NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ORGANIC ACTS

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS

COMMITTEE ON SCIENCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED EIGHTH CONGRESS

SECOND SESSION

JULY 15, 2004

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ORGANIC ACTS

THURSDAY, JULY 15, 2004

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 2:07 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Vernon J. Ehlers [Chairman of the Subcommittee] presiding.

COMMITTEE ON SCIENCE
U.S. HOUSE OF REPRESENTATIVES

National Oceanic and Atmospheric Administration Organic Acts

Thursday July 15, 2004

2:00 PM – 4:00 PM
2318 Rayburn House Office Building (WEBCAST)

Witness List

Panel I

The Honorable Theodore Kassinger
Deputy Secretary
U.S. Department of Commerce

Dr. Jim Baker
President and Chief Executive Officer
The Academy of Natural Sciences

Rear Admiral Richard West
President
Consortium for Oceanographic Research and Education

Dr. Joe Friday
Former Assistant Administrator
National Weather Service

Panel II

Mr. Richard Hirn
General Counsel
National Weather Service Employees Organization

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HEARING CHARTER

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS

COMMITTEE ON SCIENCE

U.S. HOUSE OF REPRESENTATIVES

National Oceanic and Atmospheric Administration Organic Acts

THURSDAY, JULY 15, 2004
2:00 P.M.—4:00 P.M.
2318 RAYBURN HOUSE OFFICE BUILDING

Purpose:

On July 15, 2004 at 2:00 p.m., the Subcommittee on Environment, Technology, and Standards will hold a hearing on H.R. 4546, the *National Oceanic and Atmospheric Administration Act,* and H.R. 4607, the *National Oceanic and Atmospheric Administration Organic Act of 2004.*

NOAA was established in the Department of Commerce by Executive Order in 1970 under President Nixon. The 1970 Executive Order primarily consolidated the ocean and atmospheric activities of various federal agencies under NOAA. The order did not lay out an overarching mission for the agency and since that time Congress has not passed a comprehensive act outlining the mission and specific functions of the agency. In addition, in its Preliminary Report released in April 2004, the U.S. Commission on Ocean Policy strongly recommended that Congress pass an organic act for NOAA. H.R. 4546 responds to this Ocean Commission recommendation by providing an organic act for NOAA. The bill also includes a general authorization for NOAA's current line offices, such as the National Weather Service. In addition, H.R. 4546 incorporates several NOAA-related pieces of legislation pending before Congress. The Administration also has submitted its own version of a NOAA organic act to Congress, which was introduced as H.R. 4607.

Overarching Questions:

The hearing will address the following overarching questions:

1. What are the oceanic and atmospheric communities' general comments on H.R. 4546 and H.R. 4607?
2. How is NOAA currently organized and structured and should that change?
3. What missions and functions should NOAA be responsible for? How should NOAA be organized? What should be included in an organic act for NOAA?

Witnesses:

The Honorable Theodore Kassinger, Deputy Secretary, U.S. Department of Commerce.

Dr. James Baker, President and Chief Executive Officer, the Academy of Natural Sciences. Dr. Baker was Administrator of NOAA from 1993–2001.

Rear Admiral Richard West (Ret.), President, Consortium for Oceanographic Research and Education. Admiral West was a member of the subcommittee of NOAA's Science Advisory Board that recently reviewed NOAA's research enterprise.

Dr. Elbert (Joe) W. Friday, Jr., WeatherNews Chair of Applied Meteorology and Director, the Sasaki Applied Meteorology Research Institute, University of Oklahoma. Dr. Friday is a former Assistant Administrator of the National Weather Service and the Office of Oceanic and Atmospheric Research at NOAA. Additionally, he is a past-president of the American Meteorological Society.

Mr. Richard Hirn, General Counsel, National Weather Service Employees Organization (NWSEO). The NWSEO represents employees from many of NOAA's line offices.

Background:

History of NOAA

In 1966, the Marine Resources and Engineering Act established an independent commission to produce a comprehensive study and recommendations for the Nation's ocean policy. The Commission, chaired by Julius Stratton, released its report in 1969. One of its recommendations was that the President should establish an independent agency to coordinate all federal, nonmilitary ocean management programs. In 1970, President Nixon established the National Oceanic and Atmospheric Administration (NOAA) by Executive Order within the Department of Commerce.

The executive order establishing NOAA, Reorganization Plan No. 4 of 1970, transferred the functions of various agencies, such as the Sea Grant College Program, into the new NOAA and established a leadership structure for the new agency. The plan did not provide an overall mission for the agency.

Since that time NOAA has evolved into the central civilian federal agency for both oceans and atmospheric issues. However, Congress has never passed a comprehensive act defining the mission and specific functions of the agency. Instead, Congress has enacted laws on specific issues. In most cases these laws are not coordinated and NOAA lacks an overarching statutory mission to tie them together.

Currently, NOAA has approximately 12,500 employees and an annual budget of about $3.4 billion, which represents 55 percent of the budget for the Department of Commerce. NOAA is structured around six line offices (see Appendix A for an organizational chart):

- The National Ocean Service (NOS) is responsible for the observation, measurement, assessment and management of the Nation's coastal and ocean areas. This includes providing navigational charts and performing applied research on coastal and ocean issues, such as harmful algal blooms.
- The National Marine Fisheries Service (NMFS) protects and preserves living marine resources through fisheries management, enforcement, and habitat conservation, and falls under the jurisdiction of the House Resources Committee.
- The National Weather Service (NWS) is the Nation's primary civilian source of weather data, forecasts and warnings.
- The Office of Oceanic and Atmospheric Research (OAR) is responsible for providing much of the research into improving understanding of environmental phenomena such as tornadoes, hurricanes, climate variability, ocean currents, and coastal ecosystem health.
- The National Environmental Satellite Data and Information Service (NESDIS) operates the Nation's weather and climate satellites and manages the processing and distribution of the data and images from those satellites.
- The Office of Program Planning and Integration (PPI) promotes the development of effective programs by integrating resources across NOAA.
- Also within NOAA is an Office of Marine Aviation and Operations (OMAO), which manages the NOAA uniformed officer corps. The NOAA corps is one of the Nation's uniformed military services and supports the functions of all the line offices in the agency, including operating planes used in hurricane reconnaissance and ships used in fisheries surveys and research expeditions.

Impetus for a NOAA Organic Act

The Oceans Act of 2000 established the U.S. Commission on Ocean Policy (referred to here as the Commission) to perform an updated comprehensive review of ocean-related issues and laws facing the Federal Government. The Commission, recognizing that NOAA has become the *de facto* lead federal agency for oceans issues, strongly recommended that Congress strengthen NOAA in a three-phase process. Phase I, which the Commission recommends implementing immediately, is enactment of an organic act for the agency. Phase II, which would occur during the next few years, is the consolidation of certain ocean- and coastal-related functions from other federal agencies into NOAA. Phase III, a long-term action, would reorganize federal environmental agencies, including NOAA, into a Department of Natural Resources.

The Commission recommended structuring NOAA around three mission areas in an organic act. The operations and services mission would include the current line offices and programs of NESDIS, NWS, and the mapping and charting functions of NOS. The research and education mission would include the current line offices and programs of OAR, the Office of Education, and research programs from the other line offices. Finally, the resource management mission would include the current

NMFS and the ecosystem management programs from NOS. The Commission did not specify whether the current offices should be disestablished or whether they should be managed around cross-cutting missions.

NOAA Organic Acts in the House

In response to the Commission's recommendation and discussions with experts in oceanic and atmospheric issues, Chairman Ehlers introduce H.R. 4546, the *National Oceanic and Atmospheric Administration Act,* on June 14, 2004. A section-by-section summary of the bill is contained in Appendix B.

Title I of Chairman Ehlers' bill is an organic act for NOAA, providing an overarching mission for the agency (based on NOAA's Strategic Plan) and describing the functions of NOAA's research, weather, and climate responsibilities. H.R. 4546 structures NOAA around the mission areas recommended by the Commission with one exception: The bill retains the National Weather Service as a separate entity in NOAA rather than consolidating it with other operational and service functions, because of its longstanding independent identity.

H.R. 4546 retains NOAA within the Department of Commerce and establishes a new leadership position with the agency, a Deputy Assistant Secretary for Science and Technology. A recent review of NOAA's research enterprise, performed by a subcommittee of the NOAA Science Advisory Board, strongly recommended establishing such a position at the agency.

Title II of H.R. 4546 is a general authorization for the current line offices at NOAA. Titles III–VII incorporate several NOAA-related pieces of legislation pending before Congress, which would establish a coastal ocean science program, a marine research program, an ocean and coastal observing systems program, an abrupt climate change research program, and a weather research program at NOAA.

The Administration developed its own organic act for NOAA, which was introduced by Mr. Ehlers (R–MI) and Mr. Gilchrest (R–MD), by request, as H.R. 4607. A section-by-section of H.R. 4607 is included in Appendix C. The Administration's bill provides four broad mission areas for NOAA and expands and clarifies some of the Agency's legal authorities. For example, it expands the authority of the Administrator of NOAA to accept and utilize gifts, an authority currently only within the office the Secretary of Commerce. H.R. 4607 does not include any re-organization of NOAA's functions.

Representative Saxton (R–NJ) has introduced a bill, H.R. 4368, which would move NOAA from the Department of Commerce to the Department of the Interior. It would not change the internal line office structure of NOAA.

Issues to be Considered

Should an organic act for NOAA continue the current line office structure or move the agency organization towards the themes in H.R. 4546 and the Commission report (research and education, operations and services, and resource management)?

Some experts believe NOAA's current structure is "stove-piped," making the agency ineffective at fully utilizing its oceanic and atmospheric expertise. For example, for nearly a decade OAR performed research on wind profilers, a novel technology for observing winds that held promise for improving the lead time on tornado forecasts. When NOAA faced budget cuts, they asked forecasters in the National Weather Service if they could use this new technology and if NOAA should keep investing funds in its development. Many of the forecasters were not even aware of its capabilities.

Congress would also have to decide how to structure NOAA around the new missions. Either the current offices could be disestablished, or they could be managed around cross-cutting missions.

How should science and research be coordinated at NOAA?

Some research at NOAA is performed in each of the operational line offices, while other research is performed out of OAR. Some people believe OAR should be dissolved and its research functions assigned to the appropriate line office. Then, research will be closely tied to the operational services. Others believe that all research should be located under one office because that would be more effectively coordinated. A third idea is to keep near-term applied research and development in the line offices and have the medium- to long-term research in OAR, and establish a leadership position at the agency to coordinate all the science and research activities at NOAA. This last idea is supported by the NOAA Research Review Team, a subcommittee of the NOAA Science Advisory Board that recently completely an extensive review of NOAA's research programs. H.R. 4546 creates a Deputy Assistant

Secretary for science and technology to coordinate the science and research issues at NOAA. The Administration bill is silent on this topic.

Should NOAA's mission and functions be expanded to include all federal ocean and coastal related activities?

This question addresses the Phase II and Phase III recommendations of the Commission for strengthening NOAA. As an example, the Commission recommended transferring operation (but not the development) of NASA research satellites to NOAA to ensure a smoother research to operations transition. This would involve the transfer not only of personnel, but also of the significant expense of operating satellite programs. Another example is the question of whether NOAA's mission should include wetland and estuaries research and regulation currently performed by the Environmental Protection Agency. H.R. 4546 does not move forward on these recommendations.

Witness Questions:

The witnesses were asked to address the following questions in their testimony.

The Honorable Theodore Kassinger

1. Currently, what is the biggest problem at NOAA and can that problem be addressed in statute?
2. What missions and functions should NOAA be responsible for? How should NOAA be organized? What is the most important thing to accomplish in an organic act for NOAA?
3. Chairman Ehlers' bill, H.R. 4546, organizes NOAA functions around these mission areas recommended by the U.S. Commission on Ocean Policy:
   - operations and services, which would include the current line offices and programs of the National Environmental Satellite Data and Information Service, the National Weather Service and the mapping and charting functions of the National Ocean Service (NOS);
   - research and education, which would include the current line offices and programs of the Office of Oceanic and Atmospheric Research, the Office of Education and research programs from other line offices;
   - and resource management, which would include the current line offices and programs of the National Marine Fisheries Service and the ecosystem management programs from NOS.

   What are the pros and cons of this proposed restructuring? Would it improve communication across programs at NOAA to support ecosystem-based management, a concept that most experts agree is the way NOAA should manage natural resources?
4. Chairman Ehlers' bill, H.R. 4546, includes specific functions for NOAA while the Administration's bill, H.R. 4607, includes only four broad missions for NOAA. Why did you decide to construct H.R. 4607 in this way? Given that the strategic plan you developed for NOAA in 2002 suggests re-organizing the agency around "matrix management" topics, please explain why H.R. 4607 does not include recommendations for any organizational changes.

Dr. James Baker

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2. What missions and functions should NOAA be responsible for? How should NOAA be organized? What is the most important thing to accomplish in an organic act for NOAA?
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What are the pros and cons of this proposed restructuring? Would it improve communication across programs at NOAA to support ecosystem-based management, a concept that most experts agree is the way NOAA should manage natural resources?

4. What are your general views on Title I of H.R. 4546 (the NOAA organic act sections)? How can that part of the bill be improved?
5. What are your views on the Deputy Assistant Secretary for Science and Technology described in H.R. 4546? Is this a good way to improve coordination of science and research at NOAA?

Admiral Richard West

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4. What are your views on the Deputy Assistant Secretary for Science and Technology described in H.R. 4546? Is this a good way to improve coordination of science and research at NOAA, as recommended by the NOAA Research Review Team?

Dr. Elbert Friday

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Mr. Richard Hirn

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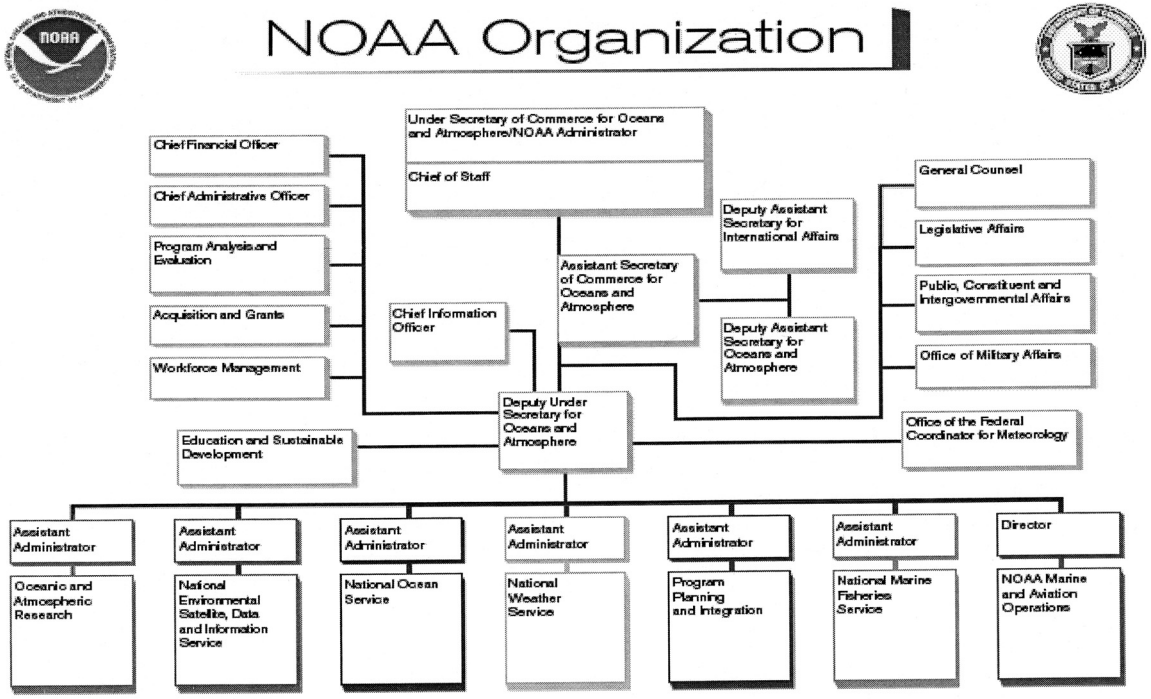
4. What are your views on the Deputy Assistant Secretary for Science and Technology described in H.R. 4546? Is this a good way to improve coordination of science and research at NOAA?

Appendix A
NOAA Organizational Chart



Appendix B

Section-by-Section Explanation
H.R. 4546, the National Oceanic and Atmospheric Administration Act

BACKGROUND

The National Oceanic and Atmospheric Administration (NOAA) was established by Executive Order in 1970. Since then, various parts of NOAA have been authorized by Congress, but there is no underlying "organic act" defining the mission and function of the agency.

The *Oceans Act of 2000* established the U.S. Commission on Ocean Policy to examine the Nation's ocean policy and make recommendations for improvements. On April 20, 2004 the Commission released its preliminary report, which included 200 recommendations for an improved national ocean policy. One of the recommendations is that Congress should pass an organic act for NOAA. The Commission also suggested organizing NOAA's functions around specific themes rather than the current line office structure.

H.R. 4546 incorporates these recommendations in Title I as a general organic act and by outlining NOAA's missions and functions under three categories: weather, operations and services, and research and education. The bill as introduced does not include NOAA's activities concerning fisheries management or the Coastal Zone Management Act.

Currently NOAA has a structure of six line offices: the National Ocean Service (NOS), the National Marine Fisheries Service (NMFS), the National Weather Service (NWS), the National Environmental Satellite Data and Information Service (NESDIS), the Office of Oceanic and Atmospheric Research (OAR), and the Office of Program Planning and Integration (PPI). H.R. 4546 provides NOAA the flexibility to perform the functions described in the bill under the current organizational structure or by moving towards a structure that reflects the categories set forth in H.R. 4546.

EXPLANATION OF H.R. 4546

Section 1. Table of Contents.

This section provides a table of contents for the bill.

Title I. National Oceanic and Atmospheric Administration.

Section 101. Short Title.

The short title of this title is the "National Oceanic and Atmospheric Administration Act."

Section 102. Definitions.

This section defines terms used in Title I.

Section 103. National Oceanic and Atmospheric Administration.

This section establishes the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce. The mission of NOAA is to understand and predict changes in the Earth's oceans and atmosphere and the effects of such changes on the land environment, to conserve and manage coastal, ocean, and Great Lakes ecosystems, and to educate the public about these topics. This section also describes the overall functions of NOAA to accomplish the mission, such as through research and development for improved weather forecasting, and collecting scientific data about coastal, ocean, and Great Lakes ecosystems.

Section 104. Administration Leadership.

This section describes the leadership structure of NOAA and maintains the current makeup of an Under Secretary of Commerce for Oceans and Atmosphere as the Administrator of NOAA, and the Administrator's first assistant is the Assistant Secretary of Commerce for Oceans and Atmosphere. The section also creates a new position, a Deputy Assistant Secretary for Science and Technology, who shall be responsible for coordinating and managing all research activities across the agency and must be a career position.

Section 105. National Weather Service.

This section directs the Secretary of Commerce to maintain a National Weather Service (NWS) within NOAA. The mission of NWS is to provide weather, water, climate and space weather forecasts and warnings for the United States, its territories, adjacent waters and ocean areas. The functions of NWS include: maintaining a network of regional and local weather forecast offices; maintaining a network of observations system to collect weather and climate data; and conducting research to support these functions.

Section 106. Operations and Services.

This section directs the Secretary to maintain programs within NOAA to support operational and service functions. These functions would include all the activities of NOAA's National Environmental Satellite Data and Information Service (NESDIS) and the mapping and charting activities of the National Ocean Service. NESDIS functions described in this section include: developing, acquiring, managing, and operating the Nation's operational weather and climate satellite observing systems and managing and distributing atmospheric, geophysical and marine data and data products through national environmental data centers. The National Ocean Service activities include providing maps and charts for safe navigation.

Section 107. Research and Education.

This section directs the Secretary to maintain programs within NOAA to conduct and support research and education functions. These activities would include all of the functions currently performed by NOAA's Office of Oceanic and Atmospheric Research (OAR), such as conducting and supporting research and the development of technologies relating to weather, climate, and the coasts, oceans, and Great Lakes. This section also describes the education and public outreach functions NOAA should carry out, which include many of the activities performed by NOAA's Office of Education.

Section 108. Science Advisory Board.

This section establishes a Science Advisory Board for NOAA, which would provide scientific advice to the Administrator and to Congress on issues affecting NOAA.

Section 109: Reports.

This section requires two reports from the Secretary. Each report is to be delivered to Congress within one year of the date of enactment of the Act. One report should assess the adequacy of the environmental data and information systems of NOAA and provide a strategic plan to address any deficiencies in those systems.

The other report must provide a strategic plan for research at NOAA. This plan was recommended in a recent review of the research activities at NOAA by its Science Advisory Board.

Section 110. Effect of Reorganization Plan.

This section repeals the Executive Order that established NOAA in 1970.

Title II. Authorization of Appropriations for the National Oceanic and Atmospheric Administration.

Section 201. Short Title.

The short title of this title is the "National Oceanic and Atmospheric Administration Authorization Act of 2004."

Section 202. Authorization of Appropriations.

This section authorizes appropriations for NOAA's current line offices (except the National Marine Fisheries Service).

Title III. Coastal Ocean Science Program.

Section 301. Short Title.

The short title of this title is the "Coastal Ocean Science Program Act of 2004."

Section 302. Coastal Ocean Science Program.

This section reauthorizes the Coastal Ocean Science Program at NOAA and requires all research performed under the Program to be competitive and peer-reviewed. This section authorizes such sums as necessary in appropriations for the program.

Title IV. Marine Research.

Section 401. Short Title.

The short title of this title is the "Marine Research Act."

Section 402. Purposes.

This section describes the purposes of this title, which require the President to provide for the support and coordination of an interagency marine research program to understand and respond to the interactions of humans and the marine environment.

Section 403. Interagency Marine Research Program.

This section creates the interagency marine research program through the Office of Science and Technology Policy and requires that a plan be developed to identify the goals and priorities for the program and the activities needed to fulfill the goals. Relevant federal programs and activities should be identified and estimated federal funding should be included in the plan.

Section 404. National Oceanic and Atmospheric Administration Marine Research Initiative.

This section authorizes the Department of Commerce to establish a Marine Research Initiative to coordinate and implement activities of NOAA. The Initiative should provide support for one or more NOAA national centers of excellence, research grants, and scholars and traineeships.

The centers of excellence, the competitive peer-reviewed extramural research grants, financial assistance to distinguished scholars, and traineeships for pre- and post-doctoral students are to help NOAA fulfill its mission and role in exploring the interaction of humans and the marine environment.

Section 405. Authorization of Appropriations.

This section authorizes $8 million in appropriations for the NOAA Marine Research Initiative for fiscal years 2005 through 2008.

Title V. Ocean and Coastal Observation Systems.

Section 501. Short Title.

The short title of this title is the "Ocean and Coastal Observation Systems Act."

Section 502. Purposes.

This section describes the purposes of this title, which include providing for the development and maintenance of an integrated system for ocean and coastal observations and the implementation of a related system for the management of observation data and information.

Section 503. Integrated Ocean and Coastal Observing System.

This section establishes, through NOAA, an integrated system of ocean and coastal monitoring and data analysis, communications, and management. The goals of the system include: improving weather forecasts and disaster warnings; enhancing understanding of global change and coastal and global ocean systems; and increasing public awareness of these issues. This section establishes an interagency Joint Operations Center, led by NOAA, to manage the technologies and data communications, implement the standards, and promote the integration necessary to deploy and support the ocean and coastal observing system. The section also allows for regional associations and pilot projects that can contribute to observing system.

Section 504. Interagency Financing.

This section authorizes the agencies included in the Joint Operations Center to participate in interagency financing for carrying out the activities described in this title.

Section 505. Authorization of Appropriations.

This section authorizes such sums as necessary in appropriations to NOAA, the National Science Foundation, the National Aeronautics and Space Administration, and other federal agencies as appropriate for the ocean and coastal observing system.

Title VI. Abrupt Climate Change.

Section 601. Short Title.

The short title of this title is the "Abrupt Climate Change Research Act."

Section 602. Abrupt Climate Change Research Program.

This section establishes within NOAA an abrupt climate change research program for improving the understanding of abrupt climate change mechanisms and paleoclimate indicators. The section defines abrupt climate change as a change in climate that occurs so rapidly or unexpected that human or natural systems have difficulty adapting to the climate as changed.

Section 603. Authorization of Appropriations.

This section authorizes such sums as necessary in appropriations for the research program outlined in this title.

Title VII. United States Weather Research Program.

Section 701. Short Title.

The short title of this title is the "United States Weather Research Program Act of 2004."

Section 702. Program Focus.

This section outlines the focus of the Weather Research Program established under section 108 of the National Oceanic and Atmospheric Administration Authorization Act of 1992. The program should focus on research in extreme weather conditions, such as hurricanes and floods, and should work toward accelerating improvements in weather forecasting. This section also authorizes the program to make grants to universities and other research organizations.

Section 703. Program Research Priorities.

This section defines the specific research priorities of the Weather Research Program within the following categories; hurricanes, heavy precipitation, floods, two-to-fourteen day weather forecasting, societal and economic impacts and improved communication related to adverse weather, and testing research concepts in real-life environments.

Section 704. Interagency Planning and Process.

This section establishes NOAA as the lead for the Weather Research Program and requires the agency to work with other federal agencies to develop a five-year plan which outlined program goals and describes weather information needs, methods for disseminating weather information, and practices for transferring results into forecasting operations.

Section 705. Reporting Requirements.

This section requires NOAA to provide a report on the Weather Research Program to Congress one year after enactment of this Act and every five years thereafter. The report should include the most recent five-year plan developed pursuant to section 704 of this title, descriptions of changes to the plan, and a detailed assessment of the progress made toward the program goals.

Section 706. Authorization of Appropriations.

This section authorizes such sums as necessary in appropriations to the Office of Atmospheric Research within NOAA for the research program outlined in this title. At least 50 percent of these funds shall be for competitive, peer-reviewed grants to or contracts with institutions of higher education.

Appendix C

Section-by-Section Explanation

H.R. 4607, the National Oceanic and Atmospheric Administration Organic Act of 2004

PURPOSES:

The purposes of this bill are to enhance the ability of the National Oceanic and Atmospheric Administration (NOAA) to assess and predict changes in ocean, coastal, Great Lakes and atmospheric ecosystems and in the environment; manage, protect and restore the Nation's ocean, coastal and Great Lakes areas, including ecosystem approaches; conduct, support, and coordinate efforts to enhance public awareness; provide reliable scientific information that can be used as a basis for sound management and public safety decisions; protect lives and property and expand economic opportunities; and pursue its purposes in partnership with public and private entities. These purposes are effectuated through the following provisions, which establish the National Oceanic and Atmospheric Administration, amend the organization and functions of the NOAA Advisory Committee on Oceans and Atmosphere, and provide other amendments relative to the organization, purposes and authorities of NOAA.

EXPLANATION OF H.R. 4607:

TITLE I—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ORGANIC ACT OF 2004

SECTION 101. SHORT TITLE

Section 101 would set forth the short title of the Act as the "National Oceanic and Atmospheric Administration Organic Act of 2004".

SEC. 102. ESTABLISHMENT

Section 102 would establish within the Department of Commerce, the National Oceanic and Atmospheric Administration.

SEC. 103. DEFINITIONS

Section 103 would provide definitions for terms used in the Act.

SEC. 104. OFFICERS

Section 104 would establish within NOAA the following positions: Under Secretary of Commerce for Oceans and Atmosphere; Assistant Secretary of Commerce for Oceans and Atmosphere; and, Deputy Under Secretary for Oceans and Atmosphere. Section 104 would also authorizes the Under Secretary, consistent with applicable law including Title II of the National Oceanic and Atmospheric Administration Commissioned Officers Corps Act of 2002, to create additional positions as deemed necessary to carry out the purposes and authorities of NOAA.

SEC. 105. PURPOSES AND AUTHORITIES

Section 105 would set forth the purposes of NOAA. It would also authorize NOAA to undertake activities necessary to implement NOAA's purposes. It preserves all authorities currently vested in NOAA, including those transferred to the Secretary by Reorganization Plan No. 4 of 1970 (Reorganization Plan). This Act is not intended to alter the current authorities or responsibilities of any other federal agency. Subsection 105 (a)(4) contemplates that NOAA's purpose to protect life and property includes a continuation of its efforts to contribute to the Nation's national security and homeland security efforts.

SEC. 106. CONFORMING AMENDMENTS, REPEALS AND TRANSITION

Subsection 106(a) would repeal the Reorganization Plan. To ensure continued force of all provisions of law and past actions predicated upon or referencing the Reorganization Plan, subsection 106(b) would provide that any reference to NOAA, the Under Secretary of Commerce for Oceans and Atmosphere (either by that title or by the title of the Administrator of NOAA), or any other official of NOAA, in any law, rule, regulation, certificate, directive, instruction, or other official paper in force on the effective date of this Act shall be deemed to refer and apply to the NOAA established in section 102 of this Act, or the position of Under Secretary of Com-

merce for Oceans and Atmosphere established in section 104 of this Act. Subsection 106(d) adds the Executive Level position of Under Secretary and Assistant Secretary to the relevant provisions of Title 5 of the United States Code that provide for Executive Level pay. Subsection 106(e) provides that the first individual appointed to the position of Under Secretary, and the first person appointed to the position of Assistant Secretary, shall be appointed by the President alone.

SEC. 107. SAVINGS PROVISION

Section 107 would provide that any actions taken by the Secretary, the Department of Commerce, the Under Secretary, or any other official of NOAA, that are in effect immediately before the date of enactment of this Act, shall continue in full force and effect after the date of enactment of this Act until modified or rescinded.

SEC. 108. NO EFFECT ON OTHER AUTHORITIES

Section 108 would provide that this Act shall not amend or alter the provisions of other applicable acts unless otherwise noted. It is intended that nothing in this Act derogates from the duties and functions of other agencies or alters the current authorities relating to those agencies.

TITLE II—NOAA ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE

SECTION 201. AMENDMENTS

Subsection 201(a) would amend section 2 of P.L. 95–63, known as the National Advisory Committee on Oceans and Atmosphere Act of 1977 (33 U.S.C. 857–13), by deleting the requirement to have 18 Committee members, allowing the size of the Committee to be appropriately tailored to its purposes and needs.

Subsection 201(b) would amend section 3(a) of P.L. 95–63 (33 U.S.C. 857–14(a)), by providing that: a) appointment of Committee members shall be by the Under Secretary, in lieu of the President; and b) original members of the Committee shall be current members of the NOAA Science Advisory Board who wish to serve in such capacity, together with any additional qualified individuals necessary to fulfill the purposes of the Committee.

Subsection 201(c) would amend section 3(b) of P.L. 95–63 (33 U.S.C. 857–14(b)), by staggering terms of membership on the Committee to ensure continuity of the Committee, and limiting appointment on the Committee to no more than two consecutive three-year terms.

Subsection 201(d) would amend section 3(c) of P.L. 95–63 (33 U.S.C. 857–14(c)) by authorizing the Under Secretary to designate a Chairman and Vice Chairman of the Committee.

Subsection 201(e) would amend section 3(d) of P.L. 95–63 (33 U.S.C. 857–14(d)), by providing that the function of the Committee is to advise the Under Secretary with respect to the programs administered by NOAA.

Subsection 201(f) would delete sections 4 and 6 of P.L. 95–63 (33 U.S.C. 857–15 and 857–17), relating to reports and interagency cooperation and assistance, respectively. A newly designated section 4 would provide that members of the Committee shall be entitled to receive compensation not to exceed the daily rate provided for Level IV of the Executive Schedule Pay Rates for each day during which they are engaged in the actual performance of the duties of the Committee.

Subsection 201(g) would rename the "National Advisory Committee on Oceans and Atmosphere" as the "NOAA Advisory Committee on Oceans and Atmosphere".

Chairman EHLERS. I just wanted to mention that courtesy requires that we wait for a Member of the minority to appear before we begin, so we will begin as soon as that happens.

The Committee will come to order.

I wanted to welcome all of you to today's hearing on legislation creating an organic act for the National—excuse me, National Oceanic and Atmospheric Administration, better known to everyone as NOAA.

Your first question may be what is an organic act, and why does NOAA, an agency that has been around for 30 years, need one? Excuse me.

An organic act defines the overall mission and functions of an agency, such as the organic act that created the National Science Foundation. As an example, my bill, H.R. 4546, states that the mission of NOAA is first, to understand and predict changes in the Earth's oceans and atmosphere, second to conserve and manage coastal, ocean, and Great Lakes ecosystems, and third, to educate the public about these topics. The bill also describes the specific functions NOAA should carry out to fulfill its mission, such as issuing weather forecasts and warnings.

NOAA was created in 1970 by then President Nixon through an Executive Order. This Executive Order transferred various oceanic and atmospheric functions from other agencies into the new NOAA, and placed it in the Department of Commerce. However, the order did not provide an overall mission for the Agency. After roughly 35 years, our nation has again undertaken a broad review of our ocean policy. The U.S. Commission on Ocean Policy, which released a preliminary report this past April, made more than 200 recommendations to Congress. During a Science Committee hearing on the report, the Commission's Chair, Admiral Watkins, and all the other witnesses said one of the most important steps for Congress to take is the creation and passage of a NOAA Organic Act.

I certainly agreed with their sentiment. In fact, we had already been working on a NOAA organic act for a year or more, and after consultation with many experts, I introduced H.R. 4546 to serve as the organic act for NOAA. This bill strikes a balance between providing Congressional direction on NOAA's mission, and allowing the Administration the flexibility to adapt to future needs.

H.R. 4546, as introduced, does not include any reference to fisheries or resource management at NOAA, because those topics are under the jurisdiction of the Resources Committee. I look forward to working with my colleagues on that committee to pass a truly comprehensive organic act for NOAA, and in fact, I have already had some discussions with the Subcommittee Chairman, who has that issue under his jurisdiction, and hope to soon talk to the Committee Chair on that matter.

Our discussion today will focus on how NOAA should be organized. For example, should the current line office structure be maintained, or should the Agency be reorganized around ecosystems-based management, as suggested by the Ocean Commission? Another important question is how best to coordinate research and science at NOAA. We will also hear testimony about the Administration's proposed NOAA Organic Act, which I introduced with my colleague from Maryland, Mr. Gilchrest, at the request of

the Administration. I should note that Mr. Gilchrest, who is a valuable Member of the Science Committee, is also a Chair of the Resources Subcommittee on Fisheries, which is the other major Committee with NOAA jurisdiction, and the individual who will have much to say about rewriting that part of the NOAA Act.

We are here today to learn from our witnesses how they believe we can best define and organize NOAA to better fulfill its mission. I look forward to hearing from them on how to accomplish this goal, and I especially want to receive their comments on our efforts as contained in H.R. 4546.

I would like to request unanimous consent that two letters of support for H.R. 4546 be made part of the record. One is from the ocean community, and the other is from the weather community. Without objection, so ordered.

[The information referred to follows:]

July 13, 2004

The Honorable Vernon Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
House of Representatives
Washington, DC 20515

Dear Chairman Ehlers:

On behalf of the nearly 300 institutional members of the Consortium for Oceanographic Research and Education (CORE), the Sea Grant Association (SGA) and the National Association of State Universities and Land-Grant Colleges (NASULGC), we are writing in support of H.R. 4546, the National Oceanic and Atmospheric Administration (NOAA) Authorization Act of 2004. We commend you for acting so quickly to implement one of the primary recommendations of the U.S. Commission on Ocean Policy. We believe passage of H.R. 4546 will strengthen and refine NOAA's mission, particularly in the areas of research and education.

Our three associations collectively represent the nation's leading marine and atmospheric scientists and educators. We endorse the creation of a Deputy Assistant Secretary for Science and Technology. This person will play a number of important roles: including, bringing science and technology issues to the forefront of NOAA's agenda, improving partnerships among the research and operations line offices, and serving as a central point of contact for the external research community. We believe H.R. 4546 could be strengthened further by adding language that explicitly states the importance of basic research; emphasizes integration of research, outreach and education; and substantiates partnerships and communication between NOAA and external researchers.

Thank you for your support of oceanic and atmospheric sciences and for taking this important step to make NOAA stronger. We look forward to working with you towards passage of H.R. 4546.

Sincerely,

Dr. Mark R. Abbott
Co-chair, Board on Oceans and Atmosphere,
National Association of State Universities and
Land-Grant Colleges

Dr. Robert R. Stickney
President, Sea Grant Association

RADM Richard D. West, USN (Ret.)
President, Consortium for Oceanographic
Research and Education

THE WEATHER COALITION

EXECUTIVE COMMITTEE

Ray Ban, co-chair
Executive Vice President
The Weather Channel

John Snow, co-chair
Director
Oklahoma Weather Center

Richard Anthes
President
University Corporation for Atmospheric Research

Philip Ardany
Director, Remote Sensing Applications
Raytheon Inc.

Edward Bensman
Program Manager
Raytheon Inc.

Peter Casals
Deputy Director
International Association of Emergency Managers

Walter Dabberdt
Director of Strategic Research
Vaisala

Timothy Killeen
Director
National Center for Atmospheric Research

Neal Lane
Professor and Senior Fellow
Rice University

Ron McPherson
Executive Director
American Meteorological Society

Frank Nutter
President
Reinsurance Association of America

Len Pietrafesa
Director
Office of External Affairs North Carolina State University

Maria Pirone
Vice President for Product Development
Atmospheric and Environmental Research (AER) Inc.

Harvey Ryland
President and CEO
Institute for Business and Home Safety

Jeremy Usher
President and CEO
Weathernews, Inc.

9 July 2004

The Honorable Vernon Ehlers
Chairman
Subcommittee on Environment, Standards, and Technology
Committee on Science
House of Representatives
Washington, DC 20515

Dear Chairman Ehlers:

We appreciate the opportunity to provide comments on the National Oceanic and Atmospheric Administration (NOAA) Act (H.R. 4546) on behalf of the Weather Coalition, and would like to express support for much of the content of the current draft version of the bill. The Weather Coalition comprises a diverse group of representatives from industry, academia, science and education consortia and a national laboratory (see attached membership list). We are committed to work together to improve the capabilities of the country's weather prediction and warning capabilities.

The Coalition takes an active interest in NOAA and its research activities -- those supported by the Office of Oceanographic and Atmospheric Research (OAR) and the various NOAA line offices -- and strongly supports the efforts of you and your colleagues to modernize and improve NOAA through this legislation. We believe that the enactment of a revised NOAA Organic Act at this time would help to both define and refine the mission and function of this agency in light of recent reports from various external advisory bodies.

Deputy Assistant Secretary for Science and Technology

We enthusiastically support the bill's establishment of a Deputy Assistant Secretary for Science and Technology and applaud the authority given this person to coordinate research and development budgets. Such a position would provide the leadership necessary to establish clear NOAA-wide research priorities, organize, and coordinate research endeavors, and give NOAA science and technology a more unified voice in the budget process. We also see an opportunity in these provisions to establish a central point of contact in NOAA for the nongovernmental research community, thus improving and streamlining NOAA's interaction with the broad scientific community. In order to accomplish this, we suggest that a provision be added to the bill that calls on this Deputy Assistant Secretary to serve as a liaison to the external science and technology community and to look for ways to expand the coordination of NOAA research and development efforts with the external scientific community. Given the manner in which the duties of this position are described in the Act, more definition of the OAR role and structure (as discussed below) would be of help in creating an effective and efficient work environment for this new position.

% Cynthia Schmidt
P.O. Box 3000
Boulder, CO 80307-3000
303-497-2107

Office of Oceanic and Atmospheric Research

We strongly encourage the Committee to include language that would explicitly recognize the strategic role that the Office of Oceanic and Atmospheric Research (OAR) should play in conducting and supporting research that will better enable NOAA to carry out its mission and functions. We encourage you to include a section on OAR that would mirror the section provided on the National Weather Service (NWS). There has been much debate and discussion recently about the role of research in NOAA. We find that the Organic Act could be much stronger on this issue and play a defining role in enhancing and clarifying the organizational structure for NOAA research and the importance of NOAA's research portfolio emphasizing the critical nature of basic research as a foundation on which to build an applied research program.

Partnerships and Collaboration with External Entities

Little is stated in the draft bill about the importance of university and private sector partnerships in the accomplishment of the overall NOAA mission. ***Increasing external collaborations and meaningful partnerships between NOAA and the university and private sector communities are one of the highest priorities of the Weather Coalition.*** The academic community is an essential collaborator in NOAA education, research, research applications, and outreach efforts. The private sector is especially critical in research applications work and the provision of weather-and climate-related information to consumers at all levels. Mechanisms to sustain, leverage, and enhance the relationships between NOAA and these sectors should be stated explicitly in the Act. Regarding key university collaborations with NOAA, the Administrator's authority to establish cooperative research institutes on campuses should be noted in the language of the bill.

The Weather Coalition also supports the provisions specifically requiring NOAA research programs to support "extramural peer-reviewed competitive grant programs to assist the Administration in performing the functions described in this subsection." [Sec. 107. (b)(9)] Coalition members believe that increased collaboration, partnering, and competition among researchers – both those in federal agencies and those outside federal service – will greatly improve the quality and utility of NOAA research activities. Enhanced extramural research funding will give NOAA access to a wider variety of ideas, knowledge and expertise available through the private and academic sectors. We are confident that with a meaningful extramural competitive grants research program, not only will the quality of the research improve, but the transfer of research results and the education and training of the technical workforce needed for NOAA's mission will also improve. The preliminary report of NOAA's Research Review Team made a similar point in its discussion of extramural research within NOAA. As a result, the Coalition is highly supportive of the language in H.R. 4546 calling on the U.S. Weather Research Program (USWRP) to reserve at least 50% of the funds for the USWRP to support competitive, merit-based research proposals. We ask that language be added stating that the private sector is eligible to compete for these grants.

While Coalition members believe the USWRP provision promoting extramural research at NOAA is a step in the right direction, we are concerned that, based on past funding trends for the USWRP, the amount likely to be available for this extramural effort will fall far below what is needed. We call on the Committee consider the authorization for a Collaborations Fund dedicated entirely towards fostering partnerships with the academic and private sector communities in the area of weather research. We

suggest that this fund start at the level of $20 million annually, with a potential for growth. Compared to the size of NOAA's entire research enterprise, this would be a relatively modest investment with the potential to yield a large scientific payoff.

Supporting the goals of NOAA's strategic plan, *New Priorities for the 21st Century*, the Collaborations Fund will promote goal-oriented interaction between NOAA and the university and private sector communities, thereby accelerating contributions made toward economic security, citizen safety, and protection of property through much-improved weather monitoring and forecasts. Specifically, the Collaborations Fund will enable NOAA to access the expertise of the broad atmospheric sciences community to achieve the following strategies and measures of success as delineated by the strategic plan:

- Increased number of modeling advances by government and academia demonstrated to improve the NOAA operational prediction suite
- Shortened cycle times from research to operations
- Improved accuracy of weather and air quality prediction models
- Increased number of new research findings and progress toward implementation in NOAA operations

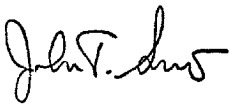
Education and Training

Finally, the Coalition takes seriously the responsibilities of one of its members, the University Corporation for Atmospheric Research (UCAR), in the education and training of future professionals in fields related to weather, users of weather data, and the public in general. For this reason, we recommend adding to the list of functions of the National Weather Service (NWS) contained in Sec. 105, language that would include, "the education and training of the NWS workforce, users of weather forecasts, and the general public about weather, water, and climate issues."

In closing, we would like to thank you on behalf of the Weather Coalition members for your efforts to improve research and science at NOAA. We look forward to working with you and your colleagues to move H.R. 4546 through the legislative process.

Sincerely,

Ray J. Ban
Executive Vice President
The Weather Channel



John T. Snow
Director, Oklahoma Weather Center
and Dean, College of Geosciences at
The University of Oklahoma

Co-Chairs of the Weather Coalition

THE WEATHER COALITION

University of Alabama at Huntsville
Department of Atmospheric Science

University of Albany, SUNY
Department of Earth and Atmospheric Sciences

American Geophysical Union

American Meteorological Society

University of Arizona

Arizona State University

Atmospheric and Environmental Research (AER), Inc.

University of California at Los Angeles

Cornell University
Atmospheric Science Program

Florida State University
Center for Ocean-Atmospheric Prediction Studies
Department of Meteorology

University of Hawaii
School of Ocean and Earth Sciences & Technology

University of Illinois at Urbana-Champaign
Department of Atmospheric Sciences

Institute for Business and Home Safety

International Association of Emergency Managers

Iowa State University
Office of the Vice Provost for Research

Massachusetts Institute of Technology
Dept. of Earth, Atmospheric and Planetary Sciences

University of Missouri -- Columbia
Department of Atmospheric Sciences

National Association of State Universities and Land-Grant Colleges

North Carolina State University
College of Mathematical & Physical Sciences

University of Oklahoma
Oklahoma Weather Center

Pennsylvania State University
Department of Meteorology

Purdue University
Department of Earth and Atmospheric Sciences

Raytheon Company

Reinsurance Association of America

Saint Louis University
Department of Earth and Atmospheric Science
Cooperative Institute for Precipitation Systems

Science Applications International Corporation (SAIC)

University of Texas at Austin
Department of Geological Sciences

University Corporation for Atmospheric Research

University of Washington
Department of Atmospheric Sciences

Vaisala, Inc.

The Weather Channel, Inc.

Weathernews, Inc.

It is now my pleasure to recognize the gentleman from Colorado, Mark Udall, the Ranking Minority Member, for his opening statement.

[The prepared statement of Mr. Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

I want to welcome all of you to today's hearing on legislation creating an organic act for the National Oceanic and Atmospheric Administration (better know as NOAA). Your first question may be what is an organic act? And why does NOAA, an agency that has been around for 30 years, need one?

An organic act defines the overall mission and functions of an agency. As an example, my bill, H.R. 4546 states that the mission of NOAA is: (1) to understand and predict changes in the Earth's oceans and atmosphere; (2) to conserve and manage coastal, ocean, and Great Lake ecosystems; and (3) to educate the public about these topics. The bill also describes the specific functions NOAA should carry out to fulfill its mission, such as issuing weather forecasts and warnings.

NOAA was created in 1970 by then-President Nixon through an executive order. This executive order transferred various oceanic and atmospheric functions from other agencies into the new NOAA, and placed it in the Department of Commerce. However, the order did not provide an overall mission for the agency.

After roughly 35 years our nation has again undertaken a broad review of our ocean policy. The U.S. Commission on Ocean Policy, which released its preliminary report this past April, made more than 200 recommendations to Congress. During a Science Committee hearing on the report, the Commission's chair, Admiral Watkins, and all the other witnesses said one of the most important steps for Congress to take is the creation and passage of a NOAA organic act.

I agreed with their sentiment. In fact, we had already been working on a NOAA organic act for a year. And after consultation with many experts, I introduced H.R. 4546. This bill strikes a balance between providing Congressional direction on NOAA's mission and allowing the Administration the flexibility to adapt to future needs. H.R. 4546 as introduced does not include any reference to fisheries or resource management at NOAA because those topics are under the jurisdiction of the Resources Committee. I look forward to working with my colleagues on that Committee to pass a truly comprehensive organic act for NOAA.

Our discussion today will focus on how NOAA should be organized. For example, should the current line office structure be maintained or should the agency be reorganized around ecosystem-based management, as suggested by the Ocean Commission? Another important question is how best to coordinate research and science at NOAA.

We will also hear testimony about the Administration's proposed NOAA organic act, which I introduced with my colleague from Maryland, Mr. Gilchrest, at the request of the Administration. I should note that Mr. Gilchrest, who is a valuable Member of the Science Committee, is also Chair of the Resources Subcommittee on Fisheries, which is the other major Committee with NOAA jurisdiction.

We are here today to learn from our witnesses how they believe we can best define and organize NOAA to better fulfill its mission. I look forward to hearing from them on how to accomplish this goal, and I especially want to receive their comments on our efforts as contained in H.R. 4546.

I would like to request unanimous consent that two letters of support for H.R. 4546 are made part of the record. One is from the ocean community and the other is from the weather community.

Mr. UDALL. Good afternoon, and let me begin by thanking my friend and the Chairman of this important Subcommittee for holding this hearing.

The introduced bills, the Pew Commission Report, and the Ocean Commission Report provide us with a wealth of information and proposals to consider. It is high time that Congress took a comprehensive look at NOAA's mission and functions, and that we examine the state of the natural resources that NOAA manages. NOAA's health is of great concern to me as Ranking Member of this subcommittee, and as representative of the district in Colorado that houses six of NOAA's laboratories.

So, with that in mind, I am sorry to say, at least in my opinion, that the news about NOAA is not as good as it could be. NOAA as an organization is in trouble. It is underfunded and understaffed relative to the numerous and diverse tasks the Agency performs under its many statutory mandates. Some of its facilities are in need of refurbishment and repair. And I have to tell you, I fear the current reorganization effort is placing a greater emphasis on achieving cost savings than on developing a culture that fosters teamwork and collaboration among NOAA's line offices. NOAA's relationship with other federal agencies, states, and the many nongovernmental organizations it interacts with, also need to be better defined and supported.

If we look at the natural resources that NOAA is charged with conserving and managing fisheries, coastal areas, oceans, and the Great Lakes they are also in trouble. Our once abundant fisheries in this country continue to suffer from a combination of impacts including overfishing, habitat destruction, and pollution. Harmful algal blooms and hypoxia, once rare events, are increasing in their frequency and intensity. Our policies and NOAA's execution of them are failing to ensure the long-term viability of these vital resources.

Human activities have altered the chemistry of the Earth's atmosphere and continue to do so, even as the evidence mounts that these changes will alter the climate and impact the ecological systems that we depend upon. While NOAA is not charged with managing or conserving the atmosphere, the Agency does have expertise that could be used in collaboration with other federal agencies and outside organizations to do vulnerability assessments of the potential impacts of climate change.

NOAA's failures are not the result of the policies of any particular Administration, or the actions of any particular Congress. I find it difficult to believe they are the result of an imperfect organizational structure at NOAA. We have gotten to this point over a long period of time and for many reasons. If we are to reverse these trends, there are a number of policy issues that we need to address as we develop a NOAA Organic Act. One of the issues that we must confront is the inevitable conflict that arises when we attempt to reconcile short-term, narrow, economic interests with long-term preservation, and management of coastal and oceanic ecosystems.

We need to ensure sufficient support for NOAA's scientific enterprise, in addition to providing adequate resources to deliver the operational products of the National Weather Service, which are so essential to public safety and to our economy. We must continue to monitor our atmosphere and our oceans, and to disseminate, archive, and preserve the information for present and future study of the planet. However, we cannot monitor everything, and we should not allow monitoring and study to delay the implementation and enforcement of management and conservation policies.

In his testimony, Secretary Kassinger refers to the unresolved disagreements that have stymied previous efforts to enact a NOAA Organic Act. These disagreements are likely to derail this effort if we fail to confront them and address them in a constructive fashion. A visionary mission statement and a clear definition of Agency

functions are meaningless if we do not also provide the human and financial resources for NOAA to perform its statutory functions and to carry out its mission.

So I sincerely hope that this hearing is not the last we will hold to examine the challenges that NOAA faces, and to hear from the many constituencies that depend upon the services and products that NOAA provides. Despite its problems—and let me conclude with this, NOAA and its dedicated workforce continue to deliver vital services to this nation, but we must do more to help this Agency realize its potential and accomplish the missions we have required of it.

And I hope our panel today will address some of the issues I have raised, and I welcome and will welcome their thoughts on how we can develop a NOAA Organic Act that will set the stage for NOAA's future success and the wise stewardship of our nation and our planet.

Mr. Chairman, with that, I would yield back any time, and thank you for holding the hearing today.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Good afternoon. Let me begin by thanking Chairman Ehlers for holding this hearing. The introduced bills, the Pew Commission report, and the Ocean Commission report provide us with a wealth of information and proposals to consider. It is high time that Congress took a comprehensive look at NOAA's mission and functions and that we examine the state of the natural resources NOAA manages.

NOAA's health is of great concern to me as Ranking Member of this subcommittee and as Representative of the district in Colorado that houses six of NOAA's laboratories.

So I am sorry to say the news about NOAA is not good. NOAA as an organization is in trouble. It is under-funded and under-staffed relative to the numerous and diverse tasks the agency performs under its many statutory mandates. Some of its facilities are in need of refurbishment and repair.

And, I fear the current reorganization effort is placing a greater emphasis on achieving cost-savings than on developing a culture that fosters teamwork and collaboration among NOAA's line offices. NOAA's relationship with other federal agencies, States, and the many non-governmental organizations it interacts with also needs to be better defined and supported.

If we look at the natural resources that NOAA is charged with conserving and managing—fisheries, coastal areas, oceans and the Great Lakes—they are also in trouble. Our once abundant fisheries in this country continue to suffer from a combination of impacts, including over-fishing, habitat destruction, and pollution. Harmful algal blooms and hypoxia—once rare events—are increasing in their frequency and intensity. Our policies and NOAA's execution of them are failing to ensure the long-term viability of these vital resources.

Human activities have altered the chemistry of the Earth's atmosphere and continue to do so even as the evidence mounts that these changes will alter the climate and impact the ecological systems that we depend upon. While NOAA is not charged with managing or conserving the atmosphere, the agency does have expertise that could be utilized in collaboration with other federal agencies and outside organizations to do vulnerability assessments of the potential impacts of climate change.

NOAA's failures are not the result of the policies of any particular administration or the actions of any particular Congress. I find it difficult to believe they are the result of an imperfect organizational structure at NOAA. We have gotten to this point over a long period of time and for many reasons. If we are to reverse these trends, there are a number of policy issues that we need to address as we develop a NOAA organic act.

One of the issues we must confront is the inevitable conflict that arises when we attempt to reconcile short-term, narrow economic interests with long-term preservation and management of coastal and oceanic ecosystems. We need to ensure sufficient support for NOAA's scientific enterprise in addition to providing adequate re-

sources to deliver the operational products of the National Weather Service, which are so essential to public safety and to our economy.

We must continue to monitor our atmosphere and our oceans and to disseminate, archive and preserve the information for present and future study of the planet. However, we cannot monitor everything, and we should not allow monitoring and study to delay the implementation and enforcement of management and conservation policies.

The oceans and the atmosphere do not reside within single state borders or within the exclusive economic zone of the United States. Within the United States, these resources must be managed in a true partnership between the states and the Federal Government. But that is not sufficient. These are global resources, so we must also be engaged in a constructive partnership with other nations to conserve and manage these resources for the benefit of all nations. We must maintain our role as an international leader generating and sharing scientific information and establishing innovative policies that will ensure the viability of our planet.

In his testimony, Deputy Secretary Kassinger refers to the "unresolved disagreements" that have stymied previous efforts to enact a NOAA organic act. These disagreements are likely to de-rail this effort if we fail to confront them and address them in a constructive fashion. A visionary mission statement and a clear definition of agency functions are meaningless if we do not also provide the human and financial resources for NOAA to perform its statutory functions and to carry out its mission.

I sincerely hope that this hearing is not the last we will hold to examine the challenges NOAA faces and to hear from the many constituencies that depend upon the services and products that NOAA provides. We must improve NOAA's ability to do its work.

Despite its problems, NOAA and its dedicated workforce continue to deliver vital services to this nation. But we must do more to help this agency realize its potential and accomplish the missions we have required of it. I hope our panel today will address some of the issues I have raised. I welcome their thoughts on how we can develop a NOAA organic act that will set the stage for NOAA's future success and the wise stewardship of nation and our planet.

Chairman EHLERS. Thank you, Mr. Udall. Normally, I don't comment on the opening statements others make, but I want to reassure you and others that I regard the ocean as our—as a great frontier that we should learn much more about, and should be studying much more extensively, and in every way. And obviously, that does, as you say, require extra human resources and financial resources.

The—my goal is that as we prepare an organic act, we will set the stage for good management, cost savings, and you know as well as I that when you can show good management and cost savings, the appropriations actually tend to increase, and it is my fond hope that may eventually happen.

If there is no objection, all additional opening statements submitted by the Subcommittee Members will be added to the record. Without objection, so ordered.

At this time, I would like to introduce our witnesses. We have an all star cast today. We will have two panels.

And on the first panel, we have Mr. Ted Kassinger. He is the Deputy Secretary of the U.S. Department of Commerce, and we really appreciate your presence here, and also want to congratulate you on your recent appointment to this important post. We hope that—we wish you well, and we hope that you will never regret having accepted this.

Mr. KASSINGER. I am sure it won't be because of the hearing today, Mr. Chairman.

Chairman EHLERS. The next witness is a familiar face from the past. Dr. Jim Baker is the President and Chief Executive Officer

of the Academy of Natural Sciences. He was the Administrator of NOAA from 1993 to 2001.

Next, we have Admiral West, who is the President of the Consortium for Oceanographic Research and Education, and is the former Oceanographer of the Navy.

And the fourth member of this panel is Dr. Joe Friday, another familiar face, the Weather News Chair of Applied Meteorology and Director of the Sasaki Applied Meteorology Research Institute at the University of Oklahoma. Dr. Friday is a former Assistant Administrator of the National Weather Service and the Office of Oceanic and Atmospheric Research at NOAA.

We will have a second panel that I will introduce at a later time. As our witnesses presumably have been told, we limit spoken testimony to five minutes. Your written testimony will automatically be entered into the record, and we ask you to summarize your comments in oral testimony for five minutes, and the little lights, both here and in front of you, will indicate your progress. The first four minutes are green, the second—the final minute is orange, and when the red light goes on, you have real problems, and so do I. So, we would appreciate you trying to limit it to five minutes. We will start with Mr. Kassinger.

Panel I

STATEMENT OF HON. THEODORE W. KASSINGER, DEPUTY SECRETARY, U.S. DEPARTMENT OF COMMERCE

Mr. KASSINGER. Thank you, Mr. Chairman, for those kind words, and for the invitation to appear today. Mr. Udall, Members of the Subcommittee, we really appreciate your convening this hearing on H.R. 4546, a NOAA Organic Act. I want to thank you for your continuing support of NOAA and its programs. I also want to thank Chairman Ehlers and Congressman Gilchrest for graciously acceding to the Administration's request to introduce H.R. 4607, our version of a NOAA Organic Act.

NOAA has an enormous impact on our nation's economic and environmental welfare. Secretary Evans recently noted NOAA's products and services touch some 30 percent of the Nation's gross domestic product. However, since its establishment in 1970, NOAA has relied on nearly 200 separate legislative authorities to carry out its business. Some, such as the Merchant Marine Act of 1936 and the Agricultural Marketing Act of 1946, precede the creation of NOAA by several decades. A unified law, an organic act, will provide a solid foundation for NOAA to meet the needs of the 21st Century. This was also the conclusion of the U.S. Commission on Ocean Policy's preliminary report released this past April.

Both H.R. 4546 and H.R. 4607 share common objectives, but differ somewhat in three general areas: first, in the explicit grant of Agency-wide administrative authorities; second, in the flexibility to reorganize the Agency's structure and programs; and third, in the nature and scope of an outside Board to advise the Administrator about NOAA's activities. I will speak to each of these briefly in turn.

First, H.R. 4607 would greatly simplify NOAA's resource management and stewardship abilities by codifying in one place its core administrative authorities. For example, that bill would grant to NOAA authority to accept gifts and bequests, consistent with similar authorities provided to other federal agencies. The ability to accept such gifts and bequests could be used to obtain weather radio towers, for example.

H.R. 4607 would also grant the authority to acquire property interests, which could, for example, have positive results when we undertake to manage natural resource damage and restoration programs. It also would grant authority to operate through partnerships and enter into agreements with non-federal entities.

Currently, these types of authorities are scattered about those 200 statutes I mentioned, and thus, do not apply to all of NOAA's activities, and so we have a patchwork effort, often, when Congress and the Administration identify programmatic needs, and we seek legal authority to carry them out. The introduction and enactment of an organic act would allow us to have Agency-wide authority to clearly carry out the kinds of programs that you and we want to administer.

Second, both H.R. 4546 and H.R. 4607 establish the positions of Under Secretary or Administrator, Assistant Secretary, Deputy Administrator, and Deputy Under Secretary. However, H.R. 4546 establishes other senior positions in law. The Administration bill, in contrast, would allow NOAA the flexibility to establish additional senior positions as needed.

H.R. 4546 also includes specific operations and services for NOAA, and identifies a few specific programs for authorization. In contrast, H.R. 4607 would contain four broad missions: encompassing ecosystem approaches to management, climate, weather and water, and commerce and transportation. This approach would allow for organizational and programmatic changes that may be needed to meet future developments and challenges.

Third, both bills address a need for an advisory panel of experts. H.R. 4546 would establish a 15-member Science Advisory Board. H.R. 4607 would establish a broader-based NOAA Advisory Committee on Oceans and Atmosphere that incorporates the functions of the current NOAA Science Advisory Board. The Administration bill also provides flexibility for determining the number of Committee members in terms of service. These are very similar concepts in both bills. Our thought is to provide this advisory committee with somewhat broader responsibilities to advise the Administrator across a broader range of issues.

Mr. Chairman, thank you for the opportunity to discuss both the Committee's bill and the Administration's bill. We appreciate the Committee's continuing support of NOAA, and look forward to working with you as the bills move through the legislative process.

I would be pleased to answer any questions you have.

[The prepared statement of Mr. Kassinger follows:]

PREPARED STATEMENT OF THEODORE W. KASSINGER

Chairman Ehlers, Mr. Udall, and Members of the Subcommittee, I appreciate your convening this hearing today on the creation of a NOAA Organic Act to bring together in one statute the fundamental structure, purposes, and authorities of the National Oceanic and Atmospheric Administration (NOAA).

I thank you, Mr. Chairman, for your continuing support of NOAA's programs, as evidenced by your introduction of H.R. 4546, the NOAA Organic Act authored by you and under consideration by the House Science Committee. I also want to thank both you and Congressman Gilchrest for graciously acceding to the Administration's request to introduce H.R. 4607, our version of a NOAA Organic Act.

Because of its strategic impact on the economic and environmental welfare of the Nation, NOAA commands a central place within the Department of Commerce. As Secretary Evans recently noted, NOAA's products and services touch 30 percent of the Nation's GDP every year. Waterborne cargo alone contributes over $740 billion to our GDP and supports jobs for more than 13 million citizens. The commercial fishing industry adds approximately $28.5 billion to the national economy on a yearly basis.

In transmitting the Administration's proposed NOAA Organic Act to the Congress, Secretary Evans stated that the increasing economic and environmental importance of ocean and atmospheric assessment, research and stewardship created an acute need to enhance NOAA's ability to predict and protect the environment and contribute to our nation's safety, health and prosperity. In line with that stated need, NOAA has adopted for itself the following four priorities: ecosystem approaches to managing the environment; climate change; weather and water; and commerce and transportation. Because the Nation's economy depends on NOAA products, we have placed an emphasis on science that has a clear application to NOAA's programs.

Originally created by Reorganization Plan No. 4 in 1970, NOAA has accumulated a large number of diverse responsibilities over the decades. It currently relies on close to two hundred separate legislative authorities, as well as on statutes of general applicability, to perform its job. Some of these, such as the Merchant Marine Act of 1936, the Agricultural Marketing Act of 1946, and the Coast and Geodetic Survey Act of 1947, predate the creation of NOAA. Nonetheless, from the late 1970's through the present, various Executive and Legislative Branch initiatives to organize NOAA's missions and authorities into a single law have foundered due to unresolved disagreements. After thirty-four years, it is time to advance from a Reorganization Plan to a unified, coherent legislative enactment.

In its *Preliminary Report,* released for review of the governors of the United States on April 20, 2004, the U.S. Commission on Ocean Policy reached the same conclusion. In its report, the Commission recommends immediate Congressional action on an organic act to enhance NOAA's ability to conduct operations consistent with the principles of ecosystem-based management and with its primary functions.. . . Admiral James Watkins, Commission Chairman, emphasized the importance of a NOAA Organic Act before the House Science Committee on May 5, 2004. The Administration concurs fully and, with the transmittal to Congress of an Administration proposal, has acted upon this preliminary recommendation from the Commission.

The introduction of H.R. 4546 and H.R. 4607 thus offers a timely and welcome opportunity to consider anew the appropriate way to define NOAA's mission and responsibilities. While we can be assured of a wide variety of views on this subject, it is encouraging that all parties seem to agree on one important tenet: NOAA, for the first time, must have a unified law to provide a solid foundation for its future service to the United States.

While both bills share common objectives, they differ in approach in three general areas: first, the explicit grant of agency-wide authorities; second, flexibility to reorganize the agency's structure; and third, the nature and scope of an advisory board to oversee NOAA's activities. We are confident that these differences in approach can be resolved satisfactorily, and we look forward to working with your committee to that end.

Explicit Grant of Agency-Wide Authority

H.R. 4607 would greatly simplify NOAA's ability to undertake research activities, to disseminate information, to manage ocean and coastal areas, and to provide stewardship of living marine resources by codifying in one place its core administrative authorities. By way of example, H.R. 4607 grants to NOAA——

- authority to accept gifts and bequests, consistent with similar authorities provided to other federal agencies. The ability to accept such gifts or bequests could be used, for example, to obtain weather radio towers.
- authority to acquire property interests, which could, for example, have positive results for managing natural resource damage and restoration programs, by confirming that NOAA has authority to acquire directly property to be used for habitat restoration projects.

- authority to operate through partnerships and enter into agreements with non-federal entities.

While NOAA has many of these authorities under statutes for specific programs, or under the Department's general authorities, this bill provides clear authorities on a NOAA-wide basis, and places the NOAA authorities together in one public law. We recommend that a NOAA organic act include provisions providing these types of NOAA-wide authorities.

Flexibility to Reorganize the Agency's Structure

While both bills establish the positions of Under Secretary (Administrator), Assistant Secretary (Deputy Administrator), and Deputy Under Secretary, H.R. 4546 would also establish the NOAA SES positions of Deputy Assistant Secretary for Oceans and Atmosphere, Deputy Assistant Secretary for International Affairs, Deputy Assistant Secretary for Science and Technology, and General Counsel. H.R. 4607, by contrast, would allow these and other senior positions to be established by the NOAA Under Secretary.

While the positions specified in H.R. 4546 (with the addition of the position of DAS for Science and Technology) accurately reflect the current organizational structure of NOAA, the Administration prefers the approach adopted by H.R. 4607, which would allow for additional organizational flexibility.

Although Congress may pass a NOAA organic act this session, history teaches us that it may take years, if not decades, before further legislative changes are possible. During that period, the Nation's priorities and the state of science and the environment will inevitably change and evolve. Our bill would allow NOAA the flexibility to make those organizational and programmatic changes that may be needed to meet future developments and challenges. The Administration recognizes that Congress has a strong interest in how NOAA is organized, and we are confident that there are ways to assure Congressional participation in that matter without resorting to the creation of a rigid structure for NOAA in statute.

In a similar vein, H.R. 4546 highlights several NOAA purposes and missions by reference to specific NOAA programs and activities. For example, the bill directs the Secretary to maintain within NOAA a National Weather Service (NWS), and delineates the NWS mission, goals and functions (section 105). The bill also directs the Secretary to maintain within NOAA operational and service programs to support routine data collection and direct services and products relating to satellite, observations, and coastal, ocean and Great Lakes information (section 106). In addition, the bill directs the Secretary to maintain within NOAA programs to conduct and support research and education and the development of technologies relating to weather, climate and the coasts, oceans and Great Lakes (section 107).

H.R. 4607 does not contain any of these provisions explicitly, but does provide for general authority to continue these important activities. The Administration prefers not to highlight the importance of some NOAA programs through their inclusion in an organic act, while inadvertently or inappropriately neglecting others.

Creation of Advisory Board

Both bills address a need for the establishment of an advisory panel of distinguished experts to provide advice and insights regarding NOAA science and research activities. Currently, NOAA has a 15-member science advisory board that was established by decision of the Secretary of Commerce and chartered in September 1997 under the Federal Advisory Committee Act. The members are appointed by the NOAA Administrator to advise him on long- and short-range strategies for research, education, and the application of science to resource management and environmental assessment and prediction.

H.R. 4546 establishes in law a 15-member Science Advisory Board, while H.R. 4607 establishes a NOAA Advisory Committee on Oceans and Atmosphere that is broader in scope than the Board contemplated by H.R. 4546. The NOAA Advisory Committee established by H.R. 4607 would replace the now-defunct National Advisory Committee on Oceans and Atmosphere and the current NOAA Science Advisory Board. This new committee would continue to address science issues, as would the National Science Board in H.R. 4546. In this respect, the NOAA Advisory Committee would be similar to the current NOAA Science Advisory Board. The Administration, however, would like to expand the scope of the present science board to include NOAA-wide policy issues.

We believe that this broader scope would be a logical extension of issues considered by a science board, better reflecting the depth and breadth of the policy issues embedded in NOAA's missions and purposes. Thus a panel could provide the senior leaders of NOAA with the critical perspective of highly qualified, independent experts who could bring useful outside perspectives to the challenges NOAA faces.

Moreover, as is commonly done with advisory committees, the NOAA Advisory Committee structure could include subcommittees or working groups to address in greater detail specific scientific questions. The Administration bill provides flexibility for determining the number of committee members and terms of services through the development of a charter.

Conclusion

Thank you for the opportunity to discuss both the Committee's bill, H.R. 4546, and the Administration's bill, H.R. 4607. As I previously noted, both bills have very similar objectives. For that reason, we are convinced that the bills' differences in approach can be harmonized, and we look forward to working with you as the bills move through the legislative process. We are hopeful that our combined efforts, as well as your committee's past and continued support for NOAA, will provide the momentum needed to enact a NOAA organic act this session.

I would be pleased to answer any questions you may have.

BIOGRAPHY FOR THEODORE W. KASSINGER

Theodore W. ("Ted") Kassinger serves as Deputy Secretary of the U.S. Department of Commerce, a position to which he was nominated by President George W. Bush in February 2004 and appointed in July 2004. Previously, Mr. Kassinger was nominated and confirmed by the U.S. Senate as the General Counsel of the Department. He served in that capacity from May 2001 until assuming his current position.

As Deputy Secretary, Mr. Kassinger serves as the Department's chief operating officer, with responsibility for the day-to-day management of its approximately $5.8 billion budget, 13 operating units, and 40,000 employees. Among the Department of Commerce's varied missions are promoting U.S. exports, administering unfair trade laws, and negotiating and enforcing international trade agreements; regulating the export of sensitive goods and technologies and promoting international cooperation on export control and strategic trade matters; serving as effective stewards of the Nation's ocean, coastal, and living marine resources while assisting their economic development; forecasting the weather and conducting other climate research; formulating technology and telecommunications policy and administering the federal radio frequency spectrum; conducting the national censuses and producing some of the Nation's most important economic data; administering the patent and trademark system; developing and applying technology, measurements, and standards; and promoting economic growth in distressed communities and minority business development. As Deputy Secretary, Mr. Kassinger supports Secretary of Commerce Donald L. Evans in carrying out these Department responsibilities and other Departmental policy and operational objectives.

Prior to joining the Bush Administration Mr. Kassinger practiced law with the multinational law firm, Vinson & Elkins, L.L.P., from 1985 to 2001. His law practice focused mainly on the fields of international trade and business law, and transnational disputes resolution. Earlier in his career, Mr. Kassinger served as an attorney for the U.S. Senate Committee on Finance, the U.S. Department of State, and the U.S. International Trade Commission.

A native of Atlanta, Georgia, Mr. Kassinger received his B.L.A. from the University of Georgia School of Environmental Design (1975) and his J.D. from the University of Georgia School of Law (1978). He is married to the author, Ruth G. Kassinger. The Kassingers are the parents of three daughters.

Chairman EHLERS. Thank you. Dr. Baker.

STATEMENT OF DR. D. JAMES BAKER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, THE ACADEMY OF NATURAL SCIENCES

Dr. BAKER. Thank you, Mr. Chairman.

As you know, I served as the Administrator of NOAA, but I also worked for NOAA as a scientist, and my experience as a scientist and administrator tells me that it is very important for NOAA to have an organic act. During my tenure as Administrator, I was pleased to see Congress support NOAA's critical missions and grow the budget by more than 50 percent. Yet, at critical times in national policy debates, there were questions about NOAA's mission, especially where NOAA's programs appear to overlap those of other

agencies. An organic act would help to avoid these unnecessary debates.

When NOAA and the EPA were formed in 1970, environmental issues were foremost in the public's mind. Much has been accomplished since then in providing clean air, clean water, and better weather forecasts. But in 1970, we were not aware to the extent at which we were exploiting fisheries. We were not able to forecast an El Niño or understand the role of humans in global climate change. Today, we have the best weather service in the world. We have a much better understanding of long-term change. But we are facing vulnerability to natural disasters, non-point source pollution, and continuing declines in commercial fisheries.

In the future, we will be doing more offshore drilling, and the biodiversity of the sea will be explored with new molecular techniques. We will continue to operate under the burden of not being a signatory to the Law of the Sea Convention. In short, the problems are different, harder to solve, and the Agency needs to change with the times. It needs more recognition and support, more money, and more independence. In fact, I believe that NOAA should be an independent agency, like EPA. NOAA was originally proposed as an independent agency, and today, it has the maturity to become one. I hope the House will carefully consider supporting the Senate along those lines.

In terms of the biggest problem, I mentioned that we had the best weather observation and forecast system in the world, but are we as ready as we should be for a major natural disaster? Our lack of preparedness for terrorism events suggests that our systems for preparing for major natural disasters needed careful examination. Weather experts know that storms, floods, and high winds can be devastating, especially as population growth puts more people and property in harm's way. NOAA must be part of homeland security planning for natural disasters.

We have not yet solved the problem of keeping alive a viable commercial fishing industry with sustainable stocks of fish. The answer lies in reduced quotas, and in full ecosystem management. We have been working a long time on this problem. President Grant established the first U.S. Commission in 1872 because of the decline in fisheries, but we still haven't solved the problem.

What missions and functions should NOAA be responsible for? It is important to emphasize the key role of the oceans in NOAA. Long-term forecasts of weather and climate require better measurements of the ocean. We must have an ocean observing system as good as the system we have for the atmosphere, but we are a long way from that coverage today.

The current emphasis on observations of all kinds in NOAA is gratifying to see, but the funding must be found to make it work. Organizationally, it is very important to maintain the scientific independence of NOAA. There have been attempts in the past by administrations of both parties to limit the flow of information from NOAA, particularly on politically sensitive issues like global climate change and fisheries management. The organic act should ensure that NOAA can maintain its independence when such issues arise.

What are the pros and cons of proposed restructuring? I like the groupings that have been proposed in your bill, and I think that such a focus would help the Agency function better. I also think it is critical to follow the advice of the Ocean Commissions about ecosystem management. I can remember many discussions at NOAA, while I was Administrator, where we debated the cause of decline, for example, of stellar sea lions, without having the benefit of understanding the complex web of interactions that led to such decline.

Title I of H.R. 4546 gives a good summary of the Agency and what it does. I think it could be improved by adding a provision for formalizing the mechanism for research to be carried out and competitively funded at universities and research institutions outside NOAA. The Office of Naval Research would be a good example for an Office of NOAA Research. I like the idea of a Deputy Assistant Secretary for Science and Technology, for coordination of science and research, and would propose such a Deputy Assistant Secretary might be the focal point for the Office alluded to above.

I am also pleased to see the continuance of the Science Advisory Board. This Board was established on my watch at NOAA, and it provided very good guidance for a variety of programs.

Let me conclude with a word about education. NOAA needs more support for educational outreach programs. I was pleased to see that NOAA will sponsor a major new exhibit on oceans at the Smithsonian, and I hope that more such exhibits and outreach can be supported. The more the public can be educated about our issues, the better the support we will have in dealing with difficult issues.

After I left my job as Administrator of NOAA, I wanted to join an institution that had both research and public outreach, and I was lucky enough to become President of the Academy of Natural Sciences in Philadelphia. At the Academy, we are developing new programs to show the public the tradeoffs involved in making environmental decisions. We have a new town square program where such things are discussed. NOAA might consider helping establish other such programs around the country.

Thanks for the opportunity to be here. I appreciate the opportunity to testify, and look forward to a stronger and more independent NOAA. Thank you.

[The prepared statement of Dr. Baker follows:]

PREPARED STATEMENT OF D. JAMES BAKER

Introduction

Mr. Chairman, thank you for the opportunity to testify at this important hearing. I am D. James Baker, President and Chief Executive Officer of the Academy of Natural Sciences in Philadelphia, and I served as the Administrator of the National Oceanic and Atmospheric Administration (NOAA) from May of 1993 to January of 2001, longer than any other Administrator. I also worked for NOAA as a scientist at the Pacific Marine Environmental Laboratory in Seattle in the 1970s. My experience as a scientist and administrator tells me that it is very important for NOAA to have an Organic Act, and I am pleased to testify in favor of the organic acts which are currently pending in Congress. The Congress has always strongly supported NOAA, and I hope that a resolution can be reached, because it will provide strength to the vital programs NOAA carries out.

From weather and climate to fisheries and coastal zone management, NOAA has had an important impact on the conduct of national affairs since it was formed in 1970. During my tenure, I was pleased to see Congress support these critical mis-

sions and grow the budget by more than 50 percent. NOAA took the lead in civil satellite operations, in ocean exploration, and in coastal conservation. Yet at critical times in these and other national policy debates there were questions about NOAA's mission especially where NOAA's programs appeared to overlap that of other agencies. An organic act would help avoid these unnecessary debates. I will organize my testimony according to the questions that were asked in the invitation letter.

Before I go into the specific questions that I have been asked to address, I would like to put my answers into a historical context. When NOAA and EPA were formed by President Nixon in 1970, environmental issues were foremost in the public's mind. Much has been accomplished since then in providing clean air, clean water, better weather forecasts, and accurate and complete mapping of our coasts and Great Lakes. But in 1970, we were not aware of the extent to which we were exploiting fisheries; we were not able to forecast an El Niño or understand the role of humans in global climate change, and we were seeing just the beginning of the decline in protected marine mammals. Today, almost 25 years later, we have the best weather service in the world, our data bases for the environment are massive, and we have a much better understanding of forecasting El Niño and longer-term climate change. But we are facing vulnerability to natural disasters, non-point source pollution, air shed deposition of nitrogen into coastal waters which leads to dead zones, and continuing and rapid declines in commercial fisheries. We will be doing more offshore drilling, and the biodiversity of the sea will be explored with new molecular techniques. We will continue to operate under the burden of not being a signatory to the Law of the Sea Convention. The U.S. Ocean Commission and the Pew Ocean Commission have each provided excellent documentation of these and other critical issues.

In short, the problems are different—harder to solve—and the agency needs to change with the times. It needs more recognition and support, more money, and more independence. In fact, I believe, and I want to make this point up front, that the environmental problems that the Nation faces today are such that NOAA should be an independent agency like EPA. The proposed organic acts can help in making that transition. It may not happen in this session or administration, or even in the next, but I believe it is an essential step for our country to deal with these critical issues. NOAA was originally proposed as an independent agency, and today it has the maturity to become one. I know that a bill was introduced yesterday in the Senate to make NOAA an independent agency, and I hope that the House will carefully consider supporting that bill.

1. What is the biggest problem at NOAA and can that problem be addressed in statute?

I would divide the NOAA issues into two parts: weather and climate forecasts on the one hand and resource management on the other. I mentioned that we have the best weather observation and forecast system in the world, thanks to the dedicated work of the employees of the National Weather Service and the National Environmental Satellite and Data and Information Service. But are we as ready as we should be for a major natural disaster? Our lack of preparedness for terrorism events suggests that our systems for preparing for major natural disasters need a careful examination. NOAA plays an important role in getting information out to the appropriate users; NOAA Weather Radio is a good example. Perhaps we won't see the sequence of events recently portrayed in the film *The Day After Tomorrow,* but weather experts know that storms, floods, and high winds can be devastating, especially as population growth puts more people and property in harm's way. NOAA must be part of homeland security planning for natural disasters.

On the resource management side, we are seeing today, as documented by both of the Ocean Commissions, a rapid decline of commercial fisheries. We have not yet solved the problem of keeping alive a viable commercial fishing industry with sustainable stocks of fish. The answer lies in reduced numbers for quotas, and in full ecosystem management. We must set an example, and work internationally to find ways to reduce the stress on fisheries stocks. We are already seeing stocks reduce in size substantially; that is, individual fish are getting smaller and smaller. We should not be the generation to preside over the loss of commercial fisheries. We have been working a long time on this problem: President Grant established the first U.S. Fish Commission in 1872 because of the decline in fisheries. We have to find a new way. We are continually told that this new century is the century of biology—can these new ideas, ranging from species identification by DNA sequencing to cloning endangered species, help us in fisheries management?

2. What missions and functions should NOAA be responsible for and how should NOAA be organized? What is the most important thing to accomplish in an organic act for NOAA?

In particular it is important to emphasize the key role of the oceans in NOAA. NOAA is responsible for long-term forecasts of weather and climate, which in turn require better measurements of the ocean. We must have an ocean observing system that provides coverage and information as good as the information we get from the atmosphere, but we are a long way from that coverage today. The current emphasis on observations of all kinds in NOAA is gratifying to see, but the funding must be found to make it work. As the Chair of the international science steering committee for the Global Ocean Observing System sponsored by the Intergovernmental Oceanographic Commission, the World Meteorological Organization, and the International Council of Scientific Unions, I can say that NOAA's leadership in global observations is critical to success for understanding, predicting, and using ocean data for a variety of purposes. Let me say also that as we look to the future, it will be essential to have other ocean observations, namely the satellites that measure the shape of the ocean, altimeter satellites such as the multinational JASON–2 program, tropical moored buoys such as the TOGA–TAO array and coastal moorings, sea level gauges, surface drifting buoys, and measurements from ships of opportunity.

Organizationally, it is important to maintain the scientific independence of NOAA. There have been attempts in the past by administrations of both parties to limit the flow of information from NOAA, particularly on politically sensitive issues like global climate change and fisheries management. The organic act should be carefully read to make sure that NOAA can maintain its independence when such issues arise.

3. What are the pros and cons of the proposed restructuring in Chairman Ehlers' bill, H.R. 4546 and would it improve NOAA's support of ecosystem-based management?

I like the groupings that have been proposed in Chairman Ehlers' bill, and I think that such a focus would help the agency function better. When I was Administrator of NOAA, we developed a strategic plan that was very similar to this grouping, and we ran regular quarterly meetings to assess progress in this organizational framework. I also believe that it is critical to follow the advice of the Ocean Commissions about ecosystem-based management. In particular, NOAA's role as protector of endangered marine mammals depends on a much better understanding of the full ecosystems of which these mammals are part. I can remember many discussions at NOAA while I was administrator where we debated the cause of decline of, for example, the Steller sea lions, without having the benefit of understanding the complex web of interactions that lead to such decline.

4. How can Title 1 of H.R. 4546 be improved?

Title 1 of H.R. 4546 gives a good summary of the agency and what it does. I think it could be improved by adding a provision for formalizing the mechanism for research to be carried out and funded at universities and research institutions outside NOAA. Although NOAA has funded external research to some extent over the years through Sea Grant, the Office of Global Programs, and others, much more could be done. I'm impressed with how the Navy and other parts of DOD have benefited greatly with organizations like the Office of Naval Research. Such formal arrangements for, say, an Office of NOAA Research, could be a good thing.

5. Could a Deputy Assistant Secretary for Science and Technology improve coordination of science and research at NOAA?

I like the idea of a DAS for Science and Technology for coordination of science and research at NOAA, and would propose that such a DAS might be the focal point for the office alluded to above, an Office of NOAA Research for external funding.

I'm also pleased to see the continuance of the Science Advisory Board. This Board was established on my watch at NOAA, and with the able and excellent leadership of Dr. Alfred Beeton it was able to provide very good guidance for a variety of programs. I am glad to see that it will continue.

Conclusion

Finally, let me say a word about education. NOAA has not been able to do as much as it could in educating the public, and I have always been impressed with what NASA has done. NOAA needs more support for educational and outreach programs. I was pleased to see that NOAA will sponsor a major new exhibit on the oceans at the Smithsonian, and I hope that more such exhibits and outreach can be supported. It was my experience at NOAA that the more the public was educated

about our issues, the better the support we would have in dealing with difficult issues.

After I left my job as Administrator of NOAA, I wanted to join an institution that had both research and public outreach, and I was lucky enough to become President of the Academy of Natural Sciences in Philadelphia, the oldest continuously operating natural history institution in the western hemisphere. At the Academy we are developing new programs to show the public the tradeoffs involved in making environmental decisions. We have started a new Town Square program where citizens, policy makers, representatives of business, and scientists can discuss issues like watershed restoration and dam removal to understand all the aspects. NOAA might consider helping establish other such programs around the country, with experts from NOAA talking along with others. In any case, more support and emphasis on education would be very helpful for decision-making.

Thank you for the opportunity to be here today. I appreciate the opportunity to testify, and look forward to a stronger and more independent National Oceanic and Atmospheric Administration.

BIOGRAPHY FOR D. JAMES BAKER

Dr. D. James Baker was trained as a physicist, practiced as an oceanographer, and has held administrative positions in academia, the non-profit sector, and government. He was elected the twenty-seventh President and CEO of the Academy of Natural Sciences in Philadelphia in April 2002. Before joining the Academy, Dr. Baker was a Presidential appointee as Under Secretary for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration (NOAA) at the U.S. Department of Commerce (1993–2001). Earlier, he was President of Joint Oceanographic Institutions Incorporated (JOI) in Washington, D.C. He came to JOI from the University of Washington where he served as Professor of Oceanography and first Dean of the College of Ocean and Fishery Sciences, which he helped found. He is the author of more than one hundred scientific papers, review articles, and editorials on geophysical fluid dynamics, oceanography, climate, and the scientific aspects of sustainable development and published a book on space policy and technology issues. He and his co-workers were awarded a patent on their design for a deep-sea pressure gauge. He co-founded and served as the first President of The Oceanography Society. He is a Member of the American Philosophical Society and a Fellow of the American Meteorology Society and the American Association for the Advancement of Science.

Dr. Baker is married to Emily Lind Baker, who most recently was an editor in the National Digital Library program of the Library of Congress in Washington, D.C. He was born in Long Beach, California and went to elementary, junior high, and high school there. He has a Bachelor of Science degree in Physics from Stanford University, a Ph.D. in Physics from Cornell University, and was awarded an honorary Doctor of Humane Letters (L.H.D.) degree from Nova University in 1993.

Chairman EHLERS. And thank you. Admiral West.

STATEMENT OF REAR ADMIRAL RICHARD D. WEST, PRESIDENT, CONSORTIUM FOR OCEANOGRAPHIC RESEARCH AND EDUCATION

Admiral WEST. Thank you, Mr. Chairman, and the Committee for my invitation today, and for your continued leadership on ocean science issues. CORE, with its 78 members, represents the Nation's premiere ocean science institutions. The ocean science community appreciates your prompt response to the Ocean Commission's call for a NOAA Organic Act. Both H.R. 4546 and H.R. 4607 would clarify NOAA's structure and function, and provide the Agency with the direction to create an integrated organization.

The ocean science community is very supportive, and sees H.R. 4546 in particular as a clear step forward for NOAA and this nation. CORE, the Sea Grant Association, and the National Association of State Universities and Land Grant Colleges jointly endorse H.R. 4546.

The Committee's letter of invitation posed four questions to me. First, perhaps the largest problem facing NOAA today is its amalgamation of research, operational, and regulatory entities that does not operate as a well integrated corporate culture, as well as being placed within the Department of Commerce.

Second, with respect to NOAA's missions, functions, and organization, the Ocean Commission Report offers a good starting point. Through the goals articulated in the organic act and reading the Commission's vision, NOAA would greatly benefit from the research plan called for in H.R. 4546.

This plan must recognize the role of research in NOAA, establish goals and a process for Agency-wide research and investments, and delineate the role of its external partners. It must emphasize the importance of peer review and competitive awards, which improve the process of managing grants and contracts, and integrate research, education, and outreach.

Third, with respect to restructuring NOAA, the three mission areas—operations and services, research and education, and resource management—make sense. The current line office structure is widely viewed as inhibiting NOAA's ability to function effectively as an integrated organization, and many question whether NOAA can make progress toward a more unified operation without some structural change.

Fourth, CORE strongly supports the creation of a Deputy Assistant Secretary for Science and Technology, and its responsibility for coordinating and managing the NOAA research enterprise. Establishing this position provides clear recognition of NOAA as a science-based mission agency, and is consistent with the recommendation of the NOAA Research Review Team.

Other points for consideration is the Science Advisory Board should be authorized as an expert partner in NOAA research. We support strategic planning and recommend that such planning cover three areas, scientific research, education and outreach, and data management. The Coastal Ocean Science Program will provide important science for ecosystem-based management. We are, however, very concerned that the NOAA funding bill approved by the House of Representatives, would slash funding available for this research in Fiscal Year 2005.

CORE's support for the bill's Marine Research Title and similar bills that call for multidisciplinary investments to better understand the role of the oceans in human health. A top national priority should be the development of an Integrated Ocean Observing System that extends from our watersheds to the outer edge of the exclusive economic zone.

The Committee asked me that I also provide a brief overview of the report of the NOAA Research Review Team, from which I'm also a member. I am not sure that resets my clock, but I will continue. The Team was appointed in a response to the Senate and House legislative reports accompanying this year's NOAA funding law. In undertaking our charge, the Review Team felt that it was essential to consider the full breadth of the NOAA research enterprise to better understand and evaluate NOAA research and the role of the OAR line office.

In developing our report, we examined substantial amounts of data and various reports. We conducted extensive internal NOAA interviews, met with past and present senior managers of NOAA, other government agencies and large private sector research-based companies, and held wide-ranging discussions with external community representatives, and the Science Advisory Board. Our final report was presented to, and accepted by, the Science Advisory Board on Tuesday.

The Team's findings and recommendations fall into nine general categories, but I would like to mention just five briefly, as they are applicable to today's hearing. First, in cooperation with external partners, NOAA should develop a 20-year research vision that supports the Agency's strategic plan, and a five-year Agency-wide research plan that clearly articulates research goals and projects in a phased approach.

NOAA should also appoint a distinguished career scientist as Associate Administrator for Research, reporting directly to the NOAA Administrator, and with mission and budget responsibility for all NOAA research. This individual should chair a top-level NOAA research board, with responsibility for implementing the research vision. Support would be provided by a research council of senior research managers chaired by the OAR Assistant Administrator.

NOAA must strengthen the transition of research to operational lines, clarifying that both research and operational programs share physical and programmatic responsibility for transition. NOAA should develop a clear set of criteria for determining the location of research programs within the Agency that would be applied to new programs immediately, and to existing programs over a two-year period.

NOAA should establish an external taskforce to evaluate the structure and future of ecosystem research within the line offices. The role of extramural research should be clearly defined in the research plan, and an integral part of NOAA, presentations to the Department of Commerce, the Office of Management and Budget, and to the Congress. NOAA must improve its business practices related to extramural research, engaging the external community and establishing more consistent administrative processes.

In conclusion, this nation must recognize that the time has come for constructive action to protect our oceans. NOAA, our nation's ocean agency, has a critical role in carrying out the recommendations of the Ocean Commission. We applaud this committee's efforts to provide NOAA with this clear mission. With adequate funding, a reinvigorated NOAA can lead this nation in taking the necessary steps to understand, protect, and make wise decisions on our global ocean resources.

On behalf of all the members of CORE and my Research Review Team colleagues, I thank you for your presence today. Thank you.

[The prepared statement of Rear Admiral West follows:]

PREPARED STATEMENT OF REAR ADMIRAL RICHARD D. WEST

Good afternoon, Mr. Chairman and Members of the Committee. Thank you for the opportunity to discuss pending legislation and reports relating to the organization and research programs of the National Oceanic and Atmospheric Administration (NOAA). I am Rear Admiral Dick West, President of the Consortium for Oceanographic Research and Education (CORE). I am speaking today on behalf of the 78-

member institutions of CORE who work together to develop and promote a common vision and goals for the ocean science community. In addition and as a member of the NOAA Research Review Team, your invitation asked me to provide a brief summary of the team's report and recommendations.

I. CORE VIEWS ON H.R. 4546, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACT, AND H.R. 4607, THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACT OF 2004

CORE was established a decade ago to promote and advance ocean science research and education. As an organization, CORE fosters membership of U.S. institutions actively involved in ocean research and education; seeks support for the development of partnerships in oceanographic research and education; builds critical links among government agencies, academia and marine industries; and actively works with policy and decision-makers on ocean research and education issues. Our membership includes the leadership of this nation's premier ocean science institutions.

With the U.S. Commission on Ocean Policy nearing completion of its work, this has truly been an extraordinary year for the entire ocean science community. On one hand, we are looking forward to the first comprehensive report on national ocean policy in more than 35 years—one that will identify both serious problems and exciting new opportunities. On the other hand, this compelling document is being released in the waning days of the 108th Congress as our nation faces war, presidential and congressional elections, and difficult fiscal decisions to meet tight budget constraints. In response to the challenges posed by the Commission report, the oceanographic community has adopted two strategies: The first is to make sure that Americans understand the critical role of the oceans in our environmental, economic and national security. The second is to strengthen policies and investment of resources commensurate with the importance of the oceans in our lives.

As we pursue these strategies and work to implement the Commission recommendations, CORE would like to thank the Members and staff of the Science Committee for their leadership and continued attention to ocean science issues. In particular, we appreciate Congressman Ehlers' willingness to sponsor legislation and move forward quickly to put the Commission's findings in place. This is a very timely and important hearing given the nature and scope of the proposals being discussed.

The ocean science community supports efforts to enact NOAA organic legislation and is optimistic that it will provide NOAA with tools needed to define a common, agency-wide vision. The legislation offers a unique opportunity to codify NOAA's structure and function and set the direction for creating a unified and integrated organization. CORE, the Sea Grant Association, and the National Association of State Universities and Land Grant Colleges jointly have endorsed H.R. 4546. Attached to my written statement is a copy of our support letter.

Ocean Commission Recommendations and NOAA

In 1969, the report of the Commission on Marine Science, Engineering, and Resources (Stratton Commission) recommended "the creation of a major new civilian agency, which might be called the National Oceanic and Atmospheric Agency, to be the principal instrumentality within the Federal Government for administration of the Nation's civil marine and atmospheric programs." The report also suggests that the primary mission of the new agency be "to ensure the full and wise use of the marine environment in the best interests of the United States." It proposes 18 functions ranging from advancing the marine and atmospheric sciences to assuring the availability of educated and trained manpower. Less than a year later, the President's Reorganization Plan No. 4 of 1970 created NOAA, consolidating many of the civilian oceanic and atmospheric programs that were scattered throughout the federal bureaucracy.

Unfortunately, NOAA still exists today as an amalgamation of research, operational, and regulatory entities that do not operate under a common and well-integrated corporate culture. The current fragmented structure stems in large part from the way in which NOAA was assembled from existing federal marine, weather and atmospheric entities, then awkwardly placed within the Department of Commerce. Through the 1970 reorganization plan, NOAA became the uneasy sum of several competent, yet independent-minded organizations that still have not melded into a single cohesive agency.

Thirty-five years have passed since the Stratton Commission finished its work and now the Watkins Commission is preparing to issue its final report. One of the preliminary recommendations of today's Commission is very similar to that of its predecessor. It states, "Congress should pass an organic act that codifies the estab-

lishment and missions of the National Oceanic and Atmospheric Administration. The act should ensure that NOAA's structure is consistent with the principles of ecosystem-based management and with its primary functions of assessment, prediction, and operations; management; and research and education." The situation is also similar in that the Administration and Congress have responded quickly by taking action, in this case through the introduction of H.R. 4546 and H.R. 4607 to implement Commission recommendations.

Of course, the Commission recommendations related to NOAA are not limited to the call for organic legislation. Of the Commission's almost 200 recommendations, nearly a quarter are directed toward NOAA. Among those of significance for today's NOAA discussion are the following:

- Doubling the federal ocean and coastal research budget over the next five years, from the 2004 level of approximately $650 million to $1.3 billion per year, including enlargement of the National Sea Grant College Program, and support for other research identified as high priorities. (25–1)
- Expanding the national ocean exploration program under NOAA and the National Science Foundation and with involvement of other federal ocean agencies. (25–4)
- Serving as the lead federal agency for funding, implementing and operating the Integrated Ocean Observing System (IOOS) with distribution of funds through a streamlined process to federal and nonfederal partners. (26–2,9)
- Strengthening support for both formal and informal ocean-related education at NOAA and other agencies, including support for an education office, teacher development opportunities, undergraduate marine science courses, a national ocean workforce database, participation of traditionally under-represented groups and a traineeship program patterned after the National Institutes of Health. (8–3,7,9,11,12,15)
- Creating a NOAA organization to support transition of research technologies into operations and increasing investment in research programs to assess and develop effective technologies for dealing with issues like vessel pollution, protected species interactions, aquaculture, and ocean observations. (16–4, 20–7, 22–3, 26–7, 27–2)
- Expanding research and development efforts, including competitively awarded grants and support of federally designated centers, by NOAA and other agencies for multidisciplinary studies of marine species and potential marine bioproducts; expanded research in marine microbiology and virology; and improved methods for monitoring and identifying pathogens and chemical toxins in ocean waters and organisms. (23–1,2,3)

Organic Act Legislation

Following introduction, CORE circulated H.R. 4546, the *National Oceanic and Atmospheric Administration Act,* and H.R. 4607, the *National Oceanic and Atmospheric Administration Act of 2004,* to its members for review. Both bills include NOAA organic legislation and it seems clear that H.R. 4546 fundamentally is not in conflict with H.R. 4607 but expands upon it significantly in important ways. H.R. 4546 is a clear step forward for NOAA and CORE members are generally very supportive. There are a few issues, however, that raise questions and we would like to work with you to resolve them as the Committee moves the bill through the legislative process.

One preliminary question is that H.R. 4546 authorizes some specific research programs addressed by the Commission report but not others. We recognize that the bill was not intended to be exhaustive. However, it may be useful to consider including or expanding authorizations for other education and research efforts, such as the National Sea Grant College Program, the National Undersea Research Program and ocean exploration. Stepping back from discussion of specific programs, CORE's principal interest is that NOAA develop balanced research and education programs that are peer-reviewed and competitively awarded, rely on effective partnerships and outreach, support the full breadth of the agency's mission and demonstrate its commitment to scientific excellence.

Returning to H.R. 4546, one key provision is the creation of a new career position, a Deputy Assistant Secretary for Science and Technology. CORE strongly supports the new position and its responsibility for coordinating and managing research activities across the agency. Establishing this position provides clear recognition of NOAA as a science-based agency that has a corporate view of their research program. This recommendation also appears to be consistent with the goals of the Research Review Team. It would, however, be useful to clarify the ability of the science

deputy to actively influence science activities and budgets within the line offices, as well as his or her relationship to the NOAA Science Advisory Board. Given the Commission's recommendation that research and education be one program element of a revised NOAA structure, we also would suggest that you make education a specific part of the portfolio of the science deputy.

From our perspective, the Deputy Assistant Secretary for International Affairs also is an important position, especially as we work to develop a global observing system. Consequently, the Committee may wish to consider adding integration of global observing systems specifically to the list of responsibilities for the international position.

CORE strongly supports the authorization for the Science Advisory Committee and the requirement to develop strategic plans for scientific research and for data management, archival and distribution. With respect to data and information systems, the provision related to the global Earth-observing system is particularly important. However, the plan also should address development of services, including reprocessing and algorithms.

With respect to research, NOAA would greatly benefit from a plan that emphasizes the importance of peer-reviewed and competitive awards, improves the process of managing grants and contracts, integrates research and outreach, cuts across agency divisions, clearly defines priorities based on operational requirements and reflects the needs and recommendations of constituent groups at the national, regional, State and local levels. It would be difficult to overstate the importance of longer-term, basic research to NOAA's mission and viability. We also should recognize that it is not always possible to reduce uncertainty in projecting climate and other environmental variability. More accurately, our goal should be to increase understanding of the system's complexity in order to develop more robust projections in light of that variability.

Community support through interaction and regular contact with external constituencies is essential to the effectiveness of the agency. Numerous studies have recognized the NOAA-university partnership as a principal means to forge that connection. For this reason, it is essential that the bill include a mechanism for academic, public and other community input into the development and implementation of the NOAA-wide strategic plans for scientific research and data. NOAA should regularly apply the planning models used by the National Science Foundation and other research agencies, including workshops and other forums to generate NOAA priorities for research, education and outreach. Such community involvement should not be limited to planning stages, but rather be extended to all agency activities.

Effective education and outreach are critical to NOAA missions and CORE applauds H.R. 4546 for explicitly identifying them as NOAA functions. However, it also may be necessary to define specific NOAA education and outreach functions in the section on research and education. In addition, a strategic plan for education should be developed independently or as part of the research plan.

As the bill moves through the legislative process, it will be important to address marine management responsibilities and delineate the relationship of marine management to the programs already defined in sections of the organic act title—weather service, operations and services, and research and education. The bill's programmatic sections are similar to the primary functions identified by the Ocean Commission. However, the bill stops short of recommending changes in the line office structure. The current line office structure is widely viewed as inhibiting NOAA's capability to function effectively as an integrated organization and it is unclear whether NOAA can make major progress towards a more unified operation without such changes. This is a particular concern in dealing with the Commission recommendation to implement ecosystem-based management.

The relationship between research and operational programs and services, including information management, must be considered carefully and work hand-in-hand. NOAA observing activities must be tasked with providing quality data sets that can support fundamental research, which in turn will be used to support new forecasting and prediction services as well as evolution of the observing and information system. We tend to think of science in the service of operations, but in many areas such as climate forecasts and ecosystem-based management, it is a two-way street. It is not a simple matter of a one-way flow of knowledge from science to operations, but rather operations and management programs must be in full partnership with research and technology development. Within NOAA, the operational side must see its success as depending, in part, on its ability to support basic, curiosity-driven research, which will elucidate new concepts and new questions to improve operations and support new management policies. One way to prevent operations and service from being "stove-piped" from research and education is to link them through modeling and analysis conducted jointly.

Authorization of Appropriations

The authorization levels proposed in H.R. 4546 appear to be consistent with maintaining current service levels. One concern that has been raised is that authorized funding for Program Planning and Integration remains constant, despite the increasing need for planning efforts across the agency.

Coastal Ocean Science Program

NOAA's coastal ocean science program has been one of its most successful research efforts, despite funding constraints in recent years. It is a relevant and useful program, whose research objectives should be augmented by access to a fully functioning coastal ocean observing system. An immediate concern is that the NOAA funding bill that recently was approved by the House of Representatives would slash the funding available for such research activities in fiscal year 2005. We urgently request that the appropriation levels be restored before the funding bill is finalized.

The ocean science community supports renewed interest in research that measures, analyzes and predicts the effects of coastal and Great Lakes pollution. The Watkins Commission clearly recognizes the rising threat posed by cumulative effects of continuing coastal pollution. While the Commission recommendations focus primarily on the enforcement responsibilities of the Environmental Protection Agency, NOAA's coastal ocean science program fills a much-needed coastal measurement and evaluation role. As data are collected over time, trends become obvious, providing environmental managers with tools to assess the effectiveness of pollution-limiting measures.

The coastal ocean science program is likely to benefit substantially from development of new sensors and instruments that can measure physical, chemical and biological parameters of the ecosystems being studied. Consistent with a central recommendation of the Commission, the ocean community recognizes the importance of emphasizing ecosystem-based approaches. CORE supports the requirement that research be peer-reviewed and competitively awarded and recommends that authorized funding for coastal ocean science follow the general Commission recommendation for doubling the research budget.

Marine Research

Similar to other CORE-supported and Senate-approved legislation, the Marine Research Act would provide the legislative framework for a unified national investment to improve the understanding of the interaction of humans and the marine environment. The bill clarifies the responsibility of the National Science and Technology Council for coordinating interagency research efforts and requires development of an implementation plan that builds on ongoing federal research agency efforts, including those of NOAA, the National Science Foundation, and the National Institute for Environmental Health Sciences. Of primary importance, the plan would provide focus for a new interdisciplinary research program that relies on the capabilities of our nation's academic research institutions and is consistent with the recommendations of the National Academy of Sciences and the Commission. CORE endorses the call for building new and non-traditional partnerships among federal research agencies and with the academic community. This approach could yield major new breakthroughs that will help us better understand the relationship of the oceans to public health, mitigate adverse impacts like harmful algal blooms and water-borne diseases, and develop new products from the sea.

CORE also has supported the creation, within NOAA, of an initiative on the oceans and human health, named the Marine Research Initiative in H.R. 4546. Among the important elements of the NOAA initiative are the establishment of national centers of excellence, competitive research grants, distinguished scholars and traineeships. The program offers real promise for building stronger partnerships among NOAA scientists and academic researchers and opportunities for progress in such fields as marine genomics and ecological chemistry. A major part of improving interagency and extramural cooperation is simply crossing the organizational lines that separate them. Traineeships and scholarships for pre-doctoral and post-doctoral students, as well as distinguished scholar appointments accomplish that goal, preparing better trained scientists and breaking down barriers between institutions, employees and scientific disciplines.

Ocean and Coastal Observing Systems

The oceans play a critical role in regulating climate and weather, stimulating our economy, buttressing national security and providing choice locations for work and play. Annually over $700 billion in goods move through our ports; $28 billion is netted by the commercial fishing industry; $20 billion by marine anglers; and another

$30 billion by recreational boaters. While we extract substantial value from the oceans, our knowledge of how this economically important and life-giving system works is limited. In addition, human-caused environmental change adds another layer of complexity and unpredictability. What is needed is a system that can measure the oceans' vital signs, an Integrated Ocean Observing System (IOOS). Science and technology have made such a system possible; now national and global environmental, economic and national security issues make it imperative.

IOOS will provide measurable benefits to:

- Monitor coastal pollution
- Understand connections between oceans and human health
- Support homeland defense and protect against terrorist attacks
- Measure and explain both human-caused and natural environmental change
- Warn and protect against marine hazards
- Provide better information to support sustainable resource management
- Understand ecosystem-level interactions and changes, thus making ecosystem-based management possible
- Measure and explain climate change
- Provide data that can be turned into value-added products benefiting marine transportation, aquaculture, fisheries, offshore energy extraction and recreational users of oceans and coastal areas.

Today, we stand at a developmental confluence that should promote implementation of IOOS. Evolving technologies in computers, information management systems, communications, sensors, and platforms—combined with recognition of interrelationships among the oceans' physical, biological and chemical systems and topped off by mounting evidence that human activities could have significant and unpredictable impacts on the global environment—are creating both opportunity and imperative for IOOS.

The ocean science community strongly supports the creation of an integrated system that extends from watersheds to coasts to the outer edge of our exclusive economic zone, as well as providing critical global coverage. Enactment of ocean observing legislation has been a priority for CORE since it was established in 1994. Following the release of the Commission's preliminary report, CORE member institutions have worked to make proposed legislative provisions consistent with the relevant Commission recommendations. While we support the ocean observing provisions in H.R. 4546, we would like to work with you to ensure that they reflect both the Commission's views and recent domestic and international progress in planning for IOOS.

While many of the functions of IOOS will ultimately serve operational purposes, the path to that goal will involve significant investments in research and development. Here again, it is important to note the importance of fully integrating science, operational systems and information systems from design through operation and evaluation. Scientists must be involved throughout the process, not just in the initial gathering of requirements. The member institutions of CORE are the source for much of the research expertise and capabilities that will be required for development of a fully operational system and have endorsed merit-based competition for allocation of available funds. The ocean community represented by CORE supports H.R. 4546 in calling for 51 percent of the funds appropriated for regional observing systems to be made available as grants for the development and implementation of regional coastal observing systems.

A critical subset of the ocean observing system that already exists is the evolving network of coastal observing systems. Many of the existing and planned regionally-based coastal ocean observing systems are the result of the planning and work of consortia of academic institutions, federal and state agencies, non-governmental institutions and private industry. These regional associations design, operate and improve regional coastal observing systems. The next step is to establish an information management mechanism that connects all regional associations to a common national backbone in a way that makes all data accessible and usable to all intended users. The task of ensuring inter-operability and accessibility must be planned, coordinated and carried out at the federal level.

Finally, if our goal is to establish a "national weather service" for the oceans, we must recognize the federal role in integrating and maintaining an operational observing system. Without a definite plan to ensure that we maintain the "I" in IOOS, we run the risk of ending up with a regionally effective, but nationally dysfunctional patchwork of systems that will not meet our national needs. Other agencies, including the National Science Foundation, the National Aeronautics and Space Adminis-

tration and the Navy, also will have critical IOOS responsibilities and all must work together.

Responses to Committee Questions

1. Currently, what is the biggest problem at NOAA and can that problem be addressed in statute?

NOAA's largest problem is that it has never fully developed its potential as the Nation's integrated ocean and atmosphere agency. Its organizational fragmentation prevents effective implementation of an agency strategic plan and reduces NOAA to a team of high-performing players who have limited effectiveness as a unit. While many aspects of the problem can be addressed in legislation, some of the challenges facing NOAA are closely linked to its history, bureaucratic culture and administration.

2. What missions and functions should NOAA be responsible for? How should NOAA be organized? What is the most important thing to accomplish in an organic act for NOAA?

The Ocean Commission report offers a good starting point for discussion of NOAA's missions, functions and organization. Clear articulation of those attributes would be a major accomplishment for an organic act.

3. Chairman Ehlers' bill, H.R. 4546, would organize NOAA functions around these mission areas recommended by the U.S. Commission on Ocean Policy:

- *operations and services, which would include the current line offices and programs of the National Environmental Satellite Data and Information Service, the National Weather Service and the mapping and charting functions of the National Ocean Service (NOS);*
- *research and education, which would include the current line offices and programs of the Office of Oceanic and Atmospheric Research, the Office of Education and research programs from other line offices;*
- *and resource management, which would include the current line offices and programs of the National Marine Fisheries Service and the ecosystem management programs from NOS.*

What are the pros and cons of this proposed restructuring? Would it improve communication across programs at NOAA to support ecosystem-based management, a concept that most experts agree is the way NOAA should manage natural resources?

With respect to organizing NOAA around its mission areas, H.R. 4607 (the Administration bill) does not specifically address the three primary functional lines recommended by the Commission. H.R. 4546, while not explicitly changing the existing line office structure, does make possible restructuring from subject-defined line offices to function-defined entities. Again, the rationale for such a restructuring would be to align the agency's mission with the Commission's guiding principle of ecosystem-based management. The ocean research community agrees with the emphasis placed by the Commission on ecosystem-based management and recognizes that successful implementation of ecosystem-based management will depend on NOAA's ability to make such a paradigm shift.

CORE appreciates the important role that NOAA plays as the Nation's ocean agency and supports actions that help NOAA forge a cohesive corporate identity and more closely align its functions with its mission. The primary drawback to the proposed restructuring is likely to be the difficulties inherent in any large organization making major changes while maintaining critical service levels and activities.

4. What are your views on the Deputy Assistant Secretary for Science and Technology described in H.R. 4546? Is this a good way to improve coordination of science and research at NOAA, as recommended by the NOAA Research Review Team?

As stated earlier in this testimony and in the attached letter of support, CORE strongly supports creation of the Deputy Assistant Secretary for Science and Technology.

Conclusion

Following the unambiguous wake-up call issued by the Watkins Commission, this nation must recognize that the time has come for constructive action to explore and protect our oceans. We applaud the Committee's efforts to provide NOAA, our na-

tion's ocean agency, with a clear, forward-looking and attainable mission and organization. With adequate funding to support NOAA's important work and community buy-in for its mission, the bill lays the foundation for a reinvigorated NOAA that can protect, understand, and make wise use of the Nation's ocean resources. Mr. Chairman, Members of the Committee, on behalf of all the CORE member institutions, I thank you for the opportunity to come before this committee to present our views.

II. SUMMARY OF THE NOAA RESEARCH REVIEW TEAM REPORT

Both the Senate and House legislative reports accompanying the fiscal year (FY) 2004 NOAA appropriations bills raised concerns about the structure and conduct of research within its Office of Oceanic and Atmospheric Research. NOAA was directed to report to the Appropriations Committees on how OAR could be reorganized, including the options of consolidating facilities or breaking the line office into its constituent parts. NOAA responded to these Congressional directives by asking its Science Advisory Board to establish a Research Review Team headed by Dr. Berrien Moore. The six-member team was asked to address five issues: (1) the effectiveness of OAR research in supporting NOAA; (2) OAR links with NOAA's operational line offices and the Program Planning and Integration Office; (3) a comparison of OAR management structure and process with those of other research agencies; (4) the effect of OAR lab consolidation on the scientific program; and (5) potential savings and efficiencies as a result of lab consolidation.

In undertaking the charge from the Science Advisory Board, the Review Team felt that it was essential to consider the full breadth of the NOAA research enterprise to better understand and evaluate NOAA research and the OAR line office. They also took into consideration three items that directly affect NOAA research: the Climate Change Science Program, the Global Earth Observing System of Systems, and the Ocean Commission's preliminary report.

The Review Team released a preliminary review on January 29, 2004 and a draft report for public comment on May 26, 2004. The comment period for the draft report concluded on June 25 and the Review Team revisions are being made based on the comments received. The final report is planned for presentation to the Science Advisory Board on July 13.

The Review Team proposes a set of principles to guide recommendations for ensuring research excellence, to invigorate the transfer of research into operations and information services, to ensure use of the best research as the scientific basis for regulatory advice, and to enhance information services. The team's findings and recommendations fall into 9 general categories summarized below:

- **Research Plan and NOAA's Mission.** NOAA should develop a Research Vision that supports the agency's strategic plan and extends 20 years providing broad guidance and direction. In close consultation with the external community, NOAA should develop a five-year, agency wide Research Plan that clearly articulates research goals and projects in a phased approach.
- **NOAA Research Organization.** A distinguished and experienced person should serve as Associate Administrator for Research, reporting directly to the NOAA Administrator and with budget authority for all NOAA research. The individual should chair the Research Board, a standing committee of the NOAA Executive Council with responsibility for implementing the Research Vision. To support the Research Board, each line office should establish a senior manager for research who would serve on the Research Council chaired by the OAR Assistant Administrator.
- **Transitioning NOAA Research to Operations and Information Services.** NOAA must strengthen the transition of research to the operational lines through such mechanism as science and technology infusion plans within the lines. The Research Plan should address directly the transition of research to operational products and services, clarifying that both research and operational programs share fiscal and programmatic responsibility for transition. The Research Board and Council should ensure that the plan is well executed.
- **Research Location within NOAA.** NOAA should develop a clear set of criteria for determining the location of research programs within the agency. The criteria should be applied to new programs immediately and to existing programs over a two-year period, based on a review by the Research Board. NOAA should establish an external task force to evaluate the structure and function of ecosystem research within the line offices.

- **Extramural Research in NOAA.** The importance of extramural research requires documentation and articulation to the Department of Commerce, the Office of Management and Budget and the Congress. The role of extramural research should be clearly defined in the Research Vision and Plan and should be an integral part of NOAA's presentation to all those involved in the budget process. NOAA must improve its business practices related to extramural research, engaging the external community early in the planning process through conferences and symposia, as well as establishing more consistent administrative processes. The Science Advisory Board should provide leadership.
- **Cooperative Research in NOAA.** NOAA should establish a process for establishing and maintaining joint institutes and other cooperative arrangement with extramural partners. The process should include approach-specific criteria such as demonstrated commitment, unique capabilities, termination criteria and a well-developed business plan.
- **Reimbursable Research in NOAA.** NOAA should review its policies and procedures for the management of reimbursable funding and develop and implement clear guidelines to better manage it.
- **Research Organization within OAR.** Within OAR, each laboratory should have a clearly defined mission statement establishing priorities that are linked to NOAA's strategic plan, research vision and research plan. The OAR head should establish a single administrator with budgetary and programmatic authority for its laboratories and joint institutes.
- **Research Organization within OAR Boulder Laboratories.** There should be a consolidation of the OAR laboratories in Boulder, CO, into a single center.

The Research Review Team envisions real change in the NOAA research enterprise. Following these recommendations with regard to structure, operations and organizational culture, the team believes that NOAA can and must move from the current fragmented set of science and research programs to a more integrated approach. This corporate enterprise will be led from the Administrator's office through the new 'Associate Administrator for Research' and guided by a strong, regularly updated and detailed research plan. A Research Board comprised of the senior managers from each line office should manage the agency-wide research program. The Research Council should serve as a working group of the Board to help develop the details for implementing the research plan across the agency.

The NOAA research enterprise must move forward with a much stronger corporate purpose and direction and a significant change in culture; the various research programs must be more closely coordinated so that they support and leverage one another regardless of line office affiliation. Research must be responsive to the overall vision and mission of the agency including the operational and regulatory missions. It must be connected to the scientific enterprise as a whole including the scientific advisory functions and the users of science. The Research Council and Board must continually monitor and guide the interaction between research and operations, mindful of the balance between research "push" and operations "pull." There must be an explicit effort to address this balance to ensure that the best research products of the agency are fully utilized in each of the many areas of responsibility of NOAA.

In a changed culture for research in NOAA, research must be valued and supported for its long-term impact, even in the presence of critical near-term needs. At the same time, research must not be "set apart" or isolated from the overall mandates of the agency. There must be extensive, continuous interaction between the research enterprise and operation efforts to ensure that NOAA programs are science-based now and in the future. This means that the culture of the agency must recognize that today's decisions and programs must be based on the best available science supported by the very best researchers. In addition, NOAA must ensure that mid- and long-term research is supported to develop the science that will support future decisions and programs.

The NOAA research enterprise must become fully engaged with the extramural community from academia, the private sector and other agencies. This means more than just an advisory board, but a true change in how NOAA manages extramural funding, develops and maintains cooperative institutes and programs, and contributes to broader research efforts nationally and internationally. Extramural researchers have enormous contributions to make to NOAA's mission and NOAA can

similarly have a major impact on external research programs. NOAA must become a "best partner" for the external science and research community.

Overall, the Team believes that the NOAA research enterprise must be both cohesive and expansive. Internally, the program elements must work together with common goals and objectives. Externally, NOAA must welcome, support and fully engage in research efforts with partner agencies, academia and the private sector. We believe there is great opportunity for a good NOAA research program to become much better and be our national leader in ocean and atmospheric research.

BIOGRAPHY FOR REAR ADMIRAL RICHARD D. WEST

Rear Admiral Richard D. West, U.S. Navy (Retired), became President and CEO of CORE in August 2002. Admiral West came to CORE from the Department of the Navy where he completed his most recent tour of duty as Oceanographer and Navigator of the Navy. During his three years as Oceanographer and Navigator, he managed a $400 million annual program providing oceanographic, meteorological, geospatial information and navigation support to the Navy. He was designated the 'first' Navigator of the Navy and lead the Navy transition from paper to electronic navigation. He was responsible for the review of all Navy training and procurement in support of navigation and geospatial information systems (GIS). He has been called upon to speak as an expert on navigation, GIS and safety of life at sea.

His military career encompassed a broad spectrum of operational experience, high-level staff assignments, and command and leadership positions. Prior to serving as Oceanographer, he was the Deputy Director for the Ballistic Missile Defense Organization. Other shore assignments include Director, Surface Combat Systems Division on the CNO's Staff, Deputy Chief of Staff for Operations CINCSOUTH, and Commander, Operational Test and Evaluation Force. From 1992–1993, as Commanding Officer of the Surface Warfare Officers School, he directed a large, advanced studies academic institution, which provides a continuum of professional education and training to prepare naval officers to serve at sea.

Admiral West served in Vietnam with the riverine forces and commanded ships during hostilities in the Arabian Gulf. He has commanded three ships, USS OPPORTUNE (ARS 41), USS MCINERNEY (FFG 8), and USS LEAHY (CG 16).

As President, Rear Admiral West leads and manages the Washington, DC-based association of 78 of the country's leading oceanographic research institutions, universities, laboratories, and aquaria. CORE's mission is to promote, develop, and support efforts to advance knowledge and learning in the science of oceanography and to disseminate such knowledge to the scientific community and to the public. CORE also serves as the Program Office for the National Oceanographic Partnership Program (NOPP), a collaboration among fourteen federal agencies to provide leadership and coordination of national oceanographic research and education programs. In addition CORE manages a high school level educational program, the National Ocean Sciences Bowl, and a coordinated program of research supported by the Sloan Foundation, the Census of Marine Life.

Chairman EHLERS. Thank you. Dr. Friday.

STATEMENT OF DR. ELBERT W. (JOE) FRIDAY, JR., FORMER ASSISTANT ADMINISTRATOR, NATIONAL WEATHER SERVICE

Dr. FRIDAY. Thank you, Mr. Chairman and Members of the Subcommittee, for allowing me to testify on this important issue. I am Joe Friday. I served in the National Weather Service in NOAA for 16 years, seven as Deputy and nine as Director. I then served one year as Director of NOAA Research. Since retiring from NOAA, I served as the Director of the Board on Atmospheric Sciences and Climate at the National Academy of Science, and I am currently a Professor of Applied Meteorology at the University of Oklahoma. I would stress, however, that this testimony represents my personal views based on 25 years of direct and indirect associations with NOAA.

In response to your question as to major problems facing NOAA, I list four in my written testimony, but for the sake of time, I will only discuss one, that is, the credibility of NOAA science. The re-

cent attacks in Congressional appropriation language on the credibility of NOAA science have resulted, in my opinion, from the lack of understanding of those outside of NOAA on the nature of its science, and senior NOAA management's failure to articulate both the quality of the science, as well as the critical necessity of retaining a strong internal scientific capability.

For example, NOAA's laboratory structure was absolutely critical to the successful modernization of the National Weather Service. The National Severe Storms Lab provided the research for the NOAA Doppler radar, the NEXRAD Doppler radar. The Geophysical Fluid Dynamics Lab provided the most significant improvement in hurricane forecasting that we had seen in two decades. The Pacific Marine Environmental Laboratory, developed the ocean buoy technology which resulted and enabled the forecast of the '97/'98 El Niño, and this list could go on and on.

Presently, the National Severe Storms Lab is examining weather radar technologies that might replace the aging NEXRAD system, which is already over a decade and a half old. The Air Resources Lab, the Aeronomy Lab, and others are working to enable NOAA to meet its new responsibilities in air quality forecasting. And the list also could go on and on.

With these demonstrated vital connections between NOAA research and its operations, it is incomprehensible to me that anyone could refer to NOAA's research as inconsequential and irrelevant to its mission. A NOAA organic act should clearly identify research in support of its mission as a prime NOAA responsibility.

With respect to mission and functions, NOAA should be commended for submitting H.R. 4607 to Congress as a rapid response to the Ocean Commission Report. However, the NOAA bill provides little guidance on the organization structure and covers only the highest level of functions. Although H.R. 4546 may go too far in specifying details that I would view as implementation activities, it does a much better job of defining NOAA's mission and functions. I expect the final NOAA Organic Act will lie somewhere between these two bills.

The creation of the position of the Deputy Assistant Secretary for Science and Technology would be a positive step to strengthen the role of science within NOAA and to provide it with a credible science voice. I strongly support the career reserve senior executive status. Consultation with the National Academy of Sciences to ensure scientific stature is a good practice, one that is followed now by some science-based agencies, and was used in the past in the selection of the Chief of the U.S. Weather Bureau.

I have several specific comments on the details of 4546 in my written statement, but for the sake of time, I will mention only a few here. The inclusion of space weather in the NOAA mission is appropriate as our society's systems become more vulnerable to those solar emissions and geomagnetic storms. Section 105 is a good organic act for the National Weather Service, outlining the general mission and responsibilities of the organization. The partnership section needs to be expanded to include the academic sector of the weather and climate enterprise, in addition to the public and private sectors. All three sectors are absolutely vital to this nation.

I fully endorse the recent report of the National Research Council, "Fair Weather: the Effective Partnerships in the Provision of Weather and Climate Services." I support the establishment of a strong, independent Science Advisory Board. Because its science is critical to the wellbeing of every citizen of this country, NOAA needs and deserves the best objective science advice it can obtain.

In section 109, the two reports that are required cover areas vital to the health of NOAA's science, and therefore, to NOAA's services. In my 17 years in NOAA, however, I saw frequent reports presented to Congress with unusually strong spin. NOAA is to be commended for using the National Academy of Sciences to review the recent climate change science plan, an action that responds clearly to the scientific credibility issue I mentioned earlier. I would recommend that these two reports in section 109 also be reviewed by the National Academy of Sciences to minimize any potential for questions of credibility and/or spin.

In conclusion, Mr. Chairman, I believe that NOAA is critical to the success of our nation, and I thank you for your interest in making sure the NOAA mission can be accomplished effectively. I also thank you for the opportunity to play a small part in the deliberations on this important legislative initiative.

[The prepared statement of Dr. Friday follows:]

PREPARED STATEMENT OF ELBERT W. (JOE) FRIDAY, JR.

Mr. Chairman, Members of the Subcommittee, my name is Elbert (Joe) Friday. I served in the National Weather Service (NWS) in the National Oceanic and Atmospheric Administration (NOAA) for 16 years, seven as Deputy and nine as its Director. I also served as the Director of the research arm of NOAA, the Office of Atmospheric and Oceanographic Research (OAR), for one year. Since retiring from NOAA, I have served as the Staff Director of the Board on Atmospheric Sciences and Climate of the National Academy of Sciences and as Professor of Applied Meteorology at the University of Oklahoma where I currently have an appointment as the Director of the Sasaki Applied Meteorology Research Institute. I wish to stress that this testimony represents my own views, based on my previous experience in NOAA and close associations with NOAA since my retirement from the Federal Government.

During these senior NOAA assignments, I have witnessed NOAA's strengths, which are many, and its weaknesses, which could seriously and negatively impact its vital missions and which need to be corrected. I offer the following responses to the questions posed to me in the letter of invitation.

Major Problems Facing NOAA

Role Recognition

This may seem unusual to list as a problem, but NOAA's strength derives form the many national responsibilities that have been assigned to it. These national responsibilities include, but are not limited to:

The National Weather Service,
The National Ocean Service
The Nautical Charting mission
National Hurricane Center
The National Sea Grant College Program
The National Marine Fisheries Program
The Federal Coordinator for Meteorological Services and Supporting Research
And at least a dozen other national functions. . .

There has been a tendency in the past decade or so to try to change the philosophy of the NOAA organization to remove the term 'National' and substitute the term 'NOAA' in these organizational elements, a suggestion that inward looking is more important than outward. While I can certainly recognize the need for an overall NOAA identity, this move fails to acknowledge the real constituent for the NOAA

service. It is the Nation that needs these services, not NOAA. The focus of NOAA should be outward to the Nation and its needs. An organic act could clearly define the national nature of the NOAA services.

Data Stewardship

Over the years, NOAA has failed to meet one of its major responsibilities: the stewardship of the Nation's environmental data and information. NOAA's mission requires good science and information, whether in the areas of weather and climate forecasting, or in the areas of resource management. The activities conducted by NOAA affect the safety of all citizens and the economic condition of many of them as well as many businesses. These missions require quality data and information, and these data, once collected at taxpayers' expense, must be saved for future generations.

This is not to say that NOAA has not been making progress. Good people, dedicated to the mission, have tried to step up to the ever more daunting task, but they have fallen short. The have, fortunately, gone beyond the old situation used to describe NOAA's archival activities as a 'data hospice' where data go to die. But the full enormity of this mission has still not been formally recognized by NOAA, the Department of Commerce, (DOC) or the Office of Management and Budget (OMB). The volume of environmental data is growing at an ever faster rate with the addition of new and better systems of Earth observations. The NEXRAD radars, the NPOESS and GOES satellite systems produce more data in one day than was formerly acquired in a year before the advent of these remotes sensing systems that have contributed so much to our understanding of the Earth. Additionally, these data, once collected, still need to be analyzed and improved. As new methods of data assimilation are developed, the archive needs to be reanalyzed to ensure the best information for studies of atmospheric and oceanic processes, of climate change and variability, and for input into research activities designed to improve weather and climate forecasting. As new algorithms are developed to process remote sensed data, the archived data need to be reprocessed using a consistent algorithm over the entire period of record. This will ensure the data continuity so necessary to the studies of climate change and variability. The present plans for the NOAA archival system do not include these vital components of a good data stewardship capability.

An organic act could clearly identify the Nation's data stewardship as a NOAA responsibility, and the report documentation leading to that act could identify many of the characteristics of that stewardship that are needed.

NOAA Observing System Architecture

NOAA is moving in the direction of an overall architecture for observing systems. But here again, I do not believe the full enormity of the challenge is fully recognized in the funded plans. With respect to the satellite systems, the NPOESS program seems to be well under way to provide the polar orbiting capabilities needed for the next two decades, but the GOES–R program needs attention to keep this nation from having the same type of gap in this vital satellite coverage that I experienced in the early 1990's when, due to development difficulties within the NASA procurement, the U.S. was required to borrow a geostationary satellite from the European Union to guarantee Atlantic coverage during the hurricane season. In my opinion, this situation could recur, especially with the present uncertainties at NASA resulting in part by the elimination of the Earth Sciences Enterprise and the re-orientation of NASA away from Earth and toward exploration. I believe NOAA should seriously examine the possibility of conducting the GOES–R procurement itself rather than using NASA as has been done in the past.

An organic act could clearly identify the Nation's Earth observations as a NOAA responsibility, and the report documentation leading to that act could identify many of the characteristics of the supporting mechanisms that are needed.

NOAA Scientific Credibility

The recent attacks on the credibility of NOAA science have resulted, in my opinion, from a lack of understanding of the breadth and depth of NOAA science, and senior NOAA management's failure to articulate both the quality of the science as well as the critical necessity of retaining the scientific capability within NOAA.

During my 17 years in NOAA, its laboratory structure was absolutely critical to the very successful modernization of the NWS. The National Severe Storms Laboratory provided the research for the NEXRAD Doppler radar and its application. The Forecast Systems Laboratory provided the insight to interactive forecast techniques which became the cornerstone of the AWIPS system. The Geophysical Fluid Dynamics Laboratory provided the most significant improvement in hurricane forecasting that we had seen in two decades. The Pacific Marine Environmental Laboratory developed the ocean buoy technology which permitted the forecast of the 1997–1998

El Niño. The Environmental Technology Laboratory developed much of the technology that went into the Automated Surface Observing Systems. And the list could go on and on.

Presently, the National Severe Storms Laboratory is beginning to examine the next generation of weather radar that will be needed to replace the NEXRAD system, which is already over a decade and a half old. The Forecast Systems Laboratory is examining the next generation of weather forecasting models, and the Geophysical Fluid Dynamics is examining better science for improving the seasonal to inter-annual climate predictions. As NOAA adds air quality forecasting to its mission, the Air Resources Laboratory, the Aeronomy Laboratory, the Environmental Technology Laboratory and the Forecast Systems Laboratory are all working to bring the new operational capabilities to fruition.

With these demonstrated, vital connections between the NOAA research structure and the operations of one of the major NOAA line offices, NWS, it is incomprehensible to me that anyone could refer to NOAA's research as inconsequential and irrelevant to the NOAA mission.

Research success depends primarily on good people. It also depends on a suitable infrastructure to support the research. Planning needs to be in place in order to tie the future needs of NOAA to the emerging science. Lastly, and least important, is the precise organizational structure.

An Organic act could clearly identify the research in support of its mission as a NOAA responsibility, and the report documentation leading to that act could identify many of the characteristics of that research capability that are needed.

NOAA Missions and Functions

The missions and functions are well defined in Section 103 of H.R. 4546.

An organic act should establish broad parameters for an organization without unnecessarily restricting it as the situation in the science and constituent needs evolve over time. This bill, in my opinion, does an excellent job of establishing the generic mission and functions for NOAA, but goes beyond what I generally envision as an organic act in including what I view as implementation details. These details could more appropriately be included in separate authorization bills or in the report language that makes up the legislative history of the Bill.

The Proposed Reorganization under H.R. 4546

As mentioned in the comments under 'Research Credibility' above, people make an organization. The structure of an organization can interfere with the ability of the people to accomplish the mission of the organization. That being said, the three major components for NOAA as described in H.R. 4546, might be an effective structure, indeed the strategic planning efforts during the previous administration were along similar lines, but no reorganization of NOAA to match the planning structure was undertaken. One concern that I would with the organization as proposed relates to the wide disparity in size of the three major divisions, with the operations and services component dwarfing the other two. Special care would be required to ensure the appropriate linkage between the operational component and the research component. On the other hand, the organization might support better integration across the existing line office structure.

Deputy Assistant Secretary for Science and Technology

The creation of the position of Deputy Assistant Secretary (DAS) for Science and Technology (S&T) could be, in my opinion, a positive step to strengthen the role of science within NOAA. The creation of the Chief Scientist of NOAA in the mid-1980s never resulted in the sort of science leadership that NOAA needs and deserves. Previous Chief Scientists were political appointees, many having a single issue focus and were not interested in the broader NOAA science issues. This bill creates the DAS for S&T as a 'career reserve' Senior Executive Service position and requires that it be filled by someone of considerable scientific stature, a most appropriate requirement for an agency whose service depends on scientific excellence. The requirement for consultation with the National Academies of Sciences to ensure scientific stature is a good one. Indeed, that practice is followed now by some science based agencies and historically was used during the first half of the last century in the selection of the Chief of the U.S. Weather Bureau, the predecessor organization to the NWS.

The DAS for S&T also should be responsible for the oversight of major science programs in NOAA, including the National Sea Grant College Program, the U.S. Weather Research Program, the Coastal Ocean Program, etc.

Additional Specific Comments on H.R. 4546 as Written

H.R. 4546 provides a potential structure which, if enacted, could set a framework that could help correct many of NOAA's problems. I would make the following comments on the bill as written. Many of these sections might more appropriately be structured outside of the NOAA Organic Act itself, either in authorization language, or in report language, but these comments are provided to the content of the bill as written.

— The inclusion of the solar and geophysical events on the sun and in the space environment in the NOAA mission is appropriate. It reflects the growing importance of this science as the society becomes more dependent on satellite systems and sensitive electronics that are especially vulnerable to the solar emissions and geomagnetic storms that we refer to as 'space weather.'

— The codification of the NOAA responsibility for coordinating the national and international programs in meteorological services and supporting research is important. The Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM), currently located in NOAA, has had this responsibility since the mid 1950s, but only operated under an Office of Management and Budget Circular (A–62) which was formally rescinded in the mid 1980s. Although the OFCM has continued to operate relatively effectively, this bill can provide the emphasis to strengthen the coordination process.

— Sect 103(c) (11) should also include weather and climate activities as well. The World Meteorological Organization (WMO), a specialized agency of the United Nations, is charged with the international coordination of these activities and NOAA, usually through the Director of the NWS, provides the Permanent Representative to the WMO for the Department of State.

— Section 105 The NWS. This is a good organic act for the NWS, outlining the general mission and responsibilities of the organization and acknowledging the importance of the private sector to the overall weather and climate enterprise.

— The term 'space weather' needs to be added explicitly to the NWS mission. It is already included in the sections on goals and functions.

— The 'Partnerships' section needs to be expanded to include the academic sector of the weather and climate enterprise in addition to the public and private sectors. This enterprise is increasingly dependent upon a strong private sector, a strong public sector and a strong academic community. I fully endorse the recent report of the National Research Council: "Fair Weather—Effective Partnerships in the Provision of Weather and Climate Services."

— Section 106, Operations and Services. Under function 5, add 'reprocessing' and 're-analysis' so as to read:. . . "data processing, storage, re-analysis, reprocessing and archive activities". . . As the science of data assimilation improves, it is necessary to go back and re-analyze the archived data to ensure a quality data set that can be used to identify trends for climate trends and variability studies. Similarly, as the satellite remote sensing algorithms are improved, the archived satellite data must be reprocessed using the latest algorithms to provide continuity for climate change and variability studies.

— *The Science Advisory Board (SAB).* The existing SAB has had mixed results. Originally, the SAB was to be modeled after the National Science Foundation's National Science Board. This was an admirable goal that soon became distorted into a body that had much more of a tendency to 'rubber stamp' the Administrator's desires than to seriously examine NOAA's science issues. I would recommend that the members of the SAB be appointed with the consultation of the National Academy of Sciences, similarly to the DAS for S&T. The present process of appointing working groups under the SAB can circumvent the objective measures the FACA process brings to the creation of advisory bodies. The science of NOAA is critical to the well being of every citizen of the United States, indeed, in some cases the entire world. NOAA deserves the best objective science advice it can obtain.

— *Section 109, Reports.* The two reports required under section 109 cover materials vital to the health of NOAA Science and therefore NOAA service.

For much too long, NOAA has not fully stepped up to its responsibility for data stewardship. The volume of data that describes the environment is increasing at a rate that can cause a compete collapse of the NOAA data stewardship capabilities unless careful, realistic planning is undertaken in the very near-term, and that plan appropriately resourced.

One additional item should be added under section 109 (a) (1):

"f. Re-analyze and reprocess the archived data as better science is developed to integrate diverse data sources and better algorithms are developed to convert remote sensed information into geophysical parameters. These tasks are required to ensure data continuity for studies of climate variability and change."

In section 109 (a) (2) (c), include 're-analysis and reprocessing' in the list of responsibilities.

The Strategic Plan for Scientific Research is also badly needed in NOAA. For much too long the strategic planning process has downplayed research, with the resulting erosion of the NOAA research base and the increasing tendency to sacrifice research for pressing operational needs. This practice is equivalent to 'eating your seed corn' during rough times, a practice that will guarantee future starvation. As in the analogy, stopping research today will starve the services of tomorrow.

Given the importance of both these reports, they must be complete and objective. In my 17 years in NOAA, I saw frequent reports presented to Congress with unusually strong 'spin.' NOAA is to be commended for using the National Academy of Sciences to review the recent Climate Change Science Plan. I would recommend that these reports be reviewed by either the SAB, or the National Academy of Sciences, preferably the latter, to minimize any potential for questions of credibility.

Comments on H.R. 4607

H.R. 4607, submitted to the Congress by NOAA is more along the line of a (very sparse) organic act. This was generated in response to the Ocean Commission report and NOAA should be commended for its rapid response. It provides little guidance on the organizational structure and the covers only the highest level of functions. Although I believe that H.R. 4546 goes too far in specifying what I would view as implementation activities, I expect the final NOAA Organic Act will lie somewhere between these two bills.

In conclusion, Mr. Chairman, I believe that NOAA is an organization that is critical to the success of our nation. Your interest in making sure the NOAA mission can be accomplished effectively is appreciated. I thank you for the opportunity to play a small part in the deliberations on this important legislative initiative.

BIOGRAPHY FOR ELBERT W. (JOE) FRIDAY, JR.

Elbert W. Friday, Jr. is the founding Director of the Sasaki Applied Meteorology Research Institute and Weathernews Professor of Applied Meteorology at the University of Oklahoma.

He served as the Director of the Board on Atmospheric Sciences and Climate (BASC) at the National Academy of Sciences from July 1998 to May 2002.

In June 1997 until July 1998, Dr. Friday served as Assistant Administrator for the Office of Oceanic and Atmospheric Research (OAR) of the National Oceanic and Atmospheric Administration. In this position as Director of NOAA Research, he was responsible for research and development programs that support and enhance both current and future NOAA services.

From March 1988 until June 1997, Dr. Friday served as Assistant Administrator for Weather Services and as Director of the U.S. National Weather Service (NWS). As such, he was responsible for every aspect of providing an effective weather, climate, and flood warning system for the Nation. He managed the modernization of the NWS, resulting in significantly improved weather and flood warnings and forecasts.

He served as U.S. Permanent Representative to the United Nation's World Meteorological Organization from 1988 until 1998.

Dr. Friday served as Deputy Director of the NWS from September 1981 until March 1988. In this capacity, he was responsible for the day-to-day operations of the NWS and was also responsible for the planning for the modernization of the NWS. He developed the public-private partnership policies and procedures to ensure an effective working relationship between the NWS and the private weather industries.

Before coming to the NWS, he completed a 20-year career in the United States Air Force. He was selected for the rank of Colonel in 1977 and served four years as the Director of Environmental and Life Sciences in the Office of the Under Secretary of Defense for Research and Engineering. Other military assignments in-

cluded Weather Detachment Commander in Saigon, Vietnam, and Nakhon Phanom, Thailand, as well as positions at the Air Force Global Weather Central and Headquarters Air Weather Service.

Dr. Friday received his Bachelor of Science degree (with special distinction) in Engineering Physics from the University of Oklahoma in 1961. He was selected for an Air Force scholarship in 1966 and completed his Masters Degree in 1967 and his Ph.D. in 1969. Both graduate degrees are in Meteorology and both were earned at the University of Oklahoma. He was a distinguished graduate of the Air Force Command and Staff College in 1972 and graduated from the Air War College in 1976.

He is a Fellow of the American Meteorological Society where he is currently serving as Past-President. He is a member of several professional societies including Sigma Xi, the American Association for the Advancement of Science, and the National Weather Association. Dr. Friday was awarded the Defense Superior Service Medal, the Bronze Star, the Meritorious Service Medal (two awards), and the Air Force Commendation Medal (three times). Dr. Friday is the recipient of the Presidential Rank Award of Meritorious Executive. In 1992, he received the Distinguished Achievement Award from the University of Oklahoma, the highest award the University bestows upon its graduates. The Federal Executive Institute Alumni Association selected him as the 1993 Federal Executive of the Year. He received the 1997 Cleveland Abbe Award from the American Meteorological Society, its highest award for service to the meteorological community. In 2000, his office received an Outstanding Unit Award from the National Academy of Sciences. He has served as Deacon, Elder, Trustee, and Chairman of the Board of Calvary Christian Church in Burke, Virginia.

He is married to Karen Hauschild Friday. They have two children, Kristine Ahlskog and Kelly Crow, and five grandchildren.

July 13, 2004

The Honorable Vernon J. Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
House of Representatives
Suite 2320 Rayburn House Office Building
Washington, DC 20515-6301

Dear Mr. Chairman,

This letter is in response to the requirement for financial disclosure for anyone testifying before the House of Representatives.

I have a part time appointment at the University of Oklahoma, but do not receive any research of other funding from NOAA in this capacity.

I have no other financial arrangements which would benefit from the outcome of these hearings or resulting legislation.

Sincerely,

Elbert W Friday, Jr

DISCUSSION

Chairman EHLERS. And congratulations, you ended at precisely five minutes. Yes, you will get a prize. As soon as I buy a box of Cracker Jacks and can find one.

Well, thank you very much. That was excellent testimony, and very well delivered, and we appreciate that. We will now begin our first round of questions, and the Chair recognizes himself for five minutes.

It appears from the comments we have heard that most of you support H.R. 4546 as an organic act for NOAA, with perhaps some minor changes. Is this a fair assessment of your testimony?

And let us just go down the line backwards this time. Dr. Friday.

Dr. FRIDAY. Yes, sir. As I indicated in my written testimony, it goes further in the details of potential implementation, that what would ordinarily consider as an organic act, but I believe the function and the mission and the structure that is outlined is a very good one for NOAA.

Chairman EHLERS. I appreciate that, and it is always hard to know where to draw the line. I have been involved in writing constitutions and by-laws for various organizations, and it is always difficult to know where the constitution should stop and where the by-laws should start. That is similar to what we are doing here, but we will work that out with time. Admiral West.

Admiral WEST. Yes, sir, Mr. Chairman. As I said, the ocean science community strongly supports H.R. 4546, and we have, in fact, formally endorsed it, along with NASULGC and Sea Grant, in a formal letter to you.

Chairman EHLERS. Thank you. Dr. Baker.

Dr. BAKER. Yes, I do, and I only wanted to point out one thing, and that is that NOAA currently has a Naval Deputy that is from the Navy, and one of the things that I added when I was Administrator was an Air Force Deputy to help us with satellites and weather, and I think that is a good thing to have as part of the organic act.

Chairman EHLERS. Thank you. Mr. Kassinger.

Mr. KASSINGER. Mr. Chairman, for the reasons I outlined briefly in my statement, we prefer, among the two bills, the more streamlined approach reflected in H.R. 4607, but we certainly support the intent and thrust of H.R. 4546 to establish a NOAA Organic Act. I would be happy to talk more about our thoughts on that any——

Chairman EHLERS. Yeah. I think we could easily work out most of that without too much trouble, and the rest without a great deal of trouble.

Secondly, I believe, Dr. Baker, you raised this: the pros and cons of NOAA being an independent agency. That is something that we struggled with as well, because there are independent agencies, and there are those that are part of departments. And your suggestion was that NOAA should be an independent agency, and function such as the EPA or the National Science Foundation, or NASA, or something of that sort.

I would like to again ask each of you, and I will go the other way, what do you see as the pros and cons of NOAA as being an independent agency, as opposed to being housed within a Department.

Presumably, it would stay in the Commerce Department, but if there was some more appropriate Department, that is certainly an option as well. Mr. Kassinger.

Mr. KASSINGER. Mr. Chairman, I don't—I can't speak or articulate a specific Administration position on the independence of NOAA at this time, but I would like to offer two or three thoughts for you as you move down the road of considering this legislation, and as that issue comes up.

The first is this. I would urge you to consider separating the issue of the internal NOAA organization, reflected in an organic act, with the really broader question of the external fit of NOAA in the Executive Branch. There is a very practical reason for this. First of all, I believe that, as best as I can tell, there is a broad degree of consensus on the desire for a set of organic authorities in a single place. We would very much like to move forward on that. Once you throw the idea of an independent agency into the mix, you are talking about a significant government reorganization. One only has to look at the recommendations of the Ocean Commission to realize that there are other components of government that might well fit into that scheme.

We at the Commerce Department don't covet any other agencies' programs. Maybe part of their budget, but not part of their programs. But if you propose an independent NOAA, there are going to be people who begin thinking about what other parts of government ought to fit into that. That may be well worth in-depth discussion, but I would hate to see an organic act derailed by what would become a significant debate over government re-organization.

The final thought I offer to you is this. I am not sure exactly what the reason would be for having an independent NOAA, but I can speak as the Deputy Secretary and also from my prior three years at the Commerce Department, to articulate one thought that ought to be kept in mind, and that is a concern that you would actually, rather than establish NOAA as a more strong, free-standing agency, you might actually diminish its ability to accomplish the things that we all want NOAA to succeed at.

When NOAA can call on a Cabinet Secretary to represent it in the highest reaches of government, that is a very positive and important thing, and a free, independent, small agency in the scheme of things, I am afraid, would not have that degree of ability to influence policy, again, in the areas that we all support.

Thank you.

Chairman EHLERS. Thank you. Dr. Baker.

Dr. BAKER. Mr. Chairman, I thank you for the opportunity to comment on this, which has been a subject of great interest to me for a prolonged time, and I have urged various administrations, including the Administration that I was in, to consider that independence, and I have to say that Ted Kassinger's remarks were the most positive that I have heard from an Administration in a long time.

I do believe that the issues that NOAA deals with mean that we should have an independent agency deal with them. They are as important as the issues that NASA deals with, or that the EPA deals with. And I believe that NOAA has become mature enough

that it can, in fact, deal with these issues, and Joe Friday, I think, gave a very good list of the various kinds of responsibilities that give NOAA its strength.

I think that the fact is that Secretaries of Commerce, I think this has been generally true as I have watched it, don't know that they have NOAA when they come in to be Secretary of Commerce, and then they have to learn about what it is all about; and then, one has an extra layer of administration and bureaucracy to go through to try to deal with issues.

The times that the Secretary of Commerce has been really helpful in promoting issues have been few and far between, in my experience. I think it is much better to have a direct connection with the President and the rest of the Executive Branch. That is not to say that it should be just NOAA. There might be some other functions of other agencies that might be added. Estuary programs is just one example of many that might be looked at. But I think it is time to take seriously now the whole question of NOAA as an independent agency, and I think the Senate bills that Senator Hollings, Inouye, and Stevens and Gregg have introduced, I think lay out the case in a strong way, and I think it is time to start that debate.

Chairman EHLERS. Admiral West.

Admiral WEST. The pros of a large agency, of course, is the horsepower that comes along with it. The cons are that it is a large agency with a lot of horsepower, and you are a part of that. I was the Naval Deputy to Dr. Baker, so I got to see NOAA from that perspective, and I have also watched NOAA pretty closely the last couple years, and including the last nine months as a NOAA Research Review Team. Part of the problem is, is NOAA is hidden. We have got to bring it up. It has got a very, very important mission for this nation, and we have got to set it up as an independent agency.

Chairman EHLERS. In other words, when you are hitched to a horse, you want to make sure it is a horse and not a mule. Dr. Friday.

Dr. FRIDAY. I don't have—know how to follow that line, but we will see. The biggest problem that I found that NOAA had wasn't whether it was in the Department of Commerce or outside the Department of Commerce, because I served under about eight different Secretaries of Commerce, I think, during my time, and some of them would call me up at home for personal advice on how things should be done, and others, I never met. So, it is a wide variety there.

But on the other hand, NOAA's real big problem is the fact that the budget process of NOAA flows through a non-scientific arm of the Office of Management and Budget, and in the budget process, the NOAA science programs and service programs compete with prisons and overseas embassies, and they frequently lose out in that whole process, in the State/Justice/Commerce bill, because of the overall priority. So, the structure of the budgeting process is probably more important than physically whether we are located in a Department or outside.

Jim Baker makes some very good points as to reasons that it should be independent. Secretary Kassinger makes some very good

points why it should still be a part of the Department. I am waffling.

Chairman EHLERS. Well, I am—I apologize for going too long on this, but I wanted to get all of your responses on this important issue. But I think it really boils down in many cases to who the Secretary of Commerce is, and what his or her interests are. But I appreciate your comments.

My time has expired. I am now pleased to recognize the gentleman from Colorado, Mr. Udall.

Mr. UDALL. I thank the Chairman, and I hear the Chairman plying the differences between mules and horses, and there was a Republican legislator around the time of the Civil War, who described the Democratic Party as a mule, because the Democratic Party had no pride of ancestry, nor no hope of posterity, and I think we have proven that legislator wrong, but it is still touch and go.

Dr. Baker, you made a good point. I remember when Secretary Evans came to Boulder early in his tenure, and was greeted warmly by the employees, and toured the Skaggs facility, and he expressed some amazement, both privately and publicly, at the size of the NOAA budget within the Commerce Department. Now, he expressed also excitement and enthusiasm for promoting NOAA, and he had a funny story about one of his children saying his dad had gone to Washington and become a weatherman, when people asked him what the Commerce Secretary did. But I think you make a very, very good set of points there.

I did want to direct a question to Dr.—I am sorry, Mr. Kassinger, and I want to get to the substance of this, but I think there is a process question that I think is important to ask. Mr. Kassinger, I understand that you objected to testifying on the same panel with Mr. Hirn, who is going to testify next as a representative of the National Weather Service Employees Organization. It just strikes me as curious, and I would like, if I could, an answer as to your reluctance to appear on a panel with a representative of the employees of your own Department. And it raises a question I might have about the relationship that you would have with this important organization. Is there a problem here? Is there something that ought to be surfaced, so we can move on to the important work of the organic act and what the Chairman and others are proposing?

Mr. KASSINGER. Not at all, Mr. Udall. My concern simply was I didn't want there to be confusion about who was speaking for the Department of Commerce.

Mr. UDALL. I can understand that, I think, but I would just like to make the point that we have had other Department and Agency heads who have appeared on similar panels, the same panel, excuse me, with employees of their organizations. For example, Administrator O'Keefe appeared before this committee on the same panel with Mark Roth, who is the general counsel of the American Federation of Government Employees when we were discussing an important bill, the NASA Workforce Bill, and there are numerous other examples of that kind of an approach on the Committee. So, I just wanted to do my part to try and clear the air, and encourage you to think in the future about appearing with somebody from the National Weather Service's organization, if that was important to them, as well as you.

I know there is potential to have grievances, but nonetheless, there may also be grievances with outside constituent groups, and so, I am disappointed that it didn't work out today, but I hope in the future that both the Commerce Department and the employees group could appear on the same panel.

With that, let me move to the substance of the testimony we have heard today. And I think all of you have talked about ecosystem management, and it is being proposed as the model NOAA should follow to accomplish its resource mission. If we could just move from my right to left, in the time I have remaining, and each of you could take a shot at defining ecosystem management, I would appreciate it, and I know the Committee would appreciate it.

Now, Dr. Friday, you have to be really succinct and short. I am teasing a little bit, but that is the problem I think we face, but I would like everybody's thoughts about ecosystem management.

Dr. FRIDAY. Sir, I don't think anybody can be succinct in defining that. Ecosystem really is where we live, what all is involved in where we live, how it is all tied together, and how it all inter-reacts. It includes everything from weather to animals, plants, people, and all of the actions thereof.

Mr. UDALL. Do you believe there is language that can define that in a way that then gives direction to the Agency?

Dr. FRIDAY. What happens usually is that everyone interprets the language how they wish to, and if we can obtain language that everybody feels they are winning, that will probably do very successfully.

Mr. UDALL. Admiral West.

Admiral WEST. Well, on the NOAA Research Review Team, I was the sailor, and there were five other very distinguished scientists, and we discussed at length what ecosystem management is. We have got to define it, but I think, in a sailor's term, it is something bigger than just counting fish. And we recommended—a recommendation in our committee—that an external group of some type needs to define this, because it is a major part of what NOAA has to do for us.

Mr. UDALL. So you would look to an external group, as well, to help——

Admiral WEST. Yes, sir.

Mr. UDALL [continuing]. Generate that language and those definitions.

Admiral WEST. Yes, sir.

Mr. UDALL. Dr. Baker.

Dr. BAKER. Congressman Udall, there are biologists who say that we can't define an ecosystem, and there are managers who say that we don't really manage the environment, we only experiment on it. So, it may be that this term can't be used, but I think the way in which we are using it is that when we look at a particular aspect of the environment, we must include the other aspects which impinge on it. In other words, that complex web of mutual interactions between physical, biological, and chemical systems that take place. And my example was the stellar sea lions. We didn't know if the stellar sea lions were declining because they were being caught by fishermen, or because there was viruses, or be-

cause there wasn't enough food in the environment. We had to look at all of those things. We had proponents for each of them, but in my view, ecosystem management is trying to take into account each of these, and trying to understand how the different aspects come together.

Mr. UDALL. Did we ever determine what was increasing the mortality of the sea lions?

Dr. BAKER. No.

Mr. UDALL. We never did——

Dr. BAKER. But we did take some actions——

Mr. UDALL [continuing]. Definitively.

Dr. BAKER [continuing]. To try to see if we could influence one piece or another, but you know, it is very hard to do experiments in the environment, because you can't hold everything constant while——

Mr. UDALL. Right. Right.

Dr. BAKER [continuing]. You change this one thing, and so, you know, we are still—I would say it is wrong to say management. It is probably better to say experiment. We do various experiments, we look at the results, and then we hope we learn something from that.

Mr. UDALL. So ecosystem you would leave in the equation, but maybe there is another modifier, another noun, management, isn't the word that you think——

Dr. BAKER. Yeah, I think that is probably a little strong——

Mr. UDALL. Experiment.

Dr. BAKER [continuing]. For what we really can do.

Mr. UDALL. Mr. Kassinger, do you have a point of view?

Mr. KASSINGER. I would first say, Mr. Udall, my undergraduate degree was in environmental design. I think a fair description of that major was ecosystem-based management of landscape, so I have wondered why it took 30 years for people to talk about ecosystem-based management of seascapes.

I would just make a couple of points. We don't manage ecosystems. We manage the activities that impact ecosystems. I think that fits with what Dr. Baker just said. In our current draft of the NOAA strategic plan, we have come up with a working definition, which I don't have here in front of me, but we will put that out for public comment, and try to work toward a consensus view of that term.

The final point I would make is I wouldn't worry too much about being overly precise in legislative language, trying to define such a term, because I think what you want is a concept and flexibility, rather than something that would serve to narrow the scope of important activities.

Mr. UDALL. Thank you.

Chairman EHLERS. The gentleman's time has expired. Next, it is my pleasure to call upon the gentleman from Minnesota, my state of birth, Mr. Gutknecht, who is very interested in the issues before us, and has twice visited the laboratories in Boulder, Colorado.

Mr. Gutknecht.

NOAA'S BUDGET AND THE CONGRESS

Mr. GUTKNECHT. Well, thank you, Mr. Chairman, and yes, the good news and the bad news is I have visited the labs in Boulder, and the good news is that I was very impressed with much of the work that was being done there. The bad news, from your perspective, is that I didn't find an Agency which I found to be critically underfunded. And as we go forward, both as a Member of this committee and as a Member of the Budget Committee, I will be hard pressed to say that NOAA is one of the agencies who needs more money.

When I compared what was being done at those agencies in and around Boulder, NOAA was clearly the tall dog in a short-legged race, and so as—I just want to preface that. The other thing that I am concerned about, and I do appreciate the last comments by Dr. Baker, and it was refreshing to hear scientists say that we don't always have the answers, because one of the concerns that I had with a lot of the people that I met at the NOAA labs in Boulder was that they had already—you know, 'don't confuse us with the facts' made up their opinion about the state of the global climate. In fact, what was disturbing to me is that some of the scientists would not even acknowledge that we have seen wide variances in the level of CO_2 in the atmosphere, and that was disturbing to me, because I do believe in sound science, and I think sound science requires being completely honest with ourselves. We don't know why the level of CO_2 has varied so much, and it may well be that there is not a whole lot that human beings can do about it.

So, perhaps you want to respond to that, but that has been my observation, and I would encourage other Members of this subcommittee and the full Committee to take advantage of going out and visiting the labs, because they are impressive. The technology there is amazing. The facility is probably one of the most impressive buildings in one of the most beautiful locations that I think we could ever possibly have, and as I say, it certainly didn't argue poor, poor, pitiful me, but we would love to hear your response to that.

Dr. BAKER. I would be happy to give a try. I think that one shouldn't penalize NOAA for being successful on the budget that it has. I think it has done very well. I think you are absolutely right, and as we looked at it from internally in NOAA, we saw many more things that we could do and could do better. We recognize that, and I think that when we looked at trying to increase our budget, there were many areas where we knew if we had an additional investment, we can improve the 10 day forecasts. We could improve the forecast of space weather. There were other things that we could do that would be of value to society, and I think those things are important. And on fisheries, for example, one of the big problems that we have is simply trying to assess the stocks of fisheries, and there, investment is required. And there was investment by Congress in new fisheries vessels, and I think there has to be more investment as we look at these issues.

So, I think one has to look at what could be done, and then balancing that investment compared to other investments in other fed-

eral agencies. But I think environmental forecasting is very important for our society that gets more and more vulnerable to all kinds of environmental change.

On the climate change issue, I think the broader issue is trying to present to the public and to people outside the science community that—the role of uncertainty. And I think scientists in their rush to try to make points will sometimes ignore or discount the uncertainties in the science that they are presenting, and I think the uncertainties are as important as the certainties, as we talk about these issues. And certainly, there are both certainties and uncertainties in the issues of adding carbon dioxide to the environment. Certain things that we know, certain things that we are uncertain about, other things that we don't know exactly what we should do. And not all of this gets presented at the same time, and I think that is an issue, and I think it is something I worked on. I think a lot of us who have tried to think about how you present ideas to the public have tried to understand that it is not just the things we know, but it is also the things that we don't know that have to be presented, because that is the way you can make good policy.

And I think it is one of the things that I am trying to do in my new job is to get people together who are experts in this, and talk to the public about how you use science to make policy, because as I said, it is not what—just what you know, but it is also what you don't know that is important in determining policy and making good policy decisions.

Dr. FRIDAY. If I could, sir, I would like to point out in my written testimony, I talk about how virtually every one of the NOAA labs contributed to the modernization of the National Weather Service. NOAA is not just a climate change agency. It is an agency that responds to all variety of needs in the oceans and the atmospheres. And it was that laboratory capability that allowed us to move from a lead time of a tornado forecast from minus two minutes in 1982 to 12 minutes today.

We used to say, "what we just saw was a tornado." Now, we can say "in about 10 or 12 minutes, you are going to see one in your area," and it all came from the science and technology from those NOAA labs.

Mr. GUTKNECHT. Thank you.

Chairman EHLERS. The gentleman's time has expired. Next, we recognize the gentleman from Washington, Mr. Baird.

Mr. BAIRD. I want to thank the Chairman for his leadership on this issue, and I appreciate our panelists being here today. One of the questions I always have about a complex organization like NOAA is how the interfaces with the various committees of the Congress either enhance or detract from your ability to do your job. And I applaud the Chairman for looking at an organic act to establish NOAA.

Particularly Dr. Baker, but I would ask the others with their expertise and experience as well, can you give us a brief insight, and this is probably a huge question, but a brief insight into NOAA's interactions with various committees. I know here we are the Science Committee. I believe Resources has some jurisdiction. I may be mistaken, I think Commerce may have some say in some

of what you do. Is that—are there any insights we can gain from your experiences there, Dr.—Mr. Kassinger, and should we consider that issue as we look at an organic act?

Mr. KASSINGER. I don't think that is a significant consideration, frankly, Mr. Baird, in defining what an organic act should be. Certainly, the Administration, generally the Commerce Department, doesn't have any lock on the wisdom on the various issues that affect our day to day business. We welcome all interactions with all of the committees with whom we work, whether it is the authorizing or the Appropriations Committee. And indeed, you know, this is an issue at Commerce, not just in the NOAA area. We have a broad range of responsibilities. We deal with a lot of different committees, and I don't think that the idea of having organic—a single organic statute for NOAA should take into account what will always be the case, I am sure, and that is there are 535 Members of Congress, with an interest in what——

Dr. BAKER. Congressman, I think that NOAA has a special relationship with Congressman, and I have been always impressed, having watched NOAA over the years since it was formed, about the very strong interests of Members of Congress, Congressional staff members, providing help and support over the years, and providing information. One of the things that I did, and I know previous Administrators did, was turn to both Members of Congress and staff members for information about the best ways to manage the set of complex issues.

I can't remember how many committees that NOAA reports to, but it is many. And I think that is probably a strength for the Agency, because there is lots of different input and help that come from the different committees. The connection with NOAA and Congress has been very strong. In fact, it was said to me that the view of the Department of Commerce about NOAA was NOAA people never go home without stopping on the Hill first. And it is probably not so far from the truth. I think there is a real strong connection there, and I think one wants to recognize in that, in the organic act, but I think the strength is an important thing to have, that connection.

Mr. BAIRD. Admiral West or Dr. Friday. I appreciate, Dr. Friday, your insights on the approps bill, but Admiral West first.

Admiral WEST. It may have been a transitory thing, but the Research Review Team did find a problem with the information flow from NOAA to OMB and the Hill.

Mr. BAIRD. Dr. Friday.

Dr. FRIDAY. When I was Director of the Weather Service, Sir, I had basically one committee to report to, and that was the Science Committee. As the head of NOAA research, I had several committees that I was involved with, with the Sea Grant Program, and with the Undersea Research Program. It was not impossible to deal with. It was worthwhile. My biggest problem was in the Weather Service modernization, we closed 250 sites. I got to meet a very large number of Members of Congress with that.

Mr. BAIRD. I am interested further in this issue of the appropriations and the competition that NOAA faces. Inevitably, if we want to support a project, quite rightfully, we have to look at offsets, but when you are pitting NOAA type functions against functions that

are also important, but really completely different fields, could you elaborate on that. I will ask Dr. Friday to start, because you raised the issue further, but then I would appreciate input from others.

Dr. FRIDAY. The science of NOAA is not—it is different than anything else, really, that is done in the branch of OMB that we deal with. And although we have had some very good people in there as our examiners, when it goes up the line, and it does have to compete, it is hard to justify why you need this particular facility to test the emission of a radar set, for example, when somebody is vitally in need of additional prison structure, or to rebuild an embassy someplace around the world. And that is a matter of fact, that is what happens.

We have to be very articulate in NOAA to be able to justify that all the way up the line. And it is a constant effort, and I believe it is a problem. I believe if we were competing with the rest of the Federal Government science side, that we would fare much better.

Admiral WEST. On a related issue, I think the number of line items that NOAA has, in the budgetary process, I found to be unbelievable, and it adds to the problem that they have with justifying their mission.

Dr. BAKER. I think the biggest budget issue that we faced was looking at the appropriations for satellites, because it is the biggest part of our budget, and we would have preferred to have worked that together with the NASA budget, for example. And that is something, perhaps, as NASA goes through its re-organization, one might take a look at. But that was the biggest piece of our budgetary activity, and required the longest-term commitments, and overflows of budgets and so on. So, that is the area that I would look at.

Mr. KASSINGER. I am skeptical that this is a significant problem. The reason is, because first, NOAA is the largest part of the Commerce Department budget, so we advocate strongly on behalf of NOAA within the OMB process. Second, it is unclear to me that one could ensure, putting NOAA as an independent agency, that you would get the budget examiner you want, or that you won't end up in another collection of competing budgets in the appropriations process on the Hill. You may not like State and Justice, but you may be competing with other agencies with equally compelling stories, and it is not clear to me why one thinks that you would get a better outcome.

Mr. BAIRD. I appreciate the answer. I would—Mr. Chairman, I appreciate your time. I just have a little bit of concern, Dr. Kassinger—Mr. Kassinger—that I have heard several distinguished witnesses here suggest that there is a problem, and at the end of them suggesting in their experience there is a problem, you are skeptical that there is. I respect your right to make that decision, but I am skeptical of your skepticism.

Chairman EHLERS. With that note, I will observe the gentleman's time has expired. I would just comment about the scientists stopping on the Hill. Maybe they are just attempting to measure the weather conditions here. Or——

Mr. BAIRD. Mr. Chairman, I think it is the free food at the receptions, probably, that draws them.

Chairman EHLERS. That could be, or else the extreme amount of hot air generated above the Capitol Dome, which could have a great influence on the weather patterns in this area.

Next, we are pleased to recognize my colleague from Michigan, Mr. Smith.

Mr. SMITH. Mr. Chairman, I wouldn't be surprised that it has something to do with the $3.2 billion that NOAA is getting on their recent stops to the Hill.

I align myself with some of the comments of Congressman Gutknecht. And looking at the wish list of NOAA, I guess I think there should be some explanation or justification of requesting such things as the—it seems to me you are expanding an agency's jurisdiction and prerogatives, of spending more than most agencies have. For example, you have a wish list of the authorization to purchase automobiles. Normally, that is given to departments, not agencies, and especially looking at the recent, the most recent GAO report, that suggests that we can't even keep track of the cars that the government owns now. Why are you requesting the authority to purchase cars, Mr. Kassinger?

Mr. KASSINGER. I don't think that we are asking specifically for authority to purchase cars. I think it was the use of cars. Was it——

Mr. SMITH. What I have written down is requesting the authorization to purchase vehicles. Is that correct, staff? Yeah, it includes purchase, page 8, under A. Okay, anyway, you don't know why that is in there, so let us get it out. Hopefully, it will come out. How about more money——

Mr. KASSINGER. I am sorry. Now, I—this was for our—primarily for our enforcement, our fisheries enforcement folks. But it is, you know, it is a traditional authority that agencies have, isn't it?

Mr. SMITH. No, it is not. At least my experience with agencies, and I was in an agency, it is normally a department's—my understanding is——

Mr. KASSINGER. Oh. I am sorry.

Mr. SMITH [continuing]. That it normally is given to departments, not agencies. Let me ask about the authority—you have requested to have more and better receptions.

Mr. KASSINGER. An important part of NOAA's function is its international expertise.

Mr. SMITH. This is not receptions with Members of Congress, in terms of the appropriation or anything?

Mr. KASSINGER. I am sure we can expand the authority to include that, if you desire, but I think it is fundamentally part of NOAA's important outreach effort. You know, again, it is to clarify things that NOAA does in one place, but sometimes, the authority is scattered about. Sometimes, we rely on Department of Commerce general authority, but we would like to make it clear that NOAA has this authority, even if it is not widely utilized.

Mr. SMITH. And give me, maybe, the thumbnail version of why at $3.2 billion, why NOAA's budgetary appropriations have gone up so much faster than inflation? And that sort of reflects to the concern that the Congressman from Minnesota also expressed, in terms of our overspending, and the increased debt that we are accumulating, that we are passing on to our kids and our grandkids.

Dr. BAKER. Let me attempt to address part of that, because there certainly was a budget increase during the time that I was Administrator of NOAA that was greater than inflation, and that was because we were trying to provide for society those kinds of forecasts and warnings that are part of our mission. As Joe Friday said, we went in a 10 year period from having a minus number of minutes for forecasting a tornado to an 11 minute forecast, enormous impact on saving lives and protecting property. We did the same thing in——

Mr. SMITH. Now, is that some kind of a quantitative——

Dr. BAKER. Yes.

Mr. SMITH [continuing]. Fact.

Dr. BAKER. In fact, we can document and the National Weather Service can provide documentation for you about the amount of economic benefit for every minute of improved tornado, storm, and flood warning that is provided. And in fact, we can do that up into the future. If we could provide additional investment, we could show you the kind of economic benefit which has been sustained in the past. I think that is a very important point.

Mr. SMITH. Now, is—now, should I be encouraging all my constituents to buy a radio that gets the National Weather Service reports? It seems a lot of the speedup time in communication to people that need to know that example—that need to know that, including homeowners and businesses, depend on radio and television. Is the transmission time through commercial communication systems, is that part of the speedup? I mean, your prediction has increased, and this—when I saw Mr. Friday nod on having it quantitatively shown, is the information that is getting—you are getting the information quicker. Is the homeowner and the business getting the information quicker? Mr. Friday.

Dr. BAKER. Yeah, he should answer that.

Dr. FRIDAY. Yes, sir. Several things. First of all, we don't do it by ourselves in the Weather Service. I apologize for using the term we. I have been out of the Weather Service since 1997, but it is difficult to completely separate myself from that culture.

The fact is, is that we depend on the media, working very carefully with the local television and radio stations commercial. We also have NOAA Weather Radio, which is the only method of directly interrupting anyone in their household to set off an alarm, should they choose to have it done. And as you know, we have recently entered agreements with Homeland Security, that that can be used to also notify people of any national security type of alert as well.

But the fact is, is that all these mechanisms are working to deliver information faster to the public. We began in 1981 taking measures of every forecast that was produced by the National Weather Service, and we could watch the numerical change in that, and we can address those directly into the economic impacts on various businesses and industry in the decision-making process. For every dollar that we spend in the modernization of the Weather Service, there was an $8 return to the public.

Mr. SMITH. Mr. Chairman, just one more quick question, sort of a—I am going to an International Relations Committee now. We are—we were told at a recent hearing that 6,000 people are dying

every day for the lack of clean water. Does NOAA look at aquifers, groundwater, in addition to oceans, in terms of water availability and what is happening to probably one of the world's most challenging problems, and that is the lack of clean water?

Dr. BAKER. The NOAA focus is on, in fact, rivers as they come close to the sea, in coastal waters, groundwater, that you talked about there, is really a focus for the U.S. Geological Survey.

Mr. SMITH. Thank you, Mr. Chairman.

Chairman EHLERS. The gentleman's time has expired, and I would mention that it would be very nice, as a going away gift, when you leave office, if you were to give each of your constituents one of the nice new alarm radios that are available.

Mr. SMITH. I think you can buy them at—for $19 or something, can't you?

Chairman EHLERS. Yes. I have one in my office I will be happy to show you. That is right. And it is now my pleasure to recognize the gentleman from Utah, Mr. Matheson, for five minutes.

NOAA'S MISSION

Mr. MATHESON. Thanks, Mr. Chairman. I first have a question for all of the panel members, and while recognizing that the mandate does not always create this type of conflict, I was wondering how you think we should address the conflicts that arise due to the fact that NOAA's mandate is to conserve and manage resources, and also to promote economic activities. If you have comments on how you balance those two aspects of the mandate.

Dr. FRIDAY. Well, while everyone else is thinking about it, let me just start.

The Weather Service products and services that go out include not only the weather warnings, but increasingly effective and more accurate forecasts of seasonal and inter-annual forecasts of conditions of temperature, for example, and precipitation. Those kind of increasing information—increasingly accurate information sets allow businesses and industry to make economic decisions on how they are going to behave, and how they are going to perform in the future.

So, the weather community, both in the research community and in the operational community, are increasingly providing additional support to improving the economic activity of this nation.

Mr. MATHESON. You know, if anyone has something they want to add, please do. If you don't have anything to add, you don't have to.

Admiral WEST. I would just say that, from the sailor's standpoint, that if we didn't have the Weather Service, and I am not an expert. I think it is somewhere in a few hundred million dollars. If you didn't have that, the impact, I mean, it is startling. What we don't have is something equivalent in our oceans, which I think is a real shortfall.

Mr. KASSINGER. Mr. Matheson, I think your question really goes to process, as opposed to is there a magic formula for finding that balance. And process-wise, there are a number of important tools to balance what are extremely important oceans-related commercial activities, whether it is commercial fisheries, recreational fisheries, oil and gas drilling, coastal zone residential activities, other

things, with the very—and equally important process of managing the surrounding environment. Ecosystems-based management techniques are one of those. But also just the process of public participation. The fundamental and most important part of the process is developing good science, as well as developing socioeconomic data that is relevant to our activities. And we devote a lot of attention to that, and we will be even more so in the future.

ROLE OF NOAA IN MULTI-JURISDICTIONAL ISSUES

Mr. MATHESON. Let me ask a new question for Dr. Baker. You list in your testimony a number of problems, be it natural disasters, non-point pollution, airshed deposition of nitrogen, that involve large land areas or water bodies that cross numerous political boundaries within the U.S. or out internationally as well. Is NOAA able to effectively coordinate policies that address these multi-jurisdictional problems, and what resources or authorities do you think NOAA would need to be an effective leader or participant in efforts to address that type of challenge?

Dr. BAKER. NOAA does it, I think, partially. The Coastal Zone Management Act is a good example, where NOAA enforces federal consistency on state actions, and if one state wants to do something that will influence or have an impact on another state, NOAA can step in and say you have to do it in a certain way, so that the influence is minimized, and that happens continually.

I think that we don't have all of the authorities in place that would allow us to do the new things that we talk about, non-point source pollution is a good example, and I think we are still trying to develop what will be the authorities to make that work. Airshed deposition is even a more difficult problem. The reason I mentioned it is because airsheds typically are bigger than watersheds. In the Chesapeake Bay, the deposition of nitrogen from the airshed is larger than anything that comes through the water, and yet, we don't have a really good way of dealing with that legislatively.

So, that is an example of the kind of problem, I think, that needs to be taken up.

Mr. MATHESON. Do you have a suggestion about how some type—what form of authority might be needed to help you better address a circumstance like that?

Dr. BAKER. Well, I think the Coastal Zone Management Act is a very good example of how one can start the process here, to set federal guidelines, and then have the states buy in. And in fact, I think almost every state that—at least when I was Administrator, I think we had every state but one, had bought into the Coastal Zone Management Act, so it is possible to make that work.

Mr. MATHESON. Let me ask you another question. What more do you think we can be doing, in terms of preparing for natural disasters? I am wondering how you would distinguish any additional task that NOAA should be doing from responsibilities that, let us say, FEMA has for responding to natural disasters?

Dr. BAKER. Well, the NOAA/FEMA relationship is close and it is very important to keep that close, because NOAA has the science responsibility for doing the forecasts, and FEMA has the responsibility for making sure that people are aware, and the things that people should do. But what we discovered was, for example, when

we did the first forecasts of the El Niño I think it was 1995, we put out a number of products that we thought would be useful for the public, and not all of those products turned out to be helpful warnings. Some of them were useful, some of them weren't. And in fact, it was the feedback between the public and FEMA and NOAA that allowed us to focus our efforts on specific scientific products that were the most valuable, for warnings that were the most useful. And it is that kind of interaction, I think, which is important. The scientific—the interaction of the scientists who know the kinds of products that can be done, with FEMA and other homeland security agencies to say here is what is useful, and here is how the public can really respond—the public and the security agencies.

Mr. MATHESON. Thanks, Mr. Chairman.

Chairman EHLERS. The gentleman's time has expired. I am pleased to recognize the gentleman from Maryland, Mr. Gilchrest.

Mr. GILCHREST. Thank you, Mr. Chairman. I appreciate the hearing. And gentlemen, thank you for coming this afternoon. We have enjoyed your testimony.

I have, I think, four questions, which if the Chairman will be patient, will take about 45 minutes to answer, I guess. If you are brief.

Chairman EHLERS. I should remind you we are scheduled for votes between 3:45 and 4.

SPECIFIC NOAA FUNCTIONS

Mr. GILCHREST. I see. All right. Well, anyway, the four broad areas of my curiosity. First of all, I think Vern is on the right track as far as creating an organic act for NOAA to put it in an arena and a status that I think should be on the same level as NASA.

The first question, I guess, deals with—one of the proposals is all you do in NOAA, should it be—begin to be oriented toward an ecosystem-based management program, and how would you begin to do that, as far as fisheries management is concerned? I know that is not a part of this particular proposal, but isn't ecosystem fisheries management policy something that is within our reach over the next five to ten years, that is practical to implement as far as using our councils are concerned, to manage the Nation's fisheries?

Two, the Weather Service is an extraordinary part of NOAA. Everybody understands it. Everybody buys into it. It is a standard piece of equipment that gets an appropriation year after year. We don't have to worry about a line item or an earmark for the New England states, or the Gulf of Mexico, or places like that. Shouldn't we begin, as we look at NOAA, to use the Integrated Ocean Observing System on the same level as we look at the weather system, considering everything that is going on with climate change, the global problems we see with our oceans, and the lack of information we have about the oceans in general?

And I think I did mention, whenever we talk about ocean research, I know there is a lot of talk now about having a vessel specific to ocean research, and there is some movement on that with the House and the Senate, to provide that kind of funding. I know Mr. Ballard, Bob Ballard, is on the Hill over the last day or so, discussing that particular issue. And so if we raise the level of NOAA to an understanding as to the critical importance of literally life on

the planet, to the same level as NASA. NASA has extraordinary research, and we don't seem to question why we want to figure out what is inside the rings of Saturn, or whether some of the moons have water under the surface, and can we get a satellite to leave the Solar System. Those kinds of things. So, raising the level of the status of ocean research to the same level as space exploration.

And then the other things is, that the gentleman from Utah talked about, and that is, you know, what is NOAA's Weather Service responsibility as far as air deposition is concerned, and Dr. Baker, you mentioned the Chesapeake Bay, and clearly, one third of the excess nutrients in the Chesapeake Bay is from air deposition. So, how do—what is the interface between NOAA, let us say, and Department of Interior and EPA, as far as air deposition is concerned—control of air deposition? But with Interior, for example, has—when we look at Coastal Zone Management Act, when we look at the Coastal Barriers Resource Act, and we see the potential now, if you accept the level of science that is out there about global warming, and sea level rise, and larger storms, and more violent confrontations between the weather and those communities that are continuing to develop there. So, is there an interface between NOAA, Interior, EPA, about global warming, about sea level rise, about storms that come in that deviate from any calculation to the natural variability of weather, that can be explained under normal conditions, that actually occur now because the planet is heating up because of greenhouse gases from human activity?

So, I will stop now, Mr. Chairman, and——

Chairman EHLERS. Well, you have one second to answer the question.

Mr. KASSINGER. Mr. Chairman, let me——

Mr. GILCHREST. I would like to just make a comment, if—I know we are not going to have time for all of those answers, but our Subcommittee on Fisheries is trying to deal with Mr. Ehlers to make a compatible piece to this NOAA Organic Act, and these—this kinds of information would be very helpful for us.

Chairman EHLERS. Now, we will give that some extra time for you to answer this question.

Mr. KASSINGER. I will try not to take all 4–5 of your minutes. Let me touch on these, just very, very quickly. First, I think the mission and purposes of a new NOAA—outlined in the NOAA Organic Acts, both 4546 and 4607, go to all of the questions you raised, and indeed, are one of the reasons we would like an organic act very much to focus the mission of the Agency.

Second, on ecosystem-based management of fisheries, we are already doing that. Moving in that direction. I think the first ecosystem-based fisheries management plan was approved a year ago in Hawaii. It is certainly the way all fishery management plans should be approached in the future. There is a lot to learn about this, but it is absolutely the way to go, and we are very focused on it. Indeed, ecosystem-based management is one of the four key goals of NOAA, as outlined in the current management scheme.

Third, on the Integrated Ocean Observing System, there is a tremendous opportunity to be accomplished along the lines that you suggest, and indeed, it is one reason that, under Admiral Lautenbacher's leadership, we are investing so much time and re-

sources in promoting not only observing systems in our coastal waters but around the world. It is fair to say the U.S. is demonstrating tremendous leadership in getting a global observing system in place. Just a couple weeks ago, I was in Maine. I had the opportunity to look at what they have already deployed in the Gulf of Maine, led by the University of Maine, and the Sea Grant Program up there. And they are constantly thinking of new instruments to add to the buoys they have out, and already, in real time, you can go to your computer today, and see the data over the website, that those buoys are generating. And the biggest problem they have, I gather, is that every once in a while, the Coast Guard will go along and pick up a buoy, because they think it is something lost from a mooring somewhere, and then they have to go back and put it back. But it has already been a tremendous benefit to the fishing communities, to the recreational communities, and others in the surrounding areas of the Gulf of Maine. So, yes, it is an important thing to do, and I hope the products that could be developed and delivered out of the observing systems will continue to be developed.

Fourth, you mentioned the ocean research vessel. The first of the new generation NOAA vessels will be launched in August or September. The second one, the keel has been laid and it will be coming on line once construction is complete. It is a program that we believe in. It is very important to get these vessels that we have committed to out. They are replacing vessels that are 50 and 60 years old. And they are terrific. They have great instrumentation. They are extremely quiet. They will do great work. It is, however, an expensive proposition. You are talking about significant capital equipments. It is one of the driving forces in the budget increases that we have seen in the last couple of years. And that is a serious matter that we and the Congress have to work out as we look at the overall needs of NOAA, and the Nation for oceans research.

Finally, very quickly, very broad and complicated subject, about NOAA's role in climate change and related research. But I am very proud to say that NOAA is, with the Department of Energy, co-chairing the Administration's Climate Change Research Initiatives and Climate Technology Initiatives. There is an extremely integrated, well-thought out program of cross-cutting research, now focused on 21 areas, as Dr. Friday mentioned earlier. The National Research Council has blessed this program, and said indeed, it is a model for developing such an integrated, cross-cutting program. So, we don't have regulatory responsibilities at NOAA in, for example, the air quality area. But we are devoting a tremendous amount of research dollars and talent, in some very specific programs. For example, just this month, we launched in New England a program led by the University of New Hampshire, with a consortium of universities and others, research scientists up there, to begin measuring the flow of particulates in the air across the continent and beyond, out into the oceans. And really began to try to develop much better data on the—for the kinds of issues that you just identified.

I think I will stop there.

Chairman EHLERS. Let me just——

Dr. BAKER. Congressman Gilchrest——

Chairman EHLERS. Let me just intervene and ask each of you to give a brief response, because we have one more panel we want to fit in yet, before the vote. So, if each of you can respond very briefly, and then we may send you further questions on this by mail to get a written response, if—is that——

Dr. BAKER. Let me just——

Chairman EHLERS. Is that okay, Mr. Gilchrest? Thank you.

Dr. BAKER. Let me just respond to the last question, which was the interaction between NOAA, Department of Interior, and the EPA. There is no question that there are some overlapping responsibilities. There are some gaps in what is being done. I think that, as Ted Kassinger said, the Administration's plan for dealing with the research activities in climate change that was reviewed by the National Academy of Sciences, I think, is a good model there. But I think that would be a useful topic for a hearing, to come and listen to what EPA's views, Interior's views, and NOAA's views are, and what they do, and what they—and how they interact. Because frankly, having been there and watched that, I would say the interaction is not as efficient or as good as it should be, and it is something that really needs to be looked at more carefully.

Admiral WEST. Sir, on the ecosystem management, I think we have got to go on with it, however you define it, by looking at not just fish or not just the physical dimension of the ocean, but as an ecosystem. I think NOAA can step up to the plate, across OAR, NOS, and Fisheries, by taking a region and defining how it is being done. We ought to get on with it, and we ought to get on with it right now. That was one of the recommendations from the Research Review Team.

Second of all, the IOOS ought to be a national priority, and we ought to do it right now. The plan has been in place for about three years now. It is time to get on with that. It is interesting that you mentioned one ship for ocean research. That should say something to people. As an aside, the Academic Research Fleet, where most of your ocean researchers are working. That fleet is very, very old. It is not being replaced. It is in serious trouble there.

And as far as the interagency work, one of the things that we discussed during the Research Review—it was not in our charter, but we clearly made a mention in our report—was a definite need for some federal interagency discussions on research.

Dr. FRIDAY. NOAA clearly has the leadership in many of these areas, and I believe that they should exercise that leadership across the federal agencies. I agree with Jim Baker that it hasn't always gone smoothly, but that takes active, proactive leadership to make sure it occurs.

Chairman EHLERS. I thank you all for your comments. And are you satisfied?

Mr. GILCHREST. Thank you, Mr. Chairman.

Chairman EHLERS. And the gentleman's time has expired.

We will not have time for a second round of questions today, and so I want to thank the panelists for their time, and their very valuable advice and comments. We will certainly use your comments appropriately, as we review the various proposals for an organic act, and probably discard all those we don't agree with. Now, seriously, we will give serious consideration to all of your comments,

and we will be having a lot of discussion on this committee over the next few weeks and months as we try to get this organic act passed before the end of the year.

Thank you again for your time, and I would ask Mr. Hirn to come forward for the second panel.

Panel II

Mr. HIRN. Thank you, Mr. Chairman.

Chairman EHLERS. Thank you. I should give a better introduction, now that you are seated. Mr. Richard Hirn is the general counsel for the National Weather Service Employees Organization, sometimes known as NWSEO. Mr. Hirn.

Mr. HIRN. Thank you, Mr. Chairman.

Chairman EHLERS. Is your microphone on?

STATEMENT OF MR. RICHARD J. HIRN, GENERAL COUNSEL, NATIONAL WEATHER SERVICE EMPLOYEES ORGANIZATION

Mr. HIRN. There we go. Yes. There we go. Thank you, Mr. Chairman and Mr. Udall.

As you probably know, NWSEO is the professional association and the labor organization that represents not only the employees of the National Weather Service, but hundreds of other employees, and three different NOAA line agencies, as well as the attorneys in the NOAA Office of General Counsel.

These employees believe that the most pressing problem facing NOAA is not its organizational structure, but the failure of successive Administrations and Congresses to adequately fund NOAA's important missions.

Simply changing the organizational structure of NOAA is not going to solve these critical funding needs, but it might just exacerbate the problem. To the extent that organizational lines are blurred, there will be less transparency and accountability to the public and Congress for where scarce federal dollars are spent. For many years, Administrations of both parties have looked to take from the appropriations from the National Weather Service funds to support other programs and projects which Congress has regarded as a lesser priority.

Consequently, NWSEO supports the distinct and separate grant of legislative authority in section 105 of the Chairman's bill, which creates the National Weather Service and defines its mission. NWSEO does not support the Administration's bill, because it lacks the separate legislative authority for the National Weather Service.

The Administration's bill furthers a disturbing trend, and that is NOAA's apparent attempt to phase out the National Weather Service as a distinct identity. For example, NOAA has informally renamed the National Weather Service as "NOAA's National Weather Service" on its web pages and its publications, in its official correspondence. NOAA now calls the National Weathers Service's Aviation Center, Ocean Prediction Center, River Forecast Center, and even the Hurricane Center, as the NOAA Aviation Weather Center, the NOAA Ocean Prediction Center, the NOAA River Forecast Centers, and the NOAA Hurricane Center. The NWS is even

replacing its own logo with that of the NOAA seagull on its buildings and in its television presentations.

The Weather Service's loss of identity will have a negative impact on the public's safety. As NWS forecasts, warnings, and other communications to the public are increasingly identified as emanating from NOAA, rather than the National Weather Service, the public will grow confused about the reliability and the authoritative nature of these forecasts and warnings. Frankly and unfortunately, few Americans yet know what NOAA is and will not understand that the source of the warnings and forecasts is actually the National Weather Service. A large segment of the public is already confused about the difference between forecasts and warnings issued by the government versus those from the private sector, and which ones should be relied upon when they conflict.

Now, we agree with the Commission on Oceans that "research efforts should be planned to support the Agency's management missions." But in the case of the Atlantic Oceanographic and Meteorological Laboratory in Key Biscayne, for example, decisions about what research is conducted are often made based on what outside grants are available, rather than tailoring the research to meet the Agency's mission. Changing the structure of NOAA will not solve this problem. Only sufficient funding will.

And although the creation of a separate research and education branch of NOAA has a—distinct from its operational side, has service appeal—surface appeal, the consolidation of research and education in one place may, in fact, result in reduced education and research overall. For example, the operational forecasters who staff the Weather Service's 122 local forecast offices regularly engage in research and publications based on their operational forecasting experience, and engage in community research efforts and speaking engagements to educate the public about weather, in addition to their regular operational warning and forecasts. Each forecast office has a warning coordination meteorologist whose responsibility it is to develop and implement a public relations program in his or her jurisdiction to educate the public about the hazards of severe weather.

In summary, the NOAA's research and education functions should be most closely integrated with, rather than separated from its operational role. This concludes my statement, Mr. Chairman, and I would be happy to answer any questions, and I thank you for inviting us here today to provide our input on this.

[The prepared statement of Mr. Hirn follows:]

PREPARED STATEMENT OF RICHARD J. HIRN

Mr. Chairman and Members of the Committee, thank you for inviting the National Weather Service Employees Organization to present its views on the two versions of the NOAA Organic Act that are pending before this committee.

Our Organization, as you may know, is the professional association and labor organization that represents not only the employees of the National Weather Service nationwide, but hundreds of other employees throughout NOAA, such as those employed by NESDIS who track and command the Nation's weather satellites at Wallops Island, Virginia; the civilian crews who maintain and fly the hurricane tracking planes from NOAA's Aircraft Operations Center at MacDill AFB; the research scientists at OAR's Atlantic Oceanographic and Meteorological Laboratory on Key Biscayne, as well as the attorneys in NOAA's Office of General Counsel and five Regional Counsel Offices who enforce many of the Nation's most important environmental laws.

The Proposed Restructuring of NOAA

The employees of NOAA believe that the most pressing problem facing NOAA is not its organizational structure, but the failure of successive Administrations and Congresses to adequately fund NOAA's important missions.

For example, funding for hurricane research at the AOML Lab has been at an almost constant level for over 20 years. The Lab's Hurricane Research Division has lost a third of its FTE positions over the last decade; has reduced travel to scientific meetings; has failed to upgraded its computer equipment until it is either obsolete or broken; and has limited the amount of research flying in the NOAA aircraft. The reduction in staff and inability to hire has also resulted in missed opportunities to advance the science of hurricane forecasting. A critical current need, for example, is qualified scientific and support staff to help assimilate the valuable data collected in hurricanes by both NOAA and the Air Force into the next-generation computer models. AOML has only one person who has some expertise in this area, yet the problem is so complex that a team of 5–10 people should be working on this problem right now.

Last year, employees from the Hurricane Research Division flew into Hurricane Isabel extensively and provided real-time information to forecasters who, in turn, made remarkably accurate forecasts for the storm. Ironically, though, if it were not for the Office of Naval Research, which supported AOML's field program last year (and will again this year), and for the generosity of the Air Force Reserve who donated some of its older GPS dropsondes (because AOML could not afford enough of its own), the critical data that was transmitted to the NWS and the rest of the world would not have been obtained. The scientists at AOML are discovering new features, in the high wind eye-wall region of hurricanes, from those flights into Isabel that will have important implications for understanding and predicting the wind fields in intense hurricanes in the future. Again, if AOML had to rely on NOAA funding alone, these discoveries would not yet have been realized.

The House Appropriations Committee recommended, and the House last week approved, funding for the NWS which the Committee claimed represented the Administration's full request for FY05. Regrettably, the amount approved actually fell short by nearly $10 million. The amount requested by the Administration did nothing to resolve the accumulated $19 million shortfall in the appropriations for local forecasts and warnings which have never fully funded mandated pay raises. As a result, the NWS is already planning to slow the pace of applying new science and technology into local forecasting, which will jeopardize the NWS' goals for improving tornado, flash flood and winter storm warnings.

Simply changing the organizational structure of NOAA is not going to solve critical funding needs—but it might exacerbate the problem. To the extent that organizational lines are blurred, there will be less transparency and accountability to the public and Congress for where scare federal dollars are spent. For many years, Administrations of both parties have raided the appropriations for the National Weather Service to fund other programs or projects which Congress has regarded as a lesser priority. While most of NOAA's mission is important to the Nation's long-term welfare and prosperity, the mission of the National Weather Service is *critical* to the *immediate* safety of the American public. In order to prevent NOAA from reallocating funding from the National Weather Service to other entities, the FY04 omnibus appropriations measure prohibited NOAA from taxing the NWS and other line components to support other programs. Similar language has been included in the NOAA section of the CJS Appropriations the House passed last week.

Consequently, NWSEO strongly supports the distinct and separate legislative grant of authority in section 105 of H.R. 4546 that creates the National Weather Service and defines its mission. NWSEO does not support H.R. 4607, introduced on behalf of the Administration, because it lacks separate legislative authority for the National Weather Service.

H.R. 4607 furthers a disturbing trend NWSEO has noticed from NOAA—an apparent attempt to phase out the National Weather Service as a distinct entity. For example, NOAA has informally renamed the National Weather Service as "NOAA's National Weather Service" on its web pages, in its publications and on official correspondence emanating from the National Weather Service. NOAA now calls the National Weather Service's Aviation Weather Center, Ocean Prediction Center, River Forecast Centers, and even the Hurricane Center the "NOAA Aviation Weather Center, "the NOAA Ocean Prediction Center," "NOAA River Forecast Centers" and the "NOAA Hurricane Center." The NWS is replacing its own logo with NOAA's seagull logo on its buildings and in its television presentations.

The National Weather Service's loss of identity will have a negative impact on public safety. As NWS forecasts, warnings and other communications to the public are increasingly identified as emanating from NOAA, the public will grow confused

about the reliability and authoritative nature of these forecasts and warnings. Frankly, few Americans yet know what NOAA is and will not understand that the source of the warnings and forecasts is the National Weather Service. A large segment of the public is already confused about the difference between forecasts and warnings issued by the government versus those from the private sector, and which ones should be relied upon when they conflict.

We have reviewed the Preliminary Report of the U.S. Commission on Ocean Policy and its recommendation that NOAA be restructured by combining existing line agencies into broader categories—"assessment, prediction, and operations," "management" and "research and education." The Commission believes that this new structure would further "ecosystem-based management." This recommendation was apparently made without considering the role of the National Weather Service, which does not manage natural resources, but is responsible for protecting the lives of Americans every day.

We agree with the Commission that "research efforts should be planned to support the agency's management missions." In the case of AOML, the decisions about what research is conducted are often made based on what outside grants are availability, rather than on tailoring the research to the agency's mission. Changing the structure of NOAA will not solve this problem, only sufficient funding will.

NOAA employees believe that the second biggest problem at NOAA is that many decisions in resource management are driven not by science, but by politics. For example, many members of the Fisheries Management Councils are industry representatives who have a conflict of interest. When the leadership of the NMFS must decide between the councils' recommendations and the best science, its decisions are often influenced by political pressures from Members of Congress and the governors, rather than by science alone. Similarly, political pressure often overrides science when NOAA leadership makes decisions with respect to its consultative role under the Endangered Species Act, such as how much power may by generated by hydroelectrical plants on the Columbia River. The Commission on Oceans recognized that "resource management decisions should be based on the best available science" and we agree. However, restructuring NOAA will do nothing to ensure that science, not politics, guides NOAA's decision-making.

Although the creation of a separate research and education branch of NOAA distinct from its operational side has a surface appeal, the consolidation of research and education into one place may in fact result in reduced research and education. For example, the operational forecasters who staff the NWS' 122 local Weather Forecast Offices regularly engage in research and publications based on their operational forecasting experience, and engage in community outreach efforts and speaking engagements to educate the public about weather, in addition to issuing warnings and forecasts on a daily basis. Each forecast office has a "Warning Coordination Meteorologist" whose responsibility it is to develop and implement a public relations program in his or her jurisdiction to educate the public about the hazards of severe weather and how to react to flood, hurricane, thunderstorm and tornado warnings. In summary, the "research and education" role of NOAA should not be separated from the operational role. Many NOAA employees have both roles today, and their dual functions enhance the final product.

Section 105(d)—National Weather Service Functions

There is some minor language in Section 105(d)(1) of H.R. 4546 which, if enacted, may unintentionally result in the diminishment in the services provided by the National Weather Service. One of the proposed functions for the National Weather Service listed in that Section 105 is the maintenance of "a network of regional and local weather forecast offices." While that language seems innocuous, to National Weather Service employees it appears to be a "Trojan horse." There are presently 122 local "Weather Forecast Offices" or "WFOs," whose warning and forecast functions are supported by a number of national centers to which section 105(d)(3) refers. There are no "regional" forecast offices in the NWS—but there are informal proposals by some in the agency to create such regional forecast offices by consolidating the functions of numerous local WFOs, thus creating a two-tier forecast office system. Scientific research has shown that forecasts and warnings are more reliable the closer they are prepared to the geographical area to which they apply. Based on this science, not many years ago the NWS underwent a complete reorganization which eliminated the pre-existing two tier field office structure, and increased the number of WFOs from 52 to 122. Some in the agency wish to reverse course by again consolidating and eliminating local WFOs. *NWSEO urges that the reference to "regional" weather forecast offices be removed from section 105(d)(1) so that this section is not interpreted as Congressional authorization or approval to consolidate the local WFOs into regional forecasting offices.*

In order to ensure that the public knows that it can rely on the weather warnings, statements and forecasts emanating from the National Weather Service, and to distinguish them from warnings, statements and forecasts issued by other sources, a subsection (f) should be added to Section 105 that would require the NWS to identify itself as the source of the warnings, statements and forecasts it issues. Such language might read:

> *"The National Weather Service shall be the sole United States official voice for issuing warnings during life-threatening weather situations. All weather warnings, statements and forecasts issued by the National Weather Service shall clearly indicate that they were issued by the National Weather Service and, since the National Weather Service identity is an integral component of the Agency's mission in the protection of life and property, the Department of Commerce and the National Oceanic and Atmospheric Administration, shall preserve, make permanent and promulgate, as a departmental priority, prominent use of the agency name of 'The National Weather Service' as well as use of the NWS emblem/logo in association with all products and services provided by all National Weather Service field offices, prediction centers and management headquarters throughout the Nation."*

The first sentence of this proposed subsection appears on the NOAA web site and reflects current government policy.

Section 704—Interagency Planning and Process.

Finally, NWSEO would also like to propose a minor addition to Section 704, "Interagency Planning and Process." This section requires NOAA to "coordinate and consult with" the NSF, NASA, other federal agencies and "other appropriate agencies" to develop a five-year plan for, *inter alia,* outlining methods for dissemination of weather information to user communities and describing best practices for transferring the results of weather research to forecasting operations. The Committee should include language requiring NOAA to also consult with the labor organization representing NWS employees, who will ultimately be responsible for implementation of this research into day-to-day forecasting operations.

There is ample precedent for specifically including such a requirement in this legislation. Section 707(b)(1)(b) of the Weather Service Modernization Act of 1992 (set forth at 15 USCA 313 note) required the Secretary of Commerce to include on the 12-member Modernization Transition Committee an appointee from "any labor organization certified by the Federal Labor Relations Authority as an exclusive representative of weather service employees." NWSEO President Ramon Sierra served on that Committee and contributed to the Committee's success by representing the professional views and opinions of the employees of the NWS who would be most responsible for, and impacted by, the NWS modernization.

Accordingly, the following language should be added at the beginning of line 13 of section 704: *"any labor organization certified by the Federal Labor Relations Authority as an exclusive representative of weather service employees, . . ."*

This concludes my statement, Mr. Chairman. Thank you for the opportunity to present NWSEO's views on the proposals for a NOAA organic act. I would be happy to respond to any questions.

BIOGRAPHY FOR RICHARD J. HIRN

PROFESSIONAL EXPERIENCE

Private Practice—October, 1981 to present

My law practice focuses on labor, civil rights, constitutional and administrative law and litigation. Representative clients have included national labor unions, educational associations, and other non-profit organizations.

> Litigated cases in federal trial and appellate courts throughout the country and pioneered unique theories in constitutional law, employment discrimination, labor relations and other legal matters having public impact.
>
> As a registered lobbyist, obtained legislation that expedited resolution of any collective bargaining impasses between the Panama Canal Commission and its U.S. labor unions. Obtained job protections for agency employees in the Weather Service Modernization Act. Initial proponent of the "Interference with Access to Medical Care Act" enacted by the Maryland State Legislature in 1989. This was the first law in the country to outlaw obstruction to entrances of abortion clinics and was prototype for the federal "Freedom of Access to Clinic Entrances

Act." Testified before the Judiciary Committees of the Maryland House and Senate on the constitutionality of and need for this legislation.

General Counsel, National Weather Service Employees Organization—October, 1981 to present

Chief legal officer for the union of the meteorologists at the National Weather Service and the environmental attorneys at the National Oceanic and Atmospheric Administration.

Supervise all litigation and serve as ex-officio member of the union's governing board. Assist NWSEO in its budgeting, strategic planning, membership development and investment strategies.

Chief lobbyist for the union. Develop the union's legislative positions and represent the union's interests before Members of Congress and committee staff.

Chair, NWSEO Political Action Committee

Chief press spokesperson for the union. Quoted in *New York Times, Washington Post, USA Today* and other major daily newspapers; interviewed on NBC's *Dateline* and on National Public Radio about Weather Service issues.

Associate, Mulholland & Hickey—May, 1980–October, 1981

Represented the International Association of Fire Fighters, the Public Employee Department of the AFL–CIO and many of the Nation's rail unions in federal court litigation and routine legal matters.

Attorney, Office of General Counsel, National Labor Relations Board—August, 1979–May, 1980

Advised the General Counsel of NLRB on issuing unfair labor practice complaints on appeal from NLRB Regional Directors' dismissal decisions.

EDUCATION

Washington College of Law, American University, *Juris Doctor,* 1979

Dean's Fellow, 1978–79 academic year; assisted in drafting "The Design of the American University Criminal Justice Clinic," *Clinical Legal Education, Report of the Association of American Law Schools—ABA Committee on Guidelines for Clinical Legal Education* (1980).

Haverford College, B.A., Political Science, 1976

Awarded Second Place, Elliston Morris and Elizabeth Smith Peace Prize for essays on "Means of Achieving International Peace" in 1976.

PUBLICATIONS

Authored over 25 appellate briefs filed in the U.S. Court of Appeals and the U.S. Supreme Court.

Right to Appeal: Civil Service Due Process Amendments of 1990, *The Washington Lawyer,* March/April 1991.

Drug Tests Threaten Employers, Too, *New York Times,* Op-Ed page, November 12, 1988.

Weather Service Sailing into Budget Storm, *Cleveland Plain Dealer,* Op-Ed page, March 15, 1989.

New Protection for a Basic Right—Access to Medical Care, *Washington Post,* Op-Ed page, July 2, 1989.

Maryland Closes the Door on Operation Rescue, *Baltimore Evening Sun,* Op-Ed page, July 3, 1989.

Sending Title VII to the Jury, *The Washington Lawyer,* September/October, 1989.

Title VII Cases Should Go To The Jury, *Los Angeles Daily Law Journal* and the *San Francisco Banner Daily Journal,* October 19, 1989.

TEACHING/LECTURES

Local Union Representatives Training Program for the National Weather Service Employees Organization; Los Angeles, Atlanta, San Francisco, Albany, Tampa, Charlotte, Dallas, Kansas City, Seattle and Honolulu, 1999–2004.

University of Panama, Institute of Panama Canal Studies, Symposium on a Special Labor Regime for the Panama Canal Authority, August 13–14, 1996.

Adjunct Instructor, Washington College of Law, American University, 1980–81 academic year.

DISCUSSION

Chairman EHLERS. I thank you very much for your testimony, and I do want to express my appreciation for the people you are representing here. I have visited the local Weather Service in my community several times, and have had good interactions with them. And I am also reminded of the apocryphal story of the Congressman some years ago who was attempting to abolish a good share of the Department of Commerce, and someone asked him "What about the Weather Service?" He said "I don't need that. I get it off my TV." I don't know if the story is true or not, but that person did lose his next election, so——

Mr. GILCHREST. That is a true story, Vern.

Chairman EHLERS. It is. Okay. So at any rate, that person lost their next election, so that should be some comfort to your——

Mr. HIRN. Well, as a matter of fact, a Member of the Senate Commerce Committee, when I told him who I represented, asked me how the folks were down at The Weather Channel in Atlanta.

Chairman EHLERS. Yeah.

Mr. HIRN. So, our concerns about the identity problem are not with—are not unfounded.

Chairman EHLERS. No. And at the same time, I think it is wonderful that we do have a private sector that disseminates your results so widely, even if they do take credit for them. In view of the short time, and that we do have votes, and I know Mr. Udall has some questions, I will yield to you at this time.

Mr. UDALL. I thank the Chairman. The Chairman is as gracious as always, and if I might, and I think we do have enough time, Mr. Hirn, start by pursuing this line of questioning.

We have heard numerous times and in testimony during the earlier panel that NOAA's line office structure has inhibited the Agency from functioning as an integrated unit. Would you care to comment on that particular point of view?

Mr. HIRN. Well, let me say this, that there has been a—there is a lot of research that has been done within NOAA that has applicability to improving warnings and forecasts, and the reason that it hasn't been put in place is not because there is not sufficient interrelationship between the research folks and the operational folks. The reason it is not being put in place is there is no money to do it.

So, merely changing the organizational structure is not going to solve that problem. It is not that the research is not being tailored to the organizational mission, although there are situations like at the Atlantic Oceanographic Meteorological Laboratory, where rather than doing the research the Agency needs, because of insufficient funding, they are—spend a lot of their time applying for outside grants for research, and then doing the research for which they can get outside funding, rather than the research that the Agency actually needs. And as a result, the—although the hurricane tracking forecasts have improved in recent years, it has been nowhere near as much as they could be had that research been fully funded, rather than having the folks who do the hurricane re-

search running around trying to get private sector grants to study whatever somebody is going to fund from the outside.

Mr. UDALL. I hope you will take advantage of this opportunity today, and also with additional testimony for the record, to highlight other examples that make the case that I think you are making in a compelling fashion here.

If I could move to—well, actually, I want to make one other comment. My colleague, Mr. Gutknecht, isn't here, and I appreciated his taking time out of his schedule to come to Boulder and visit the NOAA laboratory that is there, and it is, I think, at least it was state of the art for a federal laboratory. It doesn't mean it is state of the art for a private sector laboratory, and one of the missions when we built the NOAA facility in Boulder, which this committee and this Congress supported, was to try and get on the front end of changes in technology and building design. But that is a bricks and mortar investment. We have to make the operating side investments as well, and I think that is what I hear from you, and I heard from others who were here today, including Dr. Baker.

Having said that and made that point, let me move to one other question. What role have the employees or—and I don't know, the acronym doesn't roll of my tongue here, but I will, NWSEO, on their behalf, played in the current program reviews in this proposed reorganization? And have employees historically been included in similar exercises that past Administrations have taken?

Mr. HIRN. We have had the—we have had no input on this whatsoever, or consulted with it. I would say that the National Weather Service, regardless of who the leadership has been, and in particular, Joe Friday made this a very important role, and the new Director, Director Johnson is doing this, has been consulting with the Weather Service Employees Organization on Weather Service issues, but unfortunately, with regard to the NOAA level, and the Department level, regardless of what Administration it has been, we have sort of been a pariah. And we have not been consulted on—at the NOAA level, or the Commerce level, in this or the previous Administration. But we have been consulted at the Weather Service level, and we have a very good working relationship, and have had a very good working relationship, with all the recent Weather Service directors.

Mr. UDALL. And Chairman, I would like to ask another question. I think we have enough time, but if I could just make this offer, I would like to work with you and be available to encourage Commerce and the Committee that is looking at all of this to consider your point of view, and as somebody who thinks that employees on the frontlines know what is going on, and what can work, I would really like to promote that approach, and I think it could only make for a stronger product in the long run. So, again, thank you for appearing before the Committee today, and I would yield back any time I have left.

Mr. HIRN. Thank you.

Chairman EHLERS. Thank you, and my question is fairly brief, but I think a very important one. If you don't have time to fully answer it here to your satisfaction, you can certainly put it in writing. And that is, we are trying to find out not just what is wrong with what we have done in our bill, but what is missing. And so

I would like to know from your perspective, and from the perspective of the group you represent, what do you think we should have in the organic act that I have written, or I should say our staff has written, that you think should be added, that will clarify the mission and role of the National Weather Service?

Mr. HIRN. Well, remembering of course that we don't just represent the Weather Service, we represent a lot of other groups——

Chairman EHLERS. Right.

Mr. HIRN [continuing]. That would, for example, the NOAA General Counsel's Office, where we represent the attorneys, we think there should be some more language, or perhaps there will be when it goes to Chairman Gilchrest's Committee, put in about the important regulatory role that the NOAA attorneys are involved in, the environmental enforcement, things like that.

Chairman EHLERS. Yeah. Because of jurisdictional problems, we couldn't get into that, but I have already had discussions with him and it occurs to him, too.

Mr. HIRN. We think that your description of the Weather Service mission and role is excellent.

Chairman EHLERS. All right. I appreciate that. And if you have anything further, please put it in writing, and similarly to Mr. Gilchrest, because he will be taking this up.

Mr. HIRN. Thank you, Mr. Chairman.

Chairman EHLERS. I want to thank everyone for participating, and before we bring the hearing to a close, I want to once again thank you, as well as the other panelists, for appearing here, and the feedback you have provided, all panelists have provided, is tremendously important to us as we pursue this.

I am not the sort of Congressman who thinks I am the expert on everything, and so we are here to learn from all the panelists who were here today.

I am pleased that H.R. 4546 is on the right track. I am pleased with the general acceptance I have heard from everyone—every affected group that has talked to me about it. They seem to prefer it above the Administration bill, and above, in some cases, above the Senate bill. But we are going to keep our minds open, and look forward to working with everyone involved, and the authors of the others bills, as we proceed with this.

If there is no objection, the record will remain open for additional statements from the Members and for answers to any followup questions the Subcommittee may ask of the panelists. And without objection, so ordered.

With thanks again to everyone, this hearing is now adjourned.

[Whereupon, the Subcommittee was adjourned.]

Appendix:

Answers to Post-Hearing Questions

ANSWERS TO POST-HEARING QUESTIONS

Responses by Theodore W. Kassinger, Deputy Secretary, U.S. Department of Commerce

Q1. In his testimony, Dr. Friday expressed concerns about procurement of the next generation of Geostationary Operational Environmental Satellites (GOES–R). Is the Administration planning to use NASA as the procurement contractor for GOES–R, as it did in the past? If so, why not use a model such as the new polar satellite program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), which many experts have cited as a successful program?

A1. NOAA is continuing to look at procurement options that will maximize system capabilities while minimizing cost. Acquisition and organizational strategies will include strategies similar to the NPOESS approach, as well as other procurement options.

Q2. Dr. Friday suggested NOAA's strategic plan for research should be reviewed by the National Academy of Sciences, in a process similar to that used for reviewing the Climate Change Science Program strategic plan. Would the Administration support this proposal?

A2. NOAA is preparing a Five-Year Research Plan to support its Strategic Plan. The NOAA Five-Year Research Plan is being developed in consultation with our external partners and with input from the NOAA Science Advisory Board (SAB). We will explore the need for a National Academy of Sciences review following input from the SAB.

The Five-Year Research Plan was released for public comment on August 20, and the public comment period will last until September 30. The instructions for downloading and commenting on the Five-Year Research Plan draft can be found on the *Federal Register* notice posted at http://www.nrc.noaa.gov/Reports.htm. An opportunity for external comments will be provided on a regular basis.

Q3. Dr. Friday suggested that members of the NOAA Science Advisory Board be appointed in consultation with the National Academy of Sciences. Would the Administration support this proposal?

A3. The Administration supports the creation of a broader NOAA Advisory Committee on Oceans and Atmosphere (Committee) that can provide advice on the full range of NOAA research and operations. The expanded Committee would build upon the success of the NOAA Science Advisory Board in two ways. First, representative users of science—marine resource managers and policy-makers—would also participate in reviewing NOAA research activities. Second, scientists would participate in reviewing how NOAA resource management and operational programs utilize science in their activities. We believe the synergy created by this more comprehensive dialogue among scientists, managers and policy makers would be beneficial to all. As the membership of the NOAA Advisory Committee on Oceans and Atmosphere would involve a broad range of participants, we would welcome recommendations from not only the National Academy of Sciences, but also other appropriate societies and organizations.

Questions submitted by Democratic Members

Q1. NOAA has had a position of Chief Scientist in the past. Although qualified people served in this position, the existence of the position did not appear to have much impact on NOAA's scientific enterprise. If we create the Deputy Assistant Secretary for Science position included in H.R. 4546, what assurance do we have that whoever assumes this role will have more success and influence than the former Chief Scientists at NOAA?

A1. Early in this Administration, the Under Secretary of Commerce for Oceans and Atmosphere, VADM Lautenbacher, instituted a top-to-bottom review of NOAA operations and research. One of the items addressed regarded the position of NOAA's Chief Scientist. Recommendation number 36 from the Program Review Team (PRT) of June, 2002, recommended, "the establishment of corporate level oversight of research (Research Committee) regardless of the manner in which the research is conducted. The new structure would replace the Office of the Chief Scientist, with appropriate redistribution of that office's roles and responsibilities." NOAA recognizes the vital role of research in the agency. To better coordinate its research enterprise, NOAA has a Research Council in place. This Council is charged with ensuring all

NOAA services are based on sound science and all NOAA research programs are integrated, coordinated and consistent with the NOAA Mission and NOAA's Strategic Plan much in the same way intended by the proposed Deputy Assistant Secretary for Science and Technology in H.R. 4546. We would be pleased to discuss with members of the Subcommittee how we believe this function is being met through the new Research Council mechanism.

Q2. In your testimony you list four priorities that NOAA adopted: none of the priorities lists conservation. What role does conservation play in ecosystem approaches to managing the environment?

A2. The concept of conservation is included in NOAA's ecosystem goal and in Section 105 of the Administration's proposed organic act, which encompasses living marine resources, habitat, and management of ocean and coastal areas. The primary mission of NOAA's ecosystem approach to management is to protect, restore, and manage the use of coastal and ocean resources. NOAA defines an ecosystem approach to management as one that: (1) is adaptive, (2) is regionally directed, (3) takes account of ecosystem knowledge, (4) takes account of uncertainty, (5) considers multiple external influences, and (6) strives to balance diverse societal objectives.

Conservation of a living marine resource is defined by some as the protection of that resource. Others would define conservation to include the concept of planned management. In either case, NOAA's ecosystem approach to management includes a strong conservation ethic.

Q3. In your testimony, you stated that the administration has placed an emphasis on science that has a clear application to NOAA's programs. The tension between doing research with medium to long-term potential application and doing research to serve the immediate needs of the operational line offices at NOAA is legendary. Do you see a continued role for long-term research done through the Oceans and Atmospheric Research labs at NOAA? What research does the administration propose to phase out or de-emphasize because of a limited utility to NOAA's mission?

A3. NOAA's Science Advisory Board (SAB) has just completed a review of NOAA's research effort. The SAB found that, "long-term, visionary research for discovery is a crucial part of NOAA science." Further, the report found that a sustained research program is essential for a science-based agency with long-term operational responsibilities, and it recommends "retaining and strengthening a line office with the predominant mission of research, i.e., OAR [Oceans and Atmospheric Research]." NOAA needs to carry out research on all timescales: near-term (less than two years), mid-term (two-to-five years), and long-term (more than five years). Some research might not have a near-term operational application, yet provides cutting-edge solutions for the future.

Research in NOAA is constantly evolving. Research is phased out when it has been transitioned into operations or provided to a user to meet a particular need. Research is also ended when more promising research opportunities are identified. NOAA's Planning, Programming, Budgeting, and Execution System analyzes research related to programs and applies guidelines to determine if the research should be enhanced or phased out.

ANSWERS TO POST-HEARING QUESTIONS

Responses by D. James Baker, President and Chief Executive Officer, The Academy of Natural Sciences

Q1. What assurance do we have that whoever assumes the role of Deputy Assistant Secretary for Science will have more success and influence than the former Chief Scientists at NOAA?

A1. In my experience, Chief Scientists at NOAA have been effective in two ways: external advocates for the agency (Dr. Sylvia Earle and Dr. Kathleen Sullivan both helped enormously in promoting NOAA issues from fisheries to satellites) and as internal advisors (Dr. Al Beeton was a superb trouble shooter and chair of the NOAA Science Advisory Committee). Others, who were not effective in one of these two roles, had little impact. The title of Deputy Assistant Secretary helps raise the political awareness of the position, and may help attract the kind of person needed.

Q2. What programs are most problematic in terms of overlap with other agencies? How can this problem be resolved?

A2. The main problems arise in coastal waters, in jurisdiction of fisheries management, and in remote sensing. The overlap of coastal responsibilities among NOAA, EPA, and the Department of Interior needs to be sorted out soon—it is a complex tangle of historical responsibilities that only causes delay in resolving important issues. I suggest a Congressional hearing with each of the subject agencies asking them their responsibilities and how they might reduce the overlap.

Land remote sensing is an area where the responsibilities lie with NOAA, USGS, and NASA, with considerable interest from DOD and the intelligence agencies. The fits and starts with Landsat management shows that the system is broken, and only now starting to get resolved with a Landsat sensor flying on a joint NOAA/Airforce satellite (NPOESS). Once again, I would suggest a Congressional hearing to hear from all these agencies.

Fisheries management is also a multi-agency problem, mainly between NOAA and U.S. Fish and Wildlife. This problem is less urgent than the coastal issues, but still needs to be watched.

Q3. What safeguards can we put in place to ensure NOAA's scientific independence?

A3. The best safeguard is to make NOAA an independent agency. Short of doing that, there needs to be a channel for NOAA to appeal scientific issues—OSTP would be a good option—if there is censorship or suppression of scientific information.

Q4. What additional duties should the Deputy Assistant Secretary for Science and Technology have?

A4. I believe that H.R. 4546 fully covers the range of duties and authorities necessary for this position. The key element for success is to get the right person.

Q5. How can the independence of the NOAA Science Advisory Board be assured?

A5. I like Dr. Friday's suggestion of appointments in consultation with the National Academy of Sciences. This could be a good model for this and other science advisory bodies.

Q6. How should the Nation organize its research and development of civilian Earth observing satellite programs?

A6. Since NOAA is so critical in providing information and warnings to the public, I believe it should play a stronger role in civilian Earth observing systems. But this means adding to the budget of NOAA. For example, the idea of transferring NASA's Earth observing satellites to NOAA is good, provided that the funding is also transferred. NASA's support of Goddard and JPL for Earth remote sensing is also critical and should not be lost in any case. Thanks to the NPOESS system which was set up in my administration, the relations between NOAA and DOD/Air Force are good with respect to weather satellites. The Nation needs a similar agreement for land remote sensing that includes USGS so that the Landsat problem can be correctly addressed. The Congress could help here, as I mentioned earlier, by holding a hearing from all the agencies involved, NOAA, NASA, USGS and Air Force, to discuss what relationships and interagency cooperation need to be formed.

ANSWERS TO POST-HEARING QUESTIONS

Responses by Rear Admiral Richard D. West, President, Consortium for Oceanographic Research and Education

Q1. In your testimony you support the addition of a Deputy Assistant Secretary for Science and Technology to NOAA's leadership, as called for in H.R. 4546. Do you believe there are additional duties or authorities this position should have?

A1. In my overview to the Subcommittee on the results of the work undertaken by the NOAA Research Review Team, I expressed the review team's support for the creation of a position that we called Associate Administrator for Research. This person would report directly to the NOAA Administrator. Although H.R. 4546 calls for a Deputy Assistant Secretary for Science and Technology, the position functions are largely the same. While the bill defines the functions of the position very clearly, it is still worth emphasizing how important it is that the person in this position be entrusted with both mission and budget authority for all NOAA research. CORE and the Research Review Team also support making this position a career-reserved position.

Q2. In his testimony, Dr. Friday suggested that members of the NOAA Science Advisory Board be appointed in consultation with the National Academy of Sciences. His concern is to avoid the Science Advisory Board being a "rubber stamp" for the NOAA Administrator. Is this a major problem? If so, what are other ways to ensure the independence of the NOAA Science Advisory Board?

A2. Probably the best way to prevent the Science Advisory Board (SAB) from acting as a "rubber stamp" for the NOAA Administrator is to ensure that most accomplished and respected members and leaders from the oceans and atmospheric research communities are appointed to it. Involving the National Academy of Sciences might be one way to achieve that goal. The Committee also may wish to consider alternative nomination or appointment procedures to ensure the independence of the advisory board members. One approach would be to make the positions Presidential nominations with Senate confirmation, similar to the National Science Board of the National Science Foundation.

Question submitted by Democratic Members

Q1. NOAA has had a position of Chief Scientist in the past. Although qualified people served in this position, the existence of the position did not appear to have much impact on NOAA's scientific enterprise. If we created the Deputy Assistant Secretary for Science position included in H.R. 4546, what assurance do we have that whoever assumes the role will have more success and influence than the former Chief Scientists at NOAA?

A1. First and foremost, the bill calls for the creation of a career-reserved position with far greater authority than that with which current Chief Scientist position is entrusted. If the Deputy Assistant Secretary position defined in H.R. 4546 is enacted, the position will carry both mission responsibility and budget authority for all NOAA research. These two key features of the position, along with the other seven functions delineated in the legislation would ensure that those serving in this position would have real and effective authority over NOAA's research enterprise.

ANSWERS TO POST-HEARING QUESTIONS

Responses by Elbert W. (Joe) Friday, Jr., Former Assistant Administrator, National Weather Service

Q1. In your testimony you support the addition of a Deputy Assistant Secretary for Science and Technology to NOAA's leadership, as called for in H.R. 4546. Do you believe there are additional duties or authorities this position should have?

A1. The position should be the equivalent of a corporate Vice President for Research and Development and not a Chief Scientist as in a previous NOAA organizational structure. The individual should be charged with the overall NOAA R&D program, having budgetary authority for the research and development activities. The individual should be charged with oversight of the major 'programs' for R&D such as the National Sea Grant College Program, the US Weather Research Program, the Coastal Ocean Program, etc.

Q2. This committee has received many suggestions about the interaction of NASA and NOAA, particularly concerning the transition of research to operations. The U.S. Commission on Ocean Policy recommended that NASA transfer operation of research satellites to NOAA once they are launched. The National Research Council suggested establishing an interagency NASA–NOAA planning office to facilitate transition of research satellites into operations. Given the various proposals, please elaborate on how you think the Nation should organize its research and development of civilian Earth observing satellite programs.

A2. In at least two separate reports, the National Research Council has recommended a formal establishment of a division of mission responsibilities for Earth remote sensing between NASA and NOAA. One report recommended the recreation of the very successful Operational Satellite Improvement Program (OSIP) in which NASA flew development versions of weather satellite sensors on the NIMBUS spacecraft for subsequent implementation on the NOAA TIROS weather satellites. The OSIP program was formally terminated in 1982. The most recent recommendation was for the development of the NASA–NOAA planning office. Both recommendations were rejected by the Associate Administrator for the Earth Sciences Enterprise. Now that there is no Earth Science Enterprise at NASA, I am even more concerned about NASA's willingness to continue to develop instruments for future Earth remote sensing. To specifically answer your question, I believe that NOAA should be given the mission of developing the technology necessary to provide for the Earth remote sensing capabilities. This would be a transfer to NOAA the former NASA ESE mission WITH THE ASSOCIATED BUDGET AUTHORITY, CEILING, and APPROPRIATION. The present Integrated Program Office IPO for NPOESS has proven the possibility of developing and procuring a major environmental satellite system under NOAA leadership. The IPO has tapped into the same contractor support capability that has been used by NASA. This would free NASA to focus fully on its exploration mission and focus the Earth mission in NOAA.

ANSWERS TO POST-HEARING QUESTIONS

Responses by Richard J. Hirn, General Counsel, National Weather Service Employees Organization

Q1. All witnesses were asked for their opinion whether the proposed Deputy Assistant Secretary for Science will have more success and influence than the former Chief Scientists.

A1. The National Weather Service Employees Organization does not feel that it can offer an authoritative opinion on this issue. However, NWSEO does note that the Department of Commerce already has at least 29 Deputy, Under, Associate, Assistant and Deputy Assistant Secretaries for what may be the smallest cabinet department.

Q2. These Committee Members asked whether the organic act should specify some structure and authorize some positions of responsibility tied to specific functions other than the National Weather Service, such as the Fisheries and Oceans Services.

A2. The case for establishing specific agency structures for other existing line agencies is not as compelling as the case for specific statutory authority for the National Weather Service. As noted in our earlier testimony, it is necessary to preserve the identity of the National Weather Service because it has earned its well deserved public reputation for the ever increasing timeliness and accuracy of its forecasts and warnings. Loss of that identity will confuse the public who have grown to trust the forecasts and warnings issued from "the National Weather Service." Nonetheless, statutory specification of other line agencies within NOAA will require DOC to make more specific budget requests, and would require DOC to reveal specific FTE allocations, than it would otherwise be required to do if existing NOAA agencies were fully consolidated. This would enhance Congressional programmatic and appropriations oversight, and would increase agency accountability.

However, consolidation of certain existing NOAA agencies based on their existing functions seems logical. The missions of the NMFS and NOS overlap in many regards. The Oceans Commission recommended a restructuring of the entirety of NOAA based on "Assessment, Prediction and Operations," "Management" and "Research and Education." But the Commission really only considered the oceans function—not the atmospheric services provided by NOAA. NWSEO suggests that the more logical restructuring may be to divide NOAA into two separate agencies:

- the National Oceanic Administration, which would include NOS, NMFS, the NOAA Corps and vessels, those OAR labs whose primary mission in oceanic research and the existing NOAA Office of General Counsel (whose primary mission is to provide legal services to NMFS and NOS);
- the National Weather Service, which would include NESDIS (which tracks and command the Nation's weather satellites), the NOAA Aircraft Operations Center (which flies hurricane reconnaissance missions), the National Climatic Data Center, and those OAR labs whose primary mission is atmospheric research.

The restructuring model proposed by the Oceans Commission could be applied to the internal structure of these two agencies.

Such a division of NOAA would facilitate Congressional oversight. Presently, different Committees of the House, and different Subcommittees of the Senate Commerce Committee, have jurisdiction over the oceanic and atmospheric portions of NOAA. This restructuring would more closely align the agency with the Congressional committee structure.

NWSEO recognizes that such a division of NOAA into two agencies would not be consistent with the recognition that the oceans and the atmosphere are an integrated ecosystem. However, an integrated NOAA will not be able to administer a comprehensive ecosystem management plan because it will still not have jurisdiction over land and tributaries. The agencies who are responsible for these systems, the Forest Service, the National Geologic Survey, the Fish and Wildlife Service, remain in other cabinet departments. Furthermore, although the "wet" side of NOAA is responsible for ensuring the environmental quality of the oceans through stewardship and environmental enforcement, the atmospheric side of NOAA has no responsibility for the environmental quality of the air, because the EPA enforces the Clean Air Act. While the "wet" side of NOAA has a clear environmental protection mission, the National Weather Service is primarily a public safety, rather than an environ-

mental, agency. NWSEO believes that the public will be better served by two smaller, flatter, agencies, rather than one, larger, hierarchical agency.