat and ecosystem productivity, species migration, species abundance and distribution, and changes in marine pathogens and diseases;

(B) social and cultural impacts associated with threats to and potential losses of housing, communities, recreational opportunities, aesthetic values, and infrastructure; and

(C) economic impacts on local, State, and regional economies, including the impact on abundance or distribution of economically important living marine resources.

(3) *UPDATES.*—The Secretary shall update such assessments at least once every 5 years.

(b) *COASTAL AND OCEAN ADAPTATION PLAN.*—The Secretary shall, within 3 years after the date of enactment of the Climate Change Adaptation Act, submit to the Congress an agency-specific plan, as required by section 9(c). The plan shall include a national coastal and ocean adaptation plan, composed of individual regional adaptation plans that recommend targets and strategies to address coastal and ocean impacts associated with climate change, ocean acidification, and sea level rise. The plan shall serve as the agency-specific plan. The plan shall be developed with the participation of other Federal, State, and local government agencies that will be critical in the implementation of the plan at the State and local levels and shall take into account the results of the regional assessments to be conducted under subsection (a), the work of the Global Change Research Program, and recommendations of the National Science Board in its January 12, 2007, report entitled *Hurricane Warning: The Critical Need for a National Hurricane Research Initiative* and other relevant studies, and not duplicate existing Federal and State hazard planning requirements. The Plan shall include both short- and long-term adaptation strategies and shall include, at a minimum, recommendations regarding—

(1) Federal flood insurance program modifications;

(2) areas that have been identified as high risk through mapping and assessment;

(3) mitigation incentives such as rolling easements, strategic retreat, State or Federal acquisition in fee simple or other interest in land, construction standards, infrastructure planning, and zoning;

(4) land and property owner education;

(5) economic planning for small communities dependent upon affected coastal and ocean resources, including fisheries;

(6) coastal hazards protocols to reduce the risk of damage to lives and property, and reduce threats to public health and a process for evaluating the implementation of such protocols;

(7) strategies to address impacts on critical biological and ecological processes, giving a priority to the most vulnerable natural resources and communities;

(8) proposals to integrate measures into the actions and policies of the National Oceanic and Atmospheric Administration and other Federal agencies, as appropriate;

(9) a plan for additional observations, research, modeling, assessment and information products, environmental data stewardship, and development of technologies and capabilities to address such impacts;

(10) a plan for data archive and access, and processes for sharing data and information for addressing such impacts;

(11) plans to pursue bilateral and multilateral agreements necessary to effectively address such impacts;

(12) partnerships with States and nongovernmental organizations;

(13) methods to mitigate the impacts identified, including habitat protection and restoration measures; and

(14) funding requirements and mechanisms.

(c) **TECHNICAL PLANNING ASSISTANCE.**—The Secretary, through the National Oceanic and Atmospheric Administration and in coordination with other Federal agencies with existing authorities concerning hazard mitigation planning, shall establish a coordinated program to provide technical planning assistance and products to coastal States and local governments as they develop and implement adaptation or mitigation strategies and plans. Products, information, tools and technical expertise generated from the development of the regional coastal and ocean assessments and the coastal and ocean adaptation plans will be made available to coastal States for the purposes of developing their own State and local plans.

SEC. [9.] 11. AUTHORIZATION OF APPROPRIATIONS.

[15 U.S.C. 2908]

(a) **NATIONAL CLIMATE SERVICE.**—There are authorized to be appropriated to the Secretary to carry out sections 6, 7, and 8 of this Act—

- (1) \$300,000,000 for fiscal year 2009;
- (2) \$350,000,000 for fiscal year 2010;
- (3) \$400,000,000 for fiscal year 2011;
- (4) \$450,000,000 for fiscal year 2012; and
- (5) \$500,000,000 for fiscal year 2013.

(b) **NATIONAL STRATEGY.**—In addition to any other funds otherwise authorized to be appropriated, there are authorized to be appropriated for each of fiscal years 2009 through 2013 \$25,000,000 to carry out section 9.

(c) **COASTAL AND OCEAN ASSESSMENTS.**—In addition to any other funds otherwise authorized to be appropriated, there are authorized to be appropriated to the Secretary \$75,000,000 for each of fiscal years 2009 through 2013 to carry out section 10(a).

(d) **COASTAL AND OCEAN ADAPTATION PLAN.**—In addition to any other funds otherwise authorized to be appropriated, there are authorized to be appropriated for each of fiscal years 2009 through 2013 \$150,000,000, of which 75 percent shall be for State plans.

COASTAL ZONE MANAGEMENT ACT OF 1972

[16 U.S.C. 1451 et seq.]

SEC. 320. CLIMATE CHANGE ADAPTATION PLANS.

(a) *GRANTS.*—The Secretary shall provide grants of financial assistance to coastal states with federally approved coastal zone management programs to develop and begin implementing coastal and ocean adaptation programs.

(b) *ALLOCATION OF FUNDS.*—The Secretary shall distribute grant funds under subsection (a) among coastal States in accordance with the formula established under section 306(c) of this Act, adjusted in consultation with the States as necessary to provide assistance to particularly vulnerable coastlines.

(c) *PLAN CONTENT.*—In order to receive financial assistance under this section, a plan must be approved by the Secretary, and be consistent with and further the goals of the coastal and ocean adaptation plan to be developed pursuant to section 10 of the National Climate Service Act of 2007, and be consistent with such State's coastal management program.

(d) *STATE HAZARD MITIGATION PLANS.*—Plans developed by States pursuant to this section shall be consistent with State hazard mitigation plans developed under State or Federal law.

