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110TH CONGRESS *1st Session*	SENATE	REPORT 110–217

COASTAL AND OCEAN OBSERVATION SYSTEM ACT OF 2007

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 950

NOVEMBER 2, 2007.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

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COASTAL AND OCEAN OBSERVATION SYSTEM ACT OF 2007

NOVEMBER 2, 2007.—Ordered to be printed

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

REPORT

[To accompany S. 950]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 950) to develop and maintain an integrated system of coastal and ocean observations for the Nation's coasts, oceans, and Great Lakes, to improve warnings of tsunami, hurricanes, El Niño events, and other natural hazards, to enhance homeland security, to support maritime operations, to improve management of coastal and marine resources, and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of S. 950, the Coastal and Ocean Observation System Act of 2007, is to establish a national, integrated coastal and ocean observing system that will collect, compile, and make available data on ocean conditions of the Nation's coasts, oceans, and Great Lakes. The bill also aims to improve warnings of tsunami, hurricanes, El Niño events, and other natural hazards, to enhance homeland security, to support maritime operations, and to improve management of coastal and marine resources.

BACKGROUND AND NEEDS

Advances in our knowledge and management of coastal and ocean resources are limited by a lack of real-time, standardized, and accessible data on key environmental variables such as temperature, salinity, sea level, surface currents, ocean color, pH, wind

speed, wave height, dissolved oxygen, and nutrient, pathogen, and contaminant concentrations. The National Oceanic and Atmospheric Administration (NOAA) has emphasized that programs throughout the agency often do not have the basic environmental data they need to create effective models or conduct analyses used in the management process. NOAA and other agencies also need long-term oceanographic databases to effectively monitor changes in the environment, such as El Niño events, the North Atlantic Oscillation, the Pacific Decadal Oscillation, global climate change, ocean acidification, harmful algal blooms, and other marine ecosystem impacts.

The U.S. Commission on Ocean Policy (the Commission) emphasized the importance of expanding and integrating coastal and ocean observation systems around the Nation. In Chapter 26, "Achieving a Sustained, Integrated Ocean Observing System," of its September 2004 final report, the Commission offered 13 specific recommendations on developing, funding, implementing, and utilizing a nationwide ocean observation system and linking this with other national and international environmental monitoring programs. Additionally, scores of other Commission recommendations related to ocean data and information needs also support the need for an integrated, national ocean observation system. The Commission's recommendations align with those of the National Ocean Research Leadership Council (the Council), which includes the leadership of NOAA, the Navy, the National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF). The Council has called for the full implementation of an integrated and sustained ocean observing system by 2010.

Coastal and ocean data are also needed to satisfy the marine conservation, research, and management activities established in statutes such as the Coastal Zone Management Act, the Harmful Algal Bloom and Hypoxia Research and Control Act, the Marine Protection, Research, and Sanctuaries Act, and other legislation related to oceans, fisheries, and atmospheric sciences and management. A number of mandates explicitly or implicitly require routine ocean observations. For example, Title V of the Marine Protection, Research, and Sanctuaries Act requires the Environmental Protection Agency and NOAA to administer a national coastal water quality monitoring program. Further, the Coastal Zone Management Act of 1972 created the National Estuarine Research Reserve System that includes monitoring the status and trends in coastal ecosystem health. Data on marine ecosystems are also required for effective enforcement of the Endangered Species Act of 1973 and the Marine Mammal Protection Act of 1972.

A national, integrated coastal and ocean observation system would provide a continuous stream of near real-time data for oceanographic parameters of national priority; develop standards and protocols for data transfer and archiving; and improve linkages between regional observing systems to facilitate coverage around the United States. Scientific experts have testified on the importance of a national observing system for predicting, monitoring, and evaluating the impacts of climate change on coastal and ocean ecosystems. A national system would provide the Coast Guard with real-time information on sea-state conditions that it could use to determine when and how to conduct its many missions. This would

be especially applicable in planning search-and-rescue missions. Observing systems also would provide the Navy with information to support core Navy missions, including development of improved sensor technologies and predictive and tactical models for littoral environments.

Information generated by this system could provide advanced warning of hazardous coastal and ocean conditions to State managers and potentially affected communities. For example, when a tsunami or hurricane occurs, information from tsunami detection buoys could be combined with wave height indicators and tidal gauges in the observing system to track destructive wave patterns, thereby helping communities minimize loss of life and property. Several other types of information products generated by the coastal and ocean observing system could help coastal communities prepare for a range of potentially harmful ocean conditions and take steps to minimize their losses.

This system has the potential to provide economic and ecological benefits for other coastal and ocean activities as well. For example, fisheries scientists and managers could use the data to predict biological productivity which would facilitate ecosystem-based management. Fishermen and mariners could better predict sea conditions for safe navigation and transport. Ocean scientists and regulators could better understand, predict, and rapidly respond to the distribution and impacts of marine pollution, harmful algal blooms, or other hazardous conditions. Educators and students could learn more about basic functions and processes of the marine environment.

Independent regional ocean observation systems, such as the Gulf of Maine Ocean Observing System (GoMOOS), the Alaska Ocean Observing System, and dozens of other current and planned systems around the coastline of the United States have attempted to fill these information needs on a regional basis. The GoMOOS, for example, is a prototype system of integrated ocean observing devices (buoys, radar, satellites, etc.) that are linked to provide real-time ocean data collection via the Internet so that ocean prediction models and systems can be developed—a process similar to that utilized in weather forecasting. Other regional systems are being developed to meet local or project-based research needs, collecting different types of data in a variety of ways and using various approaches for organizing, managing, and communicating these data.

These regional efforts have developed in an *ad hoc*, fragmented manner, limiting the uniformity, consistency, and compatibility of data among systems. NOAA and other users of coastal and ocean data are unable to link these systems, thereby losing a valuable opportunity to develop a comprehensive picture of coastal, ocean, and Great Lakes conditions around the Nation. Regional systems are also limited by uneven and unpredictable funding, which reduces their ability to meet their own basic needs.

Once established, this coastal and ocean observation system would help improve weather forecasting, promote understanding of global change processes, enhance safety and efficiency of marine operations, facilitate research, improve management of marine and coastal ecosystems, strengthen homeland security, reduce public health risks, sustain living marine resources, evaluate effectiveness

of coastal and ocean policies, and provide information to raise public awareness of our oceans.

The economic impact of an integrated national coastal and ocean observing system is difficult to quantify, but studies to date indicate that it would generate significant cost savings in the long-term. The Commission estimated that such a system would cost $138 million to formally establish and $500 million to maintain annually. By comparison, approximately $700 million is provided annually to the National Weather Service for similar information and products for weather and atmospheric phenomena. The expected economic return is significant; for example, an economic impact study that evaluated the GoMOOS system estimated that it saved the regional economy at least $6 for every $1 invested. Additionally, the Commission noted that the estimated value of El Niño forecasts reaches $1 billion annually.

SUMMARY OF PROVISIONS

The Coastal and Ocean Observation System Act of 2007 would build on the existing Federal observing backbone to establish a coastal and ocean observing program that would produce continuous and comprehensive ocean observations in the United States, including the Great Lakes. It would incorporate NOAA's weather buoys, tide gauges, tsunami detection buoys, and real-time observing partnerships such as the Physical Oceanographic Real-Time System. It would also support and coordinate the ocean data collection systems around the country and formalize the relationship with the Federal Government.

The bill would authorize the President, acting through the Council, to create and oversee an integrated ocean observing system to provide long-term, continuous, and quality-controlled observations of the Nation's coasts, oceans, and Great Lakes. The program would consist of federally-certified regional associations that collect data on key variables, disseminate information, and apply results to national priorities. The Council would serve as the oversight body for the design and coordination of all aspects of the observing system. Created by the fiscal year 1997 National Defense Authorization Act (Conference Report 104–724), the Council consists of the heads of fifteen Federal agencies involved in conducting or funding ocean research or developing ocean research policy. The Council's Chair and Vice Chair are selected by a committee composed of, at a minimum, the Secretary of the Navy, the Administrator of NOAA, the Director of NSF, and the current or sitting Chair and Vice Chair, and appointed with the concurrence of the full Council membership.

The Council would establish an Interagency Ocean Observation Committee (IOOC) to carry out the program's planning, budgeting, and implementation. The IOOC would also be responsible for setting national standards for the observing system. The IOOC would be comprised of representatives of the Federal agencies responsible for coastal and ocean management, including NOAA, NASA, and NSF. To assist in carrying out the daily operations of the IOOC, the bill would establish an Interagency Program Coordinating Office housed within the Department of Commerce and staffed by employees of agencies represented on the IOOC.

The bill would also establish a distinct leadership role for NOAA in the implementation of the ocean observing program. Working with the Council, the IOOC, and other Federal agencies, NOAA would manage the data and communication elements of the program and administer a merit-based funding process for the regional associations and other participants in the program. NOAA would also establish a certification process for the regional associations using standards developed by the IOOC.

S. 950 would authorize $150 million to NOAA for each of fiscal years 2008 through 2010 and $175 million to NOAA for each of the fiscal years 2011 and 2012. At least 50 percent of this funding would be allocated to the regional associations for implementing and operating regional elements of the coastal and ocean observation system.

LEGISLATIVE HISTORY

S. 950 was introduced in the Senate by Senator Snowe on March 21, 2007, with Senators Cantwell, Inouye, Stevens, Boxer, Cardin, Kerry, Menendez, Collins, Lautenberg, Lott, Feinstein, Nelson of Florida, and Murkowski as original cosponsors. Senator Wyden subsequently signed on as a cosponsor. The bill was referred to the Senate Committee on Commerce, Science, and Transportation. On June 27, 2007, the Committee considered a managers' substitute amendment to this bill in an open executive session. The Committee, without objection, ordered S. 950 be reported favorably as amended.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

JULY 30, 2007.

Hon. DANIEL K. INOUYE,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 950, the Coastal and Ocean Observation System Act of 2007.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contacts are Deborah Reis and David Reynolds.

Sincerely,

PETER R. ORSZAG.

Enclosure.

S. 950—Coastal and Ocean Observation System Act of 2007

Summary: S. 950 would direct the National Ocean Research Leadership Council to develop and operate an integrated coastal and ocean observation system, including programs for ocean monitoring, data analysis, public education, and research. For this purpose, the bill would authorize the appropriation of $800 million over the 2008–2012 period. The council, which was established in

1996, includes the National Oceanic and Atmospheric Administration (NOAA), the Navy, the National Science Foundation (NSF), the National Aeronautics and Space Administration, the U.S. Coast Guard, and other federal agencies.

Assuming appropriation of the authorized amounts, CBO estimates that implementing S. 950 would cost $700 million over the 2008–2012 period and $100 million after 2012. Enacting the legislation would not affect direct spending or revenues.

S. 950 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of S. 950 is shown in the following table. The costs of this legislation fall within budget functions 050 (national defense), 250 (general science, space, and technology), 300 (natural resources and environment), and 400 (transportation).

	By fiscal year, in millions of dollars—				
	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Authorization Level	150	150	150	175	175
Estimated Outlays	80	130	150	160	180

Basis of estimate: For this estimate, CBO assumes that S. 950 will be enacted near the start of 2008 and that the authorized amounts will be appropriated for each year. Estimated outlays are based on historical spending patterns for NOAA programs.

The legislation would direct the National Ocean Research Leadership Council to establish a new national system for collecting information and monitoring oceanic and coastal ecosystems and resources, including related research, education, and analysis. NOAA would lead the implementation of the system in consultation with the council and other federal agencies. The bill would authorize the appropriation of $150 million a year for fiscal years 2008 through 2010 and $175 million a year for fiscal years 2011 and 2012 for those new activities.

Assuming appropriation of the authorized amounts, CBO estimates that implementing the bill would cost $700 million over the 2008–2012 period and an additional $100 million after 2012.

Intergovernmental and private-sector impact: S. 950 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

Estimate Prepared by: Federal Costs: Deborah Reis and David Reynolds; Impact on State, Local, and Tribal Governments: Leo Lex; Impact on the Private Sector: Justin Hall.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

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 require the development of a national, integrated coastal and ocean observation system that would collect, compile, and make available data on ocean conditions. It would not authorize any new regulations and therefore would not subject any individuals or businesses to new regulations.

Economic impact

Section 8 of the reported bill would authorize $150 million for each of fiscal years 2008 through 2010 and $175 million for each of fiscal years 2011 and 2012 in appropriations to NOAA for the development and implementation of the national coastal and ocean observation system. It would authorize at least 50 percent of these sums to be allocated to the regional associations certified under section 4(f) for implementation of regional coastal and ocean observing systems. Considering the potential cost savings and economic return on a fully functional coastal and ocean observation system, these funding levels are not expected to have an inflationary impact on the Nation's economy.

Privacy

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

Paperwork

S. 950 would not impose any new paperwork requirements on private citizens, businesses, or other entities that do not choose to participate in a regional coastal and ocean observation association; representatives of entities choosing to participate in these associations may be subject to some additional paperwork requirements.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

This section would cite this bill as the "Coastal and Ocean Observation System Act of 2007."

Section 2. Findings and purposes

The findings and purposes would recognize that a sustained and integrated coastal, ocean, and Great Lakes observing system provides vital ocean information for myriad regional and national needs and that coordination with a network of the regional associations to operate and maintain the observing system would ensure the fulfillment of these objectives.

Section 3. Definitions

This section would define "Administrator" as the Administrator of NOAA; "Council" as the National Ocean Research Leadership Council; "Interagency Ocean Observation Committee" as described in section 4(d); "National Oceanographic Partnership Program" as the program established under section 7901 of title 10, United States Code; "Observing System" as the integrated system established under section 4(a); and "Secretary" as the Secretary of Commerce for the purposes of this bill.

Section 4. Integrated coastal and ocean observing system

(a) ESTABLISHMENT.—This subsection would direct the President, acting through the Council, to establish and maintain an integrated system of coastal and ocean observations, data communication and management, analysis, modeling, research, education, and outreach. The observing system would provide long-term, continuous, quality-controlled data and information for the timely monitoring and prediction of changes in coastal, ocean, and Great Lakes environments that impact social, economic, and ecological systems. The purposes of the observing system include: understanding the effects of human activities and natural variability on coasts, oceans, and Great Lakes; monitoring key variables such as temperature, salinity, and acidity; measuring and predicting climatic and environmental changes; protecting lives and livelihoods from natural and manmade hazards; supplying critical information to marine-related businesses and aiding marine navigation and safety; supporting national defense and homeland security; supporting sustainable use and protection of coastal, ocean, and Great Lakes resources; supporting protection of critical coastal habitats, unique ecosystems, and resources; educating the public about the oceans and Great Lakes; and supporting research and development to improve the observing system.

(b) SYSTEM ELEMENTS.—This subsection would specify that the observation system include the following five elements: (1) a national program to fulfill national and international observation priorities; (2) a network of the regional associations to manage regional observation programs; (3) a data management and communication system for timely integration and dissemination of data and information products; (4) a research and development program under the guidance of the Council including basic and applied research; and (5) an outreach, education, and training program augmenting existing programs such as the National Sea Grant College Program, the Centers for Ocean Sciences Education Excellence, and the National Estuarine Research Reserve System.

(c) COUNCIL FUNCTIONS.—This subsection would specify that the Council shall serve as the oversight body for the design and implementation of the observing system; adopt plans, budgets, and standards developed by the IOOC in consultation with the regional associations; coordinate with other earth observing activities; coordinate and approve research, development, education, and outreach programs in support of the observing system; promote technology and methods to improve the observing system; support institutional mechanisms and financial instruments to further program goals and provide for infrastructure capitalization; provide support for and representation of U.S. delegations to international meetings on observing programs; and coordinate activities with other nations.

(d) INTERAGENCY OCEAN OBSERVATION COMMITTEE.—This subsection would direct the Council to establish an IOOC responsible for program planning and coordinating the implementation of the observing system. The IOOC would prepare annual and long-term design and implementation plans. These plans would promote collaboration between Federal agencies and the regional associations and identify a core set of variables to be measured by all systems. The IOOC would also coordinate the development of agency and re-

gional association priorities and budgets; establish and refine data collection, management, and communication standards and protocols in consultation with Federal agencies and the regional associations; establish a process for assuring compliance with set standards and protocols including quality control standards; integrate, improve, and extend existing programs and research projects; ensure the regional associations are integrated into the system on a sustained basis; provide for advances in science and technology to move from research and development to operational deployment; and perform other duties as delegated by the Council.

This subsection also establishes an Interagency Program Coordinating Office, staffed by employees of the agencies represented on the Interagency Ocean Observation Committee, and tasked with facilitating and executing day-to-day operations to meet the Committee's responsibilities.

(e) ROLE OF NOAA.—This subsection would direct NOAA to provide leadership for implementing and administering the observing system, in consultation with the Council, the IOOC, other Federal agencies maintaining portions of the observing system, and the regional associations. NOAA's responsibilities would include establishing an Integrated Ocean Observing Program Office; establishing and implementing procedures for allocation of funds through competitive contracts, grants, leases, or cooperative agreements to carry out this act; developing and implementing a process for certification and review of the regional associations meeting the requirements of subsection (f); and developing a data management and communication system for all observing system data.

(f) REGIONAL ASSOCIATIONS OF COASTAL AND OCEAN OBSERVING SYSTEMS.—This subsection would authorize the Secretary, through rulemaking, to establish a process for the certification of the regional associations. A regional association would need to meet the certification standards developed by the IOOC in conjunction with the regional associations and approved by the Council that would require an organizational structure capable of supporting all aspects of the observing system, and a strategic plan that would detail the operation and support of the regional observing system. The regional associations would also be required to work with governmental entities and programs to provide information products of the observing system to multiple users in the region.

(g) CIVIL LIABILITY.—This subsection would specify that, for the purposes of determining tort liability related to the dissemination and use of data, any coastal and ocean observing system that is a designated part of a certified regional association and carrying out the purposes of this act shall be considered to be part of NOAA, and any employee operating within the scope of his or her employment shall be deemed to be an employee of the Federal Government.

Section 5. Process for transition from research to operation

This section would direct NOAA, in consultation with the Council, to formulate a process by which funding is made available for research on and rating of new technologies for ocean data collection. These technologies shall include accelerated research into biological and chemical sensing techniques (including satellite sensors) and development of technologies to improve all aspects of the ob-

serving system. Under this process, funding would be made available to integrate proven ocean observation technology into the operational system.

Section 6. Interagency financing

This section would specify that agencies represented on the Council are authorized to participate in interagency financing and share, transfer, receive, obligate, and expend funds appropriated to any agency represented on the Council to carry out any administrative or programmatic activity under this act.

Section 7. Application with other laws

This section would provide that noting in this act would supersede or limit the authority of any agency to carry out its responsibilities and missions under other laws.

Section 8. Authorization of appropriations

This section would authorize $150 million for each of fiscal years 2008 through 2010 and $175 million for each of fiscal years 2011 and 2012 to NOAA for implementing the systems and programs authorized by this act. At least 50 percent of these authorized funds would be allocated to the regional associations certified under subsection 4(f) for implementation of coastal and ocean observing systems at the regional level.

Section 9. Implementation plan

This section would require the Secretary to submit to Congress a plan for implementation of this act no later than 12 months after enactment. The report would include information for coordinating activities under this act with other Federal agencies and distributing funds to the regional associations.

Section 10. Report to Congress

This section would require the Administration to prepare a report for the President. Acting through the Council, the President would review, approve, and transmit the report every two years. The report, prepared by the Administrator of NOAA, shall include a description of activities, evaluation of effectiveness, and benefits resulting from the observing system. It shall also contain recommendations for modifying and funding the observing system, as well as the results of a periodic, external, independent audit of the system.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

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