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COMPILATION OF MARKUPS

BEFORE THE

COMMITTEE ON SCIENCE

ONE HUNDRED EIGHTH CONGRESS

FIRST AND SECOND SESSIONS

DECEMBER 31, 2004

Serial No. 108–69

Printed for the use of the Committee on Science

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***Ranking Minority Member appointments/Full Committee and Subcommittee assignments**

****Vice Chair appointments/Full Committee and Subcommittee assignments.**

+The Chairman and Ranking Minority Member shall serve as Ex-officio Members of all Subcommittees and shall have the right to vote and be counted as part of the quorum and ratios on all matters before the Subcommittees.

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2003–2004

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

PROCEEDINGS OF THE MARKUP HELD BY THE FULL COMMITTEE ON H.CON.RES. 279, RECOGNIZING THE SIGNIFICANCE OF THE ANNIVERSARY OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE CONGRESSIONAL SCIENCE AND ENGINEERING FELLOWSHIP PROGRAM, AND REAFFIRMING THE COMMITMENT TO SUPPORT THE USE OF SCIENCE IN GOVERNMENTAL DECISION-MAKING THROUGH SUCH PROGRAM

THURSDAY, OCTOBER 16, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:00 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

COMMITTEE ON SCIENCE
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

FULL COMMITTEE MARKUP
October 16, 2003
10:00 a.m. - 2318 RHOB

Pursuant to notice, the Committee on Science intends to consider the following measures:

--H.Res. 395, Recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week; and,

--H.Con.Res. 279, Recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program, and reaffirming the commitment to support the use of science in governmental decisionmaking through such Program.

Chairman BOEHLERT. The Subcommittee will come to order. Pursuant to notice, the Committee on Science is meeting today to consider the following measures. And incidentally, don't get nervous. This will be brief, and then we will get right to the main attraction here today.

We will now consider House Concurrent Resolution 279. I ask unanimous consent that the Concurrent Resolution be considered as read and open to amendment at any point. Without objection, so ordered.

[H.Con.Res. 279 follows:]

108TH CONGRESS
1ST SESSION

H. CON. RES. 279

Recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program, and reaffirming the commitment to support the use of science in governmental decisionmaking through such Program.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 15, 2003

Mr. EHLERS (for himself, Mr. BOEHLERT, Mr. HOLT, Mr. HALL, Mr. STARK, Mr. PETERSON of Pennsylvania, Mr. MARKEY, Mr. RANGEL, Mr. BROWN of Ohio, Mr. ROHRABACHER, Mr. FILNER, Mr. LEVIN, Mr. MCDERMOTT, Mr. SCHIFF, Mr. GUTKNECHT, Mr. OBERSTAR, Mr. HINCHEY, Mr. SMITH of Michigan, Ms. SLAUGHTER, Mr. ENGEL, Mr. BERMAN, Mr. LANTOS, Mr. BOUCHER, Mr. DOGGETT, Mr. JOHNSON of Illinois, Mr. SPRATT, and Mr. BARTON of Texas) submitted the following concurrent resolution; which was referred to the Committee on Science

---

CONCURRENT RESOLUTION

Recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program, and reaffirming the commitment to support the use of science in governmental decisionmaking through such Program.

Whereas Congress hosted the American Association for the Advancement of Science's (AAAS) first Congressional Science and Engineering Fellows 30 years ago in 1973;

Whereas the AAAS Congressional Science and Engineering Fellowship Program was the first to provide an opportunity for Ph.D.-level scientists and engineers to learn about the policymaking process while bolstering the technical expertise available to Members of Congress and staff;

Whereas Members of Congress hold the AAAS Congressional Science and Engineering Fellowship Program in high regard for the substantial contributions that Fellows have made, serving both in personal offices and on committee staff;

Whereas the Congress is increasingly involved in public policy issues of a scientific and technical nature and recognizes the need to develop additional in-house expertise in the areas of science and engineering;

Whereas more than 800 individuals have held AAAS Congressional Science and Engineering Fellowships since 1973;

Whereas the AAAS Congressional Science and Engineering Fellows represent the full range of physical, biological, and social sciences, and all fields of engineering;

Whereas the AAAS Congressional Science and Engineering Fellows bring to the Congress new insights and ideas, extensive knowledge, and perspectives from a variety of disciplines;

Whereas the AAAS Congressional Science and Engineering Fellows learn about legislative, oversight, and investigative activities through assignments that offer a wide array of responsibilities;

Whereas AAAS Congressional Science and Engineering Fellowships provide an opportunity for scientists and engi-

neers to transition into careers in government service; and

Whereas many former AAAS Congressional Science and Engineering Fellows return to their disciplines and share knowledge with students and peers to encourage more scientists and engineers to participate in informing government processes: Now, therefore, be it

Resolved by the House of Representatives (the Senate concurring), That the Congress—

(1) recognizes the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program;

(2) acknowledges the value of 30 years of participation by the American Association for the Advancement of Science Congressional Science and Engineering Fellows; and

(3) reaffirms its commitment to support the use of science in governmental decisionmaking through the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program.

○

[The Summary of H.Con.Res. 279 follows:]

SUMMARY OF H.CON.RES. 279, RECOGNIZING THE SIGNIFICANCE OF THE ANNIVERSARY OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE CONGRESSIONAL SCIENCE AND ENGINEERING FELLOWSHIP PROGRAM

BY VERNON J. EHLERS

Purpose of the Resolution

To recognize the 30th anniversary of the American Association for the Advancement of Science (AAAS) Congressional Science and Engineering Fellowship Program.

Background

The AAAS Congressional Fellowship Program is celebrating its 30th anniversary this fall. The program was the first of its kind to provide Ph.D.-level scientists the chance to learn about policy-making while bolstering the technical expertise available to Members of Congress. Over the past 30 years this program has provided more than 800 scientists the opportunity to work in a Congressional office for a year and has been a valuable way to bring more people with strong technical and scientific skills to Congress.

AAAS Fellows represent the full range of engineering, natural, physical, and social sciences and make a significant public service contribution by working as legislative assistants on Congressional staffs. Fellows benefit from the program by learning about the legislative process and developing their leadership potential.

AAAS Fellows are selected through a competitive process by one of nearly 30 sponsoring professional societies (see list below). In early September, AAAS coordinates an extensive orientation program covering various aspects of the legislative process, current issues before Congress, and agencies and organizations that interact with Congress. Throughout the year, Fellows are involved in supporting the Congressional offices they work in by writing speeches and press releases, developing legislation, meeting with constituents and outside groups, acting as a liaison to committees to which a Member is assigned, and organizing hearings on legislative issues of concern the their Members.

List of sponsoring professional societies:

American Association for the Advancement of Science
American Association of Colleges of Pharmacy
American Chemical Society
American Dental Association
American Geological Institute
American Geophysical Union
American Institute of Chemical Engineers
American Institute of Physics
American Meteorological Society
American Nuclear Society
American Physical Society
American Psychological Association
American Society for Microbiology
American Society of Agronomy
American Society of Civil Engineers
American Society of Mechanical Engineers
American Veterinary Medical Association
American Welding Society
Ecological Society of America
Federation of Animal Science Societies
Geological Society of America
Institute of Electrical and Electronics Engineers–USA
Institute of Food Technologists
Institute of Navigation
Materials Research Society
Optical Society of America

International Society for Optical Engineering
Society for Research in Child Development

Chairman BOEHLERT. Are there any amendments? Hearing none, the question is on the Concurrent Resolution, House—Dr. Ehlers?

Mr. EHLERS. Thank you, Mr. Chairman.

Just a few words to enrich the Nation. Today we will be marking up this Resolution recognizing the 30th anniversary of the Congressional Science and Engineering Fellowship Program coordinated by the American Association for the Advancement of Science. It recognizes a truly valuable educational program that gives scientists a wonderful opportunity to step out of the lab and into the political process. By working as legislative assistants in Congressional offices, the scientists get a better idea on how Congress operates. At the same time, Members of Congress and other policy makers gain a valuable new resource to help them better understand the scientific and technical issues underpinning complex policy debates.

Six different Fellows have served on my staff, and each one used their unique talents and understanding to help shape my legislative agenda and therefore this committee's legislative agenda. I think it is a wonderful program that has helped the Congress. It has brought some very bright, young, and little-aged people into the Congress to help us, and I urge my colleagues to recognize the success of this program by supporting this Resolution to honor the AAAS Congressional Fellowship Program.

[The prepared statement of Mr. Ehlers follows:]

PREPARED STATEMENT OF VERNON J. EHLERS

Thank you Mr. Chairman. Today I am pleased that we are marking up this resolution recognizing the 30th anniversary of the Congressional Science and Engineering Fellowship Program coordinated by the American Association for the Advancement of Science (AAAS). This resolution has bipartisan support from 26 co-sponsors, including many Members of this committee. It recognizes a truly valuable educational program that gives scientists a wonderful opportunity to step out of the lab and into the political process. By working as legislative assistants in Congressional offices, they get a-behind-the-scenes look at how our laws are made—writing speeches, developing legislation, and serving as liaisons to Committees on which a Member serves. At the same time, Members of Congress and other policy-makers gain a valuable new resource to help them better understand the scientific and technical issues underpinning complex policy debates. Six different fellows have served on my staff and each one used their unique talents and understanding to help shape my legislative agenda.

After 30 years this program is still going strong. Over 800 scientists have now served Republican, Democratic and Independent Members of Congress, and many are currently working for Congress and the Administration. These individuals have contributed not only their scientific expertise but also a fresh perspective to policy-making.

I urge my colleagues to recognize the success of this program by supporting this resolution to honor the AAAS Congressional Fellowship Program.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, I am pleased to join you in supporting H.Con.Res. 279, which recognizes the 30th anniversary of the Congressional Fellowship Program instituted by the American Association for the Advancement of Science. I congratulate Congressman Ehlers for taking the initiative to develop the resolution.

This fellowship program has provided Congressional committees and Members' offices with scientific and technical expertise that has greatly benefited governmental decision-making for three decades. The Science Committee has made frequent use of AAAS Fellows over the life of the program, and I know that many of my col-

leagues have repeatedly sought fellows for their personal offices because of the contributions they have made.

The issues confronting Congress increasingly involve scientific and technical aspects. Ph.D.-level scientists and engineers, serving as Congressional fellows, bring to bear extensive knowledge and fresh insights and perspectives. Their presence enhances the public policy formulation process, as well as provides Fellows with a window on, and possible transition to, public service careers.

The American Association for the Advancement of Science is to be congratulated for creating the Congressional Fellows Program. I urge my colleagues to support this worthy resolution.

Mr. Chairman, I yield back the balance of my time.

Chairman BOEHLERT. Thank you, Dr. Ehlers.

Is there anyone else who seeks recognition? We have Dr. Palmer, Dr. Mimikakis, and Dr. Rooney, and all of the other AAAS Fellows that daily enrich the offerings of this committee and add immensely to the intellectual capital available in this confine. This one is for you.

Are there any amendments? Hearing none, the question is on the House Concurrent Resolution 279, recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program and reaffirming the commitment to support the use of science in governmental decision-making through such Program. All of those in favor, say aye. Opposed, nay. In the opinion of the Chair, the ayes have it.

I will now recognize Mr. Gordon for a motion.

Mr. GORDON. Mr. Chairman, I move that the Committee favorably report House Concurrent Resolution 279 to the House with the recommendation that the Resolution be agreed to. Furthermore, I move that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the Concurrent Resolution before the House for consideration.

Chairman BOEHLERT. The question is on the motion to report the Concurrent Resolution favorably. Those in favor of the motion will signify by saying aye, opposed no. The ayes have it. And the Resolution is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move, pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to adopt and pass House Concurrent Resolution 279. Without objection, so ordered.

That concludes our markup.

[Whereupon, at 10:18 a.m., the Committee proceeded to other business.]

PROCEEDINGS OF THE MARKUP HELD BY THE FULL COMMITTEE ON H.RES. 395, RECOGNIZING THE IMPORTANCE OF CHEMISTRY TO OUR EVERYDAY LIVES AND SUPPORTING THE GOALS AND IDEALS OF NATIONAL CHEMISTRY WEEK

THURSDAY, OCTOBER 16, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:00 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

COMMITTEE ON SCIENCE
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

FULL COMMITTEE MARKUP
October 16, 2003
10:00 a.m. - 2318 RHOB

Pursuant to notice, the Committee on Science intends to consider the following measures:

--H.Res. 395, Recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week; and,

--H.Con.Res. 279, Recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program, and reaffirming the commitment to support the use of science in governmental decisionmaking through such Program.

Chairman BOEHLERT. The Subcommittee will come to order. Pursuant to notice, the Committee on Science is meeting today to consider the following measures. And incidentally, don't get nervous. This will be brief, and then we will get right to the main attraction here today.

House Resolution 395, recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week, and House Concurrent Resolution 279, recognizing the significance of the anniversary of the American Association for the Advancement of Science Congressional Science and Engineering Fellowship Program and reaffirming the commitment to support the use of science in governmental decision-making through such Program.

I ask unanimous consent for the authority to recess the Committee at any time, and without objection, it is so ordered.

This markup will be very brief so that we can get to our important hearing. We are marking up two non-controversial resolutions: one recognizing the 30th anniversary of the Fellows Program run by the American Association for the Advancement of Science, and one recognizing American Chemistry Week. These are both worthy endeavors that deserve congressional recognition, and I appreciate that Dr. Ehlers has introduced the AAAS Resolution and Dr. Holt, who was a former AAAS Fellow, has introduced the chemistry Resolution. I think these resolutions speak for themselves. The other thing I would note is that we recognize the value of the AAAS program here daily as many of our staff members began their careers on the Hill as Fellows. To take just three prominent examples, the Minority Chief of Staff, Bob Palmer, and both of my Deputy Chiefs of Staff, John Mimikakis and Peter Rooney, were AAAS Fellows. Hopefully, everyone will view that as an advertisement for the program.

I look forward to the speedy passage of these Resolutions through this committee and the House.

I now recognize Mr. Gordon to present any opening remarks he might care to present.

Mr. GORDON. Mr. Chairman, I will place Mr. Hall's opening remarks in the record and let us move forward.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, I ask my colleagues to join in supporting H.Res. 395, which recognizes National Chemistry Week.

This bipartisan resolution was introduced by Congressmen Rush Holt and Vern Ehlers, who together constitute the congressional physics caucus, but who also appreciate the importance of chemistry. I want to congratulate them for bringing this resolution forward.

National Chemistry Week was started as an annual event in 1987 by the American Chemical Society. It sponsors events and activities to make elementary and secondary school children, and the public generally, more aware of what chemistry is and its importance to their everyday lives.

National Chemistry Week activities are carried out by local sections of the American Chemical Society working with local industry, schools and museums. Hands-on activities, chemical demonstrations, and exhibits, for example, provide opportunities to stimulate the interest of young people in science and in pursuing scientific careers.

For 2003, the theme of National Chemistry Week is "Earth's Atmosphere and Beyond" in honor of the 100th anniversary of the Wright Brothers first powered flight. I urge my colleagues to support this worthy resolution.

Mr. Chairman, I yield back the balance of my time.

Chairman BOEHLERT. Thank you.

I now recognize Dr. Ehlers, the sponsor of both Resolutions before the Committee and the Environment, Technology, and Standards Subcommittee Chairman for any opening remarks that he may have.

Mr. EHLERS. Mr. Chairman, in the interest of time, I will not read the entire statement, but I ask that both statements be entered into the record in full.

Chairman BOEHLERT. Without objection, so ordered. All Members may place opening statements in the record at this point in time.

[The prepared statement of Mr. Ehlers follows:]

PREPARED STATEMENT OF REPRESENTATIVE VERNON J. EHLERS

Thank you Mr. Chairman. Today, I am pleased that we are marking up this resolution recognizing the importance of chemistry to our everyday lives. This resolution supports the goals and ideals of National Chemistry Week. It recognizes the important contributions of chemical scientists and engineers to technological progress and the health of many industries. In addition, it encourages the people of the United States to observe National Chemistry Week, which, this year, is October 19–25.

The chemical sciences provide an enabling infrastructure that delivers the foods, fuels, medicine, and materials that are part of our everyday lives. The contributions of chemical scientists and engineers are central to the technological progress and the health of many industries.

I commend the American Chemical Society for establishing National Chemistry Week in 1987. During National Chemistry Week, volunteers from across the United States will teach children about air, the atmosphere and the solar system. The theme in 2003, "Earth's Atmosphere and Beyond," was chosen to honor the 100th anniversary of Orville and Wilbur Wright's flight from Kitty Hawk, North Carolina. It is important to stimulate children's interest in the chemical sciences so that they will consider careers in these fields and potentially discover the innovations of the future.

I urge my colleagues to support this resolution recognizing the goals and ideals of National Chemistry Week.

Chairman BOEHLERT. Is there anything else that you care to say?

Mr. EHLERS. Well, Mr. Chairman, are we taking both simultaneously or are we proceeding——

Chairman BOEHLERT. We are taking one at a time. We are doing first the chemistry.

Mr. EHLERS. First the chemistry.

Let me just make a few comments, thank you, Mr. Chairman.

Today I am pleased that we are marking up this Resolution recognizing the importance of chemistry in our everyday lives. This Resolution supports the goals and ideals of National Chemistry Week that recognizes the important contributions of chemical scientists and engineers to technological progress and the health of many industry. I would particularly like to commend the American Chemical Society for establishing National Chemistry Week in 1987. I would also like to commend the American Chemical Society for setting an example for other professional societies and its work trying to make science relevant to the public and increasing and improving science education throughout the country.

The theme of 2003, "Earth's Atmosphere and Beyond!", was chosen to honor the 100th anniversary of Orville and Wilbur Wright's flight from Kitty Hawk, North Carolina. It is very important to stimulate children's interests in this week as well as the activities

of the various chemical societies is important in this endeavor. I urge my colleagues to support this Resolution.

Chairman BOEHLERT. Thank you, Dr. Ehlers.

Dr. Gingrey.

Mr. GINGREY. Thank you, Mr. Chairman.

As a chemistry graduate, math and science and chemistry from the Georgia Institute of Technology, I certainly am very, very happy with this Resolution and what the American Chemical Society has done in starting National Chemistry Week back in 1987 and realize how important it is to emphasize what chemistry really means to our society. I know we are concerned about our youngsters, and I have four adult children who have held their nose, I am sure, when they had to sign up for chemistry at the high school or college level. And I am sure that most of our youngsters probably are more familiar—might be more familiar with Orville Redenbacher than Orville Wright, but it is very important to emphasize what chemistry means to our society.

And as a Member of this Science Committee with that background, I understand the importance of the contributions of chemistry. It affects our everyday lives, as it is the core of every technology that we enjoy. Chemical scientists and engineers are central to contributing to the technological progress and the health of many industries that drive our economy, like pharmaceuticals, electronics, agriculture, automobile, and aerospace sectors. And I could go on and on.

So I commend the 10,000 nationwide volunteers that will go out next week and educate millions of children through hands-on science activities in local schools, libraries, and museums and our teachers who promote chemistry everyday in our classrooms.

And I thank you, Mr. Chairman, for——

[The prepared statement of Mr. Gingrey follows:]

PREPARED STATEMENT OF REPRESENTATIVE PHIL GINGREY

Talking Points:

As a Member of the Science Committee with a background and degree in Chemistry, I understand the importance and contributions of Chemistry to our society.

Chemistry affects our everyday life, as it is the core of every technology that we enjoy from refrigerators and washing machines to computers and cell phones.

Chemical scientist and engineers are central to contributing to the technological progress and the health of many industries that drive our economy like pharmaceuticals, electronics, agriculture, automobile, and aerospace sectors.

These contributions create new jobs, boost economic growth, and improve our health and standard of living.

It is critical for our nation's future to remain a world leader in chemical advancements and for our children to strive to study Chemistry and realize the excitement, profitability, and critical role that chemistry plays in our country.

I commend the 10,000 nationwide volunteers that will go out next week and educate millions of children through hands-on science activities in local schools, libraries, and museums and our teachers who promote chemistry everyday in the classroom.

Chairman BOEHLERT. Thank you, Dr. Gingrey. The Chair would note that both Orvilles have made significant contributions to enrich our society.

The Chair recognizes Ms. Johnson.

Ms. JOHNSON. Thank you very much, Mr. Chairman. I would just ask unanimous consent to place my statement in the record.

Chairman BOEHLERT. Without objection, so ordered.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Mr. Chairman, I am pleased you called this markup today on such an important piece of legislation. As an author of similar legislation honoring scientists, in particular, African American Scientists, I speak in support of a National Chemistry Week and ask for favorable consideration by the Committee today.

Since the late 1980's, the Nation's available scientific workforce has declined as a share of the total workforce, and graduate school populations are flat or declining. Moreover, a survey supported by the Sloan Foundation reports that there are now trends showing that the best and the brightest students are avoiding graduate science degree programs. Over the past ten years, those taking the Graduate Record Exam intending to pursue science and engineering have declined by 16 percent. Among students scoring near the top—that is over 700—the decline is even greater. The only bright spot is that high-scoring minorities are entering science and engineering in greater numbers.

Clearly, it will be necessary to attract greater numbers to careers in science in order to avoid devastating consequences for the future.

That is why it is so necessary to recognize the importance of the science, and especially in this instance, Chemistry.

The study of Chemistry has led to countless advances in our society. Without Chemistry, we would not have the developments in agriculture that led to abundant food supplies, even in the face of drought or pest; we could not depend on technological progress in health or pharmaceuticals that improve and extend our quality of life; and we would have far fewer jobs that were created because of these advancements.

Again, Mr. Chairman, I want to thank you for calling this markup. I recommend H.Res. 395 to my colleagues and seek their approval to favorably report the legislation to the House.

Chairman BOEHLERT. And all Members have that permission to do so at this juncture.

I ask unanimous consent that the—we will now consider H.Res. 395. I ask unanimous consent that the Resolution is considered as read and open to amendment at any point. Without objection, so ordered.

[H.Res. 395 follows:]

108TH CONGRESS
1ST SESSION

H. RES. 395

Recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 10, 2003

Mr. HOLT (for himself and Mr. EHLERS) submitted the following resolution; which was referred to the Committee on Science

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RESOLUTION

Recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week.

Whereas chemistry is at the core of every technology we enjoy today;

Whereas the power of the chemical sciences is what they create as a whole: an enabling infrastructure that delivers the foods, fuels, medicines, and materials that are the hallmarks of modern life;

Whereas the contributions of chemical scientists and engineers are central to technological progress and the health of many industries, including the chemical, pharmaceutical, electronics, agriculture, automobile, and aerospace sectors, and these contributions create new jobs,

boost economic growth, and improve our health and standard of living;

Whereas the American Chemical Society, the world's largest scientific society, founded National Chemistry Week in 1987 to educate the public about the role of chemistry in society and to enhance students' appreciation of the chemical sciences;

Whereas National Chemistry Week is a community-based public awareness campaign conducted by more than 10,000 volunteers in all 50 States, the District of Columbia, and Puerto Rico;

Whereas National Chemistry Week volunteers from United States industry, government, secondary schools, and institutions of higher education reach and educate millions of children through hands-on science activities in local schools, libraries, and museums;

Whereas the theme of National Chemistry Week in 2003, "Earth's Atmosphere and Beyond!", was chosen to honor the 100th anniversary of Orville and Wilbur Wright's flight from Kitty Hawk, North Carolina; and

Whereas, in recognition of National Chemistry Week, volunteers all across the United States will teach children about air, the atmosphere, our solar system, and the uniqueness of planet Earth during the week beginning October 19, 2003: Now, therefore, be it

Resolved, That the House of Representatives—

(1) recognizes that the important contributions of chemical scientists and engineers to technological progress and the health of many industries have cre-

ated new jobs, boosted economic growth, and improved the Nation's health and standard of living;

(2) supports the goals and ideals of National Chemistry Week, as founded by the American Chemical Society; and

(3) encourages the people of the United States to observe National Chemistry Week with appropriate recognition, ceremonies, activities. and programs to demonstrate the importance of chemistry to our everyday lives.

○

Chairman BOEHLERT. Are there any amendments? Hearing none, the question is on the Resolution, House Resolution 395, recognizing the importance of chemistry to our everyday lives and supporting the goals and ideals of National Chemistry Week. All of those in favor, say aye. All of those opposed, say no. In the opinion of the Chair, the ayes have it.

I will now recognize Mr. Gordon to offer a motion.

Mr. GORDON. Mr. Chairman, I move that the Committee favorably report House Resolution 395 to the House with the recommendation that the Resolution be agreed to. Furthermore, I move that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes, that the Chairman take all necessary steps to bring the Resolution before the House for consideration.

Chairman BOEHLERT. All right. The question is on the motion to report the Resolution favorably. Those in favor of the motion will signify by saying aye, opposed no. The ayes have it. And the Resolution is favorably reported. Without objection, the motion to reconsider is laid upon the table.

I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary and the House to adopt and pass House Resolution 395. Without objection, so ordered.

That concludes our markup.

[Whereupon, at 10:18 a.m., the Committee proceeded to other business.]

PROCEEDINGS OF THE MARKUP HELD BY THE FULL COMMITTEE ON H.R. 766, TO PROVIDE FOR A NATIONAL NANOTECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM, AND FOR OTHER PURPOSES

THURSDAY, MAY 1, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:11 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

Chairman BOEHLERT. Let us come to order, but let us start the meeting the way I expect the end the meeting, on a most positive note. This is a significant year, 2003. We are celebrating the birthday of our distinguished colleague from Texas, and every day we are having a different celebration. This is our day right here to have another celebration. Let us stand up and give him a round of applause. Happy birthday Ralph.

All in favor say aye. Opposed no. The ayes have it. The bill is passed. Now did you say he was 100?

It is a pleasure to welcome——

Mr. HALL. Thank you very much. Thank you.

Chairman BOEHLERT. You are entirely welcome, Mr. Hall. Pursuant to notice, the Committee on Science is meeting today to consider the following measures, H.R. 766, the *Nanotechnology Research and Development Act of 2003,* and H.R. 1578, *Global Change Research and Data Management Act of 2003.* I ask unanimous consent for the authority to recess the Committee at any point. And without objection, it is so ordered. We will now consider the bill H.R. 766.

[H.R. 766 follows:]

108TH CONGRESS
1ST SESSION

H.R. 766

To provide for a National Nanotechnology Research and Development Program, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 13, 2003

Mr. BOEHLERT (for himself, Mr. HONDA, Mr. EHLERS, Mr. HALL, Mr. SMITH of Michigan, Mr. GORDON, Mrs. BIGGERT, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. BARTLETT of Maryland, Ms. LOFGREN, Mr. GUTKNECHT, and Mr. BISHOP of New York) introduced the following bill; which was referred to the Committee on Science

A BILL

To provide for a National Nanotechnology Research and Development Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Nanotechnology Research and Development Act of 2003".

SEC. 2. DEFINITIONS.

In this Act———

(1) the term "advanced technology user facility" means a nanotechnology research and development facility supported, in whole or in part, by federal funds that is open to all United States researchers on a competitive, merit-reviewed basis;

(2) the term "Advisory Committee" means the advisory committee established under section 5;

(3) the term "Director" means the Director of the Office of Science and Technology Policy;

(4) the term "Interagency Committee" means the interagency committee established under section 3(c);

(5) the term "nanotechnology" means science and engineering aimed at creating materials, devices, and systems at the atomic and molecular level;

(6) the term "Program" means the National Nanotechnology Research and Development Program described in section 3; and

(7) the term "program component area" means a major subject area established under section 3(c)(2) under which is grouped related individual projects and activities carried out under the Program.

SEC. 3. NATIONAL NANOTECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—The President shall implement a National Nanotechnology Research and Development Program to promote federal nanotechnology research, development, demonstration, education, technology transfer, and commercial application activities as necessary to ensure continued United States leadership in nanotechnology research and development and to ensure effective coordination of nanotechnology research and development across federal agencies and across scientific and engineering disciplines.

(b) PROGRAM ACTIVITIES.—The activities of the Program shall be designed to———

(1) provide sustained support for nanotechnology research and development through———

(A) grants to individual investigators and interdisciplinary teams of investigators; and

(B) establishment of interdisciplinary research centers and advanced technology user facilities;

(2) ensure that solicitation and evaluation of proposals under the Program encourage interdisciplinary research;

(3) expand education and training of undergraduate and graduate students in interdisciplinary nanotechnology science and engineering;

(4) accelerate the commercial application of nanotechnology innovations in the private sector; and

(5) ensure that societal and ethical concerns will be addressed as the technology is developed by———

(A) establishing a research program to identify societal and ethical concerns related to nanotechnology, and ensuring that the results of such research are widely disseminated; and

(B) integrating, insofar as possible, research on societal and ethical concerns with nanotechnology research and development.

(c) INTERAGENCY COMMITTEE.—The President shall establish or designate an interagency committee on nanotechnology research and development, chaired by the Director, which shall include representatives from the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the National Institute of Standards and Technology, the Environmental Protection Agency, and any other agency that the President may designate. The Interagency Committee, which shall also include a representative from the Office of Management and Budget, shall oversee the planning, management, and coordination of the Program. The Interagency Committee shall———

(1) establish goals and priorities for the Program;

(2) establish program component areas, with specific priorities and technical goals, that reflect the goals and priorities established for the Program;

(3) develop, within 6 months after the date of enactment of this Act, and update annually, a strategic plan to meet the goals and priorities established under paragraph (1) and to guide the activities of the program component areas established under paragraph (2);

(4) consult with academic, State, industry, and other appropriate groups conducting research on and using nanotechnology, and the Advisory Committee; and

(5) propose a coordinated interagency budget for the Program that will ensure the maintenance of a balanced nanotechnology research portfolio and ensure that each agency and each program component area is allocated the level of funding required to meet the goals and priorities established for the Program.

SEC. 4. ANNUAL REPORT.

The Director shall prepare an annual report, to be submitted to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at the time of the President's budget request to Congress, that includes———

(1) the Program budget, for the current fiscal year, for each agency that participates in the Program and for each program component area;

(2) the proposed Program budget, for the next fiscal year, for each agency that participates in the Program and for each program component area;

(3) an analysis of the progress made toward achieving the goals and priorities established for the Program; and

(4) an analysis of the extent to which the Program has incorporated the recommendations of the Advisory Committee.

SEC. 5. ADVISORY COMMITTEE.

(a) IN GENERAL.—The President shall establish an advisory committee on nanotechnology consisting of non-federal members, including representatives of research and academic institutions and industry, who are qualified to provide advice and information on nanotechnology research, development, demonstration, education, technology transfer, commercial application, and societal and ethical concerns. The recommendations of the Advisory Committee shall be considered by federal agencies in implementing the Program.

(b) ASSESSMENT.—The Advisory Committee shall assess———

(1) trends and developments in nanotechnology science and engineering;

(2) progress made in implementing the Program;

(3) the need to revise the Program;

(4) the balance among the components of the Program, including funding levels for the program component areas;

(5) whether the program component areas, priorities, and technical goals developed by the Interagency Committee are helping to maintain United States leadership in nanotechnology;

(6) the management, coordination, implementation, and activities of the Program; and

(7) whether societal and ethical concerns are adequately addressed by the Program.

(c) REPORTS.—The Advisory Committee shall report not less frequently than once every two fiscal years to the President and to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on its findings of the assessment carried out under subsection (b), its recommendations for ways to improve the Program, and the concerns assessed under subsection (b)(7). The first report shall be due within 1 year after the date of enactment of this Act.

(d) FEDERAL ADVISORY COMMITTEE ACT APPLICATION.—Section 14 of the Federal Advisory Committee Act shall not apply to the Advisory Committee.

SEC. 6. NATIONAL NANOTECHNOLOGY COORDINATION OFFICE.

The President shall establish a National Nanotechnology Coordination Office, with full-time staff, which shall———

(1) provide technical and administrative support to the Interagency Committee and the Advisory Committee;

(2) serve as a point of contact on federal nanotechnology activities for government organizations, academia, industry, professional societies, and others to exchange technical and programmatic information; and

(3) conduct public outreach, including dissemination of findings and recommendations of the Interagency Committee and the Advisory Committee, as appropriate.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

(a) NATIONAL SCIENCE FOUNDATION.—There are authorized to be appropriated to the National Science Foundation for carrying out this Act———

(1) $350,000,000 for fiscal year 2004;

(2) $385,000,000 for fiscal year 2005; and

(3) $424,000,000 for fiscal year 2006.

(b) DEPARTMENT OF ENERGY.—There are authorized to be appropriated to the Secretary of Energy for carrying out this Act———

(1) $197,000,000 for fiscal year 2004;

(2) $217,000,000 for fiscal year 2005; and

(3) $239,000,000 for fiscal year 2006.

(c) NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.—There are authorized to be appropriated to the National Aeronautics and Space Administration for carrying out this Act———

(1) $31,000,000 for fiscal year 2004;

(2) $34,000,000 for fiscal year 2005; and

(3) $37,000,000 for fiscal year 2006.

(d) NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.—There are authorized to be appropriated to the National Institute of Standards and Technology for carrying out this Act———

(1) $62,000,000 for fiscal year 2004;

(2) $68,000,000 for fiscal year 2005; and

(3) $75,000,000 for fiscal year 2006.

(e) ENVIRONMENTAL PROTECTION AGENCY.—There are authorized to be appropriated to the Environmental Protection Agency for carrying out this Act———

(1) $5,000,000 for fiscal year 2004;

(2) $5,500,000 for fiscal year 2005; and

(3) $6,000,000 for fiscal year 2006.

SEC. 8. EXTERNAL REVIEW OF THE NATIONAL NANOTECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.

Not later than six months after the date of enactment of this Act, the Director shall enter into an agreement with the National Academy of Sciences to conduct periodic reviews of the Program. The reviews shall be conducted once every three years during the 10-year period following the enactment of this Act. The reviews shall include———

(1) an evaluation of the technical achievements of the Program;

(2) recommendations for changes in the Program;

(3) an evaluation of the relative position of the United States with respect to other nations in nanotechnology research and development;

(4) an evaluation of the Program's success in transferring technology to the private sector;

(5) an evaluation of whether the Program has been successful in fostering interdisciplinary research and development; and

(6) an evaluation of the extent to which the Program has adequately considered societal and ethical concerns.

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[The Section-by-Section Analysis of H.R. 766 follows:]

SECTION-BY-SECTION ANALYSIS OF
THE NANOTECHNOLOGY R&D ACT OF 2003

Sec. 1. Short Title

"Nanotechnology Research and Development Act of 2003."

Sec. 2. Definitions

Defines terms used in the text.

Sec. 3. National Nanotechnology Research and Development Program

Establishes an interagency R&D program to promote and coordinate federal nanotechnology research, development, demonstration, education, technology transfer, and commercial application activities. The program will provide sustained support for interdisciplinary nanotechnology R&D through grants to researchers and through the establishment of interdisciplinary research centers and advanced technology user facilities. Establishes a research program to identify societal and ethical concerns related to nanotechnology and requires that such research be integrated into nanotechnology R&D programs insofar as possible. Establishes an interagency committee, chaired by the Director of the Office of Science and Technology Policy, and composed of representatives of participating federal agencies, as well as representatives from the Office of Management and Budget, to oversee the planning, management, and coordination of all federal nanotechnology R&D activities. Requires the Interagency Committee to establish goals and priorities, establish program component areas to implement those goals and priorities, develop a strategic plan to be updated annually, consult widely with stakeholders, and propose a coordinated interagency budget for federal nanotechnology R&D.

Sec. 4. Annual Report

Requires the Office of Science and Technology Policy to submit an annual report, at the time of the President's budget request to Congress, describing federal nanotechnology budgets and activities for the current fiscal year, and what is proposed for the next fiscal year, by agency and by program component area. Requires that the report include an analysis of the progress made toward achieving the goals and priorities established for federal nanotechnology R&D, and the extent to which the program incorporates the recommendations of the Advisory Committee (established in sec. 5).

Sec. 5. Advisory Committee

Establishes a Presidentially-appointed advisory committee, consisting of non-federal experts, to conduct a broad assessment of federal nanotechnology R&D activities and issue a biennial report.

Sec. 6. National Nanotechnology Coordination Office

Establishes a National Nanotechnology Coordination Office with full-time staff to provide technical and administrative support to the Interagency Committee and the Advisory Committee, to serve as a point of contact for outside groups, and to conduct public outreach.

Sec. 7. Authorization of Appropriations

Authorizes appropriations for nanotechnology R&D programs at the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the National Institute of Standards and Technology, and the Environmental Protection Agency.

Agency	FY04	FY05	FY06
NSF	$350 M	$385 M	$424 M
DOE	$197 M	$217 M	$239 M
NASA	$ 31 M	$ 34 M	$ 37 M
NIST	$ 62 M	$ 68 M	$ 75 M
EPA	$ 5 M	$ 5.5 M	$ 6 M
Total	**$645 M**	**$709.5 M**	**$781 M**

Sec. 8. External Review of the National Nanotechnology Research and Development Program

Requires the Director of the Office of Science and Technology Policy to contract with the National Academy of Sciences to conduct a triennial review of federal nanotechnology R&D programs including technical progress, managerial effectiveness, and adequacy in addressing societal and ethical concerns.

Chairman BOEHLERT. It is a pleasure to welcome everyone here this morning for a markup concerning two vitally important areas of research: nanotechnology and climate change. I expect that we are going to have a little more partisan sparring at today's markup than we generally do, so I do want to underscore our major broad points of agreement at the outset.

On nanotechnology, we are bringing forward a bipartisan bill that I introduced along with Mr. Honda, a bill that has broad bipartisan co-sponsorship on all sides of the aisle. And there is a good reason for that consensus. H.R. 766 will give statutory grounding to the Administration's Nanotechnology Initiative while authorizing some additional funding for interdisciplinary research and interagency cooperation and assuring that attention is paid to societal and ethical concerns. This bill, over time, will bolster our economy as well as add to our storehouse of knowledge. Leadership has tentatively scheduled Floor action for next week, appropriately a week devoted to bills related to job creation.

The disagreements we will have today over H.R. 766 concern relatively minor issues: the nature of the advisory committee, whether to allocate a precise amount to research on societal and ethical concerns, whether to explicitly authorize funds for the Advanced Technology Program. These are not trivial matters, but they do not detract from the broad agreement on the overall bill, including on the need for an advisory committee, the need to study societal and ethical concerns, and the need to promote commercialization of nanotechnology.

There will be quite a few amendments offered to H.R. 766 that we will accept, some of which reflect the results of bipartisan staff negotiation. So we are going to keep our eye on the ball, and we will report out an important nanotechnology bill that will move swiftly through the House. We are entering an era that will give new meaning to the 60's slogan: "Small is beautiful."

We will also have debate today about Mr. Udall's bill on climate change research, H.R. 1578, which I will oppose. Some may recall that during the markup of the Energy Bill, I promised Mr. Udall a vote on this measure, and I am keeping that promise.

I want everyone to understand that I view my disagreement with Mr. Udall over this bill as one of tactics rather than substance. I have long advocated the need for a strong, focused, coordinated research program and—in climate change. And I hope that this Science Committee will be able to report out a bipartisan climate research bill this year, preferably before the initiation of the Energy Bill conference, although that may not be possible. But I do not believe that moving this bill at this time will promote the cause of climate change.

Whatever happens today, I look forward to working with my colleagues on both sides of the aisle and with the Administration to craft a climate research bill that can move forward successfully. No one should view our disagreement over this bill as a significant substantive dispute that foretells any kind of realignment on the climate issue. I look forward to today's debate.

Mr. Hall.

Mr. HALL. Mr. Chairman, the research that you have outlined and the Nanotechnology Development Act, which, as you pointed

out, authorizes an interagency research program that is going to have enormous consequences for the future of the Nation. Its applications are going to effect, of course, the information industry, manufacturing, and medicine and health in many different and very fundamental ways and indeed the scope of this technology, which is based on the growing ability to control and manipulate atoms, is so broad it is to leave virtually no product untouched.

The potential reach and impact of nanotechnology argues for very careful attention at this time to the potential downsize of the technology. I think it is important for the successful development of nanotechnology that potential problems be addressed at this stage and that to be addressed absolutely from the beginning and in a straight forward and an open way. I am confident that the bill, with some modifications that will be offered by you and by my colleagues, will accomplish this goal.

H.R. 766 is a bipartisan legislation introduced by the Chairman and Congressman Honda and cosponsored by Members from both sides of the aisle. It is going to authorize the National Nanotechnology Initiative that is part of the President's budget request. In addition, it is setting funding goals. The bill puts in place mechanisms for planning and coordinating in the interagency research program. The bill also includes provisions for outside expert advice to help guide the research program and ensure its relevance to emerging technological opportunities and to industry.

I am pleased that the bill has identified the need for research to provide understanding of potential problems that might arise from nanotechnology applications. Some amendments are going to be offered today to strengthen this aspect of the bill, and additional amendments will propose ways to help transition research results into actual products and into commercial applications. These provisions seek to address the problem that was identified in the Committee's hearings on this bill.

Mr. Chairman, as it is clear from the hearing record for H.R. 766, the bill enjoyed widespread support. It is an important bill. It is going to help ensure the Nation maintain a vigorous research effort in a technology that is emerging as increasingly important for the economy and for national security. The measure deserves the support of the Committee, and I yield back the balance of my time.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, the Nanotechnology Research and Development Act authorizes an interagency research program that will have enormous consequences for the future of the Nation.

Nanotechnology applications will affect the information industry, manufacturing, and medicine and health in fundamental ways. Indeed, the scope of this technology, which is based on the growing ability to control and manipulate atoms, is so broad as to leave virtually no product untouched.

The potential reach and impact of nanotechnology argues for careful attention to how it may affect society, and in particular, attention to potential downsides of the technology. I believe it is important for the successful development of nanotechnology that potential problems be addressed from the beginning in a straightforward and open way. I am confident that the bill, with some modifications that will be offered by my colleagues, will accomplish this goal.

H.R. 766 is bipartisan legislation introduced by the Chairman and Congressman Honda, and co-sponsored by Members from both sides of the aisle. It will authorize

the National Nanotechnology Initiative that is part of the President's budget request.

In addition to setting funding goals, the bill puts in place mechanisms for planning and coordinating the interagency research program. The bill also includes provision for outside, expert advice to help guide the research program and ensure its relevance to emerging technological opportunities and to industry.

I am pleased that the bill has identified the need for research to provide understanding of potential problems arising from nanotechnology applications. Some amendments will be offered to strengthen this aspect of the bill.

Additional amendments will propose ways to help transition research results into actual products and commercial applications. These provisions seek to address a problem that was identified in the Committee's hearings on the bill.

Mr. Chairman, as is clear from the hearing record for H.R. 766, the bill enjoys widespread support. This is an important bill that will help ensure the Nation maintains a vigorous research effort in a technology area that is emerging as increasingly important for the economy and for national security. The measure deserves the support of the Committee.

Chairman BOEHLERT. Thank you very much, Mr. Hall. Without objection, all Members may place opening statements in the record at this point. I ask unanimous consent that the bill be considered as read and open to amendment at any point.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF REPRESENTATIVE NICK SMITH

I want to thank Chairman Boehlert and Ranking Member Hall for holding this markup on the *Nanotechnology Research and Development Act of 2003.* This government-wide coordination and direction legislation for federally funded nanotechnology R&D will help us to capitalize on a rapidly emerging industry with great potential.

We are at an important stage of development in nanotechnology. While relatively few nanotechnology products are on the market today, the industry is very close to achieving several important breakthroughs. This legislation will help us to harness this potential the development of nanotechnology applications that will improve our lives in so many ways. Strengthened support of fundamental nanotechnology research at agencies such as the National Science Foundation and the Department of Energy, combined with improved coordination and technology transfer efforts, we will be able to accelerate the realization of these breakthroughs.

My only reluctance is of a technical nature in that the bill authorizes more spending than is provided in our budget resolution. However, I commend Chairman Boehlert for his leadership on this legislation, and I urge all Members to support it.

[The prepared statement of Mr. Costello follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Good morning. I would like to thank Chairman Boehlert and Congressman Honda for introducing H.R. 766, the *Nanotechnology Research and Development Act of 2003.* H.R. 766 authorizes $2.1 billion over three years for nanotechnology research and development programs at the National Science Foundation, the Department of Energy, the Department of Commerce, NASA, and the Environmental Protection Agency. In addition to establishing a research program to address societal and ethical concerns, the bill responds to a recent National Academy of Sciences report by establishing a Presidential-appointed advisory committee and a committee headed by the Office of Science and Technology Policy to promote interagency coordination.

Illinois is among the leaders in nanotechnology. During the last few years, success in the areas of nanotechnology at Southern Illinois University–Carbondale (SIUC) has included patented technology for conversion of carbon dioxide into methanol and sensors to detect corrosion and stress in highway bridges. SIUC has also developed industrial partnerships and collaborations with IBM, Proctor & Gamble, and Argonne National labs to further research and development at the atomic and molecular scale.

To keep America dominant in nanotechnology, I believe we must create a coordinated interagency effort that would support long-term nanoscale research and development, increase America's competitiveness in nanoscale technology, and promote effective education and training for the next generation of nanotechnology researchers and professionals. Although there is some debate concerning the advisory committee and certain funding priorities, I am hopeful they can be resolved so we can

move forward with this promising legislation. Increased understanding of nanotechnology promises to underlie revolutionary advances that will contribute to improvements in medicine, manufacturing, high-performance materials, information technology, and environmental technologies.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Thank you, Mr. Chairman. The purpose of this hearing is to consider H.R. 766, the *Nanotechnology Research and Development Act of 2003.* I am a proud original co-sponsor of this legislation.

I am also happy to offer an amendment to the bill. My amendment will provide for a citizen's advisor council. It will create an advisory committee for the National Nanotechnology Initiative (NNI) and require the advisory committee carry out and report on its assessments of various aspects of the initiative, including whether societal and ethical concerns are adequately addressed by the NNI.

The citizen panels will be modeled on the panels of lay people first established by the Danish Board of Technology in the 1980s and subsequently made use of in several countries over the past 15 years. Citizen panels provide policy-makers with a sense of where the public stands on important questions associated with the development and application of new technology and also help to increase public understanding of the technology through informed public debate.

Under the Danish model, the lay members of a citizen panel are provided with a planned program of reading and participate in discussions among themselves and with a range of technical experts, as well as with spokespersons from public interest groups representing different positions. The process, which culminates in an open public forum to discuss the questions generated by the panel, ensures that panelists become well informed prior to rendering judgments. The outcome of the process is a report that focuses on social concerns, ethical judgments and recommendations for the development of the technology under consideration.

The value of informing the public about nanotechnology and ensuring that public concerns are taken into account as the technology develops was explored at the Science Committee's hearings on the legislation on March 19th and April 9th. At the second hearing, which focused on societal and ethical issues, one of the witnesses, Dr. Langdon Winner, suggested that citizen panels be used as a mechanism to introduce the views of the lay public into the planning for the NNI.

As nanotechnology is one of the most promising and exciting fields of science today, it is imperative that we involve the general public in the process of its use. I look forward to working with this committee to accomplish just that.

[The prepared statement of Mr. Honda follows:]

PREPARED STATEMENT OF REPRESENTATIVE MICHAEL M. HONDA

I would like to thank Chairman Boehlert and Ranking Member Hall for holding this markup, and for working with me on H.R. 766, the Nanotechnology Research and Development Act.

It will take many years of sustained investment in the field of nanotechnology before the field matures and we realize its benefits, and there is an important role for the Federal Government to play in the development of nanotechnology, since this science is still in its infancy.

President Clinton recognized this when he created the multi-agency National Nanotechnology Initiative, which President Bush has continued to support. The House is now addressing the issue with the bill we are marking up today.

The interdisciplinary nature of nanotechnology presents a challenge for the scientific community and the research and development bodies of governments and industry, since it transcends traditional areas of expertise.

In addition, nanotechnology will likely give rise to a host of novel social, ethical, philosophical, and legal issues. To appropriately address these issues and challenges will require a management structure and guidance that is responsive to the realities of the science, as well as additional research to predict, understand, and alleviate anticipated problems.

Other industrialized countries are already spending more per capita on nanotechnology than the U.S. To succeed, we must be more productive at creating new technologies and more efficient at bringing them to the marketplace. This will require coordination and cooperation across a wide variety of institutions and disciplines such as we have never seen before in the U.S.

It is the laudable goal of this legislation to supply these necessary structures and research programs, and to provide the funding necessary to sustain them.

[The prepared statement of Ms. Jackson Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

I would first just like to thank you and Ranking Member Hall for bringing this excellent bill to us today. I would also like to commend our colleague from California, Mr. Honda for his great leadership on the issue of nanotechnology. I was pleased to be a co-sponsor of his bill H.R. 5669 to make a Nanoscience advisory board in the last Congress, and this one today.

Nanotechnology holds great promise bringing about substantive improvements in quality of life for people in America and around the world. It is critical that as this field emerges, that American research and American industry remain at the cutting edge and in prime position to take advantage of market opportunities. We also must ensure that as new technologies and products—in health care, in communications, in energy—come about that they impact on all of the American population.

So as we go forward today, I hope we make this bill all it can be: maximizing the efficiency and effectiveness of federal investments, spurring on this exciting field, and ensuring the promise that it will produce good for all people.

Thank you.

Chairman BOEHLERT. I ask Members to proceed with the amendments in the order of the roster.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE - FULL COMMITTEE MARKUP
AMENDMENT ROSTER – May 1, 2003

H.R. 766, Nanotechnology Research and Development Act of 2003
--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended: agreed to by a voice vote.

No.	Sponsor	Description	Result
1.	Mr. Boehlert	Manager's Amendment	--Adopted by a roll call vote: Y-22; N-19.
2.	Mr. Smith (MI) Ms. Hart Mr. Wu Mr. Matheson	Amendment to Sec. 3—National Nanotechnology Research and Development Program—to require interdisciplinary research centers to exchange technical information and best practices; to partner with States and industry; to make use of existing expertise in their regions and of ongoing micrometer-scale R&D; and to accelerate commercialization of nanotechnology.	--Adopted by a voice vote.
3.	Ms. Jackson Lee Mr. Wu	Amendment to Sec. 3—National Nanotechnology Research and Development Program—to ensure that the Program will include the Nation's colleges and universities serving under-represented minorities.	--Adopted by a voice vote.
4.	Ms. Jackson Lee	Amendment to clarify language in Sec. 3—National Nanotechnology Research and Development Program—to ensure research on nanotechnology brings about improvements that benefit all Americans.	--Adopted by a voice vote.
5.	Mr. Sherman	Amendment to clarify language in Sec. 3—National Nanotechnology Research and Development Program—to describe some areas to be included within the research program on societal and ethical concerns.	--Adopted by a voice vote.
6.	Mr. Bell	Amendment to Sec. 3—National Nanotechnology Research and Development Program—to ensure that interdisciplinary research centers include activities that address societal and ethical concerns.	--Adopted by a voice vote.
7.	Mr. Sherman Mr. Bell	Amendment to clarify language to Sec. 4—Annual Report—to require budget information on spending for research programs on societal and ethical concerns.	--Adopted by a voice vote.

No.	Sponsor	Description	Result
8.	Mr. Matheson	Amendment to clarify language to Sec. 4—Annual Report—to require budget information on spending for development and acquisition of research facilities and instrumentation.	--Adopted by a voice vote.
9.	Mr. Honda	Amendment to Sec. 3—National Nanotechnology Research and Development Program—to require the Interagency Committee to develop a plan to utilize Federal programs in support of nanotechnology commercialization. Amendment to Sec. 4—Annual Report—to require an annual assessment of the implementation of the above plan and a report on the amount of funds supporting the plan.	--Adopted by a voice vote.
10.	Mr. Wu	Amendment to clarify language to Sec. 8—External Review of the National Nanotechnology Research and Development Program—to include the study on the technical feasibility manufacturing at the molecular scale.	--Adopted by a voice vote.
11.	Mr. Sherman	Amendment to clarify language to Sec. 8—External Review of the National Nanotechnology Research and Development Program—to include the study of the need for standards, guidelines, or strategies for ensuring the development of safe nanotechnology.	--Adopted by a voice vote.
12.	Mr. Rohrabacher	Amendment to add a new section to the bill on Science and Technology Scholarship Programs to recruit and prepare students for engineering and technical careers in the Federal Government.	--Amendment #12(a) was adopted by a voice vote.
12(a)	Mr. Wu	Amendment by Mr. Wu to the Amendment by Mr. Rohrabacher to extend scholarship eligibility to permanent residents.	--Amendment 12 was adopted, as amended, by a voice vote.
13.	Mr. Honda	Amendment to clarify language to Sec. 5—Advisory Committee—on the experience and expertise expected from members of the advisory committee.	--Unanimous consent request to withdraw the amendment was agreed to.

No.	Sponsor	Description	Result
14.	Ms. Eddie Bernice Johnson	Amendment to Sec. 5—Advisory Committee—to require the Advisory Committee to create citizen panels to make recommendations regarding societal and ethical concerns.	--Defeated by a voice vote.
15.	Mr. Honda	Amendment to Sec. 7—Authorization of Appropriations—to authorize appropriations to the Advanced Technology Program.	--Unanimous consent request to withdraw the amendment was agreed to.
16.	Mr. Sherman Mr. Bell	Amendment to Sec. 7—Authorization of Appropriations—to require that not less than 5% of the total appropriations be set aside for research on societal and ethical implications of nanotechnology.	--Defeated by a voice vote.
17.	Ms. Jackson Lee	Amendment to Sec. 3—National Nanotechnology Research and Development Program—to require the Technology Administration of the DOC to sponsor seminars on nanotechnology hubs and state-led initiatives and to maintain an electronic archive of best practices.	--Unanimous consent request to withdraw the amendment was agreed to.
18.	Mr. Baird	Amendment would address the application of Nanotechnology to systems biology.	--Unanimous consent request to withdraw the amendment was agreed to.

Chairman BOEHLERT. First amendment up is the Manager's Amendment, and I will be very brief.

The Manager's Amendment makes a number of changes to the bill sought by the Administration. It allows the President to designate an existing advisory body to serve as the advisory committee created by the bill. It makes an agency official, rather than the Director of the White House Science Office, the head of the interagency committee, and it makes several minor changes sought by the Administration.

The amendment also changes the authorizations for the Department of Energy so that they match those in the recently passed Energy Bill, H.R. 6. I urge adoption of the amendment. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Boehlert.

[The amendment offered by Mr. Boehlert follows:]

AMENDMENTS TO H.R. 766
OFFERED BY MR. BOEHLERT

Page 2, line 5, insert "or designated" after "committee established".

Page 3, lines 7 and 8, strike "and across scientific and engineering disciplines".

Page 4, lines 15 and 16, strike ", chaired by the Director".

Page 4, line 16, insert "the Office of Science and Technology Policy," after "representatives from".

Page 4, line 21, insert "The Director shall select a chairperson from among the members of the Interagency Committee." after "President may designate.".

Page 5, lines 12 through 15, strike paragraph (4).

Page 5, line 16, redesignate paragraph (5) as paragraph (4).

Page 5, line 22, strike the period and insert "; and".

Page 5, after line 22, insert the following new paragraph:

(5) in carrying out its responsibilities under paragraphs (1) through (4), take into consideration

the recommendations of the Advisory Committee and the views of academic, State, industry, and other appropriate groups conducting research on and using nanotechnology.

Page 5, line 24, strike "Director" and insert "chairperson of the Interagency Committee".

Page 6, line 18, insert "or designate" after "shall establish".

Page 7, lines 23 through 25, strike "and to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate".

Page 9, lines 11 through 13, amend paragraphs (1) through (3) to read as follows:

(1) $265,000,000 for fiscal year 2004;

(2) $292,000,000 for fiscal year 2005; and

(3) $322,000,000 for fiscal year 2006.

Chairman BOEHLERT. I ask unanimous consent to dispense with the full reading. Without objection, so ordered. Is there any further discussion of this amendment? Mr. Honda, you are recognized.

Mr. HONDA. Thank you, Mr. Chairman. I move to strike the last word. Mr. Chairman, I am concerned, and I hope this is appropriate.

Chairman BOEHLERT. Well, not to bring up your amendment, to discuss the Manager's Amendment. Okay. Do you wish to discuss that or do you want to——

Mr. HONDA. Yes, I wish to discuss the Manager's Amendment.

Chairman BOEHLERT. All right, Mr. Honda. You are recognized for five minutes.

Mr. HONDA. Thank you, Mr. Chairman. I am concerned that this amendment changes the advisory committee requirement to an option of either establishing a new committee or to designate an existing one to handle this issue.

I have heard the concern that the cost of running a new advisory committee is too high, that we shouldn't be wasting money in this matter. If you look at the numbers, we are authorizing over $700 million annually, while the cost of running a committee is about $1 million. This amounts to little over 1/10 of 1 percent of the federal investment in nanotechnology. And it seems to me that this is a small price to pay for a committee designed to reassure the public that we are adequately considering both the promise and the potential risks of nanotechnology, and it is well worth the investment.

It is my understanding that the Administration desires this amendment so that it can designate the President Council and advisors on science and technology as the advisory committee, and I have met the chairman of that committee, and he is a very well thought of individual and a very good chairman of PCAST.

While I admire this distinguished group, it is my understanding that none of the members of PCAST has direct technical expertise in the field of nanotechnology or any professional expertise in dealing with the societal implications of new technologies, such as nanotech. The point of the advisory committee is to allow expert voices from outside the federal agencies to provide advice on nanotech, and this amendment puts that mechanism at risk by allowing an advisory committee that is not composed of experts in the field. I understand that the Administration has threatened to block this bill unless this amendment is added.

And Mr. Chairman, I know that you share my interest in seeing this bill move forward, and so I expect that it will pass so that the bill may move on, but I must respectfully oppose this change to the bill and hope that the sensible changes I will propose later in this markup to try to ensure that the needed expertise is represented on the panel will be given serious consideration both today and as we move forward on bringing this bill to the full Floor. I ask my colleagues to oppose this amendment on this item, and I yield back the balance of my time, Mr. Chairman.

Chairman BOEHLERT. Thank you very much, Mr. Honda.

Mr. HONDA. Thank you very much.

[The prepared statement of Mr. Honda follows:]

PREPARED STATEMENT OF REPRESENTATIVE MICHAEL M. HONDA

I am concerned about the provision in this amendment that changes the requirement currently in H.R. 766 that an Advisory Committee on Nanotechnology be established to an option that either a new committee be established or an existing one designated to handle this responsibility.

I have heard the concern expressed that the cost of running a new advisory committee is too high, and that we shouldn't "waste" funding in this manner. But if you look at the numbers, we are authorizing over $700 million annually here, while the cost of running a committee is approximately $1 million. It seems to me that spending a little over one tenth of one percent of the Federal Government's investment in nanotechnology on a committee designed to reassure the public that we are adequately considering both the promise and potential risks of nanotechnology is a small price to pay, and well worth the investment.

It is my understanding that the Administration desires this amendment so that it can designate the President's Council of Advisors on Science and Technology as the advisory committee. While I admire this distinguished group, none of the members of PCAST has direct technical expertise in the field of nanotechnology or any professional experience in dealing with the societal implications of new technologies such as nanotechnology.

The point of the advisory committee is to allow expert voices from outside the federal agencies to provide advice on nanotechnology. This amendment puts that mechanism at risk, by allowing an advisory committee that is not composed of experts in the field.

I understand that the Administration has threatened to block this bill unless this amendment is added. I know you share my interest seeing this bill move forward, Mr. Chairman, and so I expect that it will pass so that the bill may move. But I must respectfully oppose this change to the bill, and hope that the sensible changes to the bill I will propose later in this markup that would try to find some way to ensure that the needed expertise is represented on the panel will be given serious consideration both today and as we move on toward bringing this bill to the floor.

I respectfully ask my colleagues to oppose this amendment.

Chairman BOEHLERT. It is my feeling that granting the President the flexibility he has asked for to designate a standing presidential advisory committee, such as PCAST, will enable the Executive Branch to receive immediate advice on nanotechnology research, directions, and policy rather than wait for the formation of new a committee. PCAST has already developed a work plan to oversee federal nanotechnology programs, and this is not something the Administration is viewing casually or something that the other branch of government, and that is us, has developed and the Administration has little interest in. The Administration is really pushing this Nanotechnology Initiative, and so are we on a bipartisan basis. And they want to get up and running as soon as possible. And they may conclude later that PCAST is not the vehicle to carry this oversight forward in counseling, and they may suggest that they create a new advisory committee. And we give them that flexibility to do that.

So for that reason, I would urge my colleagues on the Committee to embrace the Manager's Amendment with this included, and I would ask if there are any other Members who seek recognition before we proceed. Mr. Smith.

Mr. SMITH OF MICHIGAN. No, Mr. Chairman. I submit your En Bloc amendment.

Chairman BOEHLERT. Anyone else care for any——

Mr. HALL. Mr. Chairman.

Chairman BOEHLERT. Mr. Hall.

Mr. HALL. I think it is appropriate that Mr. Honda set out the change in this amendment and the deviation from the established articles. I think what really Mr. Honda pointed out is that PCAST

has their plate pretty well full loaded right now, but I think the real decision that you have to make, and probably there will be differences on this side of the aisle, maybe some over there, as to how much flexibility they want to give the Administration. Some of us probably want—I want to give them more than probably a lot of people want to give them, because I have high regard and high respect for the Administration and the decisions they have made to date. I think it is just a decision each of us has to make for ourselves, but Mr. Honda does a service to point up the differences and the difference that this amendment would suggest: you drop the word "established" and leave "designated" as it is in there.

Thank you, Mr. Honda, for that, and I yield back my time.

Chairman BOEHLERT. Thank you. I just want to say no two people could have a closer relationship in developing this overall bill than Mr. Honda and I have enjoyed. And these are not major differences, but if I am going to make an error, it is going to be an error on the side of giving flexibility to the Administration. Because once again, let me restate the position. This is not something the Administration is casual about, Mr. Honda, as you and I well know; this is something the Administration takes great pride in this Nanotechnology Initiative. This is something that we have been able to convince the Administration of, and it wasn't a particularly hard sell, that we have to go forward with for all of the right reasons, including following through on the commercial development and everything else. So I just wanted to stress that this is critically important that we go forward. And I would hope that everyone else would agree with that observation.

Let us give them some flexibility. And once again, PCAST, I think they are going to instantly be up and running, and they have already developed a sort of—in the pre-planning process, a modus operandi. And if the Administration determines that they are not up to the job, look—the Administration is looking for a lot of opportunities for success, then they will quickly do something else, an advisory committee.

Mr. Honda.

Mr. HONDA. Thank you, Mr. Chairman. Oh, yeah. Well, I don't disagree with the way you describe the importance of the bill and the Administration's attitude toward this bill. I think that I am very happy about that.

What concerns me as a teacher is that in the future we will not know what the unintended consequences of—that nanoscale technology may hold for us. And it seems to me that this advisory committee that would be made up of other folks with input into policy making would broaden and enable us to anticipate different kinds of questions. For instance, in stem cell research, I don't think anyone ever anticipated a blocking of our progress on stem cell research. Well, we have—when we have talked about cloning and things like that, but when the subject came up, Mr. Chair, it brought up a great fear in a good segment of our population. And I suspect that nanoscale technology, because of this ubiquitousness and where it can go would require a good discussion, public dialogue, through this advisory committee and to bring the public along in their education so that we can minimize anxiety and fears and maximize science.

Thank you, Mr. Chair.

Chairman BOEHLERT. Is there anyone else who seeks recognition? The Chair, using the authority—what was that? Mr. Gutknecht, the distinguished Vice-Chairman of the all-powerful and all-prescient Science Committee.

Mr. GUTKNECHT. Mr. Chairman, I just want to side with you in this debate. And I think in some respects, this is a distinction without much difference. This is—we are embarking on a whole new field, it seems to me, of science. And this committee, I think, and the Congress in general are going to revisit this issue many times in the future. And I think as we make this historic first step, I tend to agree with the Chairman that we should give the Administration the benefit of the doubt, at least for now. And we can revisit this in the future. And if it seems that we are not getting the kind of input from scientists around the country, then obviously we can take another bite of this apple.

So this is the first chance, not the last. I would hope Members would side with the Chairman and give him the benefit of the doubt on this issue. I think he has been very fair and open with all Members from all points of view. And so I hope we will give it a chance to go forward and support the Manager's Amendment.

Chairman BOEHLERT. Thank you. Is there anyone else who seeks recognition?

Mr. HONDA. Mr. Chair.

Chairman BOEHLERT. Wait until I see—hear somebody. Oh, Mr. Honda.

Mr. HONDA. As your partner on this bill, and I love my Chairman, but I would request a recorded vote on this amendment.

Chairman BOEHLERT. The gentleman has requested a recorded vote. The Chair is going to take advantage of the position of the Chair and call for a five-minute recess.

[Recess.]

Chairman BOEHLERT. Now that we have had our coffee break, the question is on the Manager's Amendment. All in favor say aye. No. The ayes appear to have it. The Manager's Amendment is passed.

Oh, Mr. Honda would like a roll call.

Mr. HONDA. Thank you, Mr. Chairman.

Chairman BOEHLERT. The Clerk will call the roll.

Ms. TESSIERI. Mr. Boehlert.

Chairman BOEHLERT. Aye.

Ms. TESSIERI. Mr. Boehlert votes aye. Mr. Smith.

Mr. SMITH OF TEXAS. Aye.

Ms. TESSIERI. Mr. Smith votes aye. Mr. Weldon.

[No response.]

Ms. TESSIERI. Mr. Rohrabacher.

[No response.]

Ms. TESSIERI. Mr. Barton.

Mr. BARTON. Aye.

Ms. TESSIERI. Mr. Barton votes aye. Mr. Calvert.

Mr. CALVERT. Aye.

Ms. TESSIERI. Mr. Calvert votes aye. Mr. Nick Smith.

Mr. SMITH OF MICHIGAN. Aye.

Ms. TESSIERI. Mr. Smith votes aye. Mr. Bartlett.

Mr. BARTLETT. Aye.
Ms. TESSIERI. Mr. Bartlett votes aye. Mr. Ehlers.
Dr. EHLERS. Aye.
Ms. TESSIERI. Mr. Ehlers votes aye. Mr. Gutknecht.
Mr. GUTKNECHT. Aye.
Ms. TESSIERI. Mr. Gutknecht votes aye. Mr. Nethercutt.
Mr. NETHERCUTT. Aye.
Ms. TESSIERI. Mr. Nethercutt votes aye. Mr. Lucas.
Mr. LUCAS. Aye.
Ms. TESSIERI. Mr. Lucas votes aye. Mrs. Biggert.
Mrs. BIGGERT. Aye.
Ms. TESSIERI. Mrs. Biggert votes aye. Mr. Gilchrest.
Mr. GILCHREST. Aye.
Ms. TESSIERI. Mr. Gilchrest votes aye. Mr. Akin.
Mr. AKIN. Aye.
Ms. TESSIERI. Mr. Akin votes aye. Mr. Johnson.
Mr. JOHNSON. Aye.
Ms. TESSIERI. Mr. Johnson votes aye. Ms. Hart.
Ms. HART. Aye.
Ms. TESSIERI. Ms. Hart votes aye. Mr. Sullivan.
Mr. SULLIVAN. Aye.
Ms. TESSIERI. Mr. Sullivan votes aye. Mr. Forbes.
Mr. FORBES. Aye.
Ms. TESSIERI. Mr. Forbes votes aye. Mr. Gingrey.
Dr. GINGREY. Aye.
Ms. TESSIERI. Mr. Gingrey votes aye. Mr. Bishop.
Mr. BISHOP. Aye.
Ms. TESSIERI. Mr. Bishop votes aye. Mr. Burgess.
Mr. BURGESS. Aye.
Ms. TESSIERI. Mr. Burgess votes aye. Mr. Bonner.
Mr. BONNER. Aye.
Ms. TESSIERI. Mr. Bonner votes aye. Mr. Feeney.
[No response.]
Ms. TESSIERI. Mr. Hall.
[No response.]
Ms. TESSIERI. Mr. Gordon.
Mr. GORDON. No.
Ms. TESSIERI. Mr. Gordon votes no. Mr. Costello.
Mr. COSTELLO. No.
Ms. TESSIERI. Mr. Costello votes no. Ms. Johnson.
[No response.]
Ms. TESSIERI. Ms. Woolsey.
Ms. WOOLSEY. No.
Ms. TESSIERI. Ms. Woolsey votes no. Mr. Lampson.
Mr. LAMPSON. No.
Ms. TESSIERI. Mr. Lampson votes no. Mr. Larson.
Mr. LARSON. No.
Ms. TESSIERI. Mr. Larson votes no. Mr. Udall.
Mr. UDALL. No.
Ms. TESSIERI. Mr. Udall votes no. Mr. Wu.
Mr. WU. No.
Ms. TESSIERI. Mr. Wu votes no. Mr. Honda.
Mr. HONDA. No.
Ms. TESSIERI. Mr. Honda votes no. Mr. Bell.

Mr. BELL. No.
Ms. TESSIERI. Mr. Bell votes no. Mr. Miller.
Mr. MILLER. No.
Ms. TESSIERI. Mr. Miller votes no. Mr. Davis.
Mr. DAVIS. No.
Ms. TESSIERI. Mr. Davis votes no. Ms. Jackson Lee.
[No response.]
Ms. TESSIERI. Ms. Lofgren.
Ms. LOFGREN. No.
Ms. TESSIERI. Ms. Lofgren votes no. Mr. Sherman.
Mr. SHERMAN. No.
Ms. TESSIERI. Mr. Sherman votes no. Mr. Baird.
Mr. BAIRD. No.
Ms. TESSIERI. Mr. Baird votes no. Mr. Moore.
Mr. MOORE. No.
Ms. TESSIERI. Mr. Moore votes no. Mr. Weiner.
Mr. WEINER. No.
Ms. TESSIERI. Mr. Weiner votes no. Mr. Matheson.
Mr. MATHESON. No.
Ms. TESSIERI. Mr. Matheson votes no. Mr. Cardoza.
Mr. CARDOZA. No.
Ms. TESSIERI. Mr. Cardoza votes no.
Ms. JACKSON LEE. How am I recorded?
Ms. TESSIERI. Mr. Chairman, Ms. Jackson Lee is not recorded.
Ms. JACKSON LEE. No.
Ms. TESSIERI. Ms. Jackson Lee votes no.
Chairman BOEHLERT. What is the vote?
Ms. TESSIERI. Mr. Chairman, yes, 22, no, 19.

COMMITTEE ON SCIENCE - ROLL CALL – 108th CONGRESS

DATE: 5/1/03 SUBJECT: Manager's Amendment to H.R. 766

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2246	53665	Mr. Boehlert, R-NY	✓				
2231	54236	Mr. Lamar Smith, R-TX	✓				
2466	52011	Mr. Weldon, R-PA					
2338	52415	Mr. Rohrabacher, R-CA	✓				
2109	52002	Mr. Barton, R-TX	✓				
2201	51986	Mr. Calvert, R-CA	✓				
2305	56276	Mr. Nick Smith, R-MI	✓				
2412	52721	Mr. Bartlett, R-MD	✓				
1714	53831	Mr. Ehlers, R-MI	✓				
425	52472	Mr. Gutknecht, R-MN	✓				
2443	52006	Mr. Nethercutt, R-WA	✓				
2342	55565	Mr. Lucas, R-OK	✓				
1213	53515	Mrs. Biggert, R-IL	✓				
2245	55311	Mr. Gilchrest, R-MD	✓				
117	52561	Mr. Akin, R-MO	✓				
1229	52371	Mr. Johnson, R-IL	✓				
1508	52565	Ms. Hart, R-PA	✓				
114	52211	Mr. Sullivan, R-OK	✓				
307	56365	Mr. Forbes, R-VA	✓				
1118	52931	Mr. Gingrey, R-GA	✓				
124	50453	Mr. Bishop, R-UT	✓				
1721	57772	Mr. Burgess, R-TX	✓				
315	54931	Mr. Bonner, R-AL	✓				
323	52706	Mr. Feeney, R-FL					
		Vacancy					
2405	*56673*	***Mr. Hall, D-TX***				✓	
2304	*54231*	***Mr. Gordon, D-TN***		✓			
2454	*55661*	***Mr. Costello, D-IL***		✓			
1511	*58885*	***Ms. Johnson, D-TX***					
2263	*55161*	***Ms. Woolsey, D-CA***		✓			
405	*56565*	***Mr. Lampson, D-TX***		✓			
1005	*52265*	***Mr. Larson, D-CT***		✓			
115	*52161*	***Mr. Udall, D-CO***		✓			
1023	*50855*	***Mr. Wu, D-OR***		✓			
1713	*52631*	***Mr. Honda, D-CA***		✓			
216	*57508*	***Mr. Bell, D-TX***		✓			
1505	*53032*	***Mr. Miller, D-NC***		✓			
504	*56831*	***Mr. Davis, D-TN***		✓			
2435	*53816*	***Ms. Jackson-Lee, D-TX***		✓			
102	*53072*	***Ms. Lofgren, D-CA***		✓			
1030	*55911*	***Mr. Sherman, D-CA***		✓			
1421	*53536*	***Mr. Baird, D-WA***		✓			
431	*52865*	***Mr. Moore, D-KS***		✓			
1122	*56616*	***Mr. Weiner, D-NY***		✓			
410	*53011*	***Mr. Matheson, D-UT***		✓			
503	*56131*	***Mr. Cardoza, D-CA***		✓			
		Vacancy					
		TOTAL	22	19			

Attest: Virginia A. Sincavage (Clerk)

Chairman BOEHLERT. Thank you. Then the motion is passed. The amendment is passed.

We are going to go next to amendment number 13, because we have got all of the Members here, Mr. Honda's amendment. Mr. Honda, you are recognized on amendment number 13 for such—for five minutes.

Mr. HONDA. Thank you, Mr. Chairman. I have an amendment at the desk.

[The amendment offered by Mr. Honda follows:]

F:\M8\HONDA\HONDA.014 H.L.C.

AMENDMENT TO H.R. 766
OFFERED BY MR. HONDA

Page 6, line 25, insert "Members of the Advisory Committee shall have established records of distinguished fundamental or applied scientific service in the field of nanotechnology or have professional expertise relevant to the societal, ethical, educational, legal, and workforce issues related to nanotechnology." after "societal and ethical concerns.".

Mr. HONDA. This amendment responds to the change that—made by the Manager's Amendment that made the establishment of a new advisory committee on nanotechnology optional. The Administration has indicated that it feels the President's Council on—advisors on science and technology can perform this role. Mr. Chairman, I think I made my point just during the Manager's Amendment, so I would like to just drop this amendment and continue with the work.

Chairman BOEHLERT. You withdraw the amendment?

Mr. HONDA. Yes.

Chairman BOEHLERT. Without objection, so ordered.

[The prepared statement of Mr. Honda follows:]

PREPARED STATEMENT OF REPRESENTATIVE MICHAEL M. HONDA

This amendment comes in response to changes in the original bill made by the Manager's Amendment. That amendment changed the requirement that the President establish an Advisory Committee on Nanotechnology to an option of either creating a new advisory committee or designating an existing panel to serve in the advisory committee role.

The Administration has indicated that it feels that the President's Council of Advisors on Science and Technology (PCAST) can perform this role. While I respect this distinguished group of advisors, the fact remains that none of them have direct technical expertise in the field of nanotechnology, or in dealing with the societal issues that nanotechnology may bring up. These are the qualities I envisioned in an advisory board when I originally proposed it in the 107th Congress in H.R. 5669, with the support of a number of my colleagues on this committee.

I could have moved to strike the phrase "or designate" from the Manager's Amendment, but I know that would have been defeated, since that was the whole purpose of the amendment. I also appreciate that this option is better than eliminating the advisory committee language altogether, but I still believe that we need to ensure that technical expertise in nanotechnology from academia and industry is brought to the table when developing nanotechnology policy.

To achieve this goal, I offer this amendment, which adds clarifying language to the bill regarding the qualifications expected of a nanotechnology advisory committee. The bill currently states that the committee should include "representatives of research and academic institutions and industry, who are qualified to provide advice and information on nanotechnology research, development, demonstration, education, technology transfer, commercial application, and societal and ethical concerns."

Nowhere in this description is there mention of direct experience in the field. My amendment requires that committee members have established records of distinguished fundamental and/or applied scientific service in the field of nanotechnology or have professional expertise relevant to the societal, ethical, educational, legal, and workforce issues related to nanotechnology.

These seem to me like reasonable qualifications for members of a committee providing advice on nanotechnology. If this expertise is not to be found among the members of PCAST, the Executive Order creating the Council permits the establishment of a PCAST working group that draws members from outside the Council. In this way, we would be sure to involve technical experts in the discussion. Without my amendment, there is nothing requiring the Administration to talk with these representatives, which is exactly the situation we have today with the National Nanotechnology Initiative, where voices outside the agencies are not heard.

If my colleagues want this nation to develop a strong nanotechnology policy for the future, they should support this amendment, and I urge them to do so.

Chairman BOEHLERT. Next amendment is amendment number 14 by Eddie Bernice Johnson. Is Ms. Johnson here? All right. We'll defer. She is due back at 11:00. We'll defer action on that amendment.

Next amendment is amendment number 15 by Mr. Honda. Mr. Honda is recognized for five minutes. Well, the Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Honda.

Mr. HONDA. Mr. Chairman, could we move on the item on the agenda, and I will be back presently?

Chairman BOEHLERT. You want to pass on this one?

Mr. HONDA. For the moment, please.

Chairman BOEHLERT. The next amendment is 16 by Mr. Sherman and Mr. Bell.

Mr. SHERMAN. Mr. Chairman, I am bit surprised we are all the way to amendment 16, but if——

Chairman BOEHLERT. The Chair is exercising its prerogative to deal with the amendments where there might be some spirited discussion while we have a full compliment of Members in attendance. Mr. Sherman is recognized for five minutes. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Sherman and Mr. Bell.

[The amendment offered by Mr. Sherman and Mr. Bell follows:]

AMENDMENT TO H.R. 766

OFFERED BY MR. SHERMAN AND MR. BELL

Page 10, after line 7, insert the following:

(f) RESEARCH ON SOCIETAL AND ETHICAL CONCERNS.—Not less than 5 percent of the total amount appropriated pursuant to subsections (a) through (e) shall be available for activities pursuant to section 3(b)(5).

Chairman BOEHLERT. Mr. Sherman is recognized for five minutes.

Mr. SHERMAN. Well, I feel obligated to provide that kind of "spirited discussion" that justifies the attendance of so many Members of the Committee.

We are authorizing a science program here that is at the very cutting edge and raises questions every bit as large as those faced with when the nuclear fusion and nuclear fission were just ideas on a piece of paper. And the—most of the programs we authorize here are going to go to physical scientists who will produce wonderful reports, will add to our scientific knowledge, and at least include a footnote or two dealing with their view of the social implications, the ethical implications. As we have learned recently from the debate on stem cell, as we have learned in Iraq, which is basically could be viewed as an enterprise under the jurisdiction of this committee since the entire purpose of that enterprise was science control to make sure that certain scientific knowledge and capacity was not exercised by a dictator.

New technology raises important social problems, and we need to make sure that it is not just a footnote in a physical science report, but rather that a certain portion of the resources that we are authorizing here go to looking ahead and seeing what the problems are. We had an entire panel here dealing with just some of the aspects of those issues. And so I think it makes sense to avoid what I think would be the tendency. The tendency would be this is a physical sciences program. It is going to authorize money controlled by people who are interested in the physical sciences. And they will produce great, cutting edge, new knowledge in the physical sciences.

Only if we mandate that a certain portion of the money is used to take a look at the societal implications are we likely to see the societal work progress along with the physical sciences. I would like to reserve the balance of any time I have and perhaps Mr. Bell could also speak to this.

Chairman BOEHLERT. Mr. Bell is recognized.

Mr. BELL. Thank you, Mr. Chairman. The witnesses at the Science Committee's April 9 hearing unanimously recommended an explicit five percent set aside for societal and ethical research. Without proper funding, as Mr. Sherman correctly points out, the research will not go forward.

In June 2002, the NNI implementation plan designated 5.6 percent of the Initiative's total budget for these activities. The problem is that the Initiative has not followed through. The 2002 National Research Council assessment report of the NNI cites a failure of the Initiative to meet its funding goal for societal and ethical activities for fiscal year 2001. The Committee's best estimate is that for fiscal year 2001, less than half the amount budgeted was actually spent on these activities.

The NNI funding targets for the societal and ethical activities dropped from over five percent for fiscal year 2001 to 2.4 percent for fiscal year 2002 and then to 2.2 percent for fiscal year 2003. If we are going to be serious about addressing societal and ethical concerns associated with nanotechnology, excuse me, we need to

make sure the funding for the research will be at the five percent level, and this amendment will ensure that.

I would also point out that in connection with the human genome research, there is a five percent set aside for to look at societal and ethical concerns, and I think the same is certainly justified in relation to nanotechnology.

Thank you, Mr. Chairman.

Chairman BOEHLERT. We will thank both Mr. Sherman and Mr. Bell. The Chair opposes this amendment. And let me say, I have been pleased to work with both of you on some of the amendments the Committee has already adopted, but I don't—I do oppose this amendment to set aside a fixed percentage of research funds specifically for research on societal and ethical concerns.

Perhaps there should be an amount set aside for societal and ethical concerns, but I don't think it is wise to set a precise number in statute. We can't know what the appropriations proportion will be. That will depend on how nanotechnology develops and what kind of research on societal and ethical concerns is proposed and a lot of other factors. We will accept an amendment that will enable Congress to track how much is being spent on research on societal and ethical concerns, which I think is very important. And we can take action if these—those fields are inadequately funded, although I don't think they will be.

I am concerned that setting a precise set aside may undercut another goal of the bill, which is to make sure that societal and ethical research is as closely integrated as possible with the physical science research in this bill. Setting a—in mutable funding categories does not encourage that approach.

Is there anyone who seeks recognition? If not, the vote—Dr. Ehlers.

Dr. EHLERS. Thank you, Mr. Chairman. I would just like to emphasize the point you made. Clearly we need some research on the issue, but five percent is a really large chunk, particularly in the early stages. There is going to have to be some thought put into the issue before you can even begin the experiments defining the societal implications. And by and large, it is going to take a lot less money for equipment than you do for the other research. I think, first of all, I am opposed to setting a percentage until we know just what problems have to be addressed, and secondly, I am sure the percentage should be much smaller than five percent, because that type of research is far less expensive than the nanotechnology research.

I yield back.

Chairman BOEHLERT. Thank you. Anyone else? Mr. Rohrabacher.

Mr. ROHRABACHER. Now we have limited federal dollars going into research. We have limited dollars that we are able to spend. Most of us have projects that we would like to see funded. And for us to take money away from the physical sciences and actually expanding the knowledge base that permits us to accomplish this or that scientific end and put it into the "social discussion" of the social sciences, I think, is totally unjustified. I mean, what we are talking about here is certifying a social elite that will be able to discuss the ethical issues on a much higher plane, of course, than

the American people can discuss for themselves what the ethical and social issues are of the research that we are talking about.

Furthermore, what are we elected for? This is our job as well to discuss the social and ethical issues. The last thing we want to do is to put together panels of pontificators in order to judge whether or not ethically, from their superior vantage point, the work of our physical scientists is appropriate or not. No, that is up for us to do. And then we can explain ourselves to the voters. We don't need a social elite to put a rubber stamp of approval on what we believe to be ethical or unethical. We are the ones who are voted by the people to be accountable in this area.

Thank you.

Ms. WOOLSEY. Mr. Chairman.

Chairman BOEHLERT. Yes. Who seeks recognition?

Ms. WOOLSEY. I do.

Chairman BOEHLERT. Who is I? The gentlelady is recognized.

Ms. WOOLSEY. Thank you very much. I would just like to, in response to the gentleman that—on the other side of the aisle, say that we have no problem in making statements about stem cell research and about cloning and about other experiments and other important things that we could be looking at in this nation. The idea that we would expend federal funds for research and not care what the results are until after the fact just shows the shortsidedness of this argument we have going here. Maybe it shouldn't be five percent, but by golly there should be some money set aside that we look at the effects of what we are doing.

Chairman BOEHLERT. Thank you. Being the quintessential moderate that I am, I agree that we should have some money reserved for research on the societal and ethical concerns, but I just oppose the specific amount suggested in the amendment, the five percent.

The Chair recognizes Dr. Gingrey.

Dr. GINGREY. Thank you, Mr. Chairman. Again, just—I think one of the authors mentioned the comparison of this bill and the amount of—set aside for nanotechnology and compared it to the Genome Project and stem cell research. You know, as a physician Member, I would say that you are, really, I think, in that instance, comparing apples and oranges. And it is not the same. I think as far as genome and stem cell research and societal and ethical implications, I think, are a lot—potentially a lot more serious and a five percent expenditure would seem appropriate, but it seems inappropriate for nanotechnology.

Ms. LOFGREN. Mr. Chairman.

Chairman BOEHLERT. Thank you. Yes, Ms. Lofgren.

Ms. LOFGREN. I move to strike the last word.

Chairman BOEHLERT. The gentlelady is recognized.

Ms. LOFGREN. I think that the amendment is worth supporting, and in some ways, I am reminded of the early '70s when we were first getting into manipulation of genes. And there was science involved, but there were huge implications for society that needed analysis. And certainly Mr. Rohrabacher is correct: ultimately the Congress has the responsibility to vote and to craft public policy. But I think we will do that job much better if we receive the information from scientists who know so much more than we do about some of these technical issues. And if we can get the—their wisdom

so that hopefully we can make wise choices, the country will be better served.

And I would like to yield to the author of the amendment, Mr. Sherman.

Mr. SHERMAN. First, I would like to indicate I have conferred with Mr. Bell that if someone wants to suggest a different percentage, if five percent is thought to be too high, we would certainly be interested in a friendly amendment. But this amendment does not specify an exact number, it specifies a floor. And that floor is the same that is found with the National Center for Human Genome Research.

And it is not apples and oranges. Nanotechnology includes genetic engineering or includes things so closely related to genetic engineering as to raise the same societal and ethical concerns. The idea of creating molecules that will attach to human genes and change who we are, who is to say that is not nanotechnology but is only genome research technology. The distinction is to where a nano starts and a gene ends is not going to be clear until the science is developed and——

Mr. ROHRABACHER. Would the gentleman yield for a question?

Mr. SHERMAN. I will yield for a question.

Mr. ROHRABACHER. If we have limited resources, which we are always operating on limited resources, and are you willing to take money away from an investment in these—in research that might come up with, for example, the cure for cancer or something like that with nanotechnology in order to finance the philosophizing——

Mr. SHERMAN. Let me reclaim the time. The gentleman suggests somehow that this bill or this amendment will create a social, philosophical elite. So I hope very much that he supports another amendment that I will offer that will provide for public input in getting the public energized, because if people out there understood that the definition of what it is to be a human being may change in the next generation or two, we would get input not only from an elite group of advisors—self-appointed advisors, but from the public as a whole.

Mr. ROHRABACHER. How much will it cost to get that?

Mr. SHERMAN. And then as to whether it is a good investment, I would ask would it have been wise to have begun thinking about a nuclear proliferation treaty before we develop nuclear weapons? Obviously, with World War II we were not in a position to do that, but this technology is every bit as explosive as nuclear weapons or nuclear technology. And it behooves us to try to look at the social implications before the science puts forward all of these new possibilities.

As to taking money away from physical research, look at all that the Federal Government does and say does it make sense that we take a look at where we are going as a species and what nanotechnology, I certainly think it is a good investment of public resources. Now you can postulate the idea that that takes money away from something that will cure cancer. It could also just take money away from something that would improve something in Huntington Beach.

Chairman BOEHLERT. Thank you very much. Mr. Smith.

Mr. SMITH OF MICHIGAN. Societal and ethical concerns need to be considered. They need to be dealt with. The question before us is should we assign a specific percentage. And let me just remind everybody that it says "the program shall be designed to ensure that societal and ethical concerns will be addressed as the technology is developed by establishing the research program in that way." So it is already in the bill. It is demanded in the bill. And the only question is how much. Maybe it is going to be 1 percent. Maybe it is going to be 10 percent, because the demand is already in the bill. And I think our discussion should be should we assign a specific percentage. And I think we should not limit it to five percent nor maximize it to five percent. We should leave it as the bill is written to say, "This is the responsibility. Do it."

Chairman BOEHLERT. I thank the gentleman for that very concise explanation of the bill's intent. That is the Subcommittee Chairman, the Chairman of the Subcommittee on Research. And the Chair here is friendly to your thrust with this amendment. We are just opposed to the specific amount for the very reasons that Chairman Smith has just outlined.

So Mr. Baird.

Mr. BAIRD. I thank the gentleman and move to strike the last word. I commend my colleagues for their attention to this. I think they are right on the money in the sense of the notion that we have to address these societal implications.

But I also share the concern as a social scientist myself about setting a dollar figure and somehow equating that because we spend five percent or two percent or seven percent we somehow have done our job. I would be more interested in finding some way that we could periodically have a report back to this committee on the implications, the societal implications, because I do think they have raised an important issue. And I wonder if there might be some way that rather than fixing a dollar amount, which doesn't in any way, shape, or form, in my judgment, guarantee that the result will be achieved, but if we might find a way that reports back to this committee on a bi-annual basis on the implications of this technology and on the inclusion or ways in which this is being addressed and the research. I would personally be happier with that than a dollar figure.

Chairman BOEHLERT. Mr. Baird, let me just, if I may, just respond. There are other amendments that we are prepared to accept, which will do precisely that. And I thank you for that intervention, because you speak for a number of us in your approach to the issue. So let me thank Mr. Bell and Mr. Sherman for their amendment. I hope that they would agree that there is the general consensus that we want to address societal and ethical concerns. We want to do so with as much specificity. We want to require reports back to ensure that that is being done. We are just trying to avoid an arbitrary figure, like five percent, or as Mr. Smith said, 10 percent or one percent.

Mr. Bell.

Mr. BELL. Mr. Chairman, I move to strike the last word. You bring up trying to avoid an arbitrary number. Well, that is precisely the goal of this amendment is to prevent it from being arbitrary all down the line to set a percentage here on the front end.

And I would submit to this committee that we should learn from our previous experience. Stem cell research, as Ms. Woolsey correctly points out, is a perfect example. Why look at the societal and ethical concerns after the fact? This amendment gives this committee an excellent opportunity to demonstrate that we can act in a proactive fashion.

One of the biggest criticisms of government is that we are always reacting, that we do not take action on the front end. And this is an opportunity to do just that. And we have heard from a panel of experts that there will be serious societal and ethical concerns associated with nanotechnology. Let us be looking at those as the technology develops, not after the fact. And I would dare predict that some of the people who sit here today and complain about setting a percentage for how much money should be spent studying societal and ethical concerns will be some of the same—very same people who will come down after the fact complaining about societal and ethical concerns associated with nanotechnology. Let us act now on the front end so that we don't have to be catching up, playing a game of catch up down the line after the technology has already been developed.

Thank you, Mr. Chairman.

Chairman BOEHLERT. Mr. Bell, just let me say the Chair finds that—itself in agreement with the very distinguished social sciences that we have on our Committee and he happens to be on your side of the aisle. I agree wholeheartedly with what Mr. Baird has said. And I find when we have expert opinion within, it is all well and good to point to some diversity of opinion from outside, but I would like to honor the expert opinion from within. And I think there is general agreement on both sides of the aisle that you have addressed a very important subject with your amendment. And there is general agreement that we want to ensure that as we go forward with nanotechnology research and development we pay attention to societal and ethical concerns and moreover that we require annual reports to the Congress on how that is being addressed. And then if we find that to be inadequate, we can do something more. But we are trying to avoid any arbitrary figure in this bill, but not ignoring the legitimate needs of a comprehensive bill.

Mr. HALL. Mr. Chairman.

Chairman BOEHLERT. Yes, Mr. Hall.

Mr. HALL. You must feel supportive, then, of Mr. Baird in that his testimony coincides with the testimony of all of the witnesses we had here, what, just a couple of weeks ago, from my understanding. Is that your understanding?

Chairman BOEHLERT. My understanding is that all of the witnesses said we had to address, we should address societal and ethical——

Mr. HALL. And five percent was accepted by them, because that is what the genome percentage was set at.

Chairman BOEHLERT. Well, no, we had a couple of witnesses who suggested a five percent figure. We had a number—we had other witnesses who were not arbitrary with any figure, but said we have to address the overall issue, and that is what we are doing, addressing the overall issue. So we had some division or difference of

opinion on any percentage from the expert witnesses. We have an expert number within our ranks, a very distinguished social scientist in his own right, who is also a pretty darn good legislator, and I find myself in agreement with him.

So if there is anyone else seeking recognition, we don't want to prolong this, because this could be a long day.

Mr. BARTON. Mr. Chairman.

Chairman BOEHLERT. Mr. Barton.

Mr. BARTON. Mr. Chairman, I attended briefly part of the hearing on this issue several weeks ago. I have a nanotechnology center near my congressional district in the University of Texas at Arlington. I think some of these issues may need to be addressed, but I'm not so sure that some elitist ivory tower of Ph.D. is any better off at doing this than just rank-and-file Americans. So I—you know, I think nanotechnology, in my mind, is just little science, tiny, tiny science. And we can work on some of these things, but I don't see that we have to dedicate a certain percentage. So I am going to support you.

Chairman BOEHLERT. Thank you very much.

Mr. BARTON. And I want to yield to Mr. Rohrabacher, because he has something very profound to say on this.

Mr. ROHRABACHER. Of course I will be supporting the Chairman, but let me just note the different—I just disagree in the amount of money that——

Chairman BOEHLERT. Microphones.

Mr. ROHRABACHER. I will just speak louder. I don't care just about the percentage, although I think mandating a specific percentage is in and of itself a threat, because it is very hard—and it could lead to some loss of some very important resources that might further help better the life of many people. But I also am very afraid about this basic concept of setting up sociologists and setting up a panel of sociologists, professors, religious experts, and Ph.D.s to try to prevent what our scientists, what our physicists, what our biologists can look into. This is ridiculous. And the American people will have an input. I do agree we should certainly go out of the way to have public input, but that is what we are elected for. We are elected to make ethical judgments as to how to implement knowledge once we have that knowledge. So we should be making—and we should have town hall meetings and discuss whether or not we should put money into stem cell research. We should not have some religious philosophers, some sociologists or whatever, or Ph.D.s preventing stem cell research before we do anything.

Well, that is my argument. Thank you.

Chairman BOEHLERT. We don't have the microphones, so we are trying to defer, because the recorder can't—can you hear us okay? Can we proceed?

Mr. WEIRICH. One at a time.

Chairman BOEHLERT. All right. The Chair recognizes Mr. Miller. And make sure we can wrap this conversation up. I think it is clear to everyone that there is widespread support for research on societal and ethical concerns. Where the difference is arbitrarily setting a figure at five percent.

Mr. Miller with what I hope will be the completing words on this very thoughtful amendment.

Mr. MILLER. That would be fine. I just wanted to—I attended most of the hearing on societal and ethical concerns, and if it were not for the Chairman's questions, I would have attended even more of them. And the kind of societal and ethical concerns that we are talking about, in my part of the country, a generation or two ago, we imported an ornamental Japanese—nanotechnology is a manipulation of matter at the molecular level. And it gets pretty tedious trying make—manipulate one molecule at a time. So part of the technology is adding self-replicating molecules. That is a pretty frightening concept. The phrase used was—which goes out of control, who knows how much it could reproduce. And I am very concerned about the prospect of having—I have been trying to figure out what the real risk of that is, can it be controlled. It is something we ought to think about before we plunge in here. Okay. We are not talking about just funding some college professors, Ph.D. and philosophy circus. We are really talking about people who know the science and can tell us what is the real risk and what do we do to contain that risk.

So we need to be doing something to address societal and ethical concerns, and whether it is five percent or three percent or regular report back or something, I would like to know what is really happening.

Chairman BOEHLERT. And with that, I think we are—Mr. Baird.

Mr. BAIRD. I appreciate your comments. I would like to disassociate myself from those that said—demeaned academics. We need bright people.

Chairman BOEHLERT. I can't hear you.

Mr. BAIRD. I would like to disassociate myself from those who have demeaned academics. We need bright people looking at the economics, the cost benefit ratio of where we invest these dollars. We need bright people, but I don't contend that any of us on this committee are necessarily well qualified to look at some of those issues. We need to get those people here. We need to listen to them. And demeaning them, I think, is a mistake. So while I do not agree that we set aside a two or five percent limited funding, I think it is a mistake for this committee, the Science Committee, to demean any branch of science that could inform us in our judgment and help us—guide us with wisdom in how to spend these dollars.

Chairman BOEHLERT. I thank the gentleman for his contribution. This committee never demeans, as a Committee, the contribution of academics. I think we rely very heavily on their extensive input.

The gentleman from Texas.

Mr. HALL. I don't demean them, but I don't like them. When I was in college, they ruined the curve for me.

Chairman BOEHLERT. The vote is on the amendment 16. All those in favor, say aye. Opposed no. The nos have it.

The next amendment is amendment number 17 of Ms. Jackson Lee. The gentlelady is recognized for five minutes.

[The amendment offered by Ms. Jackson Lee follows:]

AMENDMENT TO H.R. 766

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 5, after line 22, insert the following new subsection:

(d) SEMINARS AND ELECTRONIC ARCHIVE.—In continuing its work promoting technology-led economic development, the Technology Administration of the Department of Commerce shall—

(1) sponsor a series of seminars on developing nanotechnology hubs and State-led nanotechnology initiatives, which bring together researchers, government officials, corporations, service industry leads, start-ups, and other interested parties; and

(2) maintain an electronic archive of best practices for promoting and developing nanotechnology hubs and State-led initiatives.

Ms. JACKSON LEE. Thank you, Mr. Chairman. Are we to—first of all, I would like to say that this legislation is long and coming. And I really do appreciate the fact that we now have legislation that will include inprofitability, if you will, interaction between our scientific agencies, such as NASA, the National Science Foundation, Department of Energy, and the Environmental Protection Agency. I believe, Mr. Chairman, that I am offering now amendment number 3. Oh, we are going to number 17 then, I see.

Amendment number 17. And I hope that we will find a common bond with this amendment as we have been able to find on many others. This amendment will help to ensure that federal investments in nanotechnology yield optimal results for the American public and the American economy. It will do this facilitating—it will do this by facilitation the flow of information and technology from the Federal Government and research scientists down to the state level and private sectors.

Mr. Chairman, I believe that if this committee moves on this amendment, we will make the many bright researchers, scientists, and speakers in our state and local governments and the private sector extremely pleased, because we will focus on the collaborative response and the collaborative necessity of making the nanotechnology effort prosperous, productive, and widespread.

During the recent nanotechnology hearing here in the Science Committee, a Board Member of the Nanobusiness Alliance made the suggestion that we need to support technology clusters in order to fuel growth of the nanotechnology industry. I am please to say that my home state of Texas, as well as California and New York, already have statewide efforts in place to improve the efficiency of nanotech development. Several other states have received—excuse me, have recently announced their formation of statewide initiatives in nanotechnology. Obviously, this is an industry of the future, but it doesn't make sense, Mr. Chairman, for every state to have to reinvent the wheel when it comes to setting up such nanotech initiatives.

My amendment will require the Technology Administration at the Department of Commerce to work with states with existing nanotechnology initiatives and with states that wish to develop such initiatives. Now they will sponsor a series of seminars on developing nanotechnology hubs and state led nanotechnology initiatives. And these events would bring together researchers, government officials, corporations, industry leaders, start-ups, and other interested parties who will drive the nanotech-industrial revolution.

My understanding of the work that Secretary of Commerce Evans has been doing over the last couple of weeks is actually going to states and talking about the connection of business between the Federal Government and the state governments. I believe this is a very comfortable fit, this amendment, with what we are trying to do today and how we are trying to enhance our states to get on the front lines, to get engaged, and to make this a very successful effort.

The Technology Administration already has considerable expertise in promoting state led technology development efforts, such as this, and promoting technology efforts generally. Currently, AT has

the Experimental Program to Stimulate Competitive Technology that supports innovation and technology-promoting partnerships between state and local governments, institutions of higher education, non-profits, and the private sector. That program has been very effective, so this new project should be successful as well.

As the program progresses, the AT will also maintain an electronic archive of best practices for promoting and developing nanotechnology hubs and state led initiatives. As an aside, Mr. Chairman, in a meeting with the Committee on Homeland Security Issues, we have heard that it was very helpful that they understood from the local level what are the best practices that they utilized to ensure the safety of their communities. Here is another example of best practices could be gleaned naturally and we could have states not reinvent the wheel. The archive will help states stimulate growth in the emerging industry to help propel the United States into a continuing dominant role in nanotechnology research and in developing products and technology to improve human existence.

Mr. Chairman, I have always said that this is a very important Committee. I continue to maintain one of the most important committees of this Congress. And I maintain that science will be the job creator of the 21st Century. We are in the 21st Century. We are in need of jobs being created. Jobs are created on the ground in our local states—our respective states and our local communities. What better partnership than to pass this amendment so that the agency can—the agencies or the agency can focus on working with states constructively to promote nanotechnology so that jobs can be created. And I would ask my colleagues to support this amendment.

And with that, I reserve my time.

[The prepared statement of Ms. Jackson Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

This amendment will help to ensure that federal investments in nanotechnology yield optimal results for the American public and the American economy. It will do this facilitating the flow of information and technology from the Federal Government and research scientist, down to the State level and to the private sector.

During the recent nanotechnology hearing here in the Science Committee, a Board Member of the NanoBusiness Alliance made the suggestion that we need to support technology clusters in order to fuel growth of the nanotechnology industry. I am pleased to say that my home state of Texas, as well as California, and New York already have statewide efforts in place to improve the efficiency of nanotech development. Several other states have recently announced their formation of statewide initiatives in nanotechnology. Obviously, this is an industry of the future. But it doesn't make sense for every state to have to re-invent the wheel when it comes to setting up such nanotech-initiatives.

My amendment will require the Technology Administration at the Department of Commerce to work with states with existing nanotechnology initiatives, and with states that wish to develop such initiatives. They would sponsor a series of seminars on developing nanotechnology hubs and State-led nanotechnology initiatives. These events would bring together researchers, government officials, corporations, industry leaders, start-ups, and other interested parties, who will drive the nanotech-industrial revolution.

The Technology Administration already has considerable expertise in promoting state-led technology development efforts such as this, and promoting technology efforts generally. Currently TA has the Experimental Program to Stimulate Competitive Technology that supports innovation and technology-promoting partnerships be-

tween state and local governments, institutions of higher education, non-profits, and the private sector. That program has been very effective. So, this new project should be successful as well.

As the program progresses, the TA will also maintain an electronic archive of best practices for promoting and developing nanotechnology hubs and State-led initiatives. The archive will help states stimulate growth in this emerging industry, and help propel the United States into a continuing dominant role in nanotechnology research and in developing products and technology to improve human existence.

This amendment will ensure that federal investments yield maximal payoffs. I hope you will support it.

Thank you.

Chairman BOEHLERT. Thank you very much.

Ms. JACKSON LEE. Thank you, Mr. Chairman.

Chairman BOEHLERT. I have been pleased to work with you on two of the amendments that we will accept, because they are good amendments. They add strength to it. And I think this is a good approach, but I think it is overly prescriptive, and it doesn't rise to the level of necessarily be codified. I think in report language, we could deal with this in a way that will make you happy and make all of us happy. So I would offer that—a pledge to you that we will work cooperatively with you to have report language that will address the subject and I hope that will be satisfactory.

Ms. Jackson Lee.

Ms. JACKSON LEE. Mr. Chairman, if—could I engage with you just for a moment?

Chairman BOEHLERT. Sure.

Ms. JACKSON LEE. I guess I would have to ask you to yield or——

Chairman BOEHLERT. I would be glad to yield.

Ms. JACKSON LEE. I would be happy to seek some other procedural form. Mr. Chairman, the concern I have, and I appreciate the fact that we have worked collaboratively. I think there is merit to the amendment from the perspective that our states will go wanting if we don't have an actual, if you will, fix. I would had to call it structural, because I think there is flexibility, but an actual partnership established by the legislation. And I would humbly ask the Chairman to consider even to the extent of whether or not you feel that it is too constrictive, I don't think it is, but certainly I think that——

Chairman BOEHLERT. Prescriptive.

Ms. JACKSON LEE. All right. You are being more relaxed then, so we are not constrictive, but we are restricting and prescriptive. But I would be happy to suggest or work with language that could get in that added a measure of additional flexibility. But I think putting the language in the actual text of the bill just helps put our states on the map. And they are so very important, Mr. Chairman, in terms of making this work and creating jobs. That is the only intent that I had was to try to make sure that they were viable partners in this process. I am wondering would we find any sort of way we could have the language in so that the states would be on the map and be part of the job creation that I think nanotechnology is going to generate in creating these partnerships that are so very important. That is the gist of what this is.

When I say sponsor seminars, Mr. Chairman, we do that all of the time. That is why I made the point of suggesting Secretary Evans has been on the road. He has been doing road trips all across the Nation speaking to businesses. I think that is what you

call a seminar. So we could indicate sponsored events, sponsored efforts. But I just think it is so very important. We have each of our states—if I might, just one moment. Each of our states have the—I am trying to think what they are called, trade promotion departments and other departments that deal with generating businesses dealing with technology. That is the kind of partnership that I am talking about. They have a direct link to this legislation, Mr. Chairman, and so that is what I would hope that we might be able to look at. The state hubs, my state happens to have a sort of a hub scenario. But I think this would be very helpful for the states to wake up and say, "Look, we are in the bill. We get a chance to work directly with this great partnership."

Chairman BOEHLERT. Do you think that we would send the proper wake up call to the states if we included it in the report language?

Ms. JACKSON LEE. Well, that is why I am trying to convince my esteemed Chairman that if we could find a way to have——

Chairman BOEHLERT. You have already made the sale, in short language, now the question is do we have a handshake and go forward?

Ms. JACKSON LEE. Mr. Chairman, what is your issue for not having it in, if I could understand that, in the legislation? I was trying to offer some softer language to get in the legislation versus the report language. I——

Chairman BOEHLERT. Well——

Ms. JACKSON LEE.—am concerned that the—you know, how many people will turn to the report language and find it, that is really the sense of my concern.

Chairman BOEHLERT. Well, my experience is that people that are deeply and intimately involved in these programs look at the report language. The rest just ignore it, but we are not concerned so much about the rest as we are of those who are totally immersed in the overall endeavor.

And my general feeling is, and this is from years of experience in the House as well as my previous experience as a staff member for 15 years. The fact of the matter is, we could pass a bill that you couldn't lift. You would get a hernia if you lift it, because we would prescribe every phase of activity, and I don't think that is our job to prescribe every phase of activity to say every single thing that should happen as the program goes forward, particularly in a program that is in its infancy and is emerging. So if—we will do this. If you are willing to come to some understanding that we will work with you to develop strong report language, fine. If not, we will go to the vote.

Ms. JACKSON LEE. Well, Mr. Chairman, if the language—if you are willing to develop strong report language that would include the particulars that I have in the amendment, and if you say that—well, I won't say if you say, because I think that it has to be my judgment on the question of how many people read the report language, but if I have—if the language points out the particular suggestions that are made in this amendment, and I think benign suggestions, by the way, but effective and helpful suggestions, I would be willing to work with staff. I am—I would like to get on the record, though, Mr. Chairman, that I would hope that

we would have—that the report language then would allow us to be more instructive. And that would include the language that is in this particular amendment that we have before us. And I would be glad to work with the language in this amendment to include it as report language.

Chairman BOEHLERT. So be it.

Ms. JACKSON LEE. And I thank the gentleman for his consent to work with the language of this amendment and to work with me.

Chairman BOEHLERT. All right. And does the gentlelady withdraw her amendment?

Ms. JACKSON LEE. I ask unanimous consent to withdraw the amendment.

Chairman BOEHLERT. Without objection, so ordered. Now the next amendment is amendment number 14, Mrs. Eddie Bernice Johnson.

Ms. JOHNSON. Thank you. Excuse me. Thank you very much, Mr. Chairman. I apologize for——

Chairman BOEHLERT. The Clerk will report the amendment.

Ms. JOHNSON. Oh, sorry.

Ms. TESSIERI. Amendment to H.R. 766 offered by Ms. Eddie Bernice Johnson of Texas.

[The amendment offered by Ms. Johnson follows:]

AMENDMENT TO H.R. 766
OFFERED BY MS. EDDIE BERNICE JOHNSON OF TEXAS

Page 7, after line 20, insert the following:

In carrying out the assessment required under paragraph (7), the Advisory Committee shall consider the findings and recommendations from citizen panels described in subsection (c).

(c) CITIZEN PANELS.—(1) The Advisory Committee shall convene citizen panels, with membership composed of nonscientific and nontechnical experts, in different geographic regions of the Nation, to consider societal and ethical concerns arising from the development and application of nanotechnology. The Advisory Committee shall base the guidelines and procedures governing the functioning of the citizen panels under this subsection on the model developed by the Danish Board of Technology for citizen panels for technology assessment.

(2) The first citizen panel shall meet within 18 months after the date of enactment of this Act, and subsequent panels shall meet on a schedule established by the Advisory Committee, but not less frequently than at 18-month intervals.

(3) Citizen panels shall prepare reports containing the panels' findings and recommendations, and the Advisory Committee, through the National Nanotechnology Coordination Office, shall ensure the wide dissemination of the reports.

(4) The Director of the National Science Foundation shall provide technical and administrative assistance to the Advisory Committee in carrying out this subsection.

(5) Of the amounts authorized under section 7(a), such sums as may be necessary shall be made available to carry out this subsection.

Page 7, line 21, redesignate subsection (c) as subsection (d).

Page 8, line 6, redesignate subsection (d) as subsection (e).

Ms. JOHNSON. Mr. Chairman and Members, this amendment puts into the bill a citizen's panel advisory committee. And the rationale for this is to make sure that there is not just a lot of controversy. Nanotechnology can create a lot of questions in the public mind and to make sure that it doesn't just consist of the researchers who are not communicating with the general public. In the subsection—this subsection is also asking that we use the model developed by the Danish Board of Technology for citizen panels for technology assessment, which allows regular citizens to apply and be considered for joining this panel.

I think that it is a—the intent is to have a group of people that can get their concerns and get their questions answered, pose questions so that the research can go forward without a great deal of controversy, whether they think that we are using cloning or whatever. This could be diffused by having a citizen's panel advisory committee as a part of this to be somewhat of the—somewhat of a watchdog, but also a PR kind of thing in order to keep the major controversy out of this type of research. And I would move its adoption.

Chairman BOEHLERT. Thank you very much. The Chair opposes this amendment. I think this is one more example of micromanaging. The amendment sets in stone an elaborate process for seeking citizen input that we might find is not the best way to promote debate in this particular issue. I support the idea of promoting a broader and better-informed debate on nanotechnology, but I don't think this is the way to achieve it.

I offered the gentlelady an opportunity to scale—to have a scaled-down version of the amendment, which I thought would fit better into the bill, but there was a reluctance on the part of the author to alter her amendment. So with that, the Chair will have to reluctantly oppose the amendment. I am not in opposition to public citizen input; I just don't want to be guilty of micromanaging every single phase of this new program.

Is there anyone else that——

Mr. BARTON. Mr. Chairman.

Chairman BOEHLERT.—seeks recognition?

Mr. BARTON. Mr. Chairman.

Chairman BOEHLERT. Mr. Barton.

Mr. BARTON. I am going to say up front I am going to support you on your position, because you are the Chairman, and I don't know all of the implications, and I am told the White House has approached you on this and asked you to oppose it. But I have got to admit, if we oppose the elites advising, how can we oppose the average citizens advising? I mean, it just seems to me that some version—there is some happy medium between the amendment that we defeated and this amendment. And if I have got to choose between, I would go with Eddie Bernice and try to find a way to accommodate it, because I see no problem in having average citizen's panels advise on these ethical problems, because that is what society is is an amalgamation of the average citizen. And there are obviously some elites that are going to be a part of it. But you know, I am going to oppose it with you, but I think Mrs. Johnson has a pretty good idea here.

Chairman BOEHLERT. Thank you very much, and we offered to work on that idea, but there was a reluctance to make any adjustments.

Ms. JOHNSON. Mr. Chairman, what was your offering? I am sorry.

Chairman BOEHLERT. The staff will have to—that is a topic for another discussion.

Ms. JOHNSON. I mean, under provisions of desperation, I might go with it.

Mr. BARTON. Can I reclaim my time just briefly, Mr. Chairman?

Chairman BOEHLERT. Mr. Barton.

Mr. BARTON. I just—you know, to show that there is at least one Texas Republican with some class on the Committee, Mr. Smith has quoted to me the charge of the live brigade is why I should be with you. Ours is not the reason why. Ours is but to do or die.

Chairman BOEHLERT. Is there anyone else who seeks recognition?

Mr. ROHRABACHER. Mr. Chairman. I believe the quote is, "Do and die." And it is not do or die in California. And I would like to know whether or not there are going to be any Ph.D.s and sociologists on these citizen panels. I would——

Chairman BOEHLERT. Fine. Anyone else seeking recognition? If not, the vote is on the amendment. All in favor, say aye.

Ms. JOHNSON. Mr. Chairman, just before the vote, you didn't answer my question about what you offered as——

Chairman BOEHLERT. Staff worked the better part of yesterday talking with your staff and the minority staff on this very issue. Now I don't know the details——

Ms. JOHNSON. I am sorry. I was supposed to be in four places at one time this morning, that is why I am asking.

Chairman BOEHLERT. As we all are every single day, and we are all burdened by conflicting commitments. But the fact of the matter is a good deal of time and effort was spent trying to work out something that would be acceptable, and essentially we were told not in this arena. So we have to accept that as gospel and move on.

So the vote is on the amendment. All in favor say aye. Opposed no. The nos appear to have it.

The next amendment——

Ms. JOHNSON. You will be sorry, Mr. Chairman.

Chairman BOEHLERT. Don't mess with Eddie Bernice. Amendment number 2. The Clerk will read the amendment. All right.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Smith of Michigan, Ms. Hart, and Mr. Wu, and Mr. Matheson.

[The amendment offered by Mr. Smith, Ms. Hart, Mr. Wu, and Mr. Matheson follows:]

AMENDMENT TO H.R. 766

OFFERED BY MR. SMITH OF MICHIGAN, MS. HART, AND MR. WU, and Mr. Matheson

Page 3, line 14, strike "and".

Page 3, strike lines 15 through 17, and insert the following:

(B) establishment of advanced technology user facilities; and

(C) establishment of interdisciplinary research centers, which shall—

(i) network with each other to foster the exchange of technical information and best practices;

(ii) involve academic institutions or national laboratories and other partners, which may include States and industry;

(iii) make use of existing expertise in nanotechnology in their regions and nationally;

(iv) make use of ongoing research and development at the micrometer scale to support their work in nanotechnology; and

(v) be capable of accelerating the commercial application of nanotechnology innovations in the private sector.

Chairman BOEHLERT. Let me point out that this is an amendment, a bipartisan amendment. All four of the principle sponsors worked long and hard to develop it, and they have come to agreement. You all have the amendment before you. I think we should come to agreement. The Chair is prepared to accept it. Is there anyone who seeks recognition?

Mr. WU. Mr. Chairman.

Chairman BOEHLERT. Mr. Wu.

Mr. WU. I just wanted to say——

Chairman BOEHLERT. Mr. Smith. Mr. Smith first, then Mr. Wu.

Mr. SMITH OF MICHIGAN. Well, it is about time we got back to the bipartisanship of this committee, and this is a bipartisan amendment with Ms. Hart and Mr. Wu and Mr. Matheson. It—we—very briefly, we just simply met with leaders in the nanotech industry. They said we should consider microscale as a way to implement nanotech. This, in addition to developing the kind of environment that we could move ahead efficiently is why it is a bipartisan amendment and why I think there is no disagreement to including it in the bill.

And I yield back.

Chairman BOEHLERT. Now to Mr. Wu.

Mr. WU. Mr. Chairman, I just want to thank you and Mr. Smith and the good work of the Committee staff on both sides of the aisle. Thank you.

[The prepared statement of Mr. Matheson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JIM MATHESON

Mr. Chairman and Mr. Honda, thank you both for your leadership on the important issue of nanotechnology.

I join my colleagues, Mr. Wu, Mr. Smith, and Ms. Hart in asking for the Committee's support of this amendment to establish a network of shared academic facilities and technology centers.

The interdisciplinary nature of nanotechnology is one of the most interesting applications of science. I hope that by developing a network of research centers, we can take full advantage of the strengths of the major players in nanotechnology, be they academic institutions, and State governments or industry leaders.

Nanotechnology research at the University of Utah, for instance, is already benefiting from the assistance of state-run Centers of Excellence program, which focus on commercialization of research and technology. I look forward to seeing similar ventures throughout the Nation, as work in this field of science continues.

I ask my colleagues to join us in supporting this bipartisan amendment, thank you.

Chairman BOEHLERT. Thank you very much. If there are no other comments, the vote is on the amendment. All in favor say aye. Opposed no. The ayes have it. The amendment is passed.

The next amendment, amendment number 3, Ms. Jackson Lee and Mr. Wu. And let me say at the outset that the Chair is prepared to accept this excellent amendment in the spirit of bipartisanship and cooperation that dominates so much of our consideration.

[The amendment offered by Ms. Jackson Lee and Mr. Wu follows:]

AMENDMENT TO H.R. 766
OFFERED BY MS. JACKSON-LEE OF TEXAS AND MR. WU

Page 4, line 3, strike "and".

Page 4, line 12, strike the period and insert "; and".

Page 4, after line 12, insert the following new paragraph:

(6) include to the maximum extent practicable diverse institutions, including Historically Black Colleges and Universities and those serving large proportions of Hispanics, Native Americans, Asian-Pacific Americans, or other underrepresented populations.

Ms. JACKSON LEE. I am delighted to sing from that page, Mr. Chairman. And in order to ensure that the room remains at least somewhat attended by Members, I will not sing.

I am delighted to work with my friend and colleague, Mr. Wu, on this. And this again goes to the idea of how crucial this legislation is. Simply what it says it that we expect for the nanotechnology industry to yield great opportunities for America, Americans, and the American industry. And nanotechnology may well dominate our research institutions in a few decades. It is critical as we kick off this very important initiative that we ensure that all institutions with great skill and expertise that could be involved would be involved in this revolution.

This nation has a rich and diverse institutions of higher learning. And so the Jackson Lee–Wu amendment makes sure that we tap into all of the resources that the system has to offer. And this amendment in particular just simply says that we work to the maximum extent practical with the diverse institutions, including historically black colleges and universities, those serving large populations of Hispanics, Native Americans, Asian American, or other underrepresented populations. We hope clearly that what this does is answer the question again of the idea of creating work for the 21st Century but also creating the scientists, the thinkers, the researchers, the inventors of the 21st Century, and certainly that should be representative of America and that is representative of all of the, excuse me, diverse groups of America. And I would simply ask for my colleagues to support this. And I am delighted to join with Congressman Wu.

[The prepared statement of Ms. Jackson Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

I am pleased to offer this amendment with my colleague from Oregon, Mr. Wu. I also appreciate the cooperation of you and your staff on development of this amendment.

Nanotechnology will yield great opportunities for America and American industry. Nanotechnology may well dominate our research institutions in a few decades. It is critical that as we kick off this exciting initiative, that we ensure that all institutions with great skills and expertise, that could enable the nano-revolution, are brought to the table. This nation has a rich and diverse system of institutions of higher learning. This Jackson Lee/Wu amendment makes sure that we tap into all the resources that that system has to offer by stating that activities in the new program will include, to the maximum extent practicable, diverse institutions, including Historically Black Colleges and Universities and those serving large proportions of Hispanics, Native Americans, Asian-Pacific Americans, or other under-represented populations.

This amendment will have other benefits as well. It will ensure that the next generation of leaders in this important emerging field, represent the diverse views and experiences of the American population. This is especially critical in a field such as nanotechnology, with such great potential for impacting our society and culture.

I am pleased that institutions like Texas Southern University, a fine Historically Black University in my district, has already taken a lead on many key issues in their College of Science and Technology. But we must ensure that such programs continue to flourish and produce results.

Again, I thank you for working with Mr. Wu and me on this amendment.

Chairman BOEHLERT. Thank you so much. And the Chair recognizes Mr. Wu.

Mr. WU. Thank you very much, Mr. Chairman. I just wanted to take a moment again to thank you and thank my co-author, Ms.

Jackson Lee. But I also wanted to, in this instance, take a moment to talk about something, which I think most of us, including yours truly, did not understand well until fairly recently. And that is that, you know, we need to encourage all Americans to go on in the education cycle and to better themselves and better society.

There is a very broad assumption about Asian American populations. And by looking at detailed data within the last few months, I have finally come to a better understanding of the phenomena that I did not understand very well before. If you disaggregate Asian-Pacific Americans by income level and by education, what you find is an unusual sort of bi-model distribution, a statistical bi-model distribution. That is you will find a—what I will technically refer to as a hump in the graph. That is an overrepresentation of Asian Americans in the high-income level, and you will find an overrepresentation in the low-income level, that is it doesn't come toward the center as it does in many—in a usual distribution curve. It is really a hump in the low-income level and a hump in the high-income level.

And it is similarly true of education. You have a, for Asian American populations, a hump in the high school or below education pool, and you also have a hump in the graduate school and above level. So again, you have a—not rising toward the center of the education curve, but really a driving toward the extremes, if you will. And I think that the popular media tends to focus upon the distribution curves at the high end, the high income, the high education. And there is a lack of attention to the low education and low income and of Asian-Pacific Americans, you know, distributed statistically. And I think that America is a country where we believe in mobility, in the ability to move from that curve, you know, from any particular part to any other part of the curve. And that is part of what we try to do in education in science and research and part of what we are trying to do with this amendment and others.

And thank you very much.

Chairman BOEHLERT. Well, thank you very much for that enlightenment, and I do say this is a valued addition to the overall bill, and I thank both of you for offering it. Did you notice that, Ms. Johnson?

Ms. JOHNSON. Yes, sir.

Chairman BOEHLERT. Thank you.

Mr. ROHRABACHER. Mr. Chairman.

Chairman BOEHLERT. Yes, Mr. Rohrabacher.

Mr. ROHRABACHER. I will make this very quickly. Booker T. Washington made magnificent contributions to the United States of America and led way—led his way—the way for many black Americans who had been held in slavery to look at the sciences and education as a means of not only improving themselves but making major contributions to our society. And I think that this is done right in the same spirit of Booker T. Washington and very much in the tradition of our country.

And thank you very much.

Chairman BOEHLERT. Thank you very much. The vote is on the amendment. All in favor, say aye. Opposed no. The ayes have it. The amendment is passed.

Next amendment, amendment number 4, another amendment from Ms. Jackson Lee, who so often contributes so much to so much of our work. And this, too, is a worthy addition to the bill. And the Chair is prepared to accept it. The Chair recognizes Ms. Jackson Lee.

Ms. JACKSON LEE. Thank you so very much, Mr. Chairman. I am very pleased——

Chairman BOEHLERT. The Clerk will report the amendment. I am sorry.

Ms. JACKSON LEE. Thank you, Mr. Chairman.

Ms. TESSIERI. Amendment to H.R. 766 offered by Ms. Jackson Lee of Texas.

[The amendment offered by Ms. Jackson Lee follows:]

AMENDMENT TO H.R. 766

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 4, lines 10 through 12, amend subparagraph (B) to read as follows:

(B) insofar as possible, integrating research on societal and ethical concerns with nanotechnology research and development, and ensuring that advances in nanotechnology bring about improvements in quality of life for all Americans.

Ms. JACKSON LEE. Thank you so very much, Mr. Chairman. I am pleased that the response and the further edification given to the previous amendment by Mr. Wu and by Mr. Rohrabacher. And I might add that this follows somewhat in line with the thinking of trying to advance people from all walks of life. But just recently, though, we don't discuss particular finites numbers, and the Science Committee, in particular, a report was issued suggesting that African American children in the United States are living in a higher degree of poverty than had been expected.

This amendment deals with recognizing that nanotechnology can help those who are struggling to make ends meet without health insurance, living in dilapidated houses or homes, or poor access to good nutritious food or prescription medications. We are now also seeing that the have-nots are finding themselves on the wrong end of the technological divide. So as we have a backdrop of people living in poverty, we still have the continued challenge, Mr. Chairman, of the technological divide.

As the Internet and other technology are making many of our lives so much easier and more productive, change has not come to all communities. And so it is very important that we ensure that we address that question. This amendment helps to ensure that nanotechnology advances bring about real improvements in quality of life for all of the American people, not just a few. It is a small wording change, I do recognize, that makes a profound statement of commitment to the well being of all Americans.

And so it just simply focuses, in conclusion, on integrating research on societal and ethical concerns with nanotechnology research and development and ensuring that advances in nanotechnology bring about improvements in quality of life for all Americans. We never—we may never know, Mr. Chairman, where this research may wind up. We don't know whose lives it may impact, but as we are doing so, let us think about those who are living, possibly, in squalor, who are living in poor homes or living without access to technology. Let us make sure that as we advance, we try to lift all votes.

And that is the gist of this amendment, and I appreciate very much the kindness of the Chairman in accepting this amendment. I yield back my time.

[The prepared statement by Ms. Jackson Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

We live in a society where the rift between the haves and the have-nots is becoming increasingly troubling. While we have some of the richest people in the world, we have others who are struggling to make ends meet: without health insurance, living in dilapidated homes, with poor access to good nutritious food or prescription medications.

We are now also seeing that the have-nots are finding themselves on the wrong end of a "technological divide." As the Internet, and other technology, are making many of our lives so much easier and more productive, change has not reached all of our communities. Too many, especially in inner cities like my district, or in rural areas are missing out on the tech revolution.

These people are already fighting to keep up and compete in school, or in the workforce, and the technological divide makes that fight even harder. I do not want advances in nanotechnology to further exacerbate the divide. It seems possible that nanotechnology could bring about spectacular advances in health care, or commu-

nication—things that we cannot yet even dream of. It would be inappropriate if federal tax dollars, from hard working Americans at all levels of the socio-economic spectrum, ultimately only helped the upper crust.

I am pleased that the underlying bill includes provisions to provide for research into the societal and ethical concerns related to nanotechnology. That research will address many of the concerns I have.

This amendment further helps to ensure that nanotechnology advances bring about real improvements in quality of life for *all* the American people, not just the select few. It is a small wording change that makes a profound statement of commitment to the well-being of all Americans.

I hope you will support it. Thank you.

Chairman BOEHLERT. You just articulated a compelling case for the amendment. The vote is on the amendment. All in favor say aye. Opposed nay. The ayes have it. The amendment is passed.

The next amendment is amendment number 5 by Mr. Sherman, another amendment that the Chair is prepared to accept. There have been extensive negotiations, and the staff will distribute the amendment.

Mr. SHERMAN. Thank you, Mr. Chairman.

Chairman BOEHLERT. And the Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Sherman.

[The amendment offered by Mr. Sherman follows:]

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AMENDMENT TO H.R. 766

OFFERED BY Mr. Sherman

Page 4, line 4, insert ", including environmental concerns and the potential implications of human performance enhancement and the possible development of nonhuman intelligence," after "ethical concerns".

Chairman BOEHLERT. And Mr. Sherman is recognized for five minutes.

Mr. SHERMAN. Thank you, Mr. Chairman. I will try to be concise. I want to thank you and your staff for working with me on this and helping to identify some of the specific components of what it will mean to look at the societal and ethical implications of nanotechnology.

What we did is we inserted some language in the bill, which is on amendment—the amendment now being distributed. And it is my understanding that you are willing to accept strong report language that will deal with some of my other concerns. In particular, that this review of societal concerns will include an effort of forecast future long-term developments so that we can identify the societal implications that they raise. We will include, and I know Mr. Rohrabacher will be pleased with this, efforts to involve the public and seek public input and will address the societal concerns raised by molecular engineering and molecular assembly technology. So I didn't get all I wanted in the bill, but if I can get that and some good report language, I would be absolutely thrilled.

Chairman BOEHLERT. Thank you. And your understanding is absolutely correct. We will work with you on the report language. And the amendment addresses a number of the issues that were brought before the Committee at our hearing on April 9, making it clear that societal and ethical concerns include environmental concerns and the potential implications of technologies that may result in the development of non-human intelligence.

Is there anyone else who seeks recognition on this amendment? If not, the vote is on the amendment. All in favor, say aye. Opposed no. The ayes have it, and the amendment is adopted.

The next amendment is amendment number 6 offered by Mr. Bell. The Clerk will read the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Bell.

[The amendment offered by Mr. Bell follows:]

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AMENDMENT TO H.R. 766

OFFERED BY Mr. Bell

Page 4, line 9, strike "and".

Page 4, line 12, strike the period and insert "; and".

Page 4, after line 12, insert the following:

(C) requiring that interdisciplinary research centers under paragraph (1)(B) include activities that address societal and ethical concerns.

Chairman BOEHLERT. Mr. Bell is recognized for five minutes with the assurance that the Chair will accept this amendment as a worthy addition to the bill.

Mr. Bell.

Mr. BELL. Thank you, Mr. Chairman. I very much appreciate your acceptance of this amendment. While not setting forth a precise percentage for funding, this amendment requires that interdisciplinary research centers, which will be established under the bill, include activities that address societal and ethical concerns of nanotechnology. This amendment requires that the interdisciplinary centers include activities that address those societal and ethical concerns, some of which have been discussed here at the table today. While there may be disagreement as to how much should be spent on this type of research, I think that what we have heard today makes it very clear that we all see the importance of studies on the societal and ethical concerns connected to what is likely to be the future technological reality.

It is clear that social scientists and ethicists need to partner with physicists, chemists, and engineers who are the nanotechnology subject matter experts. By explicitly requiring these activities as part of the interdisciplinary research centers, there is a better chance of establishing close collaboration between the social scientists and the scientists and engineers engaged in developing nanotechnology, and I would urge everyone's support for this amendment.

I thank you very much, Mr. Chairman.

Chairman BOEHLERT. I thank the gentleman. Mr. Smith.

Mr. SMITH OF MICHIGAN. It simply says that for that portion there should be a report back to Congress on the societal and ethical as in addition to what is already in the bill on reports, and we should support the amendment.

Chairman BOEHLERT. Thank you very much. Mr. Baird.

Mr. BAIRD. I move to strike the last word. I want to commend Mr. Bell. I think he is absolutely right, as discussed earlier. We have got to address these issues. They should be addressed early on, and a multi-disciplinary approach is increasingly applied across the scientific disciplines and with good results as we address not only the micro-level, and in this case, nano-level implications and the biological and economic implications, but the broad social implications. This technology is going to change our society, I think, in more ways than the microcomputer has done.

And Mr. Bell and Mr. Sherman's leadership on this are to be commended, and I strongly support this passage.

Chairman BOEHLERT. Okay. Anyone else seek recognition? If not, the vote is on the amendment. All those in favor, say aye. Opposed no. The ayes have it. The amendment is passed.

Next amendment is amendment number 7, Mr. Sherman and Mr. Bell. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Sherman and Mr. Bell.

[The amendment offered by Mr. Sherman and Mr. Bell follows:]

F:\TB\RE\H766.002 H.L.C.

AMENDMENT TO H.R. 766

OFFERED BY MR. SHERMAN AND MR. BELL

Page 6, line 7, strike "and" and insert a comma.

Page 6, line 7, after "component area" insert ", and for all activities pursuant to section 3(b)(5)".

Page 6, line 10, strike "and" and insert a comma.

Page 6, line 10, after "component area" insert ", and for all activities pursuant to section 3(b)(5)".

Chairman BOEHLERT. Thank you very much. And the Chair also is prepared to accept this. It is a worthy addition to the bill, and the Chair recognizes Mr. Sherman for any comments he might make.

Mr. SHERMAN. We have discussed the importance of getting at least an annual report on how we are dealing with the review of the sociological issues or societal issues. And that is what this amendment does.

Chairman BOEHLERT. Mr. Bell, any comments? No. And the vote is on the amendment. All in favor, say aye. No. The ayes have it. The amendment is passed.

The next amendment, number 8, Mr. Matheson. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Matheson.

[The amendment offered by Mr. Matheson follows:]

AMENDMENT TO H.R. 766
OFFERED BY MR. MATHESON

Page 6, line 7, insert ", including a breakout of spending for the development and acquisition of research facilities and instrumentation," after "in the Program".

Page 6, line 10, insert ", including a breakout of spending for the development and acquisition of research facilities and instrumentation," after "in the Program".

Chairman BOEHLERT. This is an amendment that the Chair is prepared to accept. It is a clarifying amendment. The Chair recognizes Mr. Matheson.

Mr. MATHESON. Thank you, Mr. Chairman. Real briefly. First, I want to thank you and your staff for your cooperation.

This is a rather subtle change, but in the bill right now, section 4 does call for an annual report to be submitted to Congress from the Director of the Office of Science and Technology Policy. And this amendment adds to the section in the bill talking about what should be in that report. It should also address information on nanotechnology research infrastructure needs. And simply stated, this is just an effort that allow the scientific community and supporters here in Congress to determine whether or not nanotechnologies facilities and instrumentation needs are being adequately met.

And with that, I will yield back my time.

[The prepared statement of Mr. Matheson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JIM MATHESON

Mr. Chairman and Ranking Member Hall, thank you for your consideration.

Research facilities and instrumentation are a crucial aspect of any serious scientific endeavor, especially something as precise as nanotechnology. This amendment requires the annual report to include information on research infrastructure needs.

This information will allow the scientific community and its supporters here in Congress to determine whether or not nanotechnology's facilities and instrumentation needs are being adequately met.

Now that Congress is making a long-term commitment to nanotechnology research, let us also make a commitment to ensuring our scientists have the appropriate tools and facilities in which to carry out their work.

I hope my colleagues can join me in supporting this amendment, thank you.

Chairman BOEHLERT. Thank you very much. The vote is on the amendment. All in favor, say aye. Opposed no. The ayes have it, and the amendment is adopted.

Next amendment, amendment number 9 by Mr. Honda. And the Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Honda.

[The amendment offered by Mr. Honda follows:]

AMENDMENT TO H.R. 766
OFFERED BY MR. HONDA

Page 5, line 15, strike "and".

Page 5, line 22, strike the period and insert "; and".

Page 5, after line 22, insert the following new paragraph:

(6) develop a plan to utilize Federal programs, such as the Small Business Innovation Research Program and the Small Business Technology Transfer Research Program, in support of the goal stated in subsection (b)(4).

Page 6, line 13, strike "and".

Page 6, line 16, strike the period and insert "; and".

Page 6, after line 16, insert the following new paragraph:

(5) an assessment of how Federal agencies are implementing the plan described in section 3(c)(6), and a description of the amount of Small Business Innovative Research and Small Business Technology Transfer Research funds supporting the plan.

Chairman BOEHLERT. The Chair, after extensive negotiation with the co-author of this bill, as agreed to. The Chair recognizes Mr. Honda.

Mr. HONDA. Thank you, Mr. Chair. And I appreciate all of the work that you have done and the leadership that you have exhibited on this bill.

And I had a five-page typewritten report, but I thought I would just condense it right down to two sentences thanking you and then indicating that the amendment requires a plan for the—for using the Small Business Innovation Research and Small Business Technology Transfer Research Programs to support nanotech development. And two, an annual report assessing the information of the implementation of the plan.

Mr. Chair, I just wanted to thank you for also inviting a member from the private sector who made the suggestion, Alan Marty of JP Morgan that reminded—who reminded us that it is not enough to focus only on basic research, but also suggested that we include the federal funding to promote the commercialization of nanotech. And he provided a number of reasons why federal efforts in this area are necessary. So I commend the Chair for inviting that witness.

And I would yield the remainder of my time, Mr. Chair.

[The prepared statement of Mr. Honda follows:]

PREPARED STATEMENT OF REPRESENTATIVE MICHAEL M. HONDA

This is a very straightforward amendment, developed in response to recommendations made by witnesses during our committee hearing and concerns that have been expressed to me by companies trying to break into the field of nanotechnology.

My amendment would require the development of a plan to utilize federal programs, such as the Small Business Innovation Research Program (SBIR) and the Small Business Technology Transfer Research Program (STTR), in support of the goals of accelerating the commercial application of nanotechnology innovations in the private sector. It would also require reporting to assess how agencies are implementing this plan, including the amount of SBIR and STTR funds supporting the plan.

At our first hearing, our only private sector witness, Alan Marty of JP Morgan, reminded us that we need a balanced approach to funding nanotechnology, that it is not enough to focus only on basic research. Mr. Marty suggested that we include federal funding to promote the commercialization of nanotechnology. He provided the Committee with a number of reasons, from a venture capitalist's point of view, why federal efforts in this area are necessary. I commend the Chairman for inviting this witness with his private sector perspective on how to promote the commercial development of nanotechnology.

Fortunately, the Federal Government has already created programs to engage in the sort of activities that Mr. Marty has suggested we include in our Nanotechnology R&D Program.

The SBIR program is designed to encourage small businesses to realize their technological potential and provides them with an incentive to profit from its commercialization. Between 1983 and 2001, federal agencies have funded more than $12 billion in SBIR awards. In FY 2001, the five agencies included in this bill made a total of $265 million in SBIR awards.

STTR is designed to encourage commercialization of university and federal lab R&D by small companies. The STTR provides funding for research proposals that are developed and executed cooperatively between a small firm and a scientist at a non-profit laboratory. In FY 2001, agencies authorized in this bill spent almost $16 million on the STTR program.

The SBIR and STTR programs represent significant federal resources devoted to technology development and commercialization by small firms. These are the type of entrepreneurial firms where most nanotechnology R&D is occurring. During a period of budgetary problems, we need to ensure that these programs support the goal of promoting the development of nanotechnology.

My amendment will do just that, giving us a better idea about how well federal agencies are able to promote the private-sector development of nanotechnology. I urge my colleagues to support this amendment.

Chairman BOEHLERT. Thank you very much. And the vote is on the amendment. All in favor, say aye. Opposed no. The ayes have it, and the amendment is adopted.

The next amendment, amendment number 10 by Mr. Wu. The Clerk will report the amendment.

Ms. TESSIERI. Mr. Chairman, I have an amendment at the desk. Amendment to H.R. 766 offered by Mr. Wu.

[The amendment offered by Mr. Wu follows:]

F:\M8\WU\WU.042 H.L.C.

AMENDMENT TO H.R. 766
OFFERED BY MR. WU

Page 10, line 11, insert "(a) IN GENERAL.—" before "Not later than".

Page 11, after line 6, insert the following new subsection:

(b) STUDY ON MOLECULAR MANUFACTURING.—Not later than 3 years after the date of enactment of this Act a review shall be conducted in accordance with subsection (a) that includes a study to determine the technical feasibility of the manufacture of materials and devices at the molecular scale. The study shall—

(1) examine the current state of the technology for enabling molecular manufacturing;

(2) determine the key scientific and technical barriers to achieving molecular manufacturing;

(3) review current and planned research activities that are relevant to advancing the prospects for molecular manufacturing; and

(4) develop, insofar as possible, a consensus on whether molecular manufacturing is technically feasible, and if found to be feasible—

(A) the estimated timeframe in which molecular manufacturing may be possible on a commercial scale; and

(B) recommendations for a research agenda necessary to achieve this result.

Chairman BOEHLERT. He is coming. We will—bear with us for one minute. The Chair recognizes the distinguished gentleman, Mr. Wu. No explanation of amendment number 10, which we have accepted enthusiastically.

Mr. WU. Mr. Chairman, based on the collegial cooperation, which we have had over the last number of amendments, all I would like to do is thank you and the staff on both sides for your fine cooperation and their hard work on this amendment. Thank you.

Chairman BOEHLERT. Thank you so very much. And you point out something that deserves being emphasized. This committee has had a history of working exceptionally well on a bipartisan basis.

Mr. SMITH OF MICHIGAN. Except for Eddie Bernice.

Chairman BOEHLERT. From time to time, we do have some differences, as you would expect it. We are dealing with some important work here shaping——

Ms. JOHNSON. I don't have any difference with you, Mr. Chairman.

Chairman BOEHLERT.—department and public policy. And Eddie Bernice Johnson, we love you to tears. But the amendment is offered by Mr. Wu, and the vote is on that amendment. All in favor, say aye. Opposed no. The ayes have it, and the amendment is adopted.

Now for the good of the order, Ms. Johnson, you feel it necessary to say something constructive?

Ms. JOHNSON. Mr. Chairman, I just want to thank you for your bipartisan handling this committee. We have not had any problems. I am from Texas. When get to offer something, I am just determined to do it.

Chairman BOEHLERT. And we know your determination, and we know of your many contributions to the work of this committee. And we thank you for both.

Ms. JOHNSON. Thank you very much.

Chairman BOEHLERT. The next amendment is amendment number 11 offered by Mr. Sherman. The Clerk will report the amendment.

Ms. TESSIERI. Mr. Chairman, I have an amendment at the desk. Amendment to H.R. 766 offered by Mr. Sherman.

[The amendment offered by Mr. Sherman follows:]

F:\TB\RE\766.001 H.L.C.

AMENDMENT TO H.R. 766
OFFERED BY MR. SHERMAN

Page 10, line 11, insert "(a) IN GENERAL.—" before "Not later than".

Page 11, after line 6, insert the following new subsection:

(b) STUDY ON SAFE NANOTECHNOLOGY.—Not later than 6 years after the date of enactment of this Act a review shall be conducted in accordance with subsection (a) that includes a study to assess the need for standards, guidelines, or strategies for ensuring the development of safe nanotechnology, including those applicable to—

(1) self-replicating nanoscale machines or devices;

(2) the release of such machines or devices in natural environments;

(3) distribution of molecular manufacturing development;

(4) encryption;

(5) the development of defensive technologies;

(6) the use of nanotechnology as human brain extenders; and

(7) the use of nanotechnology in developing artificial intelligence.

Chairman BOEHLERT. Mr. Sherman, you know this is a result of extensive negotiations, and the Chair is prepared to accept it. You are recognized for such comments as you feel necessary to make.

Mr. SHERMAN. This amendment provides that—for a study to look at the safety of nanotechnology, particularly the self-replicating nanoscale machines and devices. And I want to chime in on the bipartisan nature of this committee. Most of my experience in the Congress has been on my two other committees. I just joined this committee a few months ago, and it is, indeed, the most bipartisan Committee that I am acquainted with, and I want to thank the Chairman for accepting this amendment.

Chairman BOEHLERT. The Committee is a vehicle for reason in a sea of confusion. Thank you very much.

The vote is on Mr. Sherman's amendment. All in favor, say aye. Opposed no. The ayes have it. Very appropriate, social scientist. And the amendment is adopted. The gentleman is recognized for five minutes to explain his outstanding amendment.

[The amendment offered by Mr. Rohrabacher follows:]

AMENDMENT TO H.R. 766
OFFERED BY MR. ROHRABACHER

Page 11, after line 6, insert the following new section:

SEC. 9. SCIENCE AND TECHNOLOGY GRADUATE SCHOLARSHIP PROGRAMS.

(a) ESTABLISHMENT OF PROGRAMS.—

(1) IN GENERAL.—The agency heads shall each establish within their respective departments and agencies a Science and Technology Graduate Scholarship Program to award scholarships to individuals that is designed to recruit and prepare students for careers in the Federal Government that require engineering, scientific, and technical training.

(2) COMPETITIVE PROCESS.—Individuals shall be selected to receive scholarships under this section through a competitive process primarily on the basis of academic merit, with consideration given to financial need and the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b).

(3) SERVICE AGREEMENTS.—To carry out the Programs the agency heads shall enter into contrac-

tual agreements with individuals selected under paragraph (2) under which the individuals agree to serve as full-time employees of the Federal Government, for the period described in subsection (f)(1), in positions needed by the Federal Government and for which the individuals are qualified, in exchange for receiving a scholarship.

(b) SCHOLARSHIP ELIGIBILITY.—In order to be eligible to participate in a Program, an individual must—

(1) be enrolled or accepted for enrollment as a full-time student at an institution of higher education in an academic field or discipline described in a list made available under subsection (d);

(2) be a United States citizen; and

(3) at the time of the initial scholarship award, not be a Federal employee as defined in section 2105 of title 5 of the United States Code.

(c) APPLICATION REQUIRED.—An individual seeking a scholarship under this section shall submit an application to an agency head at such time, in such manner, and containing such information, agreements, or assurances as the agency head may require.

(d) ELIGIBLE ACADEMIC PROGRAMS.—The agency heads shall each make publicly available a list of academic programs and fields of study for which scholarships under

their department's or agency's Program may be utilized, and shall update the list as necessary.

(e) SCHOLARSHIP REQUIREMENT.—

(1) IN GENERAL.—Agency heads may provide scholarships under their department's or agency's Program for an academic year if the individual applying for the scholarship has submitted to the agency head, as part of the application required under subsection (c), a proposed academic program leading to a degree in a program or field of study on a list made available under subsection (d).

(2) DURATION OF ELIGIBILITY.—An individual may not receive a scholarship under this section for more than 4 academic years, unless an agency head grants a waiver.

(3) SCHOLARSHIP AMOUNT.—The dollar amount of a scholarship under this section for an academic year shall be determined under regulations issued by the agency heads, but shall in no case exceed the cost of attendance.

(4) AUTHORIZED USES.—A scholarship provided under this section may be expended for tuition, fees, and other authorized expenses as established by the agency heads by regulation.

(5) CONTRACTS REGARDING DIRECT PAYMENTS TO INSTITUTIONS.—Each agency head may enter into a contractual agreement with an institution of higher education under which the amounts provided for a scholarship under this section for tuition, fees, and other authorized expenses are paid directly to the institution with respect to which the scholarship is provided.

(f) PERIOD OF OBLIGATED SERVICE.—

(1) DURATION OF SERVICE.—The period of service for which an individual shall be obligated to serve as an employee of the Federal Government is, except as provided in subsection (h)(2), 24 months for each academic year for which a scholarship under this section is provided.

(2) SCHEDULE FOR SERVICE.—(A) Except as provided in subparagraph (B), obligated service under paragraph (1) shall begin not later than 60 days after the individual obtains the educational degree for which the scholarship was provided.

(B) An agency head may defer the obligation of an individual to provide a period of service under paragraph (1) if the agency head determines that such a deferral is appropriate. The agency head shall prescribe the terms and conditions under which

a service obligation may be deferred through regulation.

(g) PENALTIES FOR BREACH OF SCHOLARSHIP AGREEMENT.—

(1) FAILURE TO COMPLETE ACADEMIC TRAINING.—Scholarship recipients who fail to maintain a high level of academic standing, as defined by the appropriate agency head by regulation, who are dismissed from their educational institutions for disciplinary reasons, or who voluntarily terminate academic training before graduation from the educational program for which the scholarship was awarded, shall be in breach of their contractual agreement and, in lieu of any service obligation arising under such agreement, shall be liable to the United States for repayment within 1 year after the date of default of all scholarship funds paid to them and to the institution of higher education on their behalf under the agreement, except as provided in subsection (h)(2). The repayment period may be extended by the agency head when determined to be necessary, as established by regulation.

(2) FAILURE TO BEGIN OR COMPLETE THE SERVICE OBLIGATION OR MEET THE TERMS AND CONDITIONS OF DEFERMENT.—Scholarship recipi-

ents who, for any reason, fail to begin or complete their service obligation after completion of academic training, or fail to comply with the terms and conditions of deferment established by the appropriate agency head pursuant to subsection (f)(2)(B), shall be in breach of their contractual agreement. When recipients breach their agreements for the reasons stated in the preceding sentence, the recipient shall be liable to the United States for an amount equal to—

(A) the total amount of scholarships received by such individual under this section; plus

(B) the interest on the amounts of such awards which would be payable if at the time the awards were received they were loans bearing interest at the maximum legal prevailing rate, as determined by the Treasurer of the United States,

multiplied by 3.

(h) WAIVER OR SUSPENSION OF OBLIGATION.—

(1) DEATH OF INDIVIDUAL.—Any obligation of an individual incurred under a Program (or a contractual agreement thereunder) for service or pay-

ment shall be canceled upon the death of the individual.

(2) IMPOSSIBILITY OR EXTREME HARDSHIP.—The agency heads shall by regulation provide for the partial or total waiver or suspension of any obligation of service or payment incurred by an individual under their department's or agency's Program (or a contractual agreement thereunder) whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be contrary to the best interests of the Government.

(i) DEFINITIONS.—In this section the following definitions apply:

(1) AGENCY HEAD.—The term "agency head" means the Director of the National Science Foundation, the Secretary of Energy, the Administrator of the National Aeronautics and Space Administration, the Director of the National Institute of Standards and Technology, or the Administrator of the Environmental Protection Agency.

(2) COST OF ATTENDANCE.—The term "cost of attendance" has the meaning given that term in sec-

tion 472 of the Higher Education Act of 1965 (20 U.S.C. 1087*ll*).

(3) INSTITUTION OF HIGHER EDUCATION.—The term "institution of higher education" has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) PROGRAM.—The term "Program" means a Science and Technology Graduate Scholarship Program established under this section.

AMENDMENT OFFERED BY MR. WU
TO THE AMENDMENT OFFERED BY MR. ROHRABACHER

Page 11, after line 6, insert the following new section:

SEC. 9. SCIENCE AND TECHNOLOGY GRADUATE SCHOLARSHIP PROGRAMS.

(a) ESTABLISHMENT OF PROGRAMS.—

(1) IN GENERAL.—The agency heads shall each establish within their respective departments and agencies a Science and Technology Graduate Scholarship Program to award scholarships to individuals that is designed to recruit and prepare students for careers in the Federal Government that require engineering, scientific, and technical training.

(2) COMPETITIVE PROCESS.—Individuals shall be selected to receive scholarships under this section through a competitive process primarily on the basis of academic merit, with consideration given to financial need and the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b).

(3) SERVICE AGREEMENTS.—To carry out the Programs the agency heads shall enter into contrac-

tual agreements with individuals selected under paragraph (2) under which the individuals agree to serve as full-time employees of the Federal Government, for the period described in subsection (f)(1), in positions needed by the Federal Government and for which the individuals are qualified, in exchange for receiving a scholarship.

(b) SCHOLARSHIP ELIGIBILITY.—In order to be eligible to participate in a Program, an individual must—

(1) be enrolled or accepted for enrollment as a full-time student at an institution of higher education in an academic field or discipline described in a list made available under subsection (d);

(2) be a United States citizen, and or permanent resident

(3) at the time of the initial scholarship award, not be a Federal employee as defined in section 2105 of title 5 of the United States Code.

(c) APPLICATION REQUIRED.—An individual seeking a scholarship under this section shall submit an application to an agency head at such time, in such manner, and containing such information, agreements, or assurances as the agency head may require.

(d) ELIGIBLE ACADEMIC PROGRAMS.—The agency heads shall each make publicly available a list of academic programs and fields of study for which scholarships under

their department's or agency's Program may be utilized, and shall update the list as necessary.

(e) SCHOLARSHIP REQUIREMENT.—

(1) IN GENERAL.—Agency heads may provide scholarships under their department's or agency's Program for an academic year if the individual applying for the scholarship has submitted to the agency head, as part of the application required under subsection (c), a proposed academic program leading to a degree in a program or field of study on a list made available under subsection (d).

(2) DURATION OF ELIGIBILITY.—An individual may not receive a scholarship under this section for more than 4 academic years, unless an agency head grants a waiver.

(3) SCHOLARSHIP AMOUNT.—The dollar amount of a scholarship under this section for an academic year shall be determined under regulations issued by the agency heads, but shall in no case exceed the cost of attendance.

(4) AUTHORIZED USES.—A scholarship provided under this section may be expended for tuition, fees, and other authorized expenses as established by the agency heads by regulation.

(5) CONTRACTS REGARDING DIRECT PAYMENTS TO INSTITUTIONS.—Each agency head may enter into a contractual agreement with an institution of higher education under which the amounts provided for a scholarship under this section for tuition, fees, and other authorized expenses are paid directly to the institution with respect to which the scholarship is provided.

(f) PERIOD OF OBLIGATED SERVICE.—

(1) DURATION OF SERVICE.—The period of service for which an individual shall be obligated to serve as an employee of the Federal Government is, except as provided in subsection (h)(2), 24 months for each academic year for which a scholarship under this section is provided.

(2) SCHEDULE FOR SERVICE.—(A) Except as provided in subparagraph (B), obligated service under paragraph (1) shall begin not later than 60 days after the individual obtains the educational degree for which the scholarship was provided.

(B) An agency head may defer the obligation of an individual to provide a period of service under paragraph (1) if the agency head determines that such a deferral is appropriate. The agency head shall prescribe the terms and conditions under which

a service obligation may be deferred through regulation.

(g) PENALTIES FOR BREACH OF SCHOLARSHIP AGREEMENT.—

(1) FAILURE TO COMPLETE ACADEMIC TRAINING.—Scholarship recipients who fail to maintain a high level of academic standing, as defined by the appropriate agency head by regulation, who are dismissed from their educational institutions for disciplinary reasons, or who voluntarily terminate academic training before graduation from the educational program for which the scholarship was awarded, shall be in breach of their contractual agreement and, in lieu of any service obligation arising under such agreement, shall be liable to the United States for repayment within 1 year after the date of default of all scholarship funds paid to them and to the institution of higher education on their behalf under the agreement, except as provided in subsection (h)(2). The repayment period may be extended by the agency head when determined to be necessary, as established by regulation.

(2) FAILURE TO BEGIN OR COMPLETE THE SERVICE OBLIGATION OR MEET THE TERMS AND CONDITIONS OF DEFERMENT.—Scholarship recipi-

ents who, for any reason, fail to begin or complete their service obligation after completion of academic training, or fail to comply with the terms and conditions of deferment established by the appropriate agency head pursuant to subsection (f)(2)(B), shall be in breach of their contractual agreement. When recipients breach their agreements for the reasons stated in the preceding sentence, the recipient shall be liable to the United States for an amount equal to—

(A) the total amount of scholarships received by such individual under this section; plus

(B) the interest on the amounts of such awards which would be payable if at the time the awards were received they were loans bearing interest at the maximum legal prevailing rate, as determined by the Treasurer of the United States,

multiplied by 3.

(h) WAIVER OR SUSPENSION OF OBLIGATION.—

(1) DEATH OF INDIVIDUAL.—Any obligation of an individual incurred under a Program (or a contractual agreement thereunder) for service or pay-

ment shall be canceled upon the death of the individual.

(2) IMPOSSIBILITY OR EXTREME HARDSHIP.—The agency heads shall by regulation provide for the partial or total waiver or suspension of any obligation of service or payment incurred by an individual under their department's or agency's Program (or a contractual agreement thereunder) whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be contrary to the best interests of the Government.

(i) DEFINITIONS.—In this section the following definitions apply:

(1) AGENCY HEAD.—The term "agency head" means the Director of the National Science Foundation, the Secretary of Energy, the Administrator of the National Aeronautics and Space Administration, the Director of the National Institute of Standards and Technology, or the Administrator of the Environmental Protection Agency.

(2) COST OF ATTENDANCE.—The term "cost of attendance" has the meaning given that term in sec-

tion 472 of the Higher Education Act of 1965 (20 U.S.C. 1087*ll*).

(3) INSTITUTION OF HIGHER EDUCATION.—The term "institution of higher education" has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) PROGRAM.—The term "Program" means a Science and Technology Graduate Scholarship Program established under this section.

Mr. ROHRABACHER. Thank you very much. This amendment mirrors an amendment that we adopted for the Energy Bill, and it is—it, of course, has its roots in some of the hearings that we have had where we were told by various people in government, especially in NASA, that they were having trouble finding people in the hard sciences and with mathematics and backgrounds and education backgrounds to be able to hire for their organizations.

So what we do is we permit various agencies and departments in the government, including NASA and NIST, etc., to set up a scholarship program in order to pay for the graduate studies. We are talking about the graduate students for Master's degrees and Ph.D.s in physics and science and biology, et cetera, in those areas of the sciences and engineering that are—where the skills are needed in those various departments and agencies. So they will set up the scholarship program that meets their need. And then students, U.S. citizens who are—would like to further their education but can't afford it, will receive a scholarship, will receive full funding for their education. And but for every year of their education they receive their full funding through the scholarship program, they will be expected to work for the government for two years.

Now they are not being—they won't be volunteers; they will get paid for working for the government, just like anybody else, but we will expect them to work and that those skills be put to use. Let me just say that when we are talking about nanotechnology, for example, we need people in the patent office who are going to be able to have the skills necessary to work with the various companies and organizations and research laboratories to patent their findings, but the people in the patent office have to have the educational background necessary to do that job. And right now, the patent office is sorely in need of people with the educational backgrounds to help them in things just like what we are talking about today, nanotechnology.

So this will go a long way to filling that gap throughout the Federal Government and permit people to earn their college—higher college education.

Chairman BOEHLERT. Thank you very much. The Chair recognizes Mr. Sherman.

Mr. SHERMAN. I just have one question for the author of the amendment. Has he taken careful drafting steps to make sure that none of this money could go to anyone studying the social sciences?

Mr. ROHRABACHER. I will defer to——

Chairman BOEHLERT. People of good cheer. The vote is on the amendment by Mr.——

Mr. WU. Mr. Chairman.

Chairman BOEHLERT. Mr. Wu.

Mr. WU. I would like to thank Mr. Rohrabacher for his kind comments earlier and for this fine amendment. I very recently visited the Johnson Space Center, and I know that many of our Members have. And it is in the home districts of many of the Members on this committee. And if you just take a walk around and note the personnel, but also if you speak with the people there and talk with them about brain drain issues and challenges in recruiting, this is a very, very important and positive amendment.

I would inquire as of the gentleman from California, I have reviewed this amendment. There is a provision in here, as he states, that the folks who are eligible for these scholarships must be U.S. citizens. And I would like to inquire of the gentleman if he would consider changing that provision from citizens only to both citizens and permanent residents of the United States.

Mr. ROHRABACHER. I would be happy to accept permanent residents, yes.

Mr. WU. I thank the gentleman. Would the Chair permit that as a secondary——

Chairman BOEHLERT. Counsel, tell me how to go about this. We just got agreement here. How do we go about amending? So you will have the amendment. I—the Chair recognizes Mr. Wu to offer an amendment to the amendment.

Mr. WU. If I could borrow Mr. Udall's copy right here, I would move that on page two of the gentleman's amendment, subsection B2, the words "be a United States citizen," that we would add the words "or permanent resident."

Mr. ROHRABACHER. And I would accept this amendment and just suggest that this amendment definitely helps the—with the overall spirit of what I am trying to do, it will ensure as we—Ms. Jackson Lee is trying to ensure that we have broad minority representation in every program that we do. And I think this amendment will ensure even more minority participation.

Chairman BOEHLERT. The question is on the amendment offered by Mr. Wu to the amendment offered by Mr. Rohrabacher. All in favor, say aye. Opposed nay. The ayes have it. And the amendment to the amendment is embraced.

Now the question is on the original amendment, as amended. All in favor, say aye. Opposed nay. The ayes have it. And the amendment, as amended, is passed. Thank you for that cooperation.

The next amendment, amendment number 15 from Mr. Honda. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 766 offered by Mr. Honda.

[The amendment offered by Mr. Honda follows:]

AMENDMENT TO H.R. 766
OFFERED BY MR. HONDA

Page 9, line 25, through page 10, line 1, amend paragraphs (1) through (3) to read as follows:

(1) $82,000,000 for fiscal year 2004, of which $20,000,000 shall be for the Advanced Technology Program;

(2) $90,000,000 for fiscal year 2005, of which $22,000,000 shall be for the Advanced Technology Program; and

(3) $99,200,000 for fiscal year 2006, of which $24,200,000 shall be for the Advanced Technology Program.

Mr. HONDA. Thank you, Mr. Chairman.

Chairman BOEHLERT. The gentleman is recognized.

Mr. HONDA. Thank you. This amendment addresses the concerns raised by the private sector witness during our hearing that we need to not only fund a program on basic research, but also small but robust program to bridge the gap between the research lab and the marketplace. This amendment would transfer a nominal amount of the funds authorized in this bill, less than five percent of the annual total, to the National Institute of Standards and Technology's Advanced Technology Program for Funding, nanotechnology grants only. This amounts to $20 million in the first year and 24 by the third year.

This amendment was prompted in part by a question that our Chair asked during the hearing about the commercialization of the—commercialization part of the equation in asking ATP for example. The witness, Mr. Marty, gave a lengthy explanation about the unique role that ATP could play in promoting a strong nanotechnology industry. Based on this exchange, I am offering this amendment to transfer funds to ATP. And my colleagues in the House are often concerned that funds in programs are well managed. ATP has a proven management track record. In OMB's management assessment review, ATP had a perfect score in the management category.

Of the 234 agency programs reviewed, less than 10 percent received a score of 100 for management. Time and time again, Members of this committee have expressed a support for ATP, praising it during the hearings on the science and tech budget and working to save it from termination. If we are really serious about supporting the robust development of nanotech and ensuring that the benefits of huge federal investments in this basic research reach the public, as our questions and comments suggested during our hearings, then it would seem to me that the Members of this committee would be concerned about it.

I understand, Mr. Chair, that there is some concern on your part as to the viability or the wisdom of having discussion of ATP on this bill, and I was hoping perhaps that the Chair wouldn't mind working with me, and I would like to work with you to find some way that we can get some sort of full Committee markup of the—of this during the NIST reauthorization by July 1.

Chairman BOEHLERT. Yeah. Let me just say, I mean, I have to reluctantly oppose this amendment. And it might surprise some, because I was one of those who helped create and strongly support the Advanced Technology Program. But you know, it has proven to be very controversial, and I don't think it is a matter we should entertain in this bill, because it is just going to slow down progress on something we all agree on. And I don't want to slow down progress on something we all agree.

So I will make this pledge to you. I will continue to work with you to figure out the best approach to take to get where we want to get with the Advanced Technology Program, which you and I agree makes a contribution.

Mr. HONDA. I would love to do that, Mr. Chair. Thank you very much for that opportunity.

Chairman BOEHLERT. Then will the gentleman withdraw his amendment at this time?

Mr. HONDA. Mr. Chair, I will withdraw this amendment.

[The prepared statement by Mr. Honda follows:]

PREPARED STATEMENT OF REPRESENTATIVE MICHAEL M. HONDA

This amendment addresses the concerns raised by the private sector witness during our hearing and that I have heard from many companies working in or trying to break into the field of nanotechnology. Their point is that we need to not only fund a program on basic research, but also a small but robust program to bridge the gap between the research lab and the market place.

This amendment would transfer a nominal amount of the funds authorized in this bill, less than five percent of the annual total, to the National Institute of Standards and Technology's (NIST) Advanced Technology Program (ATP) for funding nanotechnology grants only. This amounts to $20 million in the first year, $22 million in the second year, and $24.2 million in the third year.

This amendment was prompted in part by a question that the Chairman asked during the hearing about "the commercialization part of the equation, ATP, for example?" The witness, Mr. Marty, gave a lengthy explanation about the unique role that ATP could play in promoting a strong nanotechnology industry, in addition to comments in his written testimony. So, based on the testimony and the Chair's question and the witnesses' response I am offering this amendment.

These transferred funds would only be used to fund nanotechnology grants. ATP already has sufficient administrative funds. In addition, ATP has a proven management track record. In OMB's Performance Management Assessment review, ATP had a perfect score in the management category. This is an important fact. Of the 234 agency programs reviewed by OMB, less than 10 percent received a score of 100 for management.

My colleagues in the House are often concerned that funds and programs are well-managed. Well, here we have a case where OMB has determined that a program manages its funds well. It seems to make sense to me that rather than have agencies try to develop programs of their own, we should utilize an existing, well-managed program. My colleagues on this committee have time and again expressed their support for ATP, working to save it from being de-funded by this Administration and praising it during hearings on the overall Science and Technology budget.

I know that the Administration, for reasons that change each time we ask why, wants to terminate ATP. This has raised opposition to my amendment on the grounds that by even bringing up the subject of ATP, we will no longer have the support of the Administration.

This may be so, but if my colleagues are serious about supporting the robust development of nanotechnology and ensuring that the benefits of huge federal investments basic research reach the public, as their questions and comments suggested during our hearings, then they should support this amendment and I urge them to do so.

Chairman BOEHLERT. Without objection, so ordered. The Chair recognizes Mr. Baird. Does he have an amendment? All right. The amendment—the Clerk will report the amendment.

Ms. TESSIERI. I have an amendment at the desk to H.R. 766 offered by Mr. Baird.

[The amendment offered by Mr. Baird follows:]

AMENDMENT TO H.R. 766 OFFERED BY MR. BAIRD

PROPOSED AMENDMENT TO THE NANOTECHNOLOGY RESEARCH AND DEVELOPMENT ACT OF 2003, H.R. 766

SEC. 3(b)(1)

Page 3, after line 17, insert the following:

(C) funding for the application of nanotechnology to systems biology;

Justification-

Systems biology analyzes all of the elements in a system rather than one gene or protein at a time. The implementation and application of nanotechnology to systems biology will enable systems biology to utilize nanotechnology on a molecular level to achieve spectacular research advances. It is critical that nanotechnology is applied to systems biology as these integrated disciplines have the potential to revolutionize biotechnology and medicine.

NANOTECHNOLOGY WILL TRANSFORM BIOLOGY AND MEDICINE

Systems biology analyzes all of the elements in a system rather than one gene or protein at a time. The objectives of applying nanotechnology to system biology are to attack challenges in cancer and immunology and ultra-rapid disease diagnostics by integrating newly developed nanotechnology and microfluidics tools with modern cancer biology and immunology.

The current tools used in systems biology are large, expensive, labor intensive, time-consuming, and require a significant amount of cells for analysis. However, newly developed nanotechnologies have the potential to vastly increase the efficiency of a systems analysis at all levels. A systems biology analysis can be carried out automatically, in a few seconds, and on just a handful of cells or their contents. As a result, ultra-rapid disease diagnostics will be turned into a reality within this decade. Applications of the resulting technology will profoundly impact how we practice medicine and how we develop drugs, vaccines and other pharmaceuticals.

The science behind the vision is based on deciphering the molecular-level response of normal and cancer cells and the human immune system during the onset and progression of disease. Certain cells within the human immune system act as front-lines of defense against infection, and even a brief exposure of some virus or bacterial pathogen to those cells can result in a massive immune response. Characterizing the molecular changes in cancer cells is also important for diagnostic and therapeutic strategies, and eventually understanding the biology of the process to lead to even more effective cures and eventually prevention.

By employing a systems biology approach which includes the coordinated measurement of thousands of the molecular signatures of genes and proteins, it is beginning to appear that the cancer and the immune responses can be decoded and used to diagnose cancer and bacterial or viral origin of the infection, as well as the progression of cancer and infection. However, such an analysis is currently done only at the level of an ambitious research project. Through the integration of nanotechnologies into systems biology, researchers will be allowed to elucidate, in striking detail, the molecular machinery of the human immune system. Such knowledge will, in turn, be directly applicable toward biology and developing promising diagnostics, therapeutic (vaccines), and preventive measures.

Thorough a new wave of nanotechnologies, virtually every aspect of medicine will be revolutionized- cancer is just one example. A full molecular-based diagnosis could be accomplished using just as few cells, at low cost, within seconds. With a drop of blood or with a low risk outpatient biopsy procedure, a cancer patient could be correctly diagnosed, even in the very early stages of the disease, within minutes. This would revolutionize drug discovery and clinical treatment: First, it would allow for the identification of the combinations of molecular errors that result in various cancers; Second, it would hasten the development of drugs targeted to the critical and vulnerable molecular errors causing the cancer; Third, clinical trials to test those drugs, by targeting

the appropriate patient pool, could be completed with smaller numbers of patients and lead to rapid approval by the Food and Drug Administration (FDA). This application of nanotechnology to systems biology will help to make this vision a reality.

Chairman BOEHLERT. And the Clerk will distribute the amendment. And the Chair recognizes Mr. Baird.

Mr. BAIRD. I thank the Chair. It is my intent to actually withdraw this amendment in favor of—I would hope you would consider report language.

Let me explain why I am offering this and why we are willing to consider report language. This deals with a particular application of nanotechnology known as systems biology. Systems biology is being pioneered by some researchers in our state and also in California. And it is, I believe, the next step in applying nanotechnology to our virgining knowledge of genomics and also our improved information management capacity.

Essentially, it involves analysis, a simultaneous analysis of multiple aspects of biological and chemical data. Using nanotechnological devices, we will soon, I believe, be able to, with a small sample of tissue or blood, simultaneously evaluate many, many, possibly thousands, of various factors in an instant. That allows us to provide advanced diagnosis with minimal interference in tremendously potential predictive capacities.

The reason I am going to—what we are doing here is trying to emphasize the importance of this without applying a particular dollar figure to it or a particular percentage figure to it. We just want the Committee's recognition of the importance of this. Dr. Leroy Hood, and many others, who are recognized as among the world leaders in nanotechnology, are behind this. These initiatives have attracted literally hundreds of millions of dollars of capital funding, and I really believe will move us forward to the full potential of nanotechnology. But I did not feel it appropriate to say let us put a particular amount on this just for the Committee to say, "We recognize the importance of this." And I would be happy to provide other Members with data about this. But when you meet with the scientists who are doing this, read the studies they are involved in. It is mind boggling and exciting work. And I am prepared to withdraw the amendment as an amendment, but would appreciate the Committee's consideration of report language.

Chairman BOEHLERT. Do you wish to speak to the amendment, Mr. Sherman?

Mr. SHERMAN. Yes, just briefly. I think that Mr. Baird's comments show that nanotech—the lines between nanotechnology on the one hand and genetic technology on the other are going to breakdown in the midterm and the long-term, and that is why it is important that our review of the long-term societal impacts of nanotechnology include genetic engineering and genetic sciences.

Chairman BOEHLERT. Thank you. And Mr. Baird, thank you for your contribution and in response to your request that we have unanimous consent to have your amendment withdrawn, without objection, that is so ordered.

Now are there any other amendments? Hearing none——

Mr. SMITH OF MICHIGAN. Mr. Chairman, I——

Chairman BOEHLERT. Yes. Mr. Smith.

Mr. SMITH OF MICHIGAN. I do have a comment on the final passage of the bill, if this is the appropriate time.

Chairman BOEHLERT. This would be an appropriate time, Mr. Smith.

Mr. SMITH OF MICHIGAN. My only reluctance is somewhat technical. And that is we are authorizing at a level that is greater than the budget resolution that we passed. And with my particular concerns that we are approaching for 2004, borrowing $560 billion to accommodate our spending, it is the kind of precedent that I think we should try to avoid. And so I still encourage everybody to—well, I vote for final passage, but I do want to express that it should be one of our concerns that not only the appropriators but the authorizers have some responsibility to stay within the budget.

Thank you, and I yield back.

Chairman BOEHLERT. Thank you very much for that contribution.

Ms. WOOLSEY. Mr. Chairman.

Chairman BOEHLERT. Ms. Woolsey.

Ms. WOOLSEY. I guess I am going to be partisan, but we could withdraw the tax cuts and afford all of this.

Chairman BOEHLERT. Well——

Ms. WOOLSEY. I yield.

Chairman BOEHLERT.—it is nice to have a little levity to any hearing. With that——

Ms. JACKSON LEE. Mr. Chairman.

Chairman BOEHLERT. Who seeks recognition?

Ms. JACKSON LEE. Mr. Chairman.

Chairman BOEHLERT. Ms. Jackson Lee.

Ms. JACKSON LEE. Thank you very much, Mr. Chairman.

Chairman BOEHLERT. Recognized for five seconds.

Ms. JACKSON LEE. Thank you, Mr. Chairman. The—a comment was made earlier in the debate, and as I indicated, I think the Science Committee does a lot of good work. This is a cutting edge—somewhat cutting edge legislation on a cutting edge topic.

My question to you, Mr. Chairman, is how can we be more effective as Members of Congress, and I might have associated myself with the words of my esteemed colleague from California, but it has already been said. But how can we be more effective that when we pass legislation that includes issues of working with historically black colleges and other minority colleges, or as Mr. Rohrabacher's very effective amendment, reaching out to diverse groups in terms of the kind of scientists and technologists that we will have that the agencies follow the legislation? It is a very difficult challenge. And I would just raise to the Chairman that I hope as we pass this legislation and ultimately gets to the Floor and reaches the Senate and gets signed, it is so vital, it is so, sort of, cite specific that we can be assured that it is going to be followed and some of these very important unique aspects that Members have worked on will actually get implemented. I don't know how we can do that, Mr. Chairman, but I would like to join you with the Members of this committee to see that this legislation gets implemented as we have at least attempted to design it.

And I yield back to the Chairman.

Chairman BOEHLERT. And that is one of the things we have to get better at, all of us on both sides of the Capital, in terms of oversight. We have got to make sure that when we pass legislation and we are specific in our intent that the Executive Branch follows the intent. And it is our obligation when they appear before us to re-

mind them of their obligations and to make certain they do what we want them to do.

Thank you.

Ms. JACKSON LEE. I thank you, Mr. Chairman.

Chairman BOEHLERT. The question is on the bill, H.R. 766, the *Nanotechnology Research and Development Act of 2003,* as amended. All those in favor, say aye. Opposed no. In the opinion of the Chair, the ayes have it.

I now recognize Mr. Gordon to offer a motion.

Mr. GORDON. Thank you, Mr. Chairman. I move that the Committee favorably report H.R. 766, as amended, to the House with recommendation that the bill, as amended, do pass. Furthermore, I move that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Chairman BOEHLERT. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed no. The ayes appear to have it, and the bill is favorably reported. Without objection, the motion to reconsider is laid upon the table.

I move that Members have two subsequent calendar days in which to submit minority or additional views on the measure. I move pursuant to clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on the bill H.R. 766 or a similar Senate bill.

[The markup of H.R. 1578 followed.]

[Whereupon, at 1:23 p.m., the Committee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS ON H.R. 1081, AQUATIC INVASIVE SPECIES RESEARCH ACT

THURSDAY, MARCH 13, 2003

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

The Subcommittee met, pursuant to call, at 10:11 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Vernon J. Ehlers [Chairman of the Subcommittee] presiding.

Mr. EHLERS. Good morning. I would like to call the Subcommittee to order. I apologize for the delay in starting, but because this is a markup, we need a sufficient number of Members here for that. And also, I was delayed in a meeting with the Director, Office of Management and Budget, as were a few other Members here.

Pursuant to notice, the Subcommittee on Environment, Technology and Standards is meeting today to consider the following measure: H.R. 1081, the Aquatic Invasive Species Research Act. I ask unanimous consent for the authority to recess the Subcommittee at any point, and without objection, so ordered.

I will begin with my opening remarks. And before we turn to our new Ranking Member, whom I will welcome in the hearing portion of this meeting, welcome to the first meeting of the Environment, Technology, and Standards Subcommittee. We are off to a fast start in this Congress, as we will be reviewing two important matters today. The first item of business is marking up legislation I authored with Congressman Gilcrest and Baird to further research on aquatic invasive species. After the markup, we will hold the hearing reviewing research on harmful algal blooms and hypoxia.

And I just wanted to mention, I just mentioned to Congressman Gilcrest, as a co-sponsor of this, that I would like to inform everyone with some sad news that Congressman Gilcrest's father passed away two days ago, and he will not be able to be present here. And on behalf of the Subcommittee, and I am sure the Full Committee, we want to extend to him and his family our deepest sympathies for that tragedy.

Before we begin the markup, let me take care of a few housekeeping items. I want to congratulate Congressman Udall for taking over the reins as the Ranking Minority Member of the Subcommittee. In the last Congress, I worked very closely with your predecessor, and I look forward to having an equally close, if not more close, working relationship with you. It is good to have a Ranking Member I can look up to in several ways, and I look forward to a fruitful relationship with you, Mr. Udall.

I also want to welcome all of the Members who have joined us on this subcommittee and let you know my door and my ears are always open for ideas or suggestions that you have about what issues this subcommittee should be reviewing. I would parenthetically insert here that we hope to also include some travel this year in investigating various problems, and any suggestions anyone has on that, please pass them on to me or on to the Chief of Staff of this subcommittee, Eric Webster.

Now let us move on to the markup of the Aquatic Invasive Species Research Act. Any of you who were on this subcommittee last year know that dealing with the threat posed by invasive species has always been a top priority of mine. Last Congress, we held three hearings dealing with this topic, all of which helped in the development of the legislation before us today.

Invasive species are a tremendous threat to our economy and environment. Researchers at Cornell University estimate that the total economic cost of invasive species to Americans is $137 billion, with a B, annually. Beyond economic impacts, invasive species cause ecological costs that are even more difficult to quantify. In fact, invasive species now are second only to habitat loss as threats to endangered species.

While there are many federal programs focused on addressing the threat of aquatic invasive species, the introduction of invasive species into U.S. waters is accelerating. Many of the failures of these programs are due to inadequate research, particularly on the means to prevent invasive species from being introduced in the first place. This point was clearly articulated to this subcommittee last Congress by Dr. David Lodge, a professor at the University of Notre Dame, who found that we only spend about $27 million a year on aquatic invasive species research programs, only 22 percent of which is spent on prevention research. This is a very tiny fraction of the amount we spend annually to deal with species that have already invaded the United States.

The legislation before us corrects this fundamental problem by authorizing new research programs so that Federal, State, and local agencies can better understand how invasive species are coming into the United States and improve ways of dealing with them once they take hold in our environment.

There are four main programs authorized by this legislation. The first is a comprehensive, ecological and pathway research program run by the National Oceanic and Atmospheric Administration, the United States Geological Survey, and the Smithsonian Environmental Research Center so that policy makers will be able to assess how these species get into our waterways and whether or not management decisions are helping to reduce invasions. The second is a development, demonstration and verification program run by

the Environmental Protection Agency to develop environmentally sound technologies to control and eradicate invasive species so that Federal, State and local managers will have more tools to combat invasive species. The third is a research program to support the Coast Guard's efforts to reduce the threat that ships pose for the introduction of new species into U.S. waters. These efforts will spur the development of technology to prevent invasive species from entering U.S. waters. The final program is a grant program within the National Science Foundation to support academic research in systematics and taxonomy so that we will maintain U.S. expertise in these areas and enhance our ability to identify invaders once they arrive.

It is time to change our strategy in dealing with aquatic invasive species. It is time for Congress to realize that this threat continues to grow and will not go away unless we act. Finally, the time has come for us to move this legislation forward. Invasive species don't respect political boundaries or timelines, and they are arriving here even as we speak today.

I urge all of my colleagues to support this bill, and I look forward to their input during this markup. Let me also add that in addition to this bill, Congressman Gilcrest has sponsored, and I have worked with him as a co-sponsor of the bill, to reauthorize the current invasive species activities of the Federal Government and, in fact, improve them. We have been joined by Senator Collins and Senator Levin in introducing a bill that encompasses both of our bills. And we look forward to working with the Senate. We hope we will be able to transform these bills into law very quickly and that we will soon be able to attack the invasive species problem in a very direct, thoughtful, thoroughly researched manner.

I am now pleased to recognize Mr. Udall, the brand new Ranking Minority Member of this subcommittee, for his opening statement. Mr. Udall.

[The prepared statement of Chairman Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

Good Morning! Welcome to the first meeting of the Environment, Technology and Standards Subcommittee. We are off to a fast start this Congress, as we will be reviewing two important matters today. The first item of business is marking up legislation I authored with Congressmen Gilchrest and Baird to further research on aquatic invasive species. After the markup, we will hold a hearing reviewing research on harmful algal blooms and hypoxia.

Before we begin the markup, let me take care of a few housekeeping items. I want to congratulate Congressman Udall for taking over the reigns as the Ranking Minority Member of the Subcommittee. Last Congress, I worked very closely with your predecessor, Mr. Barcia, and I look forward to having an equally close working relationship with you. I also want to welcome all the Members who have joined us on this subcommittee, and let you know that my door is always open for ideas or suggestions you have about what issues this subcommittee should be reviewing.

Last Congress, this subcommittee was very busy. We focused our energy, in a bipartisan manner, on issues upon which the American public demanded action and on which we could make a difference. As a result, we passed important legislation dealing with—to name just a few items—cyber security, research on voting standards and equipment, reforms to the Sea Grant Program, improving manufacturer's supply chains, improving the flood warning system, and improving science at the Environmental Protection Agency.

I expect that we will be just as busy this Congress. We will review issues such as—again, just to name a few—legislation to reauthorize and improve the harmful algal bloom research program, legislation to reauthorize the transportation research and development programs created under the Transportation Equity Act for the 21st

Century, climate change research, the laboratory programs at the National Institute of Standards and Technology (which I know is near and dear to Mr. Udall's heart), and science programs at the Environmental Protection Agency.

Now let us move on to the markup of the Aquatic Invasive Species Research Act. Any of you who were on this subcommittee last year know that dealing with the threat posed by invasive species has always been a top priority of mine. Last Congress, we held three hearings dealing with this topic, all of which helped in the development of the legislation before us today.

Invasive species are a tremendous threat to our economy and environment. Researchers at Cornell University estimate that the total economic cost of invasive species to Americans is $137 billion annually. In the Great Lakes basin alone, various entities have spent an estimated $3 billion over the past decade in cleaning water intake pipes, purchasing filtration equipment and other efforts to fight the zebra mussel infestation. Beyond economic impacts, invasive species cause ecological costs that are even more difficult to quantify. In fact, invasive species now are second only to habitat loss as threats to endangered species.

While there are many federal programs focused on addressing the threat of aquatic invasive species, the introduction of invasive species into U.S. waters is accelerating. Many of the failures of these programs are due to inadequate research, particularly on how to prevent invasive species from being introduced in the first place. This point was clearly articulated to this subcommittee last Congress by Dr. David Lodge, a professor at the University of Notre Dame, who found that we only spend about $27 million a year on aquatic invasive species research programs, only 22 percent of which is spent on prevention research. This is a tiny fraction of the amount we spend annually to deal with species that have already "invaded" the U.S. The legislation before us corrects this fundamental problem by authorizing new research programs so that Federal, State and local agencies can better understand how invasive species are coming into the United States, and improve ways of dealing with them once they take hold in our environment.

There are four main programs authorized by this legislation. The first is a comprehensive ecological and pathway research program, run by the National Oceanic and Atmospheric Administration, the United States Geological Survey and the Smithsonian Environmental Research Center, so that policy-makers will be able to assess how these species get into our waterways and whether or not management decisions are helping to reduce invasions. The second is a development, demonstration and verification program run by the Environmental Protection Agency to develop environmentally sound technologies to control and eradicate invasive species, so that Federal, State and local managers will have more tools to combat invasive species. The third is a research program to support the Coast Guard's efforts to reduce the threat that ships pose for the introduction of new species into U.S. waters. These efforts will spur the development of technology to prevent invasive species from entering U.S. waters. The final program is a grant program within the National Science Foundation to support academic research in systematics and taxonomy, so that we will maintain U.S. expertise in these areas and enhance our ability to identify invaders once they arrive.

It is time to change our strategy in dealing with aquatic invasive species. It is time for Congress to realize that this threat continues to grow and will not go away unless we act. Finally the time has come for us to move this legislation forward—invasive species don't respect political boundaries or timelines, and they are arriving here even as we speak today. I urge all of my colleagues to support this bill and I look forward to their input during this markup.

Mr. UDALL. Thank you, Mr. Chairman. And I want you to know I appreciate your kind words. And let us set the record straight: I look up to you when it comes to matters of science, given your great background in the field. And I do look forward to some collaborative efforts in the future on behalf of the Subcommittee and on behalf of the Committee, and I wanted to thank you here today for the journey you made out to my hometown of Boulder last year for an important Congressional delegation trip. And I know we have talked about some future travels we can make together to look at the state of science, and particularly the Subcommittee portfolio around the country. I hope we don't have the same kind of experience we had when we traveled to Turkey late last year where our airplane had to make two or three return trips to Gan-

der, Newfoundland because of fueling problems, but we survived that great journey together.

I would tell the assembled audience that this subcommittee has been one of the most productive in the Congress, and I anticipate it will be so in this Congress. We are pleased to—on the Democratic side, to have been joined by two new Members of the Science Committee, Congressman Miller from North Carolina, who is obviously busy this morning, but I look forward to his productive involvement. And we are joined by Congressman Lincoln Davis of Tennessee, and I wanted to welcome both of them to the Subcommittee.

As the Chairman mentioned, we have quite a great deal of business this morning within the House, so I want to be brief. The bill before us addresses an issue, as the Chairman mentioned, that affects every state in the Nation: invasive species. Regardless of the billions of dollars that are lost each year due to invasive species, research monitoring and eradication have been and continue to be under-funded. Today's bill is a step in the right direction in addressing the research elements of an aquatic invasive species program.

Because Members on our side were just appointed last week, we have not had time to adequately circulate the bill among their constituencies. So therefore today we will not be offering any amendments, but I wanted to note that our Members may offer amendments at the full Committee markup, and I want to assure Chairman Ehlers that we will work with him and his staff as the bill moves forward.

With that, I would like to yield, Mr. Chairman, the balance of my time to my good friend Mr. Baird, who is the co-sponsor of the bill.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Mr. Chairman, I want to join you in welcoming everyone this morning. And I want to welcome all the new Members to the Committee. Since I've served on this subcommittee it has been one of the most productive in the Congress and I anticipate that it will be so again this Congress.

I would like to introduce to introduce two new Members of the Science Committee—Brad Miller of North Carolina and Lincoln Davis of Tennessee.

I know that Members have markups in other Committees this morning, so I will be brief. The bill before us this morning addresses an issue that affects every state in the Nation—invasive species. Regardless of the billions of dollars that are lost each year due to invasive species, research, monitoring and eradication have been and continue to be under-funded. Today's bill is a step in the right direction in addressing the research elements of an aquatic invasive species program.

Because Democratic Members were just appointed last week, our Members have not had the time to circulate the bill among their constituencies. Today, we will not be offering any amendments, but I want to make clear that our Members may offer amendments at the Full Committee markup. I want to assure Chairman Ehlers that we will work with him and his staff as the bill moves forward.

And now I would like to yield the balance of my time to my good friend Mr. Baird who is a co-sponsor of this bill.

Mr. BAIRD. I thank my colleague and friend, Mr. Udall, and our good Chairman, Mr. Ehlers, for his long-standing interest in this. As I often say on this topic, it is easy as an elected official or politician to work on legislation that has large financial interests backing it or great, huge constituencies back home. But invasive species are the kind of quiet menace, which as the Chairman correctly

pointed out, cost our nation $120 billion a year, $137 billion a year, but people don't even know about it until the problem arises. What Mr. Ehlers's bill does, and the other bills we have been working on in this committee, are basically two things. They try to address the existing problems in invasive species, and they try to prevent new problems from arising by keeping new invasive species from arriving. This is a benefit in two ways. Exactly as the Chair and the Ranking Member pointed out, it helps protect our environment, and it helps protect our economy.

In my home state, we have a magnificent estuary called the Willapa Bay, which has been infested with spartina grass, and if we don't control that, we are going to soon have the Willapa Prairie instead of the Willapa Bay. And that is a central area for migrating bird habitat, salmon, oyster growing, and crab fishing. It is an absolutely fundamental, critical ecosystem to the Pacific Northwest. And this spartina grass, which I understand is not a problem here on the East Coast, but on the West Coast, it is a heck of a problem, is just really threatening a huge economic loss and an environmental devastation. We are trying to prevent one of Mr. Ehlers's good friends, the zebra mussel, from coming into our region and, because he knows well and I know well that the challenge this has wreaked on the Great Lakes Region and the Mississippi Basin, etcetera, we have just got to stop these organisms from coming in to begin with. And once they do get in, we must identify them quickly and eradicate them quickly, because most of these critters and plants have the potential to multiply exponentially.

So I commend the Chair and the Ranking Member and thank them for the opportunity to work on this, and I yield back my time.

Chairman EHLERS. I thank both gentlemen for their comments. And if we could only train zebra mussels to eat spartina grass, we would both be in good shape.

Without objection, all other Members may place opening statements in the record.

I will make one brief exception for Senator—pardon me, Congressman Smith, Chair of the Research Committee, for a brief opening statement.

Mr. SMITH. I don't know if this is going to work, Mr. Chairman, without a Ranking Member from Michigan, but——

Chairman EHLERS. Yes.

Mr. SMITH.—I am also delighted to be a co-sponsor of the bill. Of course Michigan with the zebra mussels, not aquatic, but the emerald ash boar from Asia just came in in some crates, so invasive species are something that need to be considered and evaluated.

And I need to leave in about 60 seconds, so thank you for the time.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF REPRESENTATIVE NICK SMITH

I am happy to be a co-sponsor of H.R. 1081, the Aquatic Invasive Species Research Act. This legislation is critically important for the environment and the economy.

Invasive aquatic species (IAS) inflict billions of dollars worth of damage every year. Foreign to the area that they inhabit, IAS disrupt the ecosystem leading to far reaching and often unexpected consequences. In the State of Michigan, zebra mussels native to Europe infest intake and discharge pipes from facilities that use Great Lakes water, requiring costly maintenance.

My district has been directly by a different type of invasive species. The Emerald Ash Borer, native to Asia, was discovered ravishing ash trees in southeast Michigan last summer. So far it has infested about 5.5 million trees and is expected to spread. Whether aquatic or not, these unwanted guests take a considerable toll on society. I feel that it is important that we all continue to work to control and eradicate all forms of harmful invasive species.

This legislation will provide the funding and coordination necessary to allow us to begin fighting IAS comprehensively. For the first time, we will be able to determine the exact routes that IAS take to get here so that new infestations can be prevented. H.R. 1081 will lead to the development of new, environmentally friendly methods for exterminating IAS. It will also establish a research project to come up with standards to eliminate the risk of ships transporting new species into our waters. And finally, a new grant program within the National Science Foundation will be funded to support academic research to make us better able to identify IAS after they arrive. I urge my colleagues to support H.R. 1081.

And I want to thank Chairman Ehlers for holding the additional hearing today to look for ways to combat the threat of harmful algal blooms (HAB) and hypoxia.

Protecting our water resources is particularly important to the people in my home state of Michigan. Michigan relies on the Great Lakes, as well as an abundance of inland lakes, rivers and streams for economic, agricultural, scientific and leisure purposes. HABs threaten this resource by damaging fisheries, closing beaches, and disrupting the ecosystem.

HABs are increasingly becoming a problem in the Great Lakes. However, research on freshwater HABs has fallen behind similar efforts targeting marine HABs. This committee should take into account the unique circumstances and consequences posed by each form of HAB, and support legislation that does the same.

One of the main problems that we face in fighting HABs is that it is still unclear what has triggered their increased rate of incidence. There is anecdotal evidence that aquatic invasive species (AIS) are contributing to this unfortunate trend. Earlier today, this committee approved legislation that would address the threats posed by AIS and I hope that similar attention will be paid to the problem of HABs.

Chairman EHLERS. Thank you. And we hope we may finish this before you leave. There are no amendments that have been offered, to the best of my knowledge. I am sorry. We will now consider H.R. 1081, the Aquatic Invasive Species Research Act.

[H.R. 1081 follows:]

108TH CONGRESS
1ST SESSION

H. R. 1081

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

IN THE HOUSE OF REPRESENTATIVES

MARCH 5, 2003

Mr. EHLERS (for himself, Mr. GILCHREST, Mr. BAIRD, Mr. HOEKSTRA, Mr. ORTIZ, Mrs. BIGGERT, Mr. KIRK, Mr. KILDEE, Mr. CAMP, Mr. MCHUGH, Mr. EMANUEL, Ms. SLAUGHTER, Mr. ROGERS of Michigan, Mr. ENGLISH, Mr. FARR, Mr. CUMMINGS, Mr. LEVIN, Mr. STUPAK, Mr. SCOTT of Virginia, Mr. ABERCROMBIE, Mr. QUINN, Mr. SMITH of Washington, Mr. GEORGE MILLER of California, Mrs. MALONEY, Mr. DINGELL, Ms. KAPTUR, Ms. LEE, Mr. SAXTON, Mr. DICKS, Ms. BORDALLO, Mr. VISCLOSKY, Mr. WALSH, Mr. UPTON, Mr. GILLMOR, Mr. SMITH of Michigan, Mr. CASE, Mr. BOEHLERT, Mr. BROWN of Ohio, Mr. GREENWOOD, Mr. PALLONE, Mr. MARKEY, Mr. DELAHUNT, Mr. CARDIN, Mr. ALLEN, Mrs. MILLER of Michigan, Mr. BLUMENAUER, Mr. INSLEE, Mr. HOUGHTON, Ms. MCCOLLUM, Mr. MCGOVERN, Mr. MCCOTTER, Ms. BALDWIN, Mr. LEACH, Mr. MCDERMOTT, Mr. NEAL of Massachusetts, Mr. KNOLLENBERG, Mr. TOWNS, Mr. HONDA, Mr. LIPINSKI, Mr. WEINER, Mr. KIND, Mr. EVANS, Ms. LOFGREN, Mr. JOHNSON of Illinois, Mr. KLECZKA, Mr. SIMMONS, Mr. FALEOMAVAEGA, and Mr. LATOURETTE) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on Transportation and Infrastructure, Resources, and House Administration, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Aquatic Invasive Species Research Act".

SEC. 2. FINDINGS.

The Congress makes the following findings:

(1) Aquatic invasive species damage infrastructure, disrupt commerce, outcompete native species, reduce biodiversity, and threaten human health.

(2) The direct and indirect costs of aquatic invasive species to our Nation's economy number in the billions of dollars per year. In the Great Lakes region, approximately $3,000,000,000 dollars have been spent in the past 10 years to mitigate the damage caused by one invasive species, the zebra mussel.

(3) Recent studies have shown that, in addition to economic damage, invasive species cause enormous environmental damage, and have cited invasive species as the second leading threat to endangered species.

(4) Over the past 200 years, the rate of detected marine and freshwater invasions in North America has increased exponentially.

(5) The rate of invasions continues to grow each year.

(6) Marine and freshwater research underlies every aspect of detecting, preventing, controlling, and eradicating invasive species, educating citizens and stakeholders, and restoring ecosystems.

(7) Current federal efforts, including research efforts, have focused primarily on controlling established invasive species, which is both costly and often unsuccessful. An emphasis on research, development, and demonstration to support efforts to prevent invasive species or eradicate them upon entry into United States waters would likely result in a more cost-effective and successful approach to combating invasive species through preventing initial introduction.

(8) Research, development, and demonstration to support prevention and eradication includes monitoring of both pathways and ecosystems to track the introduction and establishment of nonnative species, and development and testing of technologies to prevent introduction through known pathways.

(9) Therefore, Congress finds that it is in the United States interest to conduct a comprehensive and thorough research, development, and demonstration program on aquatic invasive species in order to better understand how aquatic invasive species are introduced and become established and to support efforts to prevent the introduction and establishment of, and to eradicate, these species.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTERING AGENCIES.—The term "administering agencies" means——

(A) the National Oceanic and Atmospheric Administration (including the Great Lakes Environmental Research Laboratory);

(B) the Smithsonian Environmental Research Center; and

(C) the United States Geological Survey.

(2) AQUATIC ECOSYSTEM.—The term "aquatic ecosystem" means a freshwater, marine, or estuarine environment (including inland waters and wetlands) located in the United States.

(3) BALLAST WATER.—The term "ballast water" means any water (with its suspended matter) used to maintain the trim and stability of a vessel.

(4) INVASION.—The term "invasion" means the introduction and establishment of an invasive species into an ecosystem beyond its historic range.

(5) INVASIVE SPECIES.—The term "invasive species" means a species——

(A) that is nonnative to the ecosystem under consideration; and

(B) whose introduction causes or may cause harm to the economy, the environment, or human health.

(6) INVASIVE SPECIES COUNCIL.—The term "Invasive Species Council" means the council established by section 3 of Executive Order No. 13112 (42 U.S.C. 4321 note).

(7) PATHWAY.—The term "pathway" means 1 or more routes by which an invasive species is transferred from one ecosystem to another.

(8) SPECIES.—The term "species" means any fundamental category of taxonomic classification or any viable biological material ranking below a genus or subgenus.

(9) TASK FORCE.—The term "Task Force" means the Aquatic Nuisance Species Task Force established by section 1201(a) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4721(a)).

(10) TYPE APPROVAL.—The term "type approval" means an approval procedure under which a type of system is certified as meeting a standard established pursuant to federal law for a particular application.

SEC. 4. CONSULTATION AND COOPERATION.

(a) MEMORANDUM OF UNDERSTANDING.—The administering agencies shall enter into a memorandum of understanding regarding implementation of this Act.

(b) CONSULTATION.—In carrying out this Act, the administering agencies shall consult with——

(1) the Task Force and Invasive Species Council;

(2) the Environmental Protection Agency; and

(3) other appropriate Federal and State agencies.

(c) COOPERATION.—In carrying out this Act, the administering agencies shall contract, as appropriate, or otherwise cooperate with academic researchers.

SEC. 5. ECOLOGICAL AND PATHWAY RESEARCH.

(a) IN GENERAL.—The administering agencies shall develop and conduct a marine and fresh-water research program which shall include ecological and pathway surveys and experimentation to detect nonnative aquatic species in aquatic ecosystems and to assess rates and patterns of introductions of nonnative aquatic species in aquatic ecosystems. The goal of this marine and freshwater research program shall be to support efforts to prevent the introduction of, detect, and eradicate invasive species through informing early detection and rapid response efforts, informing relevant policy decisions, and assessing the effectiveness of implemented policies to prevent the introduction and spread of aquatic invasive species. Surveys and experiments under this subsection shall be commenced not later than 18 months after the date of the enactment of this Act.

(b) PROTOCOL DEVELOPMENT.—The administering agencies shall establish standardized protocols for conducting ecological and pathway surveys of nonnative aquatic species that are integrated and produce comparable data, and shall recommend a standardized approach for classifying species. For ecological surveys, two protocols shall be developed, one to support early detection surveys that may be conducted by Federal, State, or local agencies involved in the management of invasive species, and a second protocol to support the surveys conducted under subsection (a). Protocols shall, as practicable, be integrated with existing protocols and data collection methods. Upon the development of protocols to support early detection surveys, the Task Force shall make appropriate efforts to disseminate the protocols to appropriate Federal, State, and local entities. In developing the protocols under this subsection, the administering agencies shall draw on the recommendations gathered at the workshop under subsection (g). The protocols shall be peer reviewed, and revised as necessary. Protocols shall be completed within 1 year after the date of the enactment of this Act.

(c) ECOLOGICAL AND PATHWAY SURVEY REQUIREMENTS.—(1) Each ecological survey conducted under subsection (a) shall, at a minimum——

(A) document baseline ecological information of the aquatic ecosystem including, to the extent practicable, a comprehensive inventory of native species, nonnative species, and species of unknown origin present in the ecosystem, as well as the chemical and physical characteristics of the water and underlying substrate;

(B) for nonnative species, gather information to assist in identifying their life history, environmental requirements and tolerances, the historic range of their native ecosystems, and their history of spreading from their native ecosystems;

(C) track the establishment of nonnative species including information about the estimated population of nonnative organisms in order to allow an analysis of the probable date of introduction of the species; and

(D) identify the likely pathway of entry of nonnative species.

(2) Each pathway survey conducted under this section shall, at a minimum——

(A) identify what nonnative aquatic species are being introduced or may be introduced through the pathways under consideration;

(B) determine the quantities of organisms being introduced through the pathways under consideration; and

(C) determine the practices that contributed to or could contribute to the introduction of nonnative aquatic species through the pathway under consideration.

(d) NUMBER AND LOCATION OF SURVEY SITES.—The administering agencies shall designate the number and location of survey sites necessary to carry out marine and freshwater research required under this section. In establishing sites under this subsection or subsection (e), emphasis shall be on the geographic diversity of sites, as well as the diversity of the human uses and biological characteristics of sites.

(e) COMPETITIVE GRANT PROGRAM.—The administering agencies (acting through the National Oceanic and Atmospheric Administration) shall administer a program to award grants to academic institutions, State agencies, and other appropriate groups, in order to assist in carrying out subsections (b) and (h). This program shall be competitive, peer-reviewed, and merit-based.

(f) SHIP PATHWAY SURVEYS.—Section 1102(b)(2)(B)(ii) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4712(b)(2)(B)(ii)) is amended to read as follows:

"(ii) examine other potential modes for the introduction of nonnative aquatic species by ship, including hull fouling.".

(g) WORKSHOP.—In order to support the development of the protocols and design for the surveys under subsections (b) and (c), the administering agencies shall convene a workshop with appropriate researchers from Federal and State agencies and academic institutions to gather recommendations. The administering agencies shall make the results of the workshop widely available to the public. The workshop shall be held within 120 days after the date of the enactment of this Act.

(h) EXPERIMENTATION.—The administering agencies shall conduct laboratory and field-based marine and freshwater research experiments on a range of taxonomic groups to identify the relationship between the introduction and establishment of nonnative aquatic species, including those legally introduced, and the circumstances necessary for those species to survive and thrive.

(i) NATIONAL PATHWAY AND ECOLOGICAL SURVEYS DATABASE.——

(1) IN GENERAL.—The United States Geological Survey shall develop, maintain, and update, in consultation and cooperation with the Smithsonian Environmental Research Center, the National Oceanic and Atmospheric Administra-

tion, and the Task Force, a central, national database of information concerning information collected under this section.

(2) REQUIREMENTS.—The database shall——

(A) be widely available to the public;

(B) be updated not less than once a quarter;

(C) be coordinated with existing databases collecting similar information; and

(D) be, to the maximum extent practicable, formatted such that the data is useful for both researchers and Federal and State employees managing relevant invasive species programs.

SEC. 6. ANALYSIS.

(a) INVASION ANALYSIS.——

(1) IN GENERAL.—Not later than three years after the date of the enactment of this Act, and every year thereafter, the administering agencies shall analyze data collected under section 5 and other relevant research on the rates and patterns of invasions by aquatic invasive species in waters of the United States. The purpose of this analysis shall be to use the data collected under section 5 and other relevant research to support efforts to prevent the introduction of, detect, and eradicate invasive species through informing early detection and rapid response efforts, informing relevant policy decisions, and assessing the effectiveness of implemented policies to prevent the introduction and spread of invasive species.

(2) CONTENTS.—The analysis required under paragraph (1) shall include with respect to aquatic invasive species——

(A) an analysis of pathways, including——

(i) identifying, and characterizing as high, medium, or low risk, pathways regionally and nationally;

(ii) identifying new and expanding pathways;

(iii) identifying handling practices that contribute to the introduction of species in pathways; and

(iv) assessing the risk that species legally introduced into the United States pose for introduction into aquatic ecosystems;

(B) patterns and rates of invasion and susceptibility to invasion of various bodies of water;

(C) how the risk of establishment through a pathway is related to the identity and number of organisms transported;

(D) rates of spread and numbers and types of pathways of spread of new populations of the aquatic invasive species and an estimation of the potential spread and distribution of newly introduced invasive species based on their environmental requirements and historical distribution;

(E) documentation of factors that influence an ecosystem's vulnerability to a nonnative aquatic species becoming invasive;

(F) a description of the potential for, and impacts of, pathway management programs on invasion rates;

(G) recommendations for improvements in the effectiveness of pathway management;

(H) to the extent practical, a determination of the level of reduction in live organisms of various taxonomic groups required to reduce the risk of establishment to receiving aquatic ecosystems to an acceptable level; and

(I) an evaluation of the effectiveness of management actions (including any standard) at reducing species introductions and establishment.

(c) RESEARCH TO ASSESS THE POTENTIAL OF THE ESTABLISHMENT OF INTRODUCED SPECIES.—Within two years after the date of the enactment of this Act, the administering agencies shall develop a profile, based on the general characteristics of invasive species and vulnerable ecosystems, in order to predict, to the extent practical, whether a species planned for importation is likely to invade a particular aquatic ecosystem if introduced. In developing the profile, the above agencies shall analyze the research conducted under section 5, and other research as necessary, to determine general species and ecosystem characteristics (taking into account the opportunity for introduction into any ecosystem) and circumstances that can lead to establishment. Based on the profile, the Task Force shall make recommendations to the Invasive Species Council as to what planned importations of nonnative aquatic organisms should be restricted. This profile shall be peer-reviewed.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for carrying out this section and section 5 of this Act, and section 1102(b)(2) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4712(b)(2)) for each of the fiscal years 2004 through 2008——

(1) $4,000,000 for the Smithsonian Environmental Research Center;

(2) $4,500,000 for the United States Geological Survey, of which $500,000 shall be for developing, maintaining, and updating the database under section 5(i); and

(3) $17,000,000 for the National Oceanic and Atmospheric Administration, of which $13,000,000 shall be for the grant program under section 5(e).

SEC. 7. DISSEMINATION.

(a) IN GENERAL.—The Invasive Species Council, in coordination with the Task Force and the administering agencies, shall be responsible for disseminating the information collected under this Act to Federal, State, and local entities, including relevant policymakers, and private researchers with responsibility over or interest in aquatic invasive species.

(b) REPORT TO CONGRESS.—Not later than three years after the date of the enactment of this Act, the Invasive Species Council shall report actions and findings under section 6 to the Congress, and shall update this report once every three years thereafter, or more often as necessary.

(c) RESPONSE STRATEGY.—The Invasive Species Council, in coordination with the Task Force, the administering agencies, and other appropriate Federal and State agencies, shall develop and implement a national strategy for how information collected under this Act will be shared with Federal, State, and local entities with responsibility for determining response to the introduction of potentially harmful nonnative aquatic species, to enable those entities to better and more rapidly respond to such introductions.

(d) PATHWAY PRACTICES.—The Invasive Species Council, in coordination with the Task Force and the administering agencies, shall disseminate information to, and develop an ongoing educational program for, pathway users (including vendors and customers) on how their practices could be modified to prevent the intentional or unintentional introduction of nonnative aquatic species into aquatic ecosystems.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for each of the fiscal years 2004 through 2008 $500,000 for the Invasive Species Council for carrying out this section.

SEC. 8. TECHNOLOGY DEVELOPMENT, DEMONSTRATION, AND VERIFICATION.

(a) ENVIRONMENTALLY SOUND TECHNOLOGY DEVELOPMENT, DEMONSTRATION, AND VERIFICATION.——

(1) GRANT PROGRAM.—Not later than 1 year after the date of the enactment of this Act, the Environmental Protection Agency, acting through the Office of Research and Development, in consultation with the Army Corps of Engineers and the administering agencies, shall develop and begin administering a grant program to fund research, development, demonstration, and verification of environmentally sound cost-effective technologies and methods to control and eradicate aquatic invasive species.

(2) PURPOSES.—Proposals funded under this subsection shall——

(A) seek to support Federal, State, or local officials' ongoing efforts to control and eradicate aquatic invasive species in an environmentally sound manner;

(B) increase the number of environmentally sound technologies or methods Federal, State, or local officials may use to control or eradicate aquatic invasive species;

(C) provide for demonstration or dissemination of the technology or method to potential end-users; and

(D) verify that any technology or method meets any appropriate criteria developed for effectiveness and environmental soundness by the Environmental Protection Agency.

(3) PREFERENCE.—The Administrator of the Environmental Protection Agency shall give preference to proposals that will likely meet any appropriate criteria developed for environmental soundness by the Environmental Protection Agency.

(4) MERIT REVIEW.—Grants shall be awarded under this subsection through a competitive, peer-reviewed, merit-based process.

(5) REPORT.—Not later than three years after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency shall prepare and submit a report to Congress on the program conducted under this subsection. The report shall include findings and recommendations of the Administrator with regard to technologies and methods.

(b) DISPERSAL BARRIER RESEARCH PROGRAM.—Not later than 1 year after the date of the enactment of this Act, the Assistant Secretary of the Army for the Corps of Engineers, in conjunction with the Fish and Wildlife Service and other appro-

priate federal agencies and academic researchers, shall establish a research, development, and demonstration program to study environmentally sound methods and technologies to reduce dispersal of aquatic invasive species through interbasin waterways and assess the potential for using those methods and technologies in other waterways.

(c) SHIP PATHWAY TECHNOLOGY DEMONSTRATION.——

(1) REAUTHORIZATION OF PROGRAM.—Section 1301(e) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4741(e)) is amended by striking "$2,500,000" and inserting "$7,500,000 for each of the fiscal years 2004 through 2008".

(2) EXPANSION OF PROGRAM.—Section 1104(b) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4714(b)) is amended——

(A) by redesignating paragraphs (4) and (5) as paragraphs (5) and (6), respectively; and

(B) by inserting after paragraph (3) the following new paragraph:

"(4) ADDITIONAL PURPOSES.—The Secretary of the Interior and the Secretary of Commerce may also demonstrate and verify technologies under this subsection to monitor and control pathways of organism transport on ships other than through ballast water.".

(3) CRITERIA AND WORKSHOP.—Section 1104 of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4714) is amended by adding at the end the following new subsections:

"(d) CRITERIA.—When issuing grants under this section, the National Oceanic and Atmospheric Administration shall give preference to those technologies that will likely meet the criteria laid out in any testing protocol developed by the Environmental Protection Agency Office of Research and Development's Environmental Technology Verification Program.

"(e) WORKSHOP.—The National Oceanic and Atmospheric Administration shall hold an annual workshop of principal investigators funded under this section and researchers conducting research directly related to ship pathway technology development, for information exchange, and shall make the proceedings widely available to the public.".

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for each of the fiscal years 2004 through 2008——

(1) $2,500,000 for the Environmental Protection Agency to carry out subsection (a); and

(2) $1,000,000 for the Army Corps of Engineers to carry out subsection (b).

SEC. 9. RESEARCH TO SUPPORT THE SETTING AND IMPLEMENTATION OF SHIP PATHWAY STANDARDS.

(a) RESEARCH PROGRAM.—The Coast Guard and the Environmental Protection Agency, in coordination with the National Oceanic and Atmospheric Administration, the Task Force, and other appropriate federal agencies and academic researchers, shall develop a coordinated research program to support the promulgation and implementation of standards to prevent the introduction and spread of invasive species by ships that shall include——

(1) characterizing physical, chemical, and biological harbor conditions relevant to ballast discharge into United States waters to inform the design and implementation of ship vector control technologies and practices;

(2) developing testing protocols for determining the effectiveness of vector monitoring and control technologies and practices;

(3) researching and demonstrating methods for mitigating the spread of invasive species by coastal voyages, including exploring the effectiveness of alternative exchange zones in the near coastal areas and other methods proposed to reduce transfers of organisms;

(4) verifying the practical effectiveness of any type approval process to ensure that the process produces repeatable and accurate assessments of treatment effectiveness; and

(5) evaluating the effectiveness and residual risk and environmental impacts associated with any standard set with respect to the ship pathway through experimental research.

(b) PERFORMANCE TEST.—Within 1 year after the date of the enactment of this Act, the Coast Guard, in conjunction with the National Institute of Standards and Technology and the Maritime Administration, shall design a performance test for ballast water exchange such as a dye study to measure the effectiveness of ballast water exchange.

(c) NATIONAL ACADEMY STUDY.—The Secretary of the Department in which the Coast Guard is operating shall enter into an arrangement with the National Academy of Sciences under which the Academy shall——

(1) identify the relative risk of transfer of various taxonomic groups by different ship modes;

(2) assess the extent to which a ballast water standard that virtually eliminates the risk of introduction of invasive species by ballast water may relate to the risk of introductions by all ship modes, and explain the degree of uncertainty in such assessment; and

(3) recommend methods for reducing organism transfers by ships by addressing all parts and systems of ships and all related modes of transport of invasive species, and identify the research, development, and demonstration needed to improve the information base to support such methods, including economic information.

Not later than two years after the date of the enactment of this Act, the Secretary of the Department in which the Coast Guard is operating shall transmit to the Congress a report on the results of the study under this subsection.

(d) RECOMMENDATIONS.—Not later than the later of one year after the date of submission of the report under subsection (c), or three years after the date of the enactment of this Act, the Task Force, in conjunction with the Environmental Protection Agency, the administering agencies, and other appropriate Federal and State agencies and academic researchers, shall submit to the Coast Guard a report that describes recommendations for——

(1) a ship pathway treatment standard that incorporates all potential modes of transfer by ships; and

(2) methods for type approval and accurate monitoring of treatment performance that are simple and streamlined and follow established protocols.

(e) WORKING GROUP.—Not later than two years after the issuance by the Coast Guard of any standard relating to the introduction by ships of invasive species, the Coast Guard shall convene a working group including the Environmental Protection Agency, the administering agencies, and other appropriate Federal and State agencies and academic researchers, to evaluate the effectiveness of that standard and accompanying implementation protocols. The duties of the working group shall, at a minimum, include——

(1) reviewing the effectiveness of the standard in reducing the establishment of invasive species in aquatic ecosystems, taking into consideration the data collected under section 5; and

(2) developing recommendations to the Coast Guard for the revision of such standard and type approval process to ensure effectiveness in reducing introductions and accurate shipboard monitoring of treatment performance that is simple and streamlined, which shall be made widely available to the public.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated——

(1) for each of the fiscal years 2004 through 2008 $1,500,000 for the Coast Guard and $1,500,000 for Environmental Protection Agency to carry out subsection (a);

(2) for each of the fiscal years 2004 through 2006 $500,000 for the Coast Guard to carry out subsection (b); and

(3) for fiscal year 2004 $500,000 for the Coast Guard to carry out subsection (c), to remain available until expended.

SEC. 10. RESEARCH IN SYSTEMATICS AND TAXONOMY.

(a) IN GENERAL.—The National Science Foundation shall establish a program to award grants to researchers at institutions of higher education and museums to carry out research programs in systematics and taxonomy.

(b) GOALS.—The goals of the program under this section are to——

(1) encourage scientists to pursue careers in systematics and taxonomy to ensure a continuing knowledge base in these disciplines;

(2) ensure that there will be adequate expertise in systematics and taxonomy to support Federal, State, and local needs to identify species;

(3) develop this expertise throughout the United States with an emphasis on regional diversity; and

(4) draw on existing expertise in systematics and taxonomy at institutions of higher education and museums to train the next generation of systematists and taxonomists.

(c) CRITERIA.—Grants shall be awarded under this section on a merit-reviewed competitive basis. Emphasis shall be placed on funding proposals in a diverse set of ecosystems and geographic locations, and, when applicable, integrated with the

United States Long Term Ecological Research Network. Preference shall be given to proposals that will include student participation, and to institutions and museums that actively train students to become experts in taxonomy and systematics.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation for carrying out this section $2,500,000 each of the fiscal years 2004 through 2008.

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SECTION-BY-SECTION ANALYSIS
H.R. 1081, AQUATIC INVASIVE SPECIES RESEARCH ACT

Section 1. Short Title

This Act is named the "Aquatic Invasive Species Research Act."

Section 2. Findings

The legislation establishes several findings in support of the legislation, and finds that aquatic invasive species pose significant direct and indirect costs to the U.S. economy and environment, and that more research is needed to better direct federal efforts toward effectively preventing the introduction of invasive species.

Section 3. Definitions

The administering agencies of the Act are defined as the National Oceanic and Atmospheric Administration, the Smithsonian Environmental Research Center and the United States Geological Survey.

The following additional terms are defined: aquatic ecosystem, ballast water, invasion, invasive species, invasive species council, pathway, species, task force, and type approval.

Section 4. Consultation and Cooperation

The administering agencies shall enter into a memorandum of agreement regarding implementation of this Act. In carrying out the Act, they shall consult with the Task Force, the Invasive Species Council, the Environmental Protection Agency and other appropriate State and Federal agencies, and shall cooperate with academic researchers.

Section 5. Ecological and Pathway Research

The administering agencies shall conduct surveys of ecosystems and of pathways (such as ships' ballast water) by which invasive species enter U.S. waters in order to track the introduction of invasive species. They shall also conduct experiments to understand the relationship between the conditions under which an invasive species is introduced and the likelihood that it will become established, and maintain a database of all of the information gathered under this section. Ecosystem surveys will review the patterns and rates of invasion at the site, track the establishment of species in ecosystems, monitor the circumstances accompanying that establishment, and document factors that may influence an ecosystem's vulnerability to invasion. Pathway surveys will identify the species being introduced through a given pathway, the quantity being introduced, and handling practices that contribute to the introduction. In carrying out this program the administering agencies will develop standardized protocols for carrying out the surveys and will coordinate their efforts to establish long-term survey sites to collect strong baseline information. A grant program is established to fund academic researchers and state agencies to carry out the surveys at diverse sites distributed geographically around the country.

Section 6. Analysis

The administering agencies shall analyze the survey and experimental results collected under Section 5. Specifically, they will, among other things, identify the highest risk pathways, identify handling practices within pathways that contribute to introductions, and evaluate how much effort is required in reducing introductions for various taxonomic groups to reduce the risk that they will become established. The agencies shall recommend and review pathway management programs to reduce introductions of invasive species. A profile, based on information about species characteristics, ecosystem characteristics and environmental circumstances that favor invasion, will be developed to predict, to the extent practical, whether a species planned for importation is likely to invade a particular ecosystem.

Authorization of Appropriations—To carry out Sections 5 and 6 for FY04 through FY08, the National Oceanic and Atmospheric Administration is authorized $17 million ($13 million of which is for the grant program), the Smithsonian Environmental Research Center is authorized $4 million, and the United States Geological Survey is authorized $4.5 million ($500,000 million of which is to administer the database).

Section 7. Dissemination

The National Invasive Species Council shall disseminate the information developed under Section 6 to relevant audiences. This includes a report to Congress, a mechanism to provide survey findings to support rapid response efforts, and dissemination to users of the various pathways invasive species exploit of information regarding how their practices should be modified to prevent the introduction of non-

native species. The National Invasive Species Council is authorized for FY04 through FY08 $500,000 million per year.

Section 8. Technology Development and Demonstration

The Act establishes and expands several programs to develop technologies to prevent, control and eradicate invasive species. These include (authorizations are for FY04 through FY08):

- The creation of an Environmental Protection Agency grant program to fund research, development, demonstration and verification of a suite of environmentally sound technologies to control and eradicate invasive species. (authorized at $2.5 million per year)
- The creation of an Army Corps of Engineers dispersal barrier research program. (authorized at $1 million per year)
- The expansion of the Ballast Water Technology Demonstration Program to include the demonstration of technologies to treat all ship pathways of introduction (including hull fouling). (authorized at $7.5 million per year)

Section 9. Research to Support the Setting and Implementation of Standards

The Act establishes a research program to support the setting, implementation and evaluation of standards for treatment of ship pathways of introduction. This includes:

- The creation of a Coast Guard and EPA research program to conduct experiments and answer relevant policy questions associated with standards and their implementation, such as the identification of possible circumstances in which a ship may encounter invasive species and in which a treatment technology must be effective. (authorized at $1.5 million for EPA and $1.5 million for Coast Guard for FY04 through FY08)
- Coast Guard research to design a performance test for ballast water exchange. (authorized at $500,000 million for FY04 through FY06)
- A study by the National Academy of Sciences to develop recommendations for a standard. (authorized at $500,000 for FY04)
- An interagency working group to evaluate the effectiveness of the standard and make recommendations for revision.

Section 10. Research in Systematics and Taxonomy

The National Science Foundation shall establish a competitive, peer-reviewed program to award grants to researchers at institutions of higher education and museums to carry out research in systematics and taxonomy. The program is authorized at $2.5 million for FY04 through FY08.

Chairman EHLERS. I ask unanimous consent that the bill be considered as read and open to amendment at any point. Without objection, so ordered.

Hearing no amendments being offered, we will—the question is on the bill, H.R. 1081. I am sorry. Mr. Gutknecht.

Mr. GUTKNECHT. Mr. Chairman, I was considering offering an amendment, because we have had an awful lot of discussion about this between you and I and various committees. And I wonder if we shouldn't offer a line at the very end of the bill that simply says, "And we really mean it," because it really has been difficult for me to see that some of the agencies that are involved in this have not been taking this as seriously as they really need to. And I don't know if it requires more oversight by this committee or other committees, but this is a very serious problem. I agree with you and the Ranking Member. And we have to do all we can. It seems to me—and passing this legislation is an important step. But it seems to me we have to be much more vigilant about this, because some of the answers that I have heard in talking to some of the folks in my state and others is that yes, they take it seriously. But they don't take it as seriously as I believe they should. And so I am not going to offer that amendment, but I do want to put that out for the record that we do take this seriously. And we hope that the agencies will respond accordingly, and that it is not enough just to control some of these invasive species. We would like to see plans to eliminate them.

Chairman EHLERS. Will the gentleman yield?

Mr. GUTKNECHT. I yield back.

Chairman EHLERS. I am pleased to second your comment, and that is the intent of both of these bills. And the other bill, Mr. Gilcrest's bill, does make it clear there are specific requirements agencies have to meet. But I share your disappointment, particularly with the Coast Guard on the aquatic invasive species. They have had the responsibility for more than a decade now, and very little has transpired. We hope—and we have had meetings with them, and I would be delighted to have oversight meetings to impress on everyone involved that we mean it.

The gentleman's time is expired. Hearing no amendments on the bill, the question is on the bill, H.R. 1081. All those in favor will say "aye." All opposed will say "no." In the opinion of the Chair, the ayes have it. And we will note the presence of a quorum.

I know recognize Mr. Udall for a motion.

Mr. UDALL. Thank you, Mr. Chairman. Mr. Chairman, I would move that the Subcommittee favorably report the bill H.R. 1081 to the full Committee with a recommendation that it be favorably reported to the House. Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill in accordance with the recommendations of the Subcommittee.

Chairman EHLERS. The Committee has heard the motion. Those in favor will say "aye." Those opposed will say "no." The ayes have it, and the motion is agreed to. Without objection, the motion to reconsider is laid upon the table.

This concludes our Subcommittee markup, and I am very pleased that we can now move into the hearing portion of this assembly.

[Whereupon, at 10:29 a.m., the Subcommittee proceeded to other business.]

PROCEEDINGS OF THE MARKUP BY THE FULL COMMITTEE ON H.R. 1081, AQUATIC INVASIVE SPECIES RESEARCH ACT

WEDNESDAY, JUNE 4, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to other business, at 12:05 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert (Chairman of the Committee) presiding.

Chairman BOEHLERT. This is a markup on the *Invasive Species Research Act of 2003*. I ask unanimous consent for the authority to recess the Committee at any point. And without objection, it is so ordered. We will now consider the bill H.R. 1081. I will keep my remarks brief, and I would appreciate others doing the same.

I want to congratulate Dr. Ehlers and all of the other Members of the Committee who worked on this important bill. I know that Chairman Ehlers and his staff have put in well over a year talking to every interested party and refining this bill. Mr. Gilchrest and Mr. Baird have been especially active. The hard work shows, and has resulted in an excellent bipartisan bill.

All of us know the damage that is caused by invasive species, because we see it in our own Districts, and mine is no exception. This bill will, over time, enable us to prevent new invasive species from gaining a tow hold here, although perhaps that is the wrong terminology for aquatic creatures, and will enable us to do a better job of controlling or eradicating the pests that have already made their way to our shores. We will work closely with the other Committees of jurisdiction that have an interest and with the Senate. And I am hopeful that this bill can move either separately or as part of a larger invasive species legislation during this Congress.

Chairman BOEHLERT. Mr. Hall.

[The prepared statement of Chairman Boehlert follows:]

PREPARED STATEMENT OF CHAIRMAN SHERWOOD BOEHLERT

I'll keep my remarks brief as we have worked out all the amendments to this bill, and we should have an expeditious markup.

I just want to congratulate Dr. Ehlers and all the other Members of the Committee who worked on this important bill. I know that Chairman Ehlers and his staff have put in well over a year talking to every interested party and refining this bill. Mr. Gilchrest and Mr. Baird have been especially active. The hard work shows and has resulted in an excellent, bipartisan bill.

All of us know the damage that is caused by invasive species because we see it in our own districts. Mine is no exception. This bill will, over time, enable us to prevent new invasive species from gaining a toehold here—although perhaps that's the

wrong terminology for aquatic creatures—and will enable us to do a better job of controlling or eradicating the pests that have already made their way to our shores.

We will work closely with the other committees of jurisdiction that have an interest in this matter, and with the Senate, and I am hopeful that this bill can move either separately, or as part of larger invasive species legislation, during this Congress.

Mr. HALL. Mr. Chairman, I, too, will be brief, and I thank you. H.R. 1081 is going to help us find a lot of more economical and effective ways to prevent invasive species. And I have a copy of Texas Parks and Wildlife Newsstand with the then Governor George Bush operating a machine that harvested hydrilla, an exotic water plant that chokes a lot of lakes in Texas. It will be some help to that. And this tells me that when we pass this bill that the President will put some wet ink on it quickly.

Thank you.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

I thank the Chairman for bringing this bill before the Committee today and for working with us on the amendments. H.R. 1081 will help us to find more economical and effective ways to prevent invasive species from being introduced to our lakes, rivers, and coastal areas and to eliminate and control those that are already established.

In Texas, we have serious problems due to aquatic invasive plants such as hydrilla and water hyacinth in our reservoirs, rivers, and lakes. I expect each of us could produce a list of the 10 most unwanted organisms for our home states. I hope through these programs we will provide some help to the state and local agencies struggling to deal with the problems created by invasive species. I urge my colleagues to support the bill.

Chairman BOEHLERT. Thank you very much. I now recognize Dr. Ehlers, the bill's sponsor, and the Chairman of the Environment, Technology, and Standards Subcommittee, for any opening remarks he may have.

Mr. EHLERS. Thank you, Mr. Chairman. And thank you for bringing this timely and important legislation before the Committee, for even as we work on this legislation, invasive species are crossing our borders, invading our lands and waterways, and causing us enormous economic and environmental harm.

I recognize the desire of the Committee and the Chairman to proceed rapidly, so I will summarize my statement and ask that the full statement be entered into the record.

The basic problem this bill addresses is dealing with aquatic invasive species. And one of our biggest problems with that is we simply don't know what to do. The research has to be done first. It has to be done well so that we don't waste money by taking the wrong approach and finding out it doesn't work. So this bill provides arrangements, standards, and funding for conducting research on aquatic invasive species. Particularly, it will involve the U.S. Geological Survey, which has been very active in this. It will involve NOAA, which of course, has a responsibility for it. It will involve the Smithsonian Institution, which has been one of the leaders in studying invasives. And it also will tangentially involve the Coast Guard, which will have the authority to investigate ballast water problems. And finally, it will involve the National Science Foundation in establishing a grant program aimed at supporting the academic research in systematics and taxonomy, which is so badly needed.

So it is a companion piece to the legislation by Mr. Gilchrest, also of this committee. His bill will go through the Resources Committee, first. And this one will join up with it at some point, or may be passed independently simply because the research part of it has to be done first before the other parts can be implemented.

So I thank you, again, Mr. Chairman, for taking it up. And I urge the Committee to give an affirmative vote.

[The prepared statement of Mr. Ehlers follows:]

PREPARED STATEMENT OF REPRESENTATIVE VERNON J. EHLERS

Thank you for yielding, Mr. Chairman, and thank you for bringing this timely and important legislation before the Committee, for even as we work on this legislation, invasive species are crossing our borders, invading our lands and waterways, and causing us enormous economic and environmental harm. Many Members have heard about these invaders from press accounts of the voracious snakehead fish that invaded Maryland waterways last summer, or zebra mussels that have plagued the Great Lakes for over a decade, or specific invasive plants or animals that are affecting their districts. The overwhelming support this legislation has received, with 85 cosponsors, shows that Members and the public understand this growing threat.

I'm pleased to bring this legislation before the Committee because it addresses this threat by providing a comprehensive research program focused on informing and improving the management of aquatic invasive species. For example, when regulatory agencies, in this case the Coast Guard, need to develop standards aimed at preventing invasive species from being introduced by ships, they must ask: What is the risk that invasive species in ballast water—or for that matter, on hulls and other parts of vessels—pose to our environment, and are the management decisions that we have already made working? This legislation sets up a research program to answer these and other difficult management questions. By developing this understanding, we can arrive at better decisions about how to prevent, control and eradicate invasive species.

Now that I've given some sense of the bill's purpose, let me describe it in more detail. The first main component of the bill authorizes a comprehensive ecological and pathway research program, which will enable policy-makers to assess how these species get into our waterways and whether or not management decisions are helping reduce invasions.

The next major piece authorizes the Environmental Protection Agency to begin a development, demonstration and verification program focused on giving Federal, State and local managers more environmentally sound tools to combat invasive species once they arrive.

The next part authorizes a research program to support the Coast Guard's efforts to reduce the threat that ships pose for the introduction of new species into U.S. waters, efforts that will spur the development of technologies to prevent invasive species from entering U. S. waters.

Finally, the last part authorizes the National Science Foundation to establish a grant program aimed at supporting academic research in systematics and taxonomy, so that we will maintain U.S. expertise in these areas and enhance our ability to identify invaders once they arrive.

This legislation complements bills introduced by Mr. Gilchrest in the House and Mr. Levin in the Senate to reauthorize the National Invasive Species Act. Taken together, both my legislation and Mr. Gilchrest's represent an important step forward in our efforts to prevent invasive species from ever crossing our borders and to combat them once they arrive. We simply cannot afford to wait any longer to deal with this problem, and so I urge all of my colleagues to support this legislation.

Chairman BOEHLERT. Thank you very much. And without objection, all Members may place opening statements in the record at this point in time.

[The prepared statement of Mr. Calvert follows:]

PREPARED STATEMENT OF REPRESENTATIVE KEN CALVERT

I appreciate the great efforts, of my dear friend and colleague from Michigan, Mr. Ehlers, to move H.R. 1081 forward. The eradication of non-native invasive species is extremely important in my district and throughout California. In my state a new pest is introduced every 60 days and, as history has shown, many have become es-

tablished and destructive to agriculture and native habitats. Non-native invasive species will continue to be introduced as international air transport, tourism, human immigration, and movement of infested agricultural products increase. While H.R. 1081 specifically addresses aquatic invasive species, it serves to highlight all invasive species problems that threaten billions of dollars in agricultural products and jeopardize our water resources. This legislation stresses early detection and coordinated scientific efforts which will have positive results in our communities to combat invasive species in watersheds, rivers, lakes, and coastal areas. I urge my colleagues to support this common sense legislation and with that I want to thank Mr. Ehlers again and thank you Mr. Chairman.

[The prepared statement of Mr. Smith of Michigan follows:]

PREPARED STATEMENT OF REPRESENTATIVE NICK SMITH

I want to thank Chairman Boehlert for holding this hearing today to vote on H.R. 1081, the Aquatic Invasive Species Research Act. I am a co-sponsor of this legislation because I believe that it is critically important for the environment and the economy.

Invasive aquatic species (IAS) inflict billions of dollars worth of damage every year. Foreign to the area that they inhabit, IAS disrupt the ecosystem leading to far reaching and often unexpected consequences. In the State of Michigan, zebra mussels native to Europe infest intake and discharge pipes from facilities that use Great Lakes water, requiring costly maintenance.

My district has been directly affected by a different type of invasive species. The Emerald Ash Borer, native to Asia, was discovered ravishing ash trees in southeast Michigan last summer. So far it has infested about 5.5 million trees and is expected to spread. Whether aquatic or not, these unwanted guests take a considerable toll on society. I feel that it is important that we all continue to work to control and eradicate all forms of harmful invasive species.

This legislation will provide the funding and coordination necessary to allow us to begin fighting IAS comprehensively. For the first time, we will be able to determine the exact routes that IAS take to get here so that new infestations can be prevented. H.R. 1081 will lead to the development of new, environmentally friendly methods for exterminating IAS. It will also establish a research project to come up with standards to eliminate the risk of ships transporting new species into our waters. And finally, a new grant program within the National Science Foundation will be funded to support academic research to make us better able to identify IAS after they arrive. I urge my colleagues to support H.R. 1081.

[The prepared statement of Mr. Costello follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Good morning. Thank you Chairman Boehlert and Chairman Ehlers for working with me to reach a compromise on my amendment to initiate a survey by the U.S. Geological Survey (USGS) in cooperation with the National Oceanic and Atmospheric Administration (NOAA) to gather information about the experience of state and federal agencies in eradicating and controlling invasive species.

I look forward to further collaboration with you as this bill moves closer to consideration by the House. I hope we will be able to develop a provision that will move beyond planning to implementation of a data collection effort by USGS and NOAA.

Resource managers in State and local agencies continue to struggle with an increasing list of invasive species, both aquatic and terrestrial. That is why it is crucial we establish a centralized database to determine what has and has not worked for control and eradication as applied in management setting. In my area, invasive species including Asian Carp and zebra mussels, have been invading our fresh water sources. The invasion of these species has been costly to our boaters and our ecosystems. Our state and local agencies would benefit from a national database that included information about the effectiveness of prevention and control methods as well as cost of each method.

There is more to research than merely documenting the pattern and consequences of invasions. Our states and local areas need to be able to access a wide variety of information, including effectiveness and cost, on a broad range of species.

I want to thank Chairman Ehlers for introducing H.R. 1081 and Chairman Boehlert for working with me on this amendment.

Chairman BOEHLERT. Mr. Baird will have first priority for his statement. He is—has a conflict that requires him to be elsewhere, but we will put him first in line for the statements.

I ask unanimous consent that the bill be considered as open and read to amendment at any point and that the Members proceed with the amendments in the order of the roster.

[H.R. 1081 follows:]

108TH CONGRESS
1ST SESSION

H. R. 1081

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

IN THE HOUSE OF REPRESENTATIVES

MARCH 5, 2003

Mr. EHLERS (for himself, Mr. GILCHREST, Mr. BAIRD, Mr. HOEKSTRA, Mr. ORTIZ, Mrs. BIGGERT, Mr. KIRK, Mr. KILDEE, Mr. CAMP, Mr. MCHUGH, Mr. EMANUEL, Ms. SLAUGHTER, Mr. ROGERS of Michigan, Mr. ENGLISH, Mr. FARR, Mr. CUMMINGS, Mr. LEVIN, Mr. STUPAK, Mr. SCOTT of Virginia, Mr. ABERCROMBIE, Mr. QUINN, Mr. SMITH of Washington, Mr. GEORGE MILLER of California, Mrs. MALONEY, Mr. DINGELL, Ms. KAPTUR, Ms. LEE, Mr. SAXTON, Mr. DICKS, Ms. BORDALLO, Mr. VISCLOSKY, Mr. WALSH, Mr. UPTON, Mr. GILLMOR, Mr. SMITH of Michigan, Mr. CASE, Mr. BOEHLERT, Mr. BROWN of Ohio, Mr. GREENWOOD, Mr. PALLONE, Mr. MARKEY, Mr. DELAHUNT, Mr. CARDIN, Mr. ALLEN, Mrs. MILLER of Michigan, Mr. BLUMENAUER, Mr. INSLEE, Mr. HOUGHTON, Ms. MCCOLLUM, Mr. MCGOVERN, Mr. MCCOTTER, Ms. BALDWIN, Mr. LEACH, Mr. MCDERMOTT, Mr. NEAL of Massachusetts, Mr. KNOLLENBERG, Mr. TOWNS, Mr. HONDA, Mr. LIPINSKI, Mr. WEINER, Mr. KIND, Mr. EVANS, Ms. LOFGREN, Mr. JOHNSON of Illinois, Mr. KLECZKA, Mr. SIMMONS, Mr. FALEOMAVAEGA, and Mr. LATOURETTE) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on Transportation and Infrastructure, Resources, and House Administration, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Aquatic Invasive Species Research Act".

SEC. 2. FINDINGS.

The Congress makes the following findings:

(1) Aquatic invasive species damage infrastructure, disrupt commerce, outcompete native species, reduce biodiversity, and threaten human health.

(2) The direct and indirect costs of aquatic invasive species to our Nation's economy number in the billions of dollars per year. In the Great Lakes region, approximately $3,000,000,000 dollars have been spent in the past 10 years to mitigate the damage caused by one invasive species, the zebra mussel.

(3) Recent studies have shown that, in addition to economic damage, invasive species cause enormous environmental damage, and have cited invasive species as the second leading threat to endangered species.

(4) Over the past 200 years, the rate of detected marine and freshwater invasions in North America has increased exponentially.

(5) The rate of invasions continues to grow each year.

(6) Marine and freshwater research underlies every aspect of detecting, preventing, controlling, and eradicating invasive species, educating citizens and stakeholders, and restoring ecosystems.

(7) Current federal efforts, including research efforts, have focused primarily on controlling established invasive species, which is both costly and often unsuccessful. An emphasis on research, development, and demonstration to support efforts to prevent invasive species or eradicate them upon entry into United States waters would likely result in a more cost-effective and successful approach to combating invasive species through preventing initial introduction.

(8) Research, development, and demonstration to support prevention and eradication includes monitoring of both pathways and ecosystems to track the introduction and establishment of non-native species, and development and testing of technologies to prevent introduction through known pathways.

(9) Therefore, Congress finds that it is in the United States interest to conduct a comprehensive and thorough research, development, and demonstration program on aquatic invasive species in order to better understand how aquatic invasive species are introduced and become established and to support efforts to prevent the introduction and establishment of, and to eradicate, these species.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTERING AGENCIES.—The term "administering agencies" means——

(A) the National Oceanic and Atmospheric Administration (including the Great Lakes Environmental Research Laboratory);

(B) the Smithsonian Environmental Research Center; and

(C) the United States Geological Survey.

(2) AQUATIC ECOSYSTEM.—The term "aquatic ecosystem" means a freshwater, marine, or estuarine environment (including inland waters and wetlands) located in the United States.

(3) BALLAST WATER.—The term "ballast water" means any water (with its suspended matter) used to maintain the trim and stability of a vessel.

(4) INVASION.—The term "invasion" means the introduction and establishment of an invasive species into an ecosystem beyond its historic range.

(5) INVASIVE SPECIES.—The term "invasive species" means a species——

(A) that is non-native to the ecosystem under consideration; and

(B) whose introduction causes or may cause harm to the economy, the environment, or human health.

(6) INVASIVE SPECIES COUNCIL.—The term "Invasive Species Council" means the council established by section 3 of Executive Order No. 13112 (42 U.S.C. 4321 note).

(7) PATHWAY.—The term "pathway" means 1 or more routes by which an invasive species is transferred from one ecosystem to another.

(8) SPECIES.—The term "species" means any fundamental category of taxonomic classification or any viable biological material ranking below a genus or subgenus.

(9) TASK FORCE.—The term "Task Force" means the Aquatic Nuisance Species Task Force established by section 1201(a) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4721(a)).

(10) TYPE APPROVAL.—The term "type approval" means an approval procedure under which a type of system is certified as meeting a standard established pursuant to federal law for a particular application.

SEC. 4. CONSULTATION AND COOPERATION.

(a) MEMORANDUM OF UNDERSTANDING.—The administering agencies shall enter into a memorandum of understanding regarding implementation of this Act.

(b) CONSULTATION.—In carrying out this Act, the administering agencies shall consult with——

(1) the Task Force and Invasive Species Council;

(2) the Environmental Protection Agency; and

(3) other appropriate Federal and State agencies.

(c) COOPERATION.—In carrying out this Act, the administering agencies shall contract, as appropriate, or otherwise cooperate with academic researchers.

SEC. 5. ECOLOGICAL AND PATHWAY RESEARCH.

(a) IN GENERAL.—The administering agencies shall develop and conduct a marine and fresh-water research program which shall include ecological and pathway

surveys and experimentation to detect non-native aquatic species in aquatic ecosystems and to assess rates and patterns of introductions of non-native aquatic species in aquatic ecosystems. The goal of this marine and freshwater research program shall be to support efforts to prevent the introduction of, detect, and eradicate invasive species through informing early detection and rapid response efforts, informing relevant policy decisions, and assessing the effectiveness of implemented policies to prevent the introduction and spread of aquatic invasive species. Surveys and experiments under this subsection shall be commenced not later than 18 months after the date of the enactment of this Act.

(b) PROTOCOL DEVELOPMENT.—The administering agencies shall establish standardized protocols for conducting ecological and pathway surveys of non-native aquatic species that are integrated and produce comparable data, and shall recommend a standardized approach for classifying species. For ecological surveys, two protocols shall be developed, one to support early detection surveys that may be conducted by Federal, State, or local agencies involved in the management of invasive species, and a second protocol to support the surveys conducted under subsection (a). Protocols shall, as practicable, be integrated with existing protocols and data collection methods. Upon the development of protocols to support early detection surveys, the Task Force shall make appropriate efforts to disseminate the protocols to appropriate Federal, State, and local entities. In developing the protocols under this subsection, the administering agencies shall draw on the recommendations gathered at the workshop under subsection (g). The protocols shall be peer reviewed, and revised as necessary. Protocols shall be completed within 1 year after the date of the enactment of this Act.

(c) ECOLOGICAL AND PATHWAY SURVEY REQUIREMENTS.—(1) Each ecological survey conducted under subsection (a) shall, at a minimum——

(A) document baseline ecological information of the aquatic ecosystem including, to the extent practicable, a comprehensive inventory of native species, non-native species, and species of unknown origin present in the ecosystem, as well as the chemical and physical characteristics of the water and underlying substrate;

(B) for non-native species, gather information to assist in identifying their life history, environmental requirements and tolerances, the historic range of their native ecosystems, and their history of spreading from their native ecosystems;

(C) track the establishment of non-native species including information about the estimated population of non-native organisms in order to allow an analysis of the probable date of introduction of the species; and

(D) identify the likely pathway of entry of non-native species.

(2) Each pathway survey conducted under this section shall, at a minimum——

(A) identify what non-native aquatic species are being introduced or may be introduced through the pathways under consideration;

(B) determine the quantities of organisms being introduced through the pathways under consideration; and

(C) determine the practices that contributed to or could contribute to the introduction of non-native aquatic species through the pathway under consideration.

(d) NUMBER AND LOCATION OF SURVEY SITES.—The administering agencies shall designate the number and location of survey sites necessary to carry out marine and freshwater research required under this section. In establishing sites under this subsection or subsection (e), emphasis shall be on the geographic diversity of sites, as well as the diversity of the human uses and biological characteristics of sites.

(e) COMPETITIVE GRANT PROGRAM.—The administering agencies (acting through the National Oceanic and Atmospheric Administration) shall administer a program to award grants to academic institutions, State agencies, and other appropriate groups, in order to assist in carrying out subsections (b) and (h). This program shall be competitive, peer-reviewed, and merit-based.

(f) SHIP PATHWAY SURVEYS.—Section 1102(b)(2)(B)(ii) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4712(b)(2)(B)(ii)) is amended to read as follows:

"(ii) examine other potential modes for the introduction of non-native aquatic species by ship, including hull fouling.".

(g) WORKSHOP.—In order to support the development of the protocols and design for the surveys under subsections (b) and (c), the administering agencies shall convene a workshop with appropriate researchers from Federal and State agencies and academic institutions to gather recommendations. The administering agencies shall make the results of the workshop widely available to the public. The workshop shall be held within 120 days after the date of the enactment of this Act.

(h) EXPERIMENTATION.—The administering agencies shall conduct laboratory and field-based marine and freshwater research experiments on a range of taxonomic groups to identify the relationship between the introduction and establishment of non-native aquatic species, including those legally introduced, and the circumstances necessary for those species to survive and thrive.

(i) NATIONAL PATHWAY AND ECOLOGICAL SURVEYS DATABASE.——

(1) IN GENERAL.—The United States Geological Survey shall develop, maintain, and update, in consultation and cooperation with the Smithsonian Environmental Research Center, the National Oceanic and Atmospheric Administration, and the Task Force, a central, national database of information concerning information collected under this section.

(2) REQUIREMENTS.—The database shall——

(A) be widely available to the public;

(B) be updated not less than once a quarter;

(C) be coordinated with existing databases collecting similar information; and

(D) be, to the maximum extent practicable, formatted such that the data is useful for both researchers and Federal and State employees managing relevant invasive species programs.

SEC. 6. ANALYSIS.

(a) INVASION ANALYSIS.——

(1) IN GENERAL.—Not later than three years after the date of the enactment of this Act, and every year thereafter, the administering agencies shall analyze data collected under section 5 and other relevant research on the rates and patterns of invasions by aquatic invasive species in waters of the United States. The purpose of this analysis shall be to use the data collected under section 5 and other relevant research to support efforts to prevent the introduction of, detect, and eradicate invasive species through informing early detection and rapid response efforts, informing relevant policy decisions, and assessing the effectiveness of implemented policies to prevent the introduction and spread of invasive species.

(2) CONTENTS.—The analysis required under paragraph (1) shall include with respect to aquatic invasive species——

(A) an analysis of pathways, including——

(i) identifying, and characterizing as high, medium, or low risk, pathways regionally and nationally;

(ii) identifying new and expanding pathways;

(iii) identifying handling practices that contribute to the introduction of species in pathways; and

(iv) assessing the risk that species legally introduced into the United States pose for introduction into aquatic ecosystems;

(B) patterns and rates of invasion and susceptibility to invasion of various bodies of water;

(C) how the risk of establishment through a pathway is related to the identity and number of organisms transported;

(D) rates of spread and numbers and types of pathways of spread of new populations of the aquatic invasive species and an estimation of the potential spread and distribution of newly introduced invasive species based on their environmental requirements and historical distribution;

(E) documentation of factors that influence an ecosystem's vulnerability to a non-native aquatic species becoming invasive;

(F) a description of the potential for, and impacts of, pathway management programs on invasion rates;

(G) recommendations for improvements in the effectiveness of pathway management;

(H) to the extent practical, a determination of the level of reduction in live organisms of various taxonomic groups required to reduce the risk of establishment to receiving aquatic ecosystems to an acceptable level; and

(I) an evaluation of the effectiveness of management actions (including any standard) at reducing species introductions and establishment.

(c) RESEARCH TO ASSESS THE POTENTIAL OF THE ESTABLISHMENT OF INTRODUCED SPECIES.—Within two years after the date of the enactment of this Act, the administering agencies shall develop a profile, based on the general characteristics of invasive species and vulnerable ecosystems, in order to predict, to the extent practical, whether a species planned for importation is likely to invade a particular aquatic ecosystem if introduced. In developing the profile, the above agencies shall analyze the research conducted under section 5, and other research as necessary,

to determine general species and ecosystem characteristics (taking into account the opportunity for introduction into any ecosystem) and circumstances that can lead to establishment. Based on the profile, the Task Force shall make recommendations to the Invasive Species Council as to what planned importations of non-native aquatic organisms should be restricted. This profile shall be peer-reviewed.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for carrying out this section and section 5 of this Act, and section 1102(b)(2) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4712(b)(2)) for each of the fiscal years 2004 through 2008——

(1) $4,000,000 for the Smithsonian Environmental Research Center;

(2) $4,500,000 for the United States Geological Survey, of which $500,000 shall be for developing, maintaining, and updating the database under section 5(i); and

(3) $17,000,000 for the National Oceanic and Atmospheric Administration, of which $13,000,000 shall be for the grant program under section 5(e).

SEC. 7. DISSEMINATION.

(a) IN GENERAL.—The Invasive Species Council, in coordination with the Task Force and the administering agencies, shall be responsible for disseminating the information collected under this Act to Federal, State, and local entities, including relevant policymakers, and private researchers with responsibility over or interest in aquatic invasive species.

(b) REPORT TO CONGRESS.—Not later than three years after the date of the enactment of this Act, the Invasive Species Council shall report actions and findings under section 6 to the Congress, and shall update this report once every three years thereafter, or more often as necessary.

(c) RESPONSE STRATEGY.—The Invasive Species Council, in coordination with the Task Force, the administering agencies, and other appropriate Federal and State agencies, shall develop and implement a national strategy for how information collected under this Act will be shared with Federal, State, and local entities with responsibility for determining response to the introduction of potentially harmful non-native aquatic species, to enable those entities to better and more rapidly respond to such introductions.

(d) PATHWAY PRACTICES.—The Invasive Species Council, in coordination with the Task Force and the administering agencies, shall disseminate information to, and develop an ongoing educational program for, pathway users (including vendors and customers) on how their practices could be modified to prevent the intentional or unintentional introduction of non-native aquatic species into aquatic ecosystems.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for each of the fiscal years 2004 through 2008 $500,000 for the Invasive Species Council for carrying out this section.

SEC. 8. TECHNOLOGY DEVELOPMENT, DEMONSTRATION, AND VERIFICATION.

(a) ENVIRONMENTALLY SOUND TECHNOLOGY DEVELOPMENT, DEMONSTRATION, AND VERIFICATION.——

(1) GRANT PROGRAM.—Not later than 1 year after the date of the enactment of this Act, the Environmental Protection Agency, acting through the Office of Research and Development, in consultation with the Army Corps of Engineers and the administering agencies, shall develop and begin administering a grant program to fund research, development, demonstration, and verification of environmentally sound cost-effective technologies and methods to control and eradicate aquatic invasive species.

(2) PURPOSES.—Proposals funded under this subsection shall——

(A) seek to support Federal, State, or local officials' ongoing efforts to control and eradicate aquatic invasive species in an environmentally sound manner;

(B) increase the number of environmentally sound technologies or methods Federal, State, or local officials may use to control or eradicate aquatic invasive species;

(C) provide for demonstration or dissemination of the technology or method to potential end-users; and

(D) verify that any technology or method meets any appropriate criteria developed for effectiveness and environmental soundness by the Environmental Protection Agency.

(3) PREFERENCE.—The Administrator of the Environmental Protection Agency shall give preference to proposals that will likely meet any appropriate criteria developed for environmental soundness by the Environmental Protection Agency.

(4) MERIT REVIEW.—Grants shall be awarded under this subsection through a competitive, peer-reviewed, merit-based process.

(5) REPORT.—Not later than three years after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency shall prepare and submit a report to Congress on the program conducted under this subsection. The report shall include findings and recommendations of the Administrator with regard to technologies and methods.

(b) DISPERSAL BARRIER RESEARCH PROGRAM.—Not later than 1 year after the date of the enactment of this Act, the Assistant Secretary of the Army for the Corps of Engineers, in conjunction with the Fish and Wildlife Service and other appropriate federal agencies and academic researchers, shall establish a research, development, and demonstration program to study environmentally sound methods and technologies to reduce dispersal of aquatic invasive species through interbasin waterways and assess the potential for using those methods and technologies in other waterways.

(c) SHIP PATHWAY TECHNOLOGY DEMONSTRATION.——

(1) REAUTHORIZATION OF PROGRAM.—Section 1301(e) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4741(e)) is amended by striking "$2,500,000" and inserting "$7,500,000 for each of the fiscal years 2004 through 2008".

(2) EXPANSION OF PROGRAM.—Section 1104(b) of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4714(b)) is amended——

(A) by redesignating paragraphs (4) and (5) as paragraphs (5) and (6), respectively; and

(B) by inserting after paragraph (3) the following new paragraph:

"(4) ADDITIONAL PURPOSES.—The Secretary of the Interior and the Secretary of Commerce may also demonstrate and verify technologies under this subsection to monitor and control pathways of organism transport on ships other than through ballast water.".

(3) CRITERIA AND WORKSHOP.—Section 1104 of the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* (16 U.S.C. 4714) is amended by adding at the end the following new subsections:

"(d) CRITERIA.—When issuing grants under this section, the National Oceanic and Atmospheric Administration shall give preference to those technologies that will likely meet the criteria laid out in any testing protocol developed by the Environmental Protection Agency Office of Research and Development's Environmental Technology Verification Program.

"(e) WORKSHOP.—The National Oceanic and Atmospheric Administration shall hold an annual workshop of principal investigators funded under this section and researchers conducting research directly related to ship pathway technology development, for information exchange, and shall make the proceedings widely available to the public.".

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated for each of the fiscal years 2004 through 2008——

(1) $2,500,000 for the Environmental Protection Agency to carry out subsection (a); and

(2) $1,000,000 for the Army Corps of Engineers to carry out subsection (b).

SEC. 9. RESEARCH TO SUPPORT THE SETTING AND IMPLEMENTATION OF SHIP PATHWAY STANDARDS.

(a) RESEARCH PROGRAM.—The Coast Guard and the Environmental Protection Agency, in coordination with the National Oceanic and Atmospheric Administration, the Task Force, and other appropriate federal agencies and academic researchers, shall develop a coordinated research program to support the promulgation and implementation of standards to prevent the introduction and spread of invasive species by ships that shall include——

(1) characterizing physical, chemical, and biological harbor conditions relevant to ballast discharge into United States waters to inform the design and implementation of ship vector control technologies and practices;

(2) developing testing protocols for determining the effectiveness of vector monitoring and control technologies and practices;

(3) researching and demonstrating methods for mitigating the spread of invasive species by coastal voyages, including exploring the effectiveness of alternative exchange zones in the near coastal areas and other methods proposed to reduce transfers of organisms;

(4) verifying the practical effectiveness of any type approval process to ensure that the process produces repeatable and accurate assessments of treatment effectiveness; and

(5) evaluating the effectiveness and residual risk and environmental impacts associated with any standard set with respect to the ship pathway through experimental research.

(b) PERFORMANCE TEST.—Within 1 year after the date of the enactment of this Act, the Coast Guard, in conjunction with the National Institute of Standards and Technology and the Maritime Administration, shall design a performance test for ballast water exchange such as a dye study to measure the effectiveness of ballast water exchange.

(c) NATIONAL ACADEMY STUDY.—The Secretary of the Department in which the Coast Guard is operating shall enter into an arrangement with the National Academy of Sciences under which the Academy shall——

(1) identify the relative risk of transfer of various taxonomic groups by different ship modes;

(2) assess the extent to which a ballast water standard that virtually eliminates the risk of introduction of invasive species by ballast water may relate to the risk of introductions by all ship modes, and explain the degree of uncertainty in such assessment; and

(3) recommend methods for reducing organism transfers by ships by addressing all parts and systems of ships and all related modes of transport of invasive species, and identify the research, development, and demonstration needed to improve the information base to support such methods, including economic information.

Not later than two years after the date of the enactment of this Act, the Secretary of the Department in which the Coast Guard is operating shall transmit to the Congress a report on the results of the study under this subsection.

(d) RECOMMENDATIONS.—Not later than the later of one year after the date of submission of the report under subsection (c), or three years after the date of the enactment of this Act, the Task Force, in conjunction with the Environmental Protection Agency, the administering agencies, and other appropriate Federal and State agencies and academic researchers, shall submit to the Coast Guard a report that describes recommendations for——

(1) a ship pathway treatment standard that incorporates all potential modes of transfer by ships; and

(2) methods for type approval and accurate monitoring of treatment performance that are simple and streamlined and follow established protocols.

(e) WORKING GROUP.—Not later than two years after the issuance by the Coast Guard of any standard relating to the introduction by ships of invasive species, the Coast Guard shall convene a working group including the Environmental Protection Agency, the administering agencies, and other appropriate Federal and State agencies and academic researchers, to evaluate the effectiveness of that standard and accompanying implementation protocols. The duties of the working group shall, at a minimum, include——

(1) reviewing the effectiveness of the standard in reducing the establishment of invasive species in aquatic ecosystems, taking into consideration the data collected under section 5; and

(2) developing recommendations to the Coast Guard for the revision of such standard and type approval process to ensure effectiveness in reducing introductions and accurate shipboard monitoring of treatment performance that is simple and streamlined, which shall be made widely available to the public.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated——

(1) for each of the fiscal years 2004 through 2008 $1,500,000 for the Coast Guard and $1,500,000 for Environmental Protection Agency to carry out subsection (a);

(2) for each of the fiscal years 2004 through 2006 $500,000 for the Coast Guard to carry out subsection (b); and

(3) for fiscal year 2004 $500,000 for the Coast Guard to carry out subsection (c), to remain available until expended.

SEC. 10. RESEARCH IN SYSTEMATICS AND TAXONOMY.

(a) IN GENERAL.—The National Science Foundation shall establish a program to award grants to researchers at institutions of higher education and museums to carry out research programs in systematics and taxonomy.

(b) GOALS.—The goals of the program under this section are to——

(1) encourage scientists to pursue careers in systematics and taxonomy to ensure a continuing knowledge base in these disciplines;

(2) ensure that there will be adequate expertise in systematics and taxonomy to support Federal, State, and local needs to identify species;

(3) develop this expertise throughout the United States with an emphasis on regional diversity; and

(4) draw on existing expertise in systematics and taxonomy at institutions of higher education and museums to train the next generation of systematists and taxonomists.

(c) CRITERIA.—Grants shall be awarded under this section on a merit-reviewed competitive basis. Emphasis shall be placed on funding proposals in a diverse set of ecosystems and geographic locations, and, when applicable, integrated with the United States Long Term Ecological Research Network. Preference shall be given to proposals that will include student participation, and to institutions and museums that actively train students to become experts in taxonomy and systematics.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation for carrying out this section $2,500,000 each of the fiscal years 2004 through 2008.

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[The Section-by-Section Analysis of H.R. 1081 follows:]

SECTION-BY-SECTION ANALYSIS
H.R. 1081, AQUATIC INVASIVE SPECIES RESEARCH ACT

Section 1. Short Title

This Act is named the "Aquatic Invasive Species Research Act."

Section 2. Findings

The legislation establishes several findings in support of the legislation, and finds that aquatic invasive species pose significant direct and indirect costs to the U.S. economy and environment, and that more research is needed to better direct federal efforts toward effectively preventing the introduction of invasive species.

Section 3. Definitions

The administering agencies of the Act are defined as the National Oceanic and Atmospheric Administration, the Smithsonian Environmental Research Center and the United States Geological Survey.

The following additional terms are defined: aquatic ecosystem, ballast water, invasion, invasive species, invasive species council, pathway, species, task force, and type approval.

Section 4. Consultation and Cooperation

The administering agencies shall enter into a memorandum of agreement regarding implementation of this Act. In carrying out the Act, they shall consult with the Task Force, the Invasive Species Council, the Environmental Protection Agency and other appropriate State and Federal agencies, and shall cooperate with academic researchers.

Section 5. Ecological and Pathway Research

The administering agencies shall conduct surveys of ecosystems and of pathways (such as ships' ballast water) by which invasive species enter U.S. waters in order to track the introduction of invasive species. They shall also conduct experiments to understand the relationship between the conditions under which an invasive species is introduced and the likelihood that it will become established, and maintain a database of all of the information gathered under this section. Ecosystem surveys will review the patterns and rates of invasion at the site, track the establishment of species in ecosystems, monitor the circumstances accompanying that establishment, and document factors that may influence an ecosystem's vulnerability to invasion. Pathway surveys will identify the species being introduced through a given pathway, the quantity being introduced, and handling practices that contribute to the introduction. In carrying out this program the administering agencies will develop standardized protocols for carrying out the surveys and will coordinate their efforts to establish long-term survey sites to collect strong baseline information. A grant program is established to fund academic researchers and state agencies to carry out the surveys at diverse sites distributed geographically around the country.

Section 6. Analysis

The administering agencies shall analyze the survey and experimental results collected under Section 5. Specifically, they will, among other things, identify the highest risk pathways, identify handling practices within pathways that contribute to introductions, and evaluate how much effort is required in reducing introductions for various taxonomic groups to reduce the risk that they will become established. The agencies shall recommend and review pathway management programs to reduce introductions of invasive species. A profile, based on information about species characteristics, ecosystem characteristics and environmental circumstances that favor invasion, will be developed to predict, to the extent practical, whether a species planned for importation is likely to invade a particular ecosystem.

Authorization of Appropriations—To carry out sections 5 and 6 for FY04 through FY08, the National Oceanic and Atmospheric Administration is authorized $17 million ($13 million of which is for the grant program), the Smithsonian Environmental Research Center is authorized $4 million, and the United States Geological Survey is authorized $4.5 million ($500,000 million of which is to administer the database).

Section 7. Dissemination

The National Invasive Species Council shall disseminate the information developed under Section 6 to relevant audiences. This includes a report to Congress, a mechanism to provide survey findings to support rapid response efforts, and dissemination to users of the various pathways invasive species exploit of information

regarding how their practices should be modified to prevent the introduction of nonnative species. The National Invasive Species Council is authorized for FY04 through FY08 $500,000 million per year.

Section 8. Technology Development and Demonstration

The Act establishes and expands several programs to develop technologies to prevent, control and eradicate invasive species. These include (authorizations are for FY04 through FY08):

- The creation of an Environmental Protection Agency grant program to fund research, development, demonstration and verification of a suite of environmentally sound technologies to control and eradicate invasive species. (authorized at $2.5 million per year)
- The creation of an Army Corps of Engineers dispersal barrier research program. (authorized at $1 million per year)
- The expansion of the Ballast Water Technology Demonstration Program to include the demonstration of technologies to treat all ship pathways of introduction (including hull fouling). (authorized at $7.5 million per year)

Section 9. Research to Support the Setting and Implementation of Standards

The Act establishes a research program to support the setting, implementation and evaluation of standards for treatment of ship pathways of introduction. This includes:

- The creation of a Coast Guard and EPA research program to conduct experiments and answer relevant policy questions associated with standards and their implementation, such as the identification of possible circumstances in which a ship may encounter invasive species and in which a treatment technology must be effective. (authorized at $1.5 million for EPA and $1.5 million for Coast Guard for FY04 through FY08)
- Coast Guard research to design a performance test for ballast water exchange. (authorized at $500,000 million for FY04 through FY06)
- A study by the National Academy of Sciences to develop recommendations for a standard. (authorized at $500,000 for FY04)
- An interagency working group to evaluate the effectiveness of the standard and make recommendations for revision.

Section 10. Research in Systematics and Taxonomy

The National Science Foundation shall establish a competitive, peer-reviewed program to award grants to researchers at institutions of higher education and museums to carry out research in systematics and taxonomy. The program is authorized at $2.5 million for FY04 through FY08.

[The Summary of H.R. 1081 follows:]

THE AQUATIC INVASIVE SPECIES RESEARCH ACT SUMMARY
BY VERNON J. EHLERS
JUNE 2003

What exactly is an invasive species?

Last summer, a voracious fish known as the Northern Snakehead became a media *cause celebre* and a serious threat to Maryland waterways. This predator wipes out native fish and once it is done feeding in one pond, it literally gets up and crawls across land to the next one. Once discovered in Maryland, Federal, State and local governments undertook rapid and successful efforts to wipe out this fish before it could establish itself and destroy native species. This is only one example out of thousands of non-native species that have been either intentionally or unintentionally introduced into United States waters. These "invasive species" take hold and multiply in ecosystems where they don't have any competition, causing tremendous economic and environmental harm. This legislation seeks to address the threat to U.S. waterways posed by all aquatic invasive species.

What harm do invasive species cause?

Invasive species can cause tremendous harm. Estimating the total economic impact of invasive species is extremely difficult, as no single organization accumulates such statistics comprehensively. However, researchers at Cornell University estimate that invasive species cost Americans $137 billion annually. This includes the cost of control, damage to property values, health costs and other factors. However, it only takes one species to cost government and private citizens billions of dollars. For example, zebra mussels have cost the various entities in the Great Lakes basin an estimated $3 billion during the past 10 years for cleaning water intake pipes, purchasing filtration equipment, etc. (Zebra mussels are bivalves native to European waters that scientists believe were first introduced to the Great Lakes through ships' ballast water exchanges in the late 1980s.)

Beyond economic impacts, invasive species cause ecological costs that are even more difficult to quantify. For example, sea lamprey control measures in the Great Lakes cost approximately $10 million to $15 million annually. However, we do not have a good measure of the cost of lost fisheries due to this invader, which was first discovered in the Great Lakes in the early 1900s. In fact, invasive species now are second only to habitat loss as threats to endangered species. Quantifying the loss due to extinction caused by these invasive species is nearly impossible.

What does the legislation do to combat invasive species?

The Aquatic Invasive Species Research Act establishes a comprehensive research program to assist policy-makers to make good decisions on the best methods to prevent invasive species from entering U.S. waters. It also enhances our ability to detect invasive species early and respond to eradicate them rapidly once they are established. The major provisions of the legislation are:

- A comprehensive ecological and pathway research program, combining surveys and experimentation, run by the National Oceanic and Atmospheric Administration, the United States Geological Survey and the Smithsonian Environmental Research Center, so that policy-makers will be able to assess how these species get into our waterways and whether or not management decisions are helping reduce invasions;
- A development, demonstration and verification program run by the Environmental Protection Agency to develop environmentally sound technologies to control and eradicate invasive species, so that Federal, State, and local managers will have more tools combat invasive species;
- A research program to support the Coast Guard's efforts to reduce the threat that ships pose for the introduction new species into U.S. waters, efforts that will spur the development of technology to prevent invasive species from entering U.S. waters;
- A grant program within the National Science Foundation to support academic research in systematics and taxonomy, so that we will maintain U.S. expertise in these areas and enhance our ability to identify invaders once they arrive; and,
- Adequate funding to conduct the necessary research to assist policy-makers in making decisions that effectively reduce this threat, and to advance the de-

velopment of the technologies necessary to control the threat. The bill is authorized at approximately $43.5 million per year from 2004 until 2008.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE
FULL COMMITTEE MARKUP - June 4, 2003
AMENDMENT ROSTER

H.R. 1081, Aquatic Invasive Species Research Act
--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended: agreed to by a voice vote.

No.	Sponsor	Description	Result
1.	Mr. Ehlers Mr. Baird	En Bloc Amendment – includes a number of technical changes, enhances state input into the program, and authorizes the development of a plan to evaluate eradication and control technologies.	--Adopted by a voice vote.
2.	Ms. Jackson Lee	Amendment provides clarifying language to Section 5(e) - Competitive Grant Program. This language recognizes that institutions attended by underrepresented groups should be included in the grant program to the maximum extent practicable.	--Offered by Mr. Hall, at the request of Ms. Jackson Lee, the amendment was adopted by a voice vote.
3.	Mr. Wu	Amendment inserts a new subsection titled Section 5(j) – Control and Eradication Research Program. This amendment would create a new research program at a Corps of Engineers Center to conduct research on aquatic plants, and is authorized at $10 million per year.	--Withdraw.

Chairman BOEHLERT. And the roster lists just three amendments—yeah, three amendments. The first amendment up, Mr. Ehlers, En Bloc.

Mr. EHLERS. Mr. Chairman, I have an amendment at the desk.

Chairman BOEHLERT. The Clerk will read the amendment.

Ms. TESSIERI. Amendment——

Chairman BOEHLERT. Report the amendment.

Ms. TESSIERI. Amendments to H.R. 1081 offered by Mr. Ehlers and Mr. Baird.

[The amendment offered by Mr. Ehlers and Mr. Baird follows:]

AMENDMENTS TO H.R. 1081

OFFERED BY MR. EHLERS AND MR. BAIRD

Page 4, lines 16 and 17, amend subparagraph (B) to read as follows:

(B) the Smithsonian Institution (acting through the Smithsonian Environmental Research Center); and

Page 4, line 21, insert ", riparian areas," after "inland waters".

Page 6, lines 8 through 21, amend section 4 to read as follows:

SEC. 4. COORDINATION AND IMPLEMENTATION.

(a) COORDINATION.—In carrying out this Act, the administering agencies shall coordinate with—

(1) appropriate State agencies;

(2) the Fish and Wildlife Service, the Environmental Protection Agency, and other appropriate Federal agencies; and

(3) the Task Force and Invasive Species Council.

(b) IMPLEMENTATION.—The administering agencies shall enter into a memorandum of understanding regarding the implementation of this Act, which shall include the coordination required by subsection (a).

(c) COOPERATION.—In carrying out this Act, the administering agencies shall contract, as appropriate, or otherwise cooperate with academic researchers.

(d) STRUCTURE.—To the extent practicable, the administering agencies shall carry out this Act working within the organizational structure of the Task Force and Invasive Species Council.

Page 7, line 17, insert "under subsection (a)" after "aquatic species".

Page 7, lines 18 through 24, strike ", and shall recommend" and all that follows through "under subsection (a)".

Page 8, lines 1 through 4, strike "Upon the development" and all that follows through "and local entities.".

Page 9, lines 2 and 3, strike "population" and insert "abundance".

Page 10, lines 3 through 5, strike "administering agencies (acting through the National Oceanic and Atmospheric Administration) shall" and insert "National Oceanic and Atmospheric Administration and the United States Geological Survey shall jointly".

Page 10, line 6, insert "competitive, peer-reviewed" after "program to award".

Page 10, lines 8 and 9, strike "subsections (b) and (h)" and all that follows through "and merit-based" and insert "subsection (a)".

Page 10, line 19, insert "and to determine how to obtain consistent, comparable data across a range of ecosystems," after "subsections (b) and (c),".

Page 10, line 20, strike "convene a" and insert "convene at least one".

Page 10, line 20, insert "and representatives involved in the management of aquatic invasive species" after "appropriate researchers".

Page 10, line 24, strike "120 days" and insert "180 days".

Page 11, lines 2 through 4, strike "shall conduct" through "taxonomic groups" and insert "shall conduct research".

Page 11, line 7, strike "survive and thrive" and insert "become invasive".

Page 11, lines 12 and 13, strike "Smithsonian Environmental Research Center" and insert "Smithsonian Institution (acting through the Smithsonian Environmental Research Center)".

Page 11, line 21, insert ", both domestic and foreign," after "existing databases".

Page 14, line 16, strike "reducing" and insert "preventing nonnative".

Page 15, lines 19 through 22, amend paragraph (2) to read as follows:

(2) $11,000,000 for the United States Geological Survey (including activities through the Cooperative Fish and Wildlife Research Program), of which $6,500,000 shall be for the grant program under section 5(e), and of which $500,000 shall be for developing, maintaining, and updating the database under section 5(i); and

Page 15, line 23, strike "$17,000,000" and insert "$10,500,000".

Page 15, line 24, strike "$13,000,000" and insert "$6,500,000".

Page 16, lines 5 and 6, strike "Federal, State, and local entities, including" and insert "the public, including Federal, State, and local entities,".

Page 16, line 21, strike "harmful nonnative" and insert "invasive".

Page 17, line 6, insert "to the Secretary of the Interior" after "to be appropriated".

Page 17, lines 17 and 18, strike "and the administering agencies" and insert ", the administering agencies, and the Task Force".

Page 18, line 23, strike ", merit-based".

Page 27, after line 10, insert the following new section:

SEC. 11. STATE PROGRAMS.

(a) PLAN.—The administering agencies, in cooperation with the appropriate State agencies, shall develop a plan to—

(1) conduct a survey of methods States and Federal agencies are using to control or eradicate aquatic invasive species;

(2) facilitate the exchange of information among States and Federal agencies on methods States or Federal agencies have found to be effective at controlling or eradicating aquatic invasive species and the costs of those methods; and

(3) evaluate the cost-effectiveness of the various methods States and Federal agencies are using to control or eradicate aquatic invasive species.

(b) REPORT.—Not later than one year after the date of enactment of this Act, the administering agencies shall jointly transmit to the Congress the plan described in subsection (a) and the expected costs of carrying out the plan.

Chairman BOEHLERT. The gentleman is recognized for five minutes to explain his amendment.

Mr. EHLERS. Thank you, Mr. Chairman. The En Bloc Amendment that Mr. Baird and I are offering makes several primarily technical changes to the bill and clarifies our intent with respect to how the Act would be carried out. Among other things, the amendment would clarify that those involved in managing invasive species at the State level are included in the workshop that we require in this legislation and clarifies that grant money should be used to fund research on aquatic invasive species in both coastal and inland aquatic ecosystems.

The amendment also includes language proposed by Mr. Davis to increase state input into the program, language proposed by Mr. Matheson to recognize the Cooperative Fish and Wildlife Research Program, and language proposed by Mr. Costello to develop a plan to evaluate current control and eradication technologies. This amendment is not controversial. It has been put together by the Minority and the Majority, and I hope that all of my colleagues will support it.

Chairman BOEHLERT. This is the traditional bipartisan Manager's Amendment worked out with Mr.—with Dr. Baird and Dr. Ehlers. And I assume there is no controversy. Is there anyone that feels compelled to speak to these——

Mr. UDALL. Mr. Chairman.

Chairman BOEHLERT. Mr. Udall.

Mr. UDALL. I would move to strike the last word.

Chairman BOEHLERT. The gentleman is recognized.

Mr. UDALL. I want to just speak on behalf of our colleague, Congressman Baird; he has been, unfortunately, detained, as you mentioned. And so that we don't hold up the proceedings, he asked me to express his gratitude and the gratitude of the Committee to Chairman Ehlers for working with us on the bill and to you, Mr. Boehlert—Mr. Chairman, as well.

So I would ask unanimous consent that Representative Baird's statement would be placed in the record, and I would urge my colleagues to support the amendment and the underlying bill.

[The prepared statement of Mr. Baird follows:]

PREPARED STATEMENT OF REPRESENTATIVE BRIAN BAIRD

I want to thank Chairman Boehlert for moving this bill forward today. I also want to thank Subcommittee Chairman Ehlers for working with me on this Manager's amendment.

Invasive species are now found throughout the country, and they are causing extensive ecological and economic damage. States and local resource management agencies are struggling with problems created by invasive species—everything from degradation of habitat for ecologically and commercially important native species to clogging of waterways and water infrastructure. The list of damaging species is long and it is growing rapidly. Assuming we can provide the additional resources authorized in this bill, we will gather the information we need to prevent introduction of, and to respond quickly to eradicate and control invasive species. Prevention and quick response will enable us to save millions of dollars and to maintain the productivity of our land and water resources.

This bill will now proceed to the Resources, Transportation, and House Administration Committees. I welcome the opportunity to continue working with Chairman Boehlert and Chairman Ehlers over in the Transportation Committee to further improve this bill and the companion bill on invasive species management. I urge all my colleagues to support this amendment and the underlying bill.

Chairman BOEHLERT. Thank you very much, and I do—the Chair does acknowledge the outstanding contribution that Dr. Baird has made to this subcommittee and the Full Committee. And we miss him, but we know there are conflicts, and we all have conflicts.

Is there anyone else who feels—yes, sir, Mr. Davis.

Mr. DAVIS. I move to strike the last word.

Chairman BOEHLERT. The gentleman is recognized.

Mr. DAVIS. Mr. Chairman, I, too, would like to thank the Chairman for allowing the particular amendment that I have offered to be allowed to be in the Manager's Amendment. And I would like unanimous consent to include a statement.

Chairman BOEHLERT. Without objection, so ordered.

[The prepared statement of Mr. Davis follows:]

PREPARED STATEMENT OF REPRESENTATIVE LINCOLN DAVIS

Thank you, Mr. Chairman. I want to commend, Chairman Ehlers for his work on this legislation. Invasive species cost the United States billions of dollars every year. We need to work smarter to control invasive species and H.R. 1081 is a step in the right direction.

As we all know, states and localities bear the brunt of controlling and eradicating invasive species. H.R. 1081 develops a number of protocols to help states identify invasive species, before they become a problem. I was concerned there wasn't a good tie between what the research community would develop and the actual users of their activities. My amendment would ensure that there is coordination between the federal agencies implementing this legislation and state officials. At a hearing before the Subcommittee on Harmful Algal Bloom, one state manager said that researchers pursue a path of enquiry or develop a plan that doesn't really suit the needs of state officials. In this time of scarce budget resources, I wanted to ensure that research agendas and protocols will yield results and data that can be used by State and local officials.

This is not a major change to the legislation, it simply strengthens existing language in Sec. 4 of the bill.

I want to thank Chairman Boehlert and Chairman Ehlers for working with me on this amendment. And I would urge everyone to support this amendment.

Chairman BOEHLERT. If there is no further discussion, Mr. Boehlert——

Mr. MATHESON. Mr. Chairman, could I just——

Chairman BOEHLERT. Who seeks recognition?

Mr. MATHESON. Mr. Chairman, just—I have a statement I would like to submit for the record. And I just want to thank you and your staff for being very helpful in incorporating some language in the Manager's Amendment.

Chairman BOEHLERT. Thank you very much. And without objection, so ordered.

[The prepared statement of Mr. Matheson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JIM MATHESON

I move to strike the last word.

Mr. Chairman, I want to thank you and the Chairman of the Environment, Technology and Standards Subcommittee for including my amendment in the Manager's amendment. As you know, drought continues to be a great problem in the West. Tamarisk and other invasive riparian species overwhelmingly contribute to this ongoing problem. Tamarisk is helping to reshape the large river ecosystems throughout the Colorado River System. This plant changes river hydrology and geomorphology, affecting habitats for organisms living in the river. The Green and Colorado Rivers in Utah are particularly vulnerable to additional disruption of ecosystem functions. Tamarisk occupies more than a million acres of riparian habitat in the West. Tamarisk consumes as much water as California's allotment of the Colorado River. A single plant can absorb up to 300 gallons of water a day through taproots that reach deep into the water table. The West is losing from 2.0 to 4.5

million acre-feet of water per year over what native plants would use. This is enough water to supply over 20 million people or to irrigate over one million acres of land. For example, Spring Lake in New Mexico was overrun by Tamarisk; eventually it occupied the entire shoreline causing a lake that was 40 to 45 feet deep to dry up. This lake was vital for Texas water users. Something similar is bound to happen along the Green and Colorado Rivers unless something is done. Research is needed to both understand the reasons why this species is so dominant and to control and reverse these invasions. Thank you Mr. Chairman.

Chairman BOEHLERT. If there are no further discussion, the vote occurs on the amendments. All in favor, say aye. Opposed, nay. The ayes have it. And the amendment is agreed to.

The next amendment, amendment number two, is offered by Mr. Hall on behalf of Ms. Jackson Lee. And I will let Mr. Hall know that the Chair will recommend this as a good amendment and is prepared to accept it.

Mr. Hall.

Mr. HALL. I won't ruin my chances of passage by explaining it. I yield back my time.

Chairman BOEHLERT. Everyone has a copy of the amendment before——

Mr. HALL. I ask unanimous consent to put Mrs. Jackson Lee's statement in the record.

Chairman BOEHLERT. Without objection, so ordered.

[The prepared statement of Ms. Jackson Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

This is a good bill, and I commend you and Ranking Member Hall for your hard work. This bill will definitely bring protection to our nation's waterways, like in Galveston Bay and the Port of Houston. This amendment simply makes sure that we get the most we can out of our federal research investment, by ensuring that the Act harnesses the power of the diverse pool of excellent colleges and universities in the United States.

All of our major colleges and universities have dual purposes—producing data—and producing the intellectual leaders of tomorrow. As written, this Act will enable our nation's research facilities to produce scientific data which will guide better policy and procedures and products, that will make our waterways cleaner, clearer for traffic, and more hospitable to the fish and wildlife that are supposed to be there. As an added benefit, much of that research will be done by graduate students and post-doctoral fellows, who will then become the leaders in oceanographic and biological research in the future.

My amendment also has a dual purpose. In the section of the bill establishing the competitive grant program, it adds that the program will include Historically Black Colleges and Universities, those serving large proportions of Hispanics, Native Americans, Asian-Pacific Americans, and other populations under-represented in the sciences. It will ensure that the research programs we create take advantage of the excellent expertise and experience of these institutions. This will make the science better. Furthermore, it will make it more likely that the future leaders in this exciting field reflect the diversity of this great nation, so that all Americans can benefit from the way we spend their tax dollars.

This amendment will make sure that these great institutions and the young people in them, are included and not excluded from the program we establish here. Mr. Chairman, I understand that my staff has been working with yours on this amendment. I hope you and my colleagues will support it.

Thank you.

[The amendment offered by Ms. Jackson Lee follows:]

AMENDMENT TO H.R. 1081

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 10, line 9, insert ", and shall include to the maximum extent practicable diverse institutions, including Historically Black Colleges and Universities and those serving large proportions of Hispanics, Native Americans, Asian-Pacific Americans, or other underrepresented populations" after "and merit-based".

Chairman BOEHLERT. Dr. Ehlers.

Mr. EHLERS. Thank you, Mr. Chairman. I support the amendment offered by Ms. Jackson Lee, and I urge its adoption.

Chairman BOEHLERT. Thank you very much. If there is no further discussion, the vote is on the amendment. All in favor, say aye. Nays. The ayes have it. The amendment is agreed to.

The third and final amendment on our list is an amendment offered by our distinguished colleague, Mr. Wu, who is recognized for—first of all, the Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 1081 offered by Mr. Wu.

[The amendment offered by Mr. Wu follows:]

F:\M8\WU\WU.057 H.L.C.

AMENDMENT TO H.R. 1081

OFFERED BY MR. WU

Page 12, after line 2, insert the following new subsection:

(j) CONTROL AND ERADICATION RESEARCH PROGRAM.—The Corps of Engineers Center for Aquatic Plant Research and Technology shall work with institutions with expertise with aquatic plant management to conduct research, development, and demonstration to control, prevent, and eradicate invasive aquatic plants. There are authorized to be appropriated to the Corps of Engineers $10,000,000 for carrying out this subsection.

Chairman BOEHLERT. Mr. Wu is recognized for the traditional 30 seconds.

Mr. WU. Thank you, Mr. Chairman.

Mr. Chairman, we have invasive species in the Pacific Northwest ranging from fish to mussels to plants. And there is, appropriately, a lot of focus on the Great Lakes and other bodies of water where there are larger populations and people who are concerned about these things. We have a relatively benign environment where a lot of invasive species can thrive and lower population and so we don't kick up as much of a ruckus as sometimes we could or should. We do have a problem with certain invasive aquatic plant species.

I understand from staff discussion that the particular centers, which this amendment is aimed at encouraging work on aquatic species, invasive aquatic species, that these particular centers are under the jurisdiction of the Army Corps of Engineers. And unless the Chairman would like to take a poke at slightly expanding the jurisdiction of this committee, I would certainly—I offer this amendment and would like to work with the Chairman and the rest of the Committee in finding a place in report language and then in statutory language, perhaps, in an appropriate bill, in an appropriate vehicle to effectively address these invasive aquatic species and problems that we have in the Columbia River and the Pacific Northwest.

[The prepared statement of Mr. Wu follows:]

PREPARED STATEMENT OF REPRESENTATIVE DAVID WU

- Millions of acres of inland waterways are choked with non-native aquatic plants. With no natural enemies, these invasive species choke native aquatic plants, serve no value to fish and wildlife, and contribute to water quality problems. Some of these plants also interfere with navigation, flood control, hydropower production, and waterborne recreational uses.
- I support the intent of H.R. 1081, the Aquatic Invasive Species Research Act, and applaud the sponsor of this piece of legislation, Mr. Ehlers, for H.R. 1081. While I understand that the Army Corps of Engineers is not within the Science Committee's jurisdiction, the Corps' Aquatic Plant Control Research Program (APCRP) does have the capacity and the expertise to deal with this issue. The APCRP is the Nation's only federally research program directed to develop technology for the management of non-indigenous aquatic plant species.
- I believe my amendment would help solve the aquatic invasive plants problem by providing funding and directing the Corps to work with those regional expertise to control and eradicate invasive aquatic plants. I ask my colleagues to work with me to address this important issue.
- I understand that staff had discussions last night about report language[1] to address the invasive aquatic plants issue. I appreciate the Chairman's willingness to work with me on this issue.

Chairman BOEHLERT. We compliment the gentleman. Our staffs have worked well together, and it is my understanding you are prepared to withdraw the amendment with the understanding that we have—we will work out agreeable language for the Committee Report and will continue to work together.

[1] The Committee recognizes the significant problems experienced in many of the Nation's rivers, streams, and lakes due to invasive aquatic plants. The Committee intends to have the interagency programs authorized in this bill address the problems of aquatic invasive plants by drawing upon the expertise and experience of Federal programs, and their State and local cooperating organizations. The program should be national in scope and strive for balanced coverage of the problems of aquatic invasive species that impact all waters of the United States.

The difference between Oregon and New York just hit me like a ton of bricks as you were speaking. In Oregon, you raise a ruckus. In New York, we raise hell, but we end up accomplishing a great deal by working on a bi-coastal basis. And so is it—my understanding correct that you have agreed to withdraw the amendment, we—understanding that we have report language that will deal on a very responsible way with the subject matter?

Mr. WU. Mr. Chairman, I just want to point out that there is an Astoria, New York, and there is an Astoria, Oregon in my Congressional District. We have a lot in common. Ruckus and otherwise notwithstanding, I ask unanimous consent to withdraw the amendment.

Chairman BOEHLERT. Without objection, so ordered. We look forward to continued working and productive partnership.

Mr. EHLERS. Mr. Chairman.

Chairman BOEHLERT. Who seeks recognition? Dr. Ehlers.

Mr. EHLERS. Thank you. I just wanted to have my comments. I think Mr. Wu has—is in the right direction in offering this amendment. I disagree with one of his comments in which he said he didn't make enough of a ruckus. I find that he makes plenty of ruckuses. Fortunately, they are constructive ruckuses.

I would also point out that whereas you may do similar things in New York, it is the Midwest that quietly goes around solving all of the problems. And so——

Chairman BOEHLERT. The gentleman's time has expired.

Mr. EHLERS. But I just wanted to say I agree with the action taken. The amendment would not be appropriate, because it would lead to tremendous jurisdictional problems in the future. But I think it is a good idea, and let us put it in the report language and talk about ways we can bring it into effect.

Chairman BOEHLERT. Thank you very much. If there are no further amendments—pardon me. It has already had unanimous consent. That is withdrawn. No further amendments. So I move that—let us see. Now I will recognize distinguished Ranking Member.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report H.R. 1081, as amended, to the House with the recommendation that the bill, as amended, do pass. Furthermore, I move that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes and that the Chairman take all of the necessary steps to bring the bill before the House for consideration.

Chairman BOEHLERT. That is great. And we will hold that in reserve, because the—we have got to actually pass the bill. And so H.R. 1081, the Aquatic Invasive Species Research Act, as amended. The question is on passage. All in favor, say aye. Opposed, no. The ayes have it, and the bill is passed.

And Mr. Hall has already given his statement, which——

Mr. HALL. I will read it again, if you——

Chairman BOEHLERT. No, you don't need to. We will properly insert it at the correct spot in the record.

The Chair notes the presence of a quorum. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it. And the bill is favorably reported. Without objection, the motion to recon-

sider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental Minority or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the House of Representatives that the Committee authorize the Chairman to offer such motions, as may be necessary in the House, to go to conference with the Senate on the bill H.R. 1081, or a similar Senate bill. Without objection, so ordered.

This concludes our Committee markup, and I thank my colleagues for their cooperation.

Mr. Costello.

Mr. COSTELLO. Mr. Chairman, I apologize. We were in a Transportation Committee—Subcommittee hearing. I wanted to enter into a colloquy with you. I would ask that I submit this for the record. I think that we have an understanding on Section 11 where you have accepted some of the language, but we are to work out the rest before the bill goes to the Floor. Without going through the entire colloquy, I would ask, is that your understanding?

Chairman BOEHLERT. That is my understanding. I will be happy to work with the gentleman, and we will have the colleague, which we will submit, without objection, for the record.

[The prepared statement of Mr. Costello follows:]

STATEMENT FOR THE RECORD BY REPRESENTATIVE JERRY F. COSTELLO

Section 11 which is added by the amendment before us is an important addition, but less ambitious than the language I originally proposed for inclusion in this legislation. I commend my colleagues for their willingness to have the administering agencies, in cooperation with appropriate state agencies, develop a plan to survey current methods used by the Federal and State governments to control and eradicate aquatic invasive species, facilitate exchange of information on best practices, and evaluate the cost-effectiveness of the various approaches to control of invasive species. While the amendment also requires the plan to be submitted to the Congress, in its current form, it does not require implementation. The last thing we need is to receive yet another plan from the Executive Branch that sits on the shelf and gathers dust. It is my hope that we can refine this amendment to the point where it once again becomes a full-fledged program. I agreed to the current formulation after receiving the Chairman's assurances that there was time to improve this provision as this bill moves through the legislative process. Is this the Chairman's understanding?

Chairman BOEHLERT. I will be happy to work with the gentleman. I am as committed as you are to solving this problem, but I just did not feel that we had enough information at this point to understand how this Section 11 relates to ongoing state activities and what the costs of such a program would be. You are correct that we have some time before this bill reaches the Floor and I am happy to work with the gentleman over the coming weeks to understand the implications of his original proposal and to see if we can design an implementation provision to complement the very important step we are taking here today.

Mr. COSTELLO. I would ask that instead of having the colloquy now that I be able to submit it for the record and we can work to work this out.

Chairman BOEHLERT. Thank you very much, and without objection, so ordered. And with that, let me state that the Committee now concludes its business. Thank you all very much.

[Whereupon, at 12:20 p.m., the Committee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON SPACE AND AERONAUTICS ON H.R. 1085, NASA FLEXIBILITY ACT OF 2003

THURSDAY, JUNE 26, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPACE AND AERONAUTICS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Dana Rohrabacher [Chairman of the Subcommittee] presiding.

Chairman ROHRABACHER. I now call the Subcommittee on Space and Aeronautics to order. Good morning. And pursuant to notice to the Subcommittee on Space and Aeronautics is that we are meeting today to consider the following measures: H.R. 1085, the *NASA Flexibility Act of 2003,* and then the Committee Print for the *Federal Aviation Administration Research and Development Reauthorization Act.*

And I welcome everyone to this markup this morning. And this is the first markup of this subcommittee for the 108th Congress. Let me also be the first to thank Chairman Boehlert for his leadership. Is he here with us yet? He will be. Chairman Boehlert is on his way, and we appreciate his leadership for tackling a difficult, yet crucial, issue and that is NASA's workforce needs.

Today's markup concerns H.R. 1085, the *NASA Flexibility Act of 2003.* NASA is facing a crisis regarding its workforce. A significant portion of the workforce will be eligible to retire soon, so action needs to be taken. H.R. 1085 is intended to provide NASA the flexibility necessary to attract the best of the brightest talent in the fields of engineering and science by helping NASA address the problems of recruiting and retaining highly skilled technical personnel. H.R. 1085 provides NASA with the authority needed to ensure that our skilled workforce continues to be our greatest asset for pushing the boundaries of this great new frontier of space.

We will also markup the *Federal Aviation Administration Research and Development Reauthorization Act.* This bill authorizes funding for civil aviation research and development. It also calls for a joint FAA and NASA initiative aimed at resolving the problems facing our national air traffic management system.

This morning, I look forward to working with my colleagues on both sides of the aisle, and I am confident that our efforts will help maintain America's leadership role in aerospace.

I also would like to thank Bart Gordon, the Ranking Member of the Subcommittee, for his hard work on this and his openness and willingness to work in a very bipartisan manner on this bill. And I know there were some rough edges we had to work out, and I appreciate that he did this with goodwill and went forward in trying to make sure that we could get this job done. And I certainly now would recognize you for any opening remarks that you would like to make.

[The prepared statement of Chairman Rohrabacher follows:]

PREPARED STATEMENT OF CHAIRMAN DANA ROHRABACHER

I want to welcome everyone here this morning for the Space Subcommittee's first markup of the 108th Congress. Let me also be the first to thank Chairman Boehlert for his leadership in tackling a difficult, and yet, crucial issue—NASA's workforce needs.

Today's markup concerns H.R. 1085, the *NASA Flexibility Act of 2003*. NASA is facing a crisis regarding its workforce. A significant portion of the workforce will be eligible to retire soon. So action needs to be taken. H.R. 1085 is intended to provide NASA the flexibility necessary to attract the best and brightest talent in the fields of engineering and science.

By helping NASA address the problem of recruiting and retaining highly skilled technical personnel, H.R. 1085 provides NASA with the authority needed to ensure that a skilled workforce continues to be our greatest asset for pushing the boundaries of new frontiers.

We will also markup the *Federal Aviation Administration Reauthorization Act.* This bill authorizes funding for civil aviation research and development. It also calls for a joint FAA and NASA initiative aimed at solving the problems facing our national air traffic management system.

This morning I look forward to working with my colleagues on both sides of the aisle. I am confident that our efforts today will help to maintain our leadership role in aerospace.

Mr. GORDON. Mr. Chairman, you are going to make me feel bad here with all of those nice words. This is a very important issue, and I think that there was sincere effort to get this workforce issue off to the right direction, but somewhere between here and the barn, I am afraid it got turned around a little bit. And so I will not be able to support the proposal today. And I would like to spend just a few minutes explaining why.

On May the 13th of this year, all of the Members of the Democratic caucus of the Science Committee sent a joint letter to Chairman Boehlert. And I would like to ask unanimous consent that that letter be inserted into the record of this markup.

Chairman ROHRABACHER. Without objection.

[The information follows:]

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
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WASHINGTON, DC 20515-6301
(202) 225-6371
TTY: (202) 226-4410
http://www.house.gov/science/welcome.htm

May 13, 2003

The Honorable Sherwood Boehlert
Chairman
Committee on Science
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Your staff has indicated that the Subcommittee on Space and Aeronautics may mark up H.R. 1085, the "NASA Flexibility Act of 2003" before the Memorial Day recess. We welcome your commitment to consideration of the legislation by the relevant subcommittee prior to its consideration by the full Committee, but we believe that markup of this legislation should be delayed until after the release of the Gehman report.

Admiral Gehman has said that the Columbia Accident Investigation Board (CAIB) is examining issues related to NASA's workforce, contractors, and culture as it attempts to ascertain the "root causes" of the accident. Given the likelihood that the Board will have significant findings and recommendations in these areas, it would be prudent for the Committee to wait until the CAIB delivers its report before we consider legislative changes to NASA's workforce authorities. In the aftermath of the Space Shuttle *Columbia* tragedy, Congress should not take actions that could further destabilize the NASA workforce by raising concerns among the employees about potential changes to NASA's workforce rules.

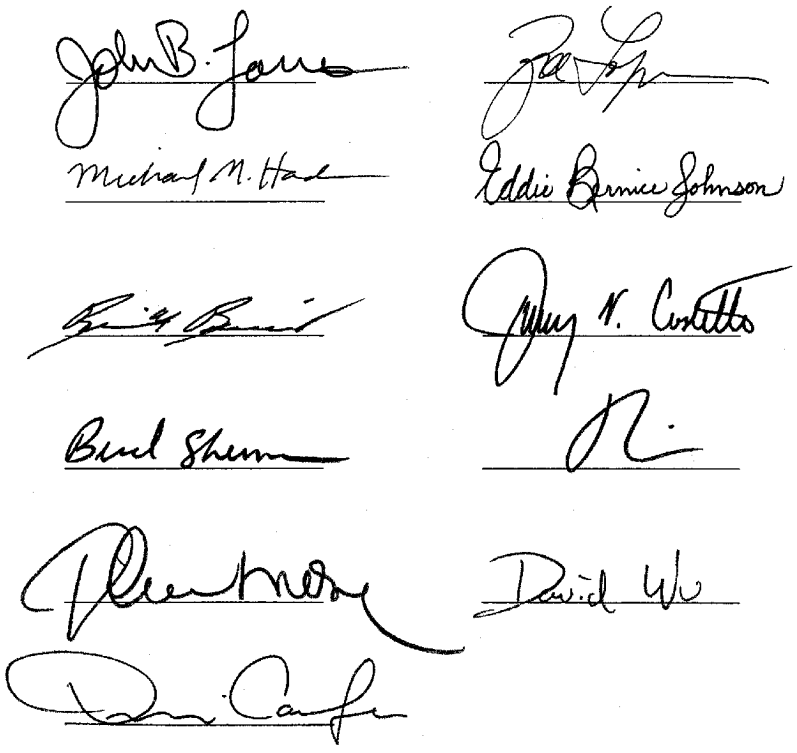
In addition, a delay in consideration of workforce legislation would allow the Committee to receive and digest responses to the questions submitted by Members for the record of the February 27th hearing with Administrator O'Keefe and the March 12th hearing on H.R. 1085—responses that will be directly relevant to the Committee's consideration of any workforce-related proposals. It will also allow the Committee to ascertain more clearly the extent to which NASA is making use of existing workforce flexibilities—an issue that may make H.R. 1085 moot but that has not been adequately addressed in the hearings to date.

We share your view that NASA needs to maintain a strong and productive workforce to meet the challenges of the 21st century, and we are prepared to consider whatever legislative measures might help to strengthen that workforce. We believe, however, that the Committee can better carry out its oversight and legislative responsibilities in this area after the CAIB has submitted its report. Otherwise the Committee runs the risk of a premature markup with protracted consideration of amendments that attempt to anticipate the Board's recommendations. We do not believe that such an approach would be the best way for the Committee to address this complex issue.

Sincerely,

RALPH M. HALL

BART GORDON



Mr. GORDON. In that letter, we asked him to delay the markup of any NASA workforce legislation until the *Columbia* Accident Investigation Board has reported and the Committee has had a chance to review its findings and recommendations. Admiral Gehman has said on several occasions that the Accident Investigation Board is examining issues related to the NASA personnel, contractors, and culture as it attempts to assert the root causes of the accident. In fact, Admiral Gehman was quoted yesterday in the *Washington Post* as saying a "goodly portion of the report, perhaps half," will deal with the issues of management at NASA. Now in all fairness, not all of that will be dealing with the issue at hand, but certainly, I think, that a good portion will be. We should wait to hear what the Board concludes before we adopt the legislative provisions that might prove either counterproductive or insufficient to address the underlying problems identified by the Board.

No case for urgency appears to exist that would outweigh the benefits of waiting until we have the Board's report. The July the 25th deadline given to the Science Committee for its consideration of H.R. 1836 is not relevant. We are not marking up H.R. 1836 today. The bill that is before us, on the other hand, is not scheduled for a Full Committee markup until just before the August recess and will not be ready for Floor consideration until the fall, under the best of circumstances.

I have an additional concern about today's markup. The proposed amendment in the nature of a substitute that we received just 72 hours ago contained numerous provisions that were not in H.R. 1085. It also retains provisions that are questionable. Last night, we were informed that we are now proposing another version of the bill. The new bill appears to make some movement in a positive direction, and I hope that this signals the potential for a meaningful discussion on a consensus approach prior to Full Committee consideration of this bill.

At the same time, I think we have to consider the concerns of all of NASA's 18,000 employees, not just a portion. For example, the "enhanced demonstration project authority" contained in the bill before us today still represents a change to the existing civil service statute. Despite our questions, NASA has still not said why they need this new authority or what they will use it for. In fact, they currently have authority for a demonstration project of 5,000 employees. What this bill does is add—increase that to an additional 8,000, which means all of the non-collective employees. And I think that it is instructive to note that the Senate Governmental Affairs Committee chose not to include that provision in the bill that it reported out on June the 17th by a 10 to 1 bipartisan vote.

Now I will concede that you probably will prevail on a party-line vote on the bill before us today, as was the case in the House Government Reform. However, I continue to believe that the party-line votes are not a signal that more work needs—or is a signal that more work needs to be done on legislation that should not be controversial. Concern for the wellbeing of the NASA workforce is not unique to one party. We all want to ensure that NASA has the skilled workforce it needs to carry out its mission in the years ahead. And we are prepared to consider whatever legislative measures are needed to strengthen that workforce.

We also need to ensure that the rights of NASA workers are protected. Moreover, NASA already has one of the highest percentages of workforce contracted out in the Federal Government. For better or worse, that level of contracting has a significant impact on the roles and responsibilities of the NASA civil servants. We need to understand the implications of that reality, also, and the Gehman Board may be able to assist us in that task.

Mr. Chairman, I would propose that this subcommittee defer this markup on this legislation until after we have a chance to review what the Gehman Board has to say. Let us also take a look at what the Senate has done on a 10 to 1 bipartisan basis. And let us sit down and try to come up with legislation that reflects a consensus of this subcommittee and the Full Science Committee. It is likely that we are going to have the chance to do only one NASA workforce bill this year, so let us take the time and do it right.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Gordon follows:]

PREPARED STATEMENT OF REPRESENTATIVE BART GORDON

Mr. Chairman, I cannot support the proposal before us today, and I would like to spend a few minutes explaining why. On May 13th of this year, all of the Members of the Democratic caucus of the Science Committee sent a joint letter to Chairman Boehlert. I would like to ask unanimous consent that the letter be inserted into the record of this markup. In that letter, we asked him to delay the markup of any NASA workforce legislation until the *Columbia* Accident Investigation Board has reported and the Committee has had a chance to review its findings and recommendations. Admiral Gehman has said on several occasions that the Accident Investigation Board is examining issues related to NASA's personnel, contractors, and culture as it attempts to ascertain the root causes of the accident. Indeed, Admiral Gehman was quoted in yesterday's *Washington Post* as saying a *"goodly portion of the report, perhaps half,"* will deal with issues of management at NASA. We should wait to hear what the Board concludes before we adopt legislative provisions that might prove either counterproductive or insufficient to address the underlying problems identified by the board.

No case for urgency appears to exist that would outweigh the benefits of waiting until after the Board reports. The July 25th deadline given to the Science Committee for its consideration of H.R. 1836 is not relevant: we are not marking up H.R. 1836 today. The bill that *is* before us, on the other hand, is not scheduled for a Full Committee markup until just before the August recess and will not be ready for Floor consideration until the fall under the best of circumstances.

I have an additional concern about today's markup. The proposed amendment in the nature of substitute that we received just 72 hours ago contains numerous provisions that were not in H.R. 1085. It also retains provisions that are controversial to say the least. For example, the so-called "enhanced demonstration project authority" contained in the bill before us today was opposed by all of the Democratic Members of the House Government Reform committee at the recent markup of H.R. 1836. As they noted in their Minority View, *"This provision would allow NASA to exempt the entire agency from most federal civil service laws."* It is instructive to note that the Senate Governmental Affairs committee chose not to include that provision in the bill that it reported out on June 17th.

I will concede that you might prevail on a party line vote today, as was the case in the House Government Reform markup. Yet it is also highly likely that such a provision ultimately will not survive a House-Senate conference. More to the point, I believe that party-line votes are a signal that more work needs to be done on legislation that should be non-controversial. Concern for the well being of the NASA workforce is not unique to one party. We all want to ensure that NASA has the skilled workforce that it needs to carry out its mission in the years ahead. And we are prepared to consider whatever legislative measures are needed to strengthen that workforce.

We also need to ensure that the rights of NASA's workers are protected. Moreover, NASA has one of the highest percentages of work contracted out in the Federal Government. For better or worse, that level of contracting has a significant impact on the roles and responsibilities of the NASA civil servants. We need to under-

stand the implications of *that* reality too, and the Gehman Board may be able to assist us in that task.

Mr. Chairman, I would propose that this subcommittee defer its markup of this legislation until after we have had a chance to review what the Gehman Board has to say. Let's also take a look at what the Senate has done. And then let's sit down and try to come up with legislation that reflects a consensus of the subcommittee and the Full Science Committee. We are probably going to have only one chance this year to pass a NASA workforce bill. Let's take the time to do it right.

Thank you, and I yield back the balance of my time.

Chairman ROHRABACHER. Thank you very much, Mr. Gordon. And no, that was a very good opening statement. And Sherwood Boehlert has instructed me, as Subcommittee Chairman, to make sure we get this job done and move forward as soon as possible. And although I think your requests were very reasonable, and I, of course, follow the direction of my Full Committee Chairman and respect his judgments as well. So we will be moving forward, but I appreciate your concerns.

I would ask unanimous consent to—for the authority to recess this subcommittee at any point. Without objection, so ordered. So—and let me say, I think that this may be the time we are going to have to recess until Chairman Boehlert blesses us with his presence. And he has an amendment to offer, and that is the most important issue of the day to get through. So I think that I will declare—yes. Do you want to do that? That is a good idea.

Okay. We have to—this parliamentary procedure has to be exactly right. That is right. Wait a minute, we don't have a first reading of the bill yet, right? All right. We are going to have a short recess. So we are now in recess for five minutes.

[Recess.]

Chairman ROHRABACHER. And we are called back into order, of course. And let us see. We will now consider bill H.R. 1085. And I recognize Mr. Boehlert, the bill's sponsor, and the Chairman, of course, of the Full Committee on Science for any opening remarks that he may have. Mr. Chairman.

Chairman BOEHLERT. Thank you very much, Mr. Chairman, and thank you for the courtesy of delaying, somewhat, the opening. I apologize to my colleagues, but when you get in the middle of a conversation that is important on the telephone, you just can't say, "Sorry, Dana is summoning me." But I cut it short, because I said you were summoning me.

I am pleased to be able to take this bill up today, Mr. Chairman. We need to act as soon as possible to assist NASA at this critical time. I think it is simple and obvious that NASA needs to improve its ability to attract and retain the best and the brightest. Within five years, a quarter of the NASA workforce will be eligible to retire. That point has been made in numerous reports by the Government Accounting Office, including the latest report issued in January, not long before the loss, the tragic loss, of the Space Shuttle *Columbia.* So I don't think we can afford to wait any longer in dealing with this issue.

I know that my Democratic colleagues suggested that we wait until Admiral Gehman reports before taking up this bill. I heartily disagree. Admiral Gehman's report is not likely to say anything specific about workforce reforms. That is hardly the Gehman Board's focus. If anything, Admiral Gehman will simply reiterate

what we already know, that NASA needs to do more to attract and retain the best possible workforce. We can begin to help NASA do that today by approving 1085. This bill is a carefully tailored approach to NASA's problems. I will discuss some of the details of the bill when I offer my amendment.

I just want to make two points right now. First, we just didn't take what NASA gave us. Quite frankly, we don't just take what any agency gives us. We have great respect for the agencies. We value their input, but we exercise some judgment on this committee. We rejected some ideas immediately, such as creating an industry exchange program and allowing demonstration projects to become permanent automatically. We altered the language of NASA's proposals to make sure they accomplish their stated purpose and no more. And we added significant reporting requirements without saddling the agency with anything onerous or pointless.

Second, the authorities that we provide NASA in this bill are not radical departures from current law. They are extensions of existing authorities. For example, the bill allows NASA to pay higher bonuses than it can now, but it can already pay bonuses. In short, H.R. 1085 is a moderate, targeted, careful approach to enable NASA to overcome one of its fundamental pressing problems. In the next few months, this committee is going to spend a lot of time figuring out how to address a range of issues at NASA. Here is something we know how to do and we know how to do it now. It is time to act.

Thank you, Mr. Chairman.

Chairman ROHRABACHER. All right. It is the Chairman's intention that we try to get this job done in the next 15 minutes so we can just——

Chairman BOEHLERT. You tell me if you think it is doable or not, but I would ask unanimous consent to put in the record my letter to Mr. Gordon about his request for delay. And I want to stress this. This committee has not suddenly changed its modus operandi. We have continually, throughout my chairmanship, worked across the center aisle on a bipartisan basis. We continue to keep the Minority Staff advised of what we are doing as we proceed. We don't just one day walk in and say, "Now here is what we are going to do, we have decided, because we are in the Majority." That is not the way this committee operates. And it is not going to operate any differently in the future.

Chairman ROHRABACHER. And you keep the Chairman of the Subcommittee informed as well.

Chairman BOEHLERT. Well, because the Chairman is a very important part of the leadership structure on this committee, as are the Ranking Members, I might add.

Chairman ROHRABACHER. Okay.

Chairman BOEHLERT. This is not a solo act.

Chairman ROHRABACHER. Okay. Without your—without objection, your letter will be placed in the record.

[The information follows:]

U.S. HOUSE OF REPRESENTATIVES
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May 20, 2003

The Honorable Bart Gordon
2304 Rayburn House Office Building
Washington DC, 20515

Dear Mr. Gordon,

Thank you for your letter expressing your view that the mark-up of H.R. 1085, the "NASA Flexibility Act of 2003" should be delayed until after the release of the Gehman report.

We have not yet scheduled Committee action on H.R. 1085, but I am not prepared to commit to delay the bill until after the Gehman report has been released. Admiral Gehman made clear at a meeting in my office, attended by several other Members, that his report would have little if anything to say about any of the issues raised by H.R. 1085.

The most the Gehman Board is likely to say about NASA personnel practices is that NASA needs to recruit and retain top-notch employees – the very goal of H.R. 1085. The intricacies of the federal government's hiring practices are beyond the ken of Admiral Gehman's panel.

In fact, given all the issues that the Gehman report is likely to bring to the fore, the Committee might be wiser to dispense with other NASA matters – such as personnel practices – before devoting itself fully to the issues in the Gehman report.

I will continue to consult with you as we decide how to move ahead with H.R. 1085, as will my staff, but I doubt that we will be able to acquiesce to the exceptionally lengthy delay you propose.

Sincerely,

Sherwood Boehlert
Chairman

32-SC-1

BART GORDON
6TH DISTRICT, TENNESSEE

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ENERGY AND COMMERCE
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RANKING MEMBER
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June 2, 2003

The Honorable Sherwood L. Boehlert
Chairman
House Committee on Science
2320 Rayburn HOB
Washington, D.C. 20515-0001

Dear Sherry:

Thank you for your response to the May 13th letter from 21 Science Committee members requesting a delay in consideration of H.R. 1085, the NASA Flexibility Act of 2003, until the Columbia Accident Investigation Board (CAIB) has reported its findings.

It is your privilege as Chairman to make decisions on when to consider legislation before the Committee, and I recognize that you have to balance input from many sides—the Administration, your Conference, and other Committee members—in arriving at a schedule. My experience has been that you fairly consider the views of all parties, and I welcome your offer to consult further with me on the ultimate disposition of H.R. 1085.

That being said, I must respectfully disagree with statements in you May 20th letter that speculate on potential findings by the CAIB. My recollection of the May 1st meeting with Admiral Gehman is that he indicated that the Board is actively examining workforce issues as part of its investigation and is likely to address them in its final report. That is consistent with earlier documentation provided to the Committee that identified workforce issues as a potential "root cause" of the accident that the CAIB would be investigating.

Without belaboring the point, I would again suggest that the Committee would have much to gain by deferring consideration of legislation that would modify NASA's workforce rules until we have a more complete picture of the role that workforce issues may have played in the accident.

Sincerely,

BART GORDON
Member of Congress

BJG/dp

Chairman ROHRABACHER. And all Members with opening remarks may place them into the record at this point and—or at any point in the future.

[The prepared statement of Mr. Feeney follows:]

PREPARED STATEMENT OF REPRESENTATIVE TOM FEENEY

I commend Chairman Boehlert and Chairman Rohrabacher for resolutely focusing on this issue and crafting a workable and needed solution.

NASA possesses an aging skilled workforce and a threatened loss of significant skills and knowledge. Four challenges must be faced: (1) retaining key personnel, (2) shaping a workforce responding to spaceflight's demanding and unique needs, (3) preserving and transferring institutional memory, and (4) recruiting new and energetic talent.

After careful study and patient negotiation, Chairman Boehlert and Committee staff have constructed a package of personnel management tools that can and should be used to assemble this required human capital. The time to act is now, not later. Delay and endless analysis are unacceptable options. Let's move forward.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

First, I would like to thank the Chair and Ranking Member for calling us together today to mark up this very important legislation.

The space exploration research program has been one of the most successful research programs in the history of this country. The Space Shuttle Program has yielded many lifesaving medical tests, accessibility advances for the physically challenged, and products that make our lives more safe and enjoyable.

Unfortunately the world has new evidence of the dangers associated with space exploration. Human space exploration is inherently risky. Distance, speed and an environment that can not support human life combine to make human space flights particularly precarious.

I pledge to do what I can to help our space program recover from this terrible setback so these important endeavors can flourish in the future. As a Senior Member of the Science Committee and the Ranking Member of the Science Subcommittee on Basic Research, I will work closely with my House colleagues to assist NASA and Harold Gehman Jr., who will lead the special investigative commission.

I am a firm believer that the United States will continue our space program that has accomplished so much in the areas of research and science. With two Americans and a Russian still stationed at the International Space Station, it is imperative that this program not come to a halt.

Chairman ROHRABACHER. And the bill is open for discussion.

Mr. Gordon.

Mr. GORDON. I don't mean to belabor this, but since Mr. Boehlert just came in, let me just quickly say that I think there was a good faith effort to try to move this bill. I am concerned that it has taken a different direction along the way. Although we had been given notification, we didn't get this bill until last night, so it is a little hard to be a partner when we don't get it until last night. And the previous one, we didn't get it until 72 hours before. And——

Chairman BOEHLERT. Would you yield just for one second?

Mr. GORDON. Yes, sir. Certainly.

Chairman BOEHLERT. I would like to point out that every step of the way you have had information exchanges. The final language, which is—should come as no surprise to anyone, was just put together yesterday, so you got it as I did, too. But I want to stress, Mr. Gordon, and I hope you will appreciate this, that we have worked Staff to Staff every step of the way. And we have high regard for your Professional Staff, and I know that regard, I think,

is mutual. And this is a committee where we work across the center aisle.

Mr. GORDON. Well, thank you, sir. And I also—let me compliment you on not including the industry exchange program. I think that was a wise decision. But I—and I did receive your letter concerning Admiral Gehman. It is one of the situations where I guess we heard things differently, and I will have my response to that as part of the record with unanimous consent.

And I also remind you that yesterday Admiral Gehman was quoted in the *New York Post* [sic, *Washington Post*] as saying that a "goodly portion of the report, perhaps half," will deal with issues of management of NASA. Now in all fairness, clearly all of that wasn't going to deal with this issue at point, but it would certainly seem that there would be something to be learned from this. Particularly this is a management-oriented board, so I don't think that there would be any type of bad surprises for NASA. And as I had pointed out earlier, just—we are only going to have a chance to do this once, so we ought to do it right, and it just doesn't seem reasonable not to wait 24—or one month until we get this information from Admiral Gehman.

And I would also point out that in the Senate, there was a bipartisan bill that passed 10 to 1 that worked out some of these other problems, as I had mentioned in my earlier statement, which I won't reiterate right now.

But thank you, and in an effort to move forward, I will leave it at that.

Chairman ROHRABACHER. All right. So I ask for unanimous consent that the bill is considered—let me just say, as far as I am concerned, this is a good bill. It is needed. There is an honest disagreement on timing here. Sherry wants to get on with the job and get it done. And Mr. Gordon has made some points that I think are very reasonable points on the other side that we should wait until after the Gehman Report. But as I say, I respect the Chairman's leadership and his decision to make sure that we move forward and try to get the job done. So with that, I ask unanimous consent that this bill is considered as read and open to amendment at any point and that amendments proceed in order of the roster. And without objection, so ordered.

[H.R. 1085 follows:]

108TH CONGRESS
1ST SESSION

H. R. 1085

To make certain workforce authorities available to the National Aeronautics and Space Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 5, 2003

Mr. BOEHLERT introduced the following bill; which was referred to the Committee on Science, and in addition to the Committee on Government Reform, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

A BILL

To make certain workforce authorities available to the National Aeronautics and Space Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "NASA Flexibility Act of 2003".

SEC. 2. COMPENSATION FOR CERTAIN EXCEPTED PERSONNEL.

(a) IN GENERAL.—Subparagraph (A) of section 203(c)(2) of the *National Aeronautics and Space Act of 1958* (42 U.S.C. 2473(c)(2)(A)) is amended by striking "the highest rate of grade 18 of the *General Schedule of the Classification Act of 1949,* as amended," and inserting "the rate of basic pay payable for level III of the Executive Schedule,".

(b) EFFECTIVE DATE.—The amendment made by this section shall take effect on the first day of the first pay period beginning on or after the date of enactment of this Act.

SEC. 3. WORKFORCE AUTHORITIES.

The *National Aeronautics and Space Act of 1958* (42 U.S.C. 2451 and following) is amended by adding at the end the following:

"TITLE V—WORKFORCE AUTHORITIES

"DEFINITIONS

"SEC. 501. For purposes of this title——

"(1) the term 'employee' means an individual employed in or under the Administration;

"(2) the term 'appropriate committees of Congress' means——

"(A) the Committee on Science and the Committee on Appropriations of the House of Representatives; and

"(B) the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate;

"(3) the term 'critical need' means a specific and important requirement of the Administration's mission that the Administration is unable to fulfill because the Administration lacks the appropriate employees either because of the inability to fill positions or because employees do not possess the requisite skills;

"(4) the term 'Workforce Plan' means the plan required under section 502(a); and

"(5) the term 'redesignation bonus' means a bonus under section 504 paid to an individual described in subsection (a)(2) thereof.

"PLANNING, NOTIFICATION, AND REPORTING REQUIREMENTS

"SEC. 502. (a) Not later than 90 days before first exercising any of the workforce authorities made available by this title, the Administrator shall submit to the appropriate committees of Congress a written plan, which shall include a description of——

"(1) each critical need of the Administration and the criteria used in its identification;

"(2) the functions, approximate number, and classes or other categories of positions or employees that address critical needs and that would be eligible for each authority proposed to be exercised under section 503, and how the exercise of those authorities with respect to the eligible positions or employees involved would address each critical need identified under paragraph (1);

"(3) any critical need identified under paragraph (1) which would not be addressed by the authorities made available by section 503, and the reasons why those needs would not be so addressed;

"(4) the specific criteria to be used in determining which individuals may receive the benefits described in sections 504, 505, and 506 (including, in the case of sections 504 and 505, the criteria for granting bonuses in the absence of a critical need), and how the level of those benefits will be determined;

"(5) the safeguards or other measures that will be applied to ensure that this title is carried out in a manner consistent with merit system principles;

"(6) the means by which employees will be afforded the notification required under subsection (b) and the third sentence of subsection (c)(1), respectively; and

"(7) the methods that will be used to determine if the authorities exercised under section 503 have successfully addressed each critical need identified under paragraph (1).

"(b) Not later than 60 days before first exercising any of the workforce authorities made available by this title, the Administrator shall provide to all employees the Workforce Plan, along with any additional information which the Administrator considers appropriate.

"(c)(1) The Administrator may from time to time modify the Workforce Plan. Not later than 90 days before implementing any such modifications, the Administrator shall submit a description of the proposed modifications to the appropriate committees of Congress. Not later than 60 days before implementing any such modifications, the Administrator shall provide an appropriately modified plan to all employees of the Administration.

"(2) Any reference in this title or any other provision of law to the Workforce Plan shall be considered to include any modification made in accordance with this subsection.

"(d) None of the workforce authorities made available by section 503 may be exercised in a manner inconsistent with the Workforce Plan.

"(e) Not later than six years after the date of enactment of this title, the Administrator shall submit to the appropriate committees of Congress an evaluation and analysis of the actions taken by the Administration under this title, including——

"(1) an evaluation, using the methods described in subsection (a)(7), of whether the authorities exercised under section 503 successfully addressed each critical need identified under subsection (a)(1);

"(2) to the extent that they did not, an explanation of the reasons why any critical need (apart from the ones under subsection (a)(3)) was not successfully addressed; and

"(3) recommendations for how the Administration could address any remaining critical need and could prevent those that have been addressed from recurring.

"(f) Whenever the Administration submits its performance plan under section 1115 of title 31, United States Code, to the Office of Management and Budget for any year, the Administration shall at the same time submit a copy of such plan to the appropriate committees of Congress.

"WORKFORCE AUTHORITIES

"SEC. 503. (a) The workforce authorities made available by this title are as follows:

"(1) The authority to pay recruitment, redesignation, and relocation bonuses, as provided by section 504.

"(2) The authority to pay retention bonuses, as provided by section 505.

"(3) The authority to apply subchapter II of chapter 35 of title 5, United States Code (relating to voluntary separation incentive payments), as added by section 1313(a)(1)(A) of the *Homeland Security Act of 2002* (Public Law 107–296), in accordance with section 506.

"(4) The authority to make term appointments and to take related personnel actions, as provided by section 507.

"(5) The authority to fix rates of basic pay for critical positions, as provided by section 508.

"(6) The authority to extend intergovernmental personnel act assignments, as provided by section 509.

"(b) No authority under this title may be exercised with respect to any officer who is appointed by the President, by and with the advice and consent of the Senate.

"(c) Unless specifically stated otherwise, all authorities provided under this title are subject to section 5307 of title 5, United States Code. For purposes of applying such section 5307, cash payments made under authority of this title shall be treated in the same way as if they had instead been made under the corresponding provisions of such title 5 (if any).

"RECRUITMENT, REDESIGNATION, AND RELOCATION BONUSES

"SEC. 504. (a) Notwithstanding section 5753 of title 5, United States Code, the Administrator may pay a bonus to an individual, in accordance with the Workforce Plan and subject to the limitations in this section, if the Administrator determines

that the Administration would be likely, in the absence of a bonus, to encounter difficulty in filling a position, and if the individual——

"(1) is newly appointed as an employee of the Federal Government;

"(2) is currently employed by the Federal Government and is newly appointed to another position in the same geographic area; or

"(3) is currently employed by the Federal Government and must relocate to a different geographic area to accept a position with the Administration.

"(b) If the position is described as addressing a critical need in the Workforce Plan pursuant to section 502(a)(2), the amount of a bonus may not exceed——

"(1) 50 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code) as of the beginning of the service period multiplied by the service period specified pursuant to subsection (d)(1)(A); or

"(2) 100 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code) as of the beginning of the service period.

"(c) If the position is not described as addressing a critical need in the Workforce Plan pursuant to section 502(a)(2), the amount of a bonus may not exceed——

"(1) 25 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code) as of the beginning of the service period multiplied by the service period specified pursuant to subsection (d)(1)(A); or

"(2) 100 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code) as of the beginning of the service period.

"(d)(1) Payment of a bonus under this section shall be contingent upon the individual entering into a service agreement with the Administration. The service agreement shall, at a minimum, set forth——

"(A) the required service period;

"(B) the method of payment, including a payment schedule; the method of payment may include a lump-sum payment, installment payments, or a combination thereof;

"(C) the amount of the bonus and the basis for calculating such amount; and

"(D) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination.

"(2) For purposes of determinations under subsections (b)(1) and (c)(1), the employee's service period shall be expressed as the number equal to the full years and twelfth parts thereof, rounding the fractional part of a month to the nearest twelfth part of a year. The service period may not be less than 6 months and may not exceed four years.

"(3) A bonus under this section may not be considered to be part of the basic pay of an employee.

"(e) Before paying a bonus under this section, the Administration shall establish a plan for paying recruitment, redesignation, and relocation bonuses, subject to approval by the Office of Personnel Management.

"(f) The Administrator shall submit to the appropriate committees of Congress, not later than February 28 of each year, a summary of all bonuses paid under subsections (b) and (c) during the previous calendar year. Such summary shall include the number of bonuses paid, the total amount of bonuses paid, and the average percentage used in calculating the total average bonus amount, under each such subsection.

"RETENTION BONUSES

"SEC. 505. (a) Notwithstanding section 5754 of title 5, United States Code, the Administrator may pay a bonus to an employee, in accordance with the Workforce Plan and subject to the limitations in this section, if the Administrator determines that——

"(1) the unusually high or unique qualifications of the employee or a special need of the Administration for the employee's services makes it essential to retain the employee; and

"(2) the employee would be likely to leave in the absence of a retention bonus.

"(b) If the position is described as addressing a critical need in the Workforce Plan pursuant to section 502(a)(2), the amount of a bonus may not exceed 50 per-

cent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code).

"(c) If the position is not described as addressing a critical need in the Workforce Plan pursuant to section 502(a)(2), the amount of a bonus may not exceed 25 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304–5304a of title 5, United States Code).

"(d)(1) Payment of a bonus under this section shall be contingent upon the employee entering into a service agreement with the Administration. The service agreement shall, at a minimum, set forth——

"(A) the required service period;

"(B) the method of payment, including a payment schedule; the method of payment may include a lump-sum payment, installment payments, or a combination thereof;

"(C) the amount of the bonus and the basis for calculating such amount; and

"(D) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination.

"(2) The employee's service period shall be expressed as the number equal to the full years and twelfth parts thereof, rounding the fractional part of a month to the nearest twelfth part of a year. The service period may not be less than six months and may not exceed four years.

"(3) Notwithstanding paragraph (1), a service agreement is not required if the Administration pays a bonus in biweekly installments and sets the installment payment at the full bonus percentage rate established for the employee with no portion of the bonus deferred. In this case, the Administration shall inform the employee in writing of any decision to change the retention bonus payments. The employee shall continue to accrue entitlement to the retention bonus through the end of the pay period in which such written notice is provided.

"(e) A bonus under this section may not be considered to be part of the basic pay of an employee.

"(f) An employee is not entitled to a retention bonus under this section during a service period previously established for that employee under section 5753 of title 5, United States Code, or under section 504.

"(g) Before paying a bonus under this section, the Administration shall establish a plan for paying retention bonuses, subject to approval by the Office of Personnel Management.

"(h) The Administrator shall submit to the appropriate committees of Congress, not later than February 28 of each year, a summary of all bonuses paid under subsections (b) and (c) during the previous calendar year. Such summary shall include the number of bonuses paid, the total amount of bonuses paid, and the average percentage used in calculating the total average bonus amount, under each such subsection.

"VOLUNTARY SEPARATION INCENTIVE PAYMENTS

"SEC. 506. (a) In applying subchapter II of chapter 35 of title 5, United States Code, the Administrator may provide for voluntary separation incentive payments in excess of the dollar-amount limitation that would otherwise apply under section 3523(b)(3)(B) of such title, subject to subsection (b).

"(b) Voluntary separation incentive payments described in subsection (a)——

"(1) may not exceed 50 percent of the annual rate of basic pay of the employee receiving such payments (computed disregarding any comparability payments under sections 5304–5304a of title 5, United States Code);

"(2) may not, in any calendar year, be made to more than——

"(A) 10 employees; or

"(B) such greater number of employees as the Administrator may, with the approval of the Office of Management and Budget, establish in lieu of the number specified in subparagraph (A) following notification to the appropriate committees of Congress;

"(3) may not be made to an employee if the employee has within the last 12 months received, or if the employee is then receiving, a bonus or allowance under section 5753 or 5754 of title 5, United States Code, or under section 504 or 505; and

"(4) may be made only if the position in which the employee is serving addresses a critical need identified in the Workforce Plan pursuant to section 502(a)(2).

"(c)(1) The proposed use of workforce authorities in this section shall be included in the plan required by section 3522 of title 5, United States Code.

"(2) Whenever the Office of Personnel Management approves the Administration's plan required in such section 3522, the Administration shall submit a copy of the approved plan to the appropriate committees of Congress within 15 days after the date on which it is so approved.

"TERM APPOINTMENTS

"SEC. 507. (a) The Administrator may authorize term appointments within the Administration made under authority of subchapter I of chapter 33 of title 5, United States Code, for a period of not less than one year and not more than six years.

"(b) Notwithstanding chapter 33 of title 5, United States Code, or any other provision of law relating to the examination, certification, and appointment of individuals in the competitive service, the Administrator may convert an employee serving under a term appointment to a permanent appointment in the competitive service within the Administration without further competition if——

"(1) such individual was appointed under open, competitive examination pursuant to provisions of subchapter I of chapter 33 of title 5, United States Code, to the term position;

"(2) the announcement for the term appointment from which the conversion is made stated that there was potential for subsequent conversion to a career-conditional or career appointment;

"(3) the employee has completed at least two years of current continuous service under a term appointment in the competitive service;

"(4) the employee's performance under such term appointment was at least fully successful or equivalent; and

"(5) the position to which such employee is being converted under this section is in the same occupational series, is in the same geographic location, and provides no greater promotion potential than the term position for which the competitive examination was conducted.

"(c) Notwithstanding chapter 33 of title 5, United States Code, or any other provision of law relating to the examination, certification, and appointment of individuals in the competitive service, the Administrator may convert an employee serving under a term appointment to a permanent appointment in the competitive service within the Administration through internal competitive promotion procedures if the conditions under paragraphs (1) through (4) of subsection (b) are met.

"(d) An employee converted under this section becomes a career-conditional employee, unless the employee has otherwise completed the service requirements for career tenure.

"(e) An employee converted to career or career-conditional employment under this section acquires competitive status upon conversion.

"(f) Not later than February 28 of each year, the Administrator shall submit to the appropriate committees of Congress——

"(1) the total number of term appointments converted during the previous calendar year; and

"(2) of that total number, the number of conversions that were made to address a critical need described in the Workforce Plan pursuant to section 502(a)(2).

"PAY AUTHORITY FOR CRITICAL POSITIONS

"SEC. 508. (a) For the purpose of this section, the term 'position' means——

"(1) a position to which chapter 51 of title 5, United States Code, applies, including a position in the Senior Executive Service;

"(2) a position under the Executive Schedule under sections 5312–5317 of title 5, United States Code;

"(3) a position established under section 3104 of title 5, United States Code; or

"(4) a senior-level position to which section 5376(a)(1) of title 5, United States Code, applies.

"(b) Authority under this section——

"(1) may be exercised only with respect to a position which is described as addressing a critical need in the Workforce Plan pursuant to section 502(a)(2), and which requires expertise of an extremely high level in a scientific, technical, professional, or administrative field;

"(2) may be exercised only to the extent necessary to recruit or retain an individual exceptionally well qualified for the position; and

"(3) may be exercised only in retaining employees of the Administration or in appointing individuals who were not employees of another federal agency as defined by section 5102(a)(1) of title 5, United States Code.

"(c)(1) Notwithstanding section 5377 of title 5, United States Code, the Administrator may fix the rate of basic pay for a position in the Administration in accordance with this section. The Administrator may not delegate this authority.

"(2) The number of positions with pay fixed under this section may not exceed 10 at any time.

"(d)(1) The rate of basic pay fixed under this section may not be less than the rate of basic pay (including any comparability payments) which would otherwise be payable for the position involved if this section had never been enacted.

"(2) The annual rate of basic pay fixed under this section may not exceed the per annum rate of salary payable under section 104 of title 3, United States Code.

"(3) Notwithstanding any provision of section 5307 of title 5, United States Code, in the case of an employee who, during any calendar year, is receiving pay at a rate fixed under this section, no allowance, differential, bonus, award, or similar cash payment may be paid to such employee if, or to the extent that, when added to basic pay paid or payable to such employee (for service performed in such calendar year as an employee in the executive branch or as an employee outside the executive branch to whom chapter 51 of such title 5 applies), such payment would cause the total to exceed the per annum rate of salary which, as of the end of such calendar year, is payable under section 104 of title 3, United States Code.

"(e) The Administrator shall submit to the appropriate committees of Congress, not later than February 28 of each year, the number of critical pay positions that were established and the number of critical pay positions that were disestablished during the previous calendar year.

"ASSIGNMENTS UNDER THE INTERGOVERNMENTAL PERSONNEL ACT MOBILITY PROGRAM

"SEC. 509. For purposes of applying the third sentence of section 3372(a) of title 5, United States Code (relating to the authority of the head of a federal agency to extend the period of an employee's assignment to or from a State or local government, institution of higher education, or other organization), the Administrator may, with the concurrence of the employee and the government or organization concerned, take any action which would be allowable if such sentence had been amended by striking 'two' and inserting 'four'.

"ENHANCED DEMONSTRATION PROJECT AUTHORITY

"SEC. 510. When conducting a demonstration project at the Administration, section 4703(d)(1)(A) of title 5, United States Code, may be applied by substituting 'such numbers of individuals as determined by the Administrator' for 'not more than 5,000 individuals'.

"TERMINATION

"SEC. 511. The workforce authorities under section 503 shall terminate as of October 1, 2009, except that nothing in this section shall——

"(1) affect any bonus payment under sections 504 or 505 agreed to by the employee and the Administration before the termination date;

"(2) prevent an employee from being allowed to complete a term appointment made under section 507(a) if the appointment was made before the termination date;

"(3) prevent the Administrator from converting any term employees to career or career-conditional status under section 507 if the term appointment was made before the termination date;

"(4) prevent an employee from continuing to receive a rate of basic pay fixed under section 508 before the termination date; or

"(5) prevent an employee assigned under section 3372 of title 5, United States Code, from completing the extended term made under section 509 if the extension was made before the termination date.".

○

[The Section-by-Section Analysis of H.R. 1085 follows:]

SECTION-BY-SECTION ANALYSIS OF
H.R. 1085, NASA FLEXIBILITY ACT OF 2003

Section 1. Short Title.

"The NASA Flexibility Act of 2003."

Section 2. Compensation for Certain Excepted Personnel.

Amends section 203(c) of the *National Aeronautics and Space Act of 1958* to tie the pay scale for NASA Excepted (NEX) Employees to level III of the Executive Schedule rather than the obsolescent pay scale of grade 18 of the General Schedule. Directs that the amendment in this section takes effect on the first day of the first pay period beginning on or after the date of enactment of this Act.

Section 3. Workforce Authorities.

Amends the *National Aeronautics and Space Act of 1958* to provide an additional title, "Title V Workforce Authorities" with the following sections included under that title.

Section 501. Definitions.

Defines terms used in the text. Defines the term "critical need" as a specific and important requirement of NASA's mission that the agency is unable to fulfill because NASA lacks the appropriate employees either because of the inability to fill positions or because employees lack the requisite skills. Defines the term "redesignation bonus" as a bonus which could be paid to an employee moving from one government job to another, including within NASA, without relocating to a different geographic region.

Section 502. Planning, Notification, and Reporting Requirements.

Requires the NASA Administrator to submit a Workforce Plan to Congress not later than 90 days before exercising any of the authorities under this title. The Workforce Plan shall be developed in consultation with the Office of Personnel Management. Requires that this Workforce Plan describe: (1) each of NASA's critical needs and the criteria used in its identification; (2) the functions, approximate number, and classes or other categories of positions or employees that address critical needs and that would be eligible for each workforce authority provided in this title and proposed to be exercised, and how the exercise of those authorities with respect to the eligible positions or employees involved would address each critical need identified; (3) any critical need which would not be addressed by the workforce authorities provided in this title and the reasons why those needs would not be so addressed; (4) the specific criteria to be used in determining which individuals may receive the benefits described in sections 504, 505, and 506 (including, in the case of sections 504 and 505, the criteria for granting bonuses in the absence of a critical need), and how the level of those benefits will be determined; (5) the safeguards or other measures that will be applied to ensure that this title is carried out in a manner consistent with merit system principles; (6) the means by which NASA employees will be afforded the notification required for the Workforce Plan or any modifications thereof; and (7) the methods that will be used to determine if the workforce authorities provided in this title have successfully addressed each critical need identified. Requires that NASA provide the Workforce Plan to all employees 60 days before exercising any of the workforce authorities provided in this title. Authorizes the NASA Administrator to modify the Workforce Plan, provided that not later than 90 days before implementing any such modifications the Administrator submit a description of proposed modifications to Congress and submit such description not later than 60 days beforehand to all employees. Directs that none of the workforce authorities provided in the title may be exercised in a manner inconsistent with the Workforce Plan. Requires the NASA Administrator to submit an evaluation and analysis of the actions taken under this title not later than six years after its enactment. Requires that this evaluation and analysis include: (1) an evaluation using the methods described in the Workforce Plan of whether the authorities exercised under this title successfully addressed each critical need identified; (2) to the extent that they did not, an explanation of the reasons why any critical need was not successfully addressed; and (3) recommendations for how the Administration could address any remaining critical need and could prevent those that have been addressed from recurring. Directs NASA to submit its annual performance plan to the Congress that it already submits to OMB under current law.

Section 503. Workforce Authorities.

Specifies the workforce authorities provided in each of the following sections of this title. Prohibits all Senate-confirmed Presidential appointees at NASA from being eligible to benefit from the workforce authorities under this title.

Section 504: Recruitment, Redesignation, and Relocation Bonuses.

Authorizes the NASA Administrator to pay recruitment, redesignation, and relocation bonuses to an individual in accordance the authority provided in this section and the Workforce Plan if the individual is: (1) newly appointed as an employee of the Federal Government; (2) currently employed by the Federal Government and is newly appointed to another position in the same geographic area; or (3) currently employed by the Federal Government and must relocate to a different geographic area to accept a position with the Administration. Authorizes recruitment, redesignation, and relocation bonuses under the following formula: (1) If the position addresses a critical need, the amount of a bonus may not exceed 50 percent of an employee's annual salary (including comparability payments) multiplied by an agreed-upon service period; (2) If the position does not address a critical need, the amount of a bonus may not exceed 25 percent of an employee's annual salary (including comparability payments) multiplied by an agreed-upon service period; and (3) In either case, the total bonus may not exceed the employee's annual salary (including comparability payments) at the beginning of the employee's period of service. Requires that payment of a bonus is contingent on the employee entering into a service agreement with NASA. Requires that the service agreement, at a minimum, establish: (1) the required service period; (2) the payment schedule and method of payment which may include a lump-sum payment, installment payments, or a combination thereof; (3) the amount of the bonus and the basis for calculating such amount; and (4) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination. Requires that an employee's service period may not be less than six months and may not exceed four years. Requires NASA to establish a plan for paying such bonuses, subject to OPM approval, before paying a bonus under this section. Directs the NASA Administrator to submit an annual report to Congress with specific information about the bonuses paid under this section for the previous calendar year not later than February 28 of each year.

Section 505. Retention Bonuses.

Authorizes the NASA Administrator to pay higher retention bonuses than is provided under current law and in accordance with the authority provided in this section and the Workforce Plan if the Administrator determines that the unusually high or unique qualifications of the employee or a special need of NASA makes it essential to retain the employee and the employee would be likely to leave in the absence of a retention bonus. Authorizes retention bonuses under the following formula: (1) If the position addresses a critical need, the amount of a bonus may not exceed 50 percent of an employee's annual salary (including comparability payments); or (2) If the position does not address a critical need, the amount of a bonus may not exceed 25 percent of an employee's annual salary (including comparability payments). Requires that payment of a bonus is contingent on the employee entering into a service agreement with NASA unless NASA pays a retention bonus in biweekly installments to the employee. Requires that the service agreement, at a minimum, establish: (1) the required service period; (2) the payment schedule and method of payment which may include a lump-sum payment, installment payments, or a combination thereof; (3) the amount of the bonus and the basis for calculating such amount; and (4) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination. Requires that the service period may not be less than six months and may not exceed four years. Requires that an employee is not entitled to a retention bonus under this section during a service period when other bonuses were previously established for the employee. Requires NASA to establish a plan for paying retention bonuses, subject to OPM approval, before paying a retention bonus under this section. Directs the NASA Administrator to submit an annual report to Congress with specific information of the retention bonuses paid under this section for the previous calendar year not later than February 28 of each year.

Section 506. Voluntary Separation Incentives.

Authorizes the NASA Administrator to pay Voluntary Separation Incentive (VSI) payments up to 50 percent of an employee's annual salary if the employee is in a position that fills a critical need. Requires that VSI payments under this section are

limited to only 10 employees in any calendar year, unless OMB approves a greater number of employees and Congress is notified. Requires that a NASA employee is not eligible to receive a VSI payment authorized under this section if the employee received certain other bonuses in the previous twelve months. Requires the proposed use of workforce authorities in this section be included in the agency's plans to OPM on the intended use voluntary separation incentive payments required under current law. Directs NASA to submit a copy of its plan on the use of incentive payments to Congress within 15 days after OPM's approval of the plan.

Section 507. Term Appointments.

Authorizes the NASA Administrator to make term appointments within NASA for not less than one year and not more than six years. Authorizes the NASA Administrator to convert a term appointment to a permanent appointment in the competitive service within NASA without further competition if: (1) the individual was hired under the open, competitive examining procedures under current law; (2) the original announcement stated the appointment may be converted from term to career-conditional; (3) the individual has completed at least two years of the term appointment; (4) the employee's performance was at least fully successful or equivalent; and (5) the position is in the same occupational series and geographic location and provides no greater promotion potential than the term appointment. Authorizes the NASA Administrator to convert a term appointment to a permanent appointment in the competitive service within NASA through internal competitive procedures if conditions (1) through (4) above are met. Directs that an employee converted under this section becomes a career-conditional employee unless the employee has otherwise completed the service requirements for career tenure. Directs that an employee converted to career or career-conditional employment under this section acquires competitive status upon conversion. Directs the NASA Administrator to submit an annual report to Congress on the number of term appointments and conversions made for the previous calendar year not later than February 28 of each year.

Section 508. Pay Authority for Critical Positions.

Authorizes the NASA Administrator to fix the salary for up to 10 administrative, technical and professional positions described in the section to the salary level of the Vice-President prescribed in current law if the position addresses a critical need identified in the Workforce Plan and the position requires expertise of an extremely high level in scientific, technical, professional, or administrative fields. Directs that the NASA Administrator may not delegate this authority. Requires that an employee receiving pay at a rate fixed under this section may not be paid an allowance, differential, bonus, award, or similar cash payment during any calendar year that would cause the employee's salary total to exceed the annual rate of salary prescribed for the Vice-President under current law. Directs the NASA Administrator to submit an annual report to Congress on the number of critical positions established or disestablished during the previous calendar year not later than February 28 of each year.

Section 509. Assignments under the Intergovernmental Personnel Act.

Authorizes the NASA Administrator to extend the period of an employee's Intergovernmental Personnel Act (IPA) assignment up to four years, rather than two years provided under current law, following an initial two-year assignment with the concurrence of the employee and the government or organization concerned.

Section 510. Enhanced Demonstration Project.

Authorizes NASA when conducting a demonstration project to apply that project to "such number of individuals determined by the Administrator" rather than "not more than 5,000 individuals" as specified under current law.

Section 511. Termination.

Directs that the workforce authorities listed under section 503 shall terminate on October 1, 2009, except if certain specified conditions for salary, bonuses, or appointments made before the termination date are satisfied. Requires that this termination shall not: (1) affect any bonus payment under sections 504 or 505 agreed to by the employee and the Administration before the termination date; (2) prevent an employee from being allowed to complete a term appointment made under section 507 if the appointment was made before the termination date; (3) prevent the Administrator from converting any term employees to career or career-conditional status under section 507 if the term appointment was made before the termination date; (4) prevent an employee from continuing to receive a salary fixed under section

508 before the termination date; or (5) prevent an employee assigned under the Intergovernmental Personnel Act from completing the extended term made under section 509 if the extension was made before the termination date.

[The Summary of H.R. 1085 follows:]

SUMMARY OF H.R. 1085, NASA FLEXIBILITY ACT OF 2003 (UNDERLYING BILL)

NASA Flexibility Act of 2003—Authorizes the NASA Administrator certain workforce authorities greater than existing civil service authority that are more remunerative and flexible to implement.

(Sec. 2) Amends the *National Aeronautics and Space Act of 1958* to tie the pay scale for NASA Excepted (NEX) Employees to level III of the Executive Schedule rather than the obsolescent pay scale of grade 18 of the General Schedule.

(Sec. 3) Amends the *National Aeronautics and Space Act of 1958* to provide an additional title, "Title V—Workforce Authorities" with the following sections included under that title.

(Sec. 501) Defines several terms used in the title.

(Sec. 502) Directs the NASA Administrator to submit to Congress and NASA employees a Workforce Plan and any subsequent modifications developed in consultation with the Office of Personnel Management before exercising any of the authorities under this title. Directs the NASA Administrator to submit to Congress an evaluation of whether or not the authorities exercised under this bill successfully addressed NASA's critical needs and recommendations for how NASA could address any remaining critical need six years after enactment of this title. Directs NASA to submit its annual performance plan to the Congress that the agency currently submits to OMB.

(Sec. 503) Specifies the workforce authorities and restrictions of this title.

(Sec. 504) Authorizes the NASA Administrator to pay higher recruitment and relocation bonuses than provided under current law. Defines a new category of bonus, a redesignation bonus, which could be paid to an employee moving from one government job to another, including within NASA, without relocating to a different geographic region. Authorizes recruitment, redesignation, and relocation bonuses under the following formula: (1) If the position addresses a critical need, the amount of a bonus may not exceed 50 percent of an employee's annual salary (including comparability payments) multiplied by an agreed-upon service period; (2) If the position does not address a critical need, the amount of a bonus may not exceed 25 percent of an employee's annual salary (including comparability payments) multiplied by an agreed-upon service period; and (3) In either case, the total bonus may not exceed the employee's annual salary (including comparability payments) at the beginning of the employee's period of service. Requires that payment of a bonus is contingent on the employee entering into a service agreement with NASA. Requires that the service period may not be less than six months and may not exceed four years. Requires NASA to establish a plan for paying such bonuses, subject to OPM approval, before paying a bonus under this section. Directs the NASA Administrator to submit an annual report to Congress of the bonuses paid under this section for the previous calendar year.

(Sec. 505) Authorizes the NASA Administrator to pay higher retention bonuses than is provided under current law if the Administrator determines that the unusually high or unique qualifications of the employee or a special need of NASA makes it essential to retain the employee and the employee would be likely to leave in the absence of a retention bonus. Authorizes retention bonuses under the following formula: (1) If the position addresses a critical need, the amount of a bonus may not exceed 50 percent of an employee's annual salary (including comparability payments); or (2) If the position does not address a critical need, the amount of a bonus may not exceed 25 percent of an employee's annual salary (including comparability payments). Requires that payment of a bonus is contingent on the employee entering into a service agreement with NASA unless NASA pays a retention bonus in biweekly installments to the employee. Requires that the service period may not be less than six months and may not exceed four years. Requires that an employee is not entitled to a retention bonus under this section during a service period when other bonuses were previously established for the employee. Requires NASA to establish a plan for paying retention bonuses, subject to OPM approval, before paying a retention bonus under this section. Directs the NASA Administrator to submit an annual report to Congress of the retention bonuses paid under this section for the previous calendar year.

(Sec. 506) Authorizes the NASA Administrator to pay Voluntary Separation Incentive (VSI) payments up to 50 percent of an employee's annual salary if the employee is in a position that fills a critical need. Requires that VSI payments under this section are limited to only 10 employees in any calendar year, unless OMB approves a greater number of employees and Congress is notified. Requires that a NASA employee is not eligible to receive a VSI payment authorized under this section if the employee received certain other bonuses in the previous twelve months. Directs NASA to submit a copy of its plan on the use of incentive payments to Congress within 15 days after OPM's approval of the plan.

(Sec. 507) Authorizes the NASA Administrator to make term appointments within NASA for not less than one year and not more than six years. Authorizes the NASA Administrator to convert a term appointment to a career-conditional appointment under certain conditions: (1) the individual was hired under the open, competitive examining procedures in title 5; (2) the original announcement stated the appointment may be converted from term to career-conditional; (3) the individual has completed at least two years of the term appointment; (4) the employee's performance was at least fully successful or equivalent; and (5) the position is in the same occupational series and geographic location and provides no greater promotion potential than the term appointment. Directs the NASA Administrator to submit an annual report to Congress on the number of tern appointments and conversions made for the previous calendar year.

(Sec. 508) Authorizes the NASA Administrator to fix the salary for up to 10 administrative, technical and professional positions described in the section to the salary level of the Vice-President if the position addresses a critical need identified in the Workforce Plan and the position requires expertise of an extremely high level in scientific, technical, professional, or administrative fields. Directs that the NASA Administrator may not delegate this authority. Directs the NASA Administrator to submit an annual report to Congress on the number of critical positions established or disestablished during the previous calendar year.

(Sec. 509) Authorizes the NASA Administrator to extend the period of an employee's Intergovernmental Personnel Act (IPA) assignment up to four years with the concurrence of the employee and the government or organization concerned.

(Sec. 510) Authorizes NASA when conducting a demonstration project to apply that project to "such number of individuals determined by the Administrator" rather than "not more than 5,000 individuals" as specified under current law.

(Sec. 511) Directs that the workforce authorities listed under section 503 shall terminate on October 1, 2009, except if certain specified conditions for salary, bonuses, or appointments made before the termination date are satisfied.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON SPACE & AERONAUTICS

June 26, 2003

AMENDMENT ROSTER

H.R. 1085, NASA Flexibility Act of 2003

No.	Sponsor	Description	Suggested Vote
1	Mr. Boehlert	Amendment in the nature of a substitute to HR 1085	Adopted by Voice Vote

Chairman ROHRABACHER. The first amendment on the roster is an amendment in the nature of a substitute offered by Mr. Boehlert. I ask unanimous consent that the amendment in the nature of a substitute be treated as original text. Without objection, so ordered.

[The amendment offered by Mr. Boehlert follows:]

AMENDMENT IN THE NATURE OF A SUBSTITUTE
TO H.R. 1085
OFFERED BY MR. BOEHLERT

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "NASA Flexibility Act of 2003".

SEC. 2. COMPENSATION FOR CERTAIN EXCEPTED PERSONNEL.

(a) IN GENERAL.—Subparagraph (A) of section 203(c)(2) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2473(c)(2)(A)) is amended by striking "the highest rate of grade 18 of the General Schedule of the Classification Act of 1949, as amended," and inserting "the rate of basic pay payable for level III of the Executive Schedule,".

(b) EFFECTIVE DATE.—The amendment made by this section shall take effect on the first day of the first pay period beginning on or after the date of enactment of this Act.

SEC. 3. WORKFORCE AUTHORITIES.

(a) IN GENERAL.—Subpart I of part III of title 5, United States Code, is amended by inserting after chapter

97, as added by section 841(a)(2) of the Homeland Security Act of 2002 (Public Law 107–296; 116 Stat. 2229), the following:

"CHAPTER 98—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

"§ 9801. Definitions

"For purposes of this chapter—

"(1) the term 'Administration' means the National Aeronautics and Space Administration;

"(2) the term 'Administrator' means the Administrator of the National Aeronautics and Space Administration;

"(3) the term 'critical need' means a specific and important requirement of the Administration's mission that the Administration is unable to fulfill because the Administration lacks the appropriate employees because—

"(A) of the inability to fill positions; or

"(B) employees do not possess the requisite skills;

"(4) the term 'employee' means an individual employed in or under the Administration;

"(5) the term 'workforce plan' means the plan required under section 9802(a);

"(6) the term 'appropriate committees of Congress' means—

"(A) the Committees on Government Reform, Science, and Appropriations of the House of Representatives; and

"(B) the Committees on Governmental Affairs, Commerce, Science, and Transportation, and Appropriations of the Senate;

"(7) the term 'redesignation bonus' means a bonus under section 9804 paid to an individual described in subsection (a)(2) thereof;

"(8) the term 'supervisor' has the meaning given such term by section 7103(a)(10); and

"(9) the term 'management official' has the meaning given such term by section 7103(a)(11).

"§ 9802. Planning, notification, and reporting requirements

"(a) Not later than 90 days before exercising any of the workforce authorities made available under this chapter, the Administrator shall submit a written plan to the appropriate committees of Congress. Such plan shall be developed in consultation with the Office of Personnel Management.

"(b) A workforce plan shall include a description of—

"(1) each critical need of the Administration and the criteria used in the identification of that need;

"(2)(A) the functions, approximate number, and classes or other categories of positions or employees that—

"(i) address critical needs; and

"(ii) would be eligible for each authority proposed to be exercised under section 9803; and

"(B) how the exercise of those authorities with respect to the eligible positions or employees involved would address each critical need identified under paragraph (1);

"(3)(A) any critical need identified under paragraph (1) which would not be addressed by the authorities made available under this chapter; and

"(B) the reasons why those needs would not be so addressed;

"(4) the specific criteria to be used in determining which individuals may receive the benefits described under sections 9804, 9805 (including the criteria for granting bonuses in the absence of a critical need), and 9810, and how the level of those benefits will be determined;

"(5) the safeguards or other measures that will be applied to ensure that this chapter is carried out in a manner consistent with merit system principles;

"(6) the means by which employees will be afforded the notification required under subsections (c) and (d)(1)(B);

"(7) the methods that will be used to determine if the authorities exercised under this chapter have successfully addressed each critical need identified under paragraph (1); and

"(8)(A) the recruitment methods used by the Administration before the enactment of this chapter to recruit highly qualified individuals; and

"(B) the changes the Administration will implement after the enactment of this chapter in order to improve its recruitment of highly qualified individuals, including how it intends to use—

"(i) nongovernmental recruitment or placement agencies; and

"(ii) Internet technologies.

"(c) Not later than 60 days before first exercising any of the workforce authorities made available under this chapter, the Administrator shall provide to all employees the workforce plan and any additional information which the Administrator considers appropriate.

"(d)(1)(A) The Administrator may from time to time modify the workforce plan. Not later than 90 days before implementing any such modifications, the Administrator shall submit a description of the proposed modifications to the appropriate committees of Congress.

"(B) Not later than 60 days before implementing any such modifications, the Administrator shall provide an appropriately modified plan to all employees of the Administration and to the appropriate committees of Congress.

"(2) Any reference in this chapter or any other provision of law to the workforce plan shall be considered to include any modification made in accordance with this subsection.

"(e) Before submitting any written plan under subsection (a) (or modification under subsection (d)) to the appropriate committees of Congress, the Administrator shall—

"(1) provide to each employee representative representing any employees who might be affected by such plan (or modification) a copy of the proposed plan (or modification);

"(2) give each representative 30 calendar days (unless extraordinary circumstances require earlier action) to review and make recommendations with respect to the proposed plan (or modification); and

"(3) give any recommendations received from any such representatives under paragraph (2) full and fair consideration in deciding whether or how to proceed with respect to the proposed plan (or modification).

"(f) None of the workforce authorities made available under this chapter may be exercised in a manner inconsistent with the workforce plan.

"(g) Whenever the Administration submits its performance plan under section 1115 of title 31 to the Office of Management and Budget for any year, the Administration shall at the same time submit a copy of such plan to the appropriate committees of Congress.

"(h) Not later than 6 years after the date of enactment of this chapter, the Administrator shall submit to the appropriate committees of Congress an evaluation and

analysis of the actions taken by the Administration under this chapter, including—

"(1) an evaluation, using the methods described in subsection (b)(7), of whether the authorities exercised under this chapter successfully addressed each critical need identified under subsection (b)(1);

"(2) to the extent that they did not, an explanation of the reasons why any critical need (apart from the ones under subsection (b)(3)) was not successfully addressed; and

"(3) recommendations for how the Administration could address any remaining critical need and could prevent those that have been addressed from recurring.

"(i) The budget request for the Administration for the first fiscal year beginning after the date of enactment of this chapter and for each fiscal year thereafter shall include a statement of the total amount of appropriations requested for such fiscal year to carry out this chapter.

"§ 9803. Restrictions

"(a) None of the workforce authorities made available under this chapter may be exercised with respect to any officer who is appointed by the President, by and with the advice and consent of the Senate.

"(b) Unless specifically stated otherwise, all workforce authorities made available under this chapter shall be subject to section 5307.

"§ 9804. Recruitment, redesignation, and relocation bonuses

"(a) Notwithstanding section 5753, the Administrator may pay a bonus to an individual, in accordance with the workforce plan and subject to the limitations in this section, if—

"(1) the Administrator determines that the Administration would be likely, in the absence of a bonus, to encounter difficulty in filling a position; and

"(2) the individual—

"(A) is newly appointed as an employee of the Federal Government;

"(B) is currently employed by the Federal Government and is newly appointed to another position in the same geographic area; or

"(C) is currently employed by the Federal Government and is required to relocate to a different geographic area to accept a position with the Administration.

"(b) If the position is described as addressing a critical need in the workforce plan under section 9802(b)(2)(A), the amount of a bonus may not exceed—

"(1) 50 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a) as of the beginning of the service period multiplied by the service period specified under subsection (d)(1)(B)(i); or

"(2) 100 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a) as of the beginning of the service period.

"(c) If the position is not described as addressing a critical need in the workforce plan under section 9802(b)(2)(A), the amount of a bonus may not exceed—

"(1) 25 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a) as of the beginning of the service period multiplied by the service period specified under subsection (d)(1)(B)(i); or

"(2) 100 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a) as of the beginning of the service period.

"(d)(1)(A) Payment of a bonus under this section shall be contingent upon the individual entering into a service agreement with the Administration.

"(B) At a minimum, the service agreement shall include—

"(i) the required service period;

"(ii) the method of payment, including a payment schedule, which may include a lump-sum payment, installment payments, or a combination thereof;

"(iii) the amount of the bonus and the basis for calculating that amount; and

"(iv) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination.

"(2) For purposes of determinations under subsections (b)(1) and (c)(1), the employee's service period shall be expressed as the number equal to the full years and twelfth parts thereof, rounding the fractional part of a month to the nearest twelfth part of a year. The service period may not be less than 6 months and may not exceed 4 years.

"(3) A bonus under this section may not be considered to be part of the basic pay of an employee.

"(e) Before paying a bonus under this section, the Administration shall establish a plan for paying recruitment, redesignation, and relocation bonuses, subject to approval by the Office of Personnel Management.

"(f) No more than 25 percent of the total amount in bonuses awarded under subsection (a) in any year may be awarded to supervisors or management officials.

"§ 9805. Retention bonuses

"(a) Notwithstanding section 5754, the Administrator may pay a bonus to an employee, in accordance with the workforce plan and subject to the limitations in this section, if the Administrator determines that—

"(1) the unusually high or unique qualifications of the employee or a special need of the Administration for the employee's services makes it essential to retain the employee; and

"(2) the employee would be likely to leave in the absence of a retention bonus.

"(b) If the position is described as addressing a critical need in the workforce plan under section 9802(b)(2)(A), the amount of a bonus may not exceed 50 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a).

"(c) If the position is not described as addressing a critical need in the workforce plan under section 9802(b)(2)(A), the amount of a bonus may not exceed 25 percent of the employee's annual rate of basic pay (including comparability payments under sections 5304 and 5304a).

"(d)(1)(A) Payment of a bonus under this section shall be contingent upon the employee entering into a service agreement with the Administration.

"(B) At a minimum, the service agreement shall include—

"(i) the required service period;

"(ii) the method of payment, including a payment schedule, which may include a lump-sum payment, installment payments, or a combination thereof;

"(iii) the amount of the bonus and the basis for calculating the amount; and

"(iv) the conditions under which the agreement may be terminated before the agreed-upon service period has been completed, and the effect of the termination.

"(2) The employee's service period shall be expressed as the number equal to the full years and twelfth parts thereof, rounding the fractional part of a month to the

nearest twelfth part of a year. The service period may not be less than 6 months and may not exceed 4 years.

"(3) Notwithstanding paragraph (1), a service agreement is not required if the Administration pays a bonus in biweekly installments and sets the installment payment at the full bonus percentage rate established for the employee, with no portion of the bonus deferred. In this case, the Administration shall inform the employee in writing of any decision to change the retention bonus payments. The employee shall continue to accrue entitlement to the retention bonus through the end of the pay period in which such written notice is provided.

"(e) A bonus under this section may not be considered to be part of the basic pay of an employee.

"(f) An employee is not entitled to a retention bonus under this section during a service period previously established for that employee under section 5753 or under section 9804.

"(g) No more than 25 percent of the total amount in bonuses awarded under subsection (a) in any year may be awarded to supervisors or management officials.

"§ 9806. Term appointments

"(a) The Administrator may authorize term appointments within the Administration under subchapter I of

chapter 33, for a period of not less than 1 year and not more than 6 years.

"(b) Notwithstanding chapter 33 or any other provision of law relating to the examination, certification, and appointment of individuals in the competitive service, the Administrator may convert an employee serving under a term appointment to a permanent appointment in the competitive service within the Administration without further competition if—

"(1) such individual was appointed under open, competitive examination under subchapter I of chapter 33 to the term position;

"(2) the announcement for the term appointment from which the conversion is made stated that there was potential for subsequent conversion to a career-conditional or career appointment;

"(3) the employee has completed at least 2 years of current continuous service under a term appointment in the competitive service;

"(4) the employee's performance under such term appointment was at least fully successful or equivalent; and

"(5) the position to which such employee is being converted under this section is in the same occupational series, is in the same geographic location,

and provides no greater promotion potential than the term position for which the competitive examination was conducted.

"(c) Notwithstanding chapter 33 or any other provision of law relating to the examination, certification, and appointment of individuals in the competitive service, the Administrator may convert an employee serving under a term appointment to a permanent appointment in the competitive service within the Administration through internal competitive promotion procedures if the conditions under paragraphs (1) through (4) of subsection (b) are met.

"(d) An employee converted under this section becomes a career-conditional employee, unless the employee has otherwise completed the service requirements for career tenure.

"(e) An employee converted to career or career-conditional employment under this section acquires competitive status upon conversion.

"§ 9807. Pay authority for critical positions

"(a) In this section, the term 'position' means—

"(1) a position to which chapter 51 applies, including a position in the Senior Executive Service;

"(2) a position under the Executive Schedule under sections 5312 through 5317;

"(3) a position established under section 3104; or

"(4) a senior-level position to which section 5376(a)(1) applies.

"(b) Authority under this section—

"(1) may be exercised only with respect to a position that—

"(A) is described as addressing a critical need in the workforce plan under section 9802(b)(2)(A); and

"(B) requires expertise of an extremely high level in a scientific, technical, professional, or administrative field;

"(2) may be exercised only to the extent necessary to recruit or retain an individual exceptionally well qualified for the position; and

"(3) may be exercised only in retaining employees of the Administration or in appointing individuals who were not employees of another Federal agency as defined under section 5102(a)(1).

"(c)(1) Notwithstanding section 5377, the Administrator may fix the rate of basic pay for a position in the Administration in accordance with this section. The Administrator may not delegate this authority.

"(2) The number of positions with pay fixed under this section may not exceed 10 at any time.

"(d)(1) The rate of basic pay fixed under this section may not be less than the rate of basic pay (including any comparability payments) which would otherwise be payable for the position involved if this section had never been enacted.

"(2) The annual rate of basic pay fixed under this section may not exceed the per annum rate of salary payable under section 104 of title 3.

"(3) Notwithstanding any provision of section 5307, in the case of an employee who, during any calendar year, is receiving pay at a rate fixed under this section, no allowance, differential, bonus, award, or similar cash payment may be paid to such employee if, or to the extent that, when added to basic pay paid or payable to such employee (for service performed in such calendar year as an employee in the executive branch or as an employee outside the executive branch to whom chapter 51 applies), such payment would cause the total to exceed the per annum rate of salary which, as of the end of such calendar year, is payable under section 104 of title 3.

"§ 9808. Assignments of intergovernmental personnel

"For purposes of applying the third sentence of section 3372(a) (relating to the authority of the head of a

Federal agency to extend the period of an employee's assignment to or from a State or local government, institution of higher education, or other organization), the Administrator may, with the concurrence of the employee and the government or organization concerned, take any action which would be allowable if such sentence had been amended by striking 'two' and inserting 'four'.

"§ 9809. Enhanced demonstration project authority

"When conducting a demonstration project at the Administration, section 4703(d)(1)(A) may be applied by substituting '8,000' for '5,000'.

"§ 9810. Voluntary separation incentive payments

"(a) In applying subchapter II of chapter 35, the Administrator may provide for voluntary separation incentive payments in excess of the dollar-amount limitation that would otherwise apply under section 3523(b)(3)(B), subject to subsection (b).

"(b) Voluntary separation incentive payments described in subsection (a)—

"(1) may not exceed 50 percent of the annual rate of basic pay of the employee receiving such payments (computed disregarding any comparability payments under sections 5304–5304a);

"(2) may not, in any calendar year, be made to more than—

"(A) 10 employees; or

"(B) such greater number of employees as the Administrator may, with the approval of the Office of Management and Budget, establish in lieu of the number specified in subparagraph (A) following notification to the appropriate committees of Congress; and

"(3) may not be made to an employee if the employee has within the last 12 months received, or if the employee is then receiving, a bonus or allowance under section 5753 or 5754 or under section 9804 or 9805.

"(e)(1) The proposed use of any workforce authorities provided under this section shall be included in the plan required by section 3522.

"(2) Whenever the Office of Personnel Management approves the Administration's plan required in such section 3522, the Administration shall submit a copy of the approved plan to the appropriate committees of Congress within 15 days after the date on which it is so approved.

"§ 9811. Science and technology scholarship program

"(a)(1) The Administrator shall establish a National Aeronautics and Space Administration Science and Technology Scholarship Program to award scholarships to indi-

viduals that is designed to recruit and prepare students for careers in the Administration.

"(2) Individuals shall be selected to receive scholarships under this section through a competitive process primarily on the basis of academic merit, with consideration given to financial need and the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act.

"(3) To carry out the Program the Administrator shall enter into contractual agreements with individuals selected under paragraph (2) under which the individuals agree to serve as full-time employees of the Administration, for the period described in subsection (f)(1), in positions needed by the Administration and for which the individuals are qualified, in exchange for receiving a scholarship.

"(b) In order to be eligible to participate in the Program, an individual must—

"(1) be enrolled or accepted for enrollment as a full-time student at an institution of higher education in an academic field or discipline described in the list made available under subsection (d);

"(2) be a United States citizen; and

"(3) at the time of the initial scholarship award, not be an employee (as defined in section 2105).

"(c) An individual seeking a scholarship under this section shall submit an application to the Administrator at such time, in such manner, and containing such information, agreements, or assurances as the Administrator may require.

"(d) The Administrator shall make publicly available a list of academic programs and fields of study for which scholarships under the Program may be utilized and shall update the list as necessary.

"(e)(1) The Administrator may provide a scholarship under the Program for an academic year if the individual applying for the scholarship has submitted to the Administrator, as part of the application required under subsection (c), a proposed academic program leading to a degree in a program or field of study on the list made available under subsection (d).

"(2) An individual may not receive a scholarship under this section for more than 4 academic years, unless the Administrator grants a waiver.

"(3) The dollar amount of a scholarship under this section for an academic year shall be determined under

regulations issued by the Administrator, but shall in no case exceed the cost of attendance.

"(4) A scholarship provided under this section may be expended for tuition, fees, and other authorized expenses as established by the Administrator by regulation.

"(5) The Administrator may enter into a contractual agreement with an institution of higher education under which the amounts provided for a scholarship under this section for tuition, fees, and other authorized expenses are paid directly to the institution with respect to which the scholarship is provided.

"(f)(1) The period of service for which an individual shall be obligated to serve as an employee of the Administration is, except as provided in subsection (h)(2), 24 months for each academic year for which a scholarship under this section is provided.

"(2)(A) Except as provided in subparagraph (B), obligated service under paragraph (1) shall begin not later than 60 days after the individual obtains the educational degree for which the scholarship was provided.

"(B) The Administrator may defer the obligation of an individual to provide a period of service under paragraph (1) if the Administrator determines that such a deferral is appropriate. The Administrator shall prescribe

the terms and conditions under which a service obligation may be deferred through regulation.

"(g)(1) Scholarship recipients who fail to maintain a high level of academic standing, as defined by the Administrator by regulation, who are dismissed from their educational institutions for disciplinary reasons, or who voluntarily terminate academic training before graduation from the educational program for which the scholarship was awarded, shall be in breach of their contractual agreement and, in lieu of any service obligation arising under such agreement, shall be liable to the United States for repayment within 1 year after the date of default of all scholarship funds paid to them and to the institution of higher education on their behalf under the agreement, except as provided in subsection (h)(2). The repayment period may be extended by the Administrator when determined to be necessary, as established by regulation.

"(2) Scholarship recipients who, for any reason, fail to begin or complete their service obligation after completion of academic training, or fail to comply with the terms and conditions of deferment established by the Administrator pursuant to subsection (f)(2)(B), shall be in breach of their contractual agreement. When recipients breach their agreements for the reasons stated in the preceding

sentence, the recipient shall be liable to the United States for an amount equal to—

"(A) the total amount of scholarships received by such individual under this section; plus

"(B) the interest on the amounts of such awards which would be payable if at the time the awards were received they were loans bearing interest at the maximum legal prevailing rate, as determined by the Treasurer of the United States,

multiplied by 3.

"(h)(1) Any obligation of an individual incurred under the Program (or a contractual agreement thereunder) for service or payment shall be canceled upon the death of the individual.

"(2) The Administrator shall by regulation provide for the partial or total waiver or suspension of any obligation of service or payment incurred by an individual under the Program (or a contractual agreement thereunder) whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be contrary to the best interests of the Government.

"(i) For purposes of this section—

"(1) the term 'cost of attendance' has the meaning given that term in section 472 of the Higher Education Act of 1965;

"(2) the term 'institution of higher education' has the meaning given that term in section 101(a) of the Higher Education Act of 1965; and

"(3) the term 'Program' means the National Aeronautics and Space Administration Science and Technology Scholarship Program established under this section.

"(j)(1) There is authorized to be appropriated to the Administration for the Program $10,000,000 for each fiscal year.

"(2) Amounts appropriated under this section shall remain available for 2 fiscal years.

"§ 9812. Distinguished scholar appointment authority

"(a) In this section—

"(1) the term 'professional position' means a position that is classified to an occupational series identified by the Office of Personnel Management as a position that—

"(A) requires education and training in the principles, concepts, and theories of the occupation that typically can be gained only through

completion of a specified curriculum at a recognized college or university; and

"(B) is covered by the Group Coverage Qualification Standard for Professional and Scientific Positions; and

"(2) the term 'research position' means a position in a professional series that primarily involves scientific inquiry or investigation, or research-type exploratory development of a creative or scientific nature, where the knowledge required to perform the work successfully is acquired typically and primarily through graduate study.

"(b) The Administration may appoint, without regard to the provisions of section 3304(b) and sections 3309 through 3318, but subject to subsection (c), candidates directly to General Schedule professional, competitive service positions in the Administration for which public notice has been given (in accordance with regulations of the Office of Personnel Management), if—

"(1) with respect to a position at the GS–7 level, the individual—

"(A) received, within 2 years before the effective date of the appointment, from an accredited institution authorized to grant baccalaureate degrees, a baccalaureate degree in a

field of study for which possession of that degree in conjunction with academic achievements meets the qualification standards as prescribed by the Office of Personnel Management for the position to which the individual is being appointed; and

"(B) achieved a cumulative grade point average of 3.0 or higher on a 4.0 scale and a grade point average of 3.5 or higher for courses in the field of study required to qualify for the position;

"(2) with respect to a position at the GS–9 level, the individual—

"(A) received, within 2 years before the effective date of the appointment, from an accredited institution authorized to grant graduate degrees, a graduate degree in a field of study for which possession of that degree meets the qualification standards at this grade level as prescribed by the Office of Personnel Management for the position to which the individual is being appointed; and

"(B) achieved a cumulative grade point average of 3.5 or higher on a 4.0 scale in grad-

uate coursework in the field of study required for the position;

"(3) with respect to a position at the GS–11 level, the individual—

"(A) received, within 2 years before the effective date of the appointment, from an accredited institution authorized to grant graduate degrees, a graduate degree in a field of study for which possession of that degree meets the qualification standards at this grade level as prescribed by the Office of Personnel Management for the position to which the individual is being appointed; and

"(B) achieved a cumulative grade point average of 3.5 or higher on a 4.0 scale in graduate coursework in the field of study required for the position; or

"(4) with respect to a research position at the GS–12 level, the individual—

"(A) received, within 2 years before the effective date of the appointment, from an accredited institution authorized to grant graduate degrees, a graduate degree in a field of study for which possession of that degree meets the qualification standards at this grade level as

prescribed by the Office of Personnel Management for the position to which the individual is being appointed; and

"(B) achieved a cumulative grade point average of 3.5 or higher on a 4.0 scale in graduate coursework in the field of study required for the position.

"(c) In making any selections under this section, preference eligibles who meet the criteria for distinguished scholar appointments shall be considered ahead of non-preference eligibles.

"(d) An appointment made under this authority shall be a career-conditional appointment in the competitive civil service.

"§ 9813. Travel and transportation expenses of certain new appointees

"(a) In this section, the term 'new appointee' means—

"(1) a person newly appointed or reinstated to Federal service to the Administration to—

"(A) a career or career-conditional appointment;

"(B) a term appointment;

"(C) an excepted service appointment that provides for noncompetitive conversion to a career or career-conditional appointment;

"(D) a career or limited term Senior Executive Service appointment;

"(E) an appointment made under section 203(c)(2)(A) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2473(c)(2)(A));

"(F) an appointment to a position established under section 3104; or

"(G) an appointment to a position established under section 5108; or

"(2) a student trainee who, upon completion of academic work, is converted to an appointment in the Administration that is identified in paragraph (1) in accordance with an appropriate authority.

"(b) The Administrator may pay the travel, transportation, and relocation expenses of a new appointee to the same extent, in the same manner, and subject to the same conditions as the payment of such expenses under sections 5724, 5724a, 5724b, and 5724c to an employee transferred in the interests of the United States Government.

"§ 9814. Annual leave enhancements

"(a)(1) In this subsection—

"(A) the term 'newly appointed employee' means an individual who is first appointed—

"(i) as an employee of the Federal Government; or

"(ii) as an employee of the Federal Government following a break in service of at least 90 days after that individual's last period of Federal employment, other than—

"(I) employment under the Student Educational Employment Program administered by the Office of Personnel Management;

"(II) employment as a law clerk trainee;

"(III) employment under a short-term temporary appointing authority while a student during periods of vacation from the educational institution at which the student is enrolled;

"(IV) employment under a provisional appointment if the new appointment is permanent and immediately follows the provisional appointment; or

"(V) employment under a temporary appointment that is neither full-time nor the principal employment of the individual;

"(B) the term 'period of qualified non-Federal service' means any period of service performed by an individual that—

"(i) was performed in a position the duties of which were directly related to the duties of the position in the Administration which that individual will fill as a newly appointed employee; and

"(ii) except for this section, would not otherwise be service performed by an employee for purposes of section 6303; and

"(C) the term 'directly related to the duties of the position' means duties and responsibilities in the same line of work which require similar qualifications.

"(2)(A) For purposes of section 6303, the Administrator may deem a period of qualified non-Federal service performed by a newly appointed employee to be a period of service of equal length performed as an employee.

"(B) A decision under subparagraph (A) to treat a period of qualified non-Federal service as if it were service

performed as an employee shall continue to apply so long as that individual serves in or under the Administration.

"(3)(A) Notwithstanding section 6303(a), the annual leave accrual rate for an employee of the Administration in a position paid under section 5376 or 5383, or for an employee in an equivalent category whose rate of basic pay is greater than the rate payable at GS–15, step 10, shall be 1 day for each full biweekly pay period.

"(B) The accrual rate established under this paragraph shall continue to apply to the employee so long as such employee serves in or under the Administration.

"§ 9815. Limited appointments to Senior Executive Service positions

"(a) In this section, the terms 'career reserved position', 'Senior Executive Service position', 'senior executive' and 'career appointee' have the meanings set forth in section 3132(a).

"(b) Subject to succeeding provisions of this section, the Administrator may, notwithstanding any other provision of this title, fill a career reserved position on a temporary basis, but only if—

"(1) such position is vacant as a result of—

"(A) the separation of the incumbent; or

"(B) the temporary absence of the incumbent due to illness, training, or reassignment; or

"(2) such position is or would be difficult to fill in any other manner due to the fact that such position is likely to be eliminated within the next 2 years.

"(c) Notwithstanding sections 3132 and 3394(b), an appointment made by the Administrator under subsection (b) shall not exceed 2 years.

"(d) The Administrator may extend an appointment under subsection (b) for as long as necessary to meet a contingency described in subsection (b)(1), but for not to exceed 1 year and not if the circumstance described in subsection (b)(2) pertains.

"(e) The number of career reserved positions filled under subsection (b) may not at any time exceed 10 percent of the total number of Senior Executive Service positions then authorized for the Administration under section 3133.

"(f) An individual appointed to a career reserved position on a temporary basis under subsection (b) shall, if such individual was so appointed from a civil service position held under a career or career-conditional appointment, be entitled, upon completion of that temporary ap-

pointment, to be reemployed in the position from which such individual was so appointed (or an equivalent position), in accordance with such regulations as the Office of Personnel Management may prescribe.

"(g) An appointment to a career reserved position on a temporary basis under subsection (b) may not be made without the prior approval of the Office of Personnel Management if the individual—

"(1) is to be appointed—

"(A) from outside the Federal Government; or

"(B) from a civil service position held under an appointment other than a career or career-conditional appointment; or

"(2) is a senior executive, but not a career appointee.

"(h) An individual appointed to a career reserved position on a temporary basis under subsection (b) who is not a career appointee shall, for purposes of performance awards under section 5384, be treated as a career appointee.

"§ 9816. Qualifications pay

"(a) Notwithstanding section 5334, the Administrator may set the pay of an employee paid under the Gen-

eral Schedule at any step within the pay range for the grade of the position, if such employee—

"(1) possesses unusually high or unique qualifications; and

"(2) is assigned—

"(A) new duties, without a change of position; or

"(B) to a new position.

"(b) If an exercise of the authority under this section relates to a current employee selected for another position within the Administration, a determination shall be made that the employee's contribution in the new position will exceed that in the former position, before setting pay under this section.

"(c) Pay as set under this section is basic pay for such purposes as pay set under section 5334.

"(d) If the employee serves for at least 1 year in the position for which the pay determination under this section was made, or a successor position, the pay earned under such position may be used in succeeding actions to set pay under chapter 53.

"(e) Before setting any employee's pay under this section, the Administrator shall submit a plan to the Office of Personnel Management and the appropriate committees of Congress, that includes—

"(1) criteria for approval of actions to set pay under this section;

"(2) the level of approval required to set pay under this section;

"(3) all types of actions and positions to be covered;

"(4) the relationship between the exercise of authority under this section and the use of other pay incentives; and

"(5) a process to evaluate the effectiveness of this section.

"§ 9817. Reporting requirement

"The Administrator shall submit to the appropriate committees of Congress, not later than February 28 of each of the next 10 years beginning after the date of enactment of this chapter, a report that provides the following:

"(1) A summary of all bonuses paid under subsections (b)–(c) of section 9804 during the preceding fiscal year. Such summary shall include the total amount of bonuses paid, the total number of bonuses paid, the percentage of bonuses awarded to supervisors, and the average percentage used to calculate the total average bonus amount, under each of those subsections.

"(2) A summary of all bonuses paid under subsections (b)–(c) of section 9805 during the preceding fiscal year. Such summary shall include the total amount of bonuses paid, the total number of bonuses paid, the percentage of bonuses awarded to supervisors, and the average percentage used to calculate the total average bonus amount, under each of those subsections.

"(3) The total number of term appointments converted during the preceding fiscal year under section 9806 and, of that total number, the number of conversions that were made to address a critical need described in the workforce plan pursuant to section 9802(b)(2).

"(4) The number of positions for which the rate of basic pay was fixed under section 9807 during the preceding fiscal year, the number of positions for which the rate of basic pay under such section was terminated during the preceding fiscal year, and the number of times the rate of basic pay was fixed under such section to address a critical need described in the workforce plan pursuant to section 9802(b)(2).

"(5) The number of scholarships awarded under section 9811 during the preceding fiscal year

and the number of scholarship recipients appointed by the Administration during the preceding fiscal year.

"(6) The total number of distinguished scholar appointments made under section 9812 during the preceding fiscal year and, of that total number, the number of appointments that were made to address a critical need described in the workforce plan pursuant to section 9802(b)(2).

"(7) The average amount paid per appointee, and the largest amount paid to any appointee, under section 9813 during the preceding fiscal year for travel and transportation expenses.

"(8) The total number of employees who were awarded enhanced annual leave under section 9814 during the preceding fiscal year; of that total number, the number of employees who were serving in a position addressing a critical need described in the workforce plan pursuant to section 9802(b)(2); and, for employees in each of those respective groups, the average amount of additional annual leave such employees earned in the preceding fiscal year (over and above what they would have earned absent section 9814).

"(9) The total number of appointments made under section 9815 during the preceding fiscal year and, of that total number, the number of appointments that were made to address a critical need described in the workforce plan pursuant to section 9802(b)(2).

"(10) The number of employees for whom the Administrator set the pay under section 9816 during the preceding fiscal year and the number of times pay was set under such section to address a critical need described in the workforce plan pursuant to section 9802(b)(2).".

(b) CLERICAL AMENDMENT.—The table of chapters for part III of title 5, United States Code, is amended by adding at the end the following:

"98. National Aeronautics and Space Administration ..... 9801".

Mr. Boehlert, you—are you ready to proceed with your amendment?

Chairman BOEHLERT. Thank you, Mr. Chairman. And I will make this brief, and I will submit the full statement for the record, in its entirety, but just a couple of opening comments.

This amendment reflects extensive negotiations with NASA and, as Mr. Gordon so rightly observed, they wanted some things that we didn't agree to, and we rejected them, and extensive negotiations with the Government Reform Committee, and with the unions that represent NASA employees. They must be considered. They have a point of view. And we listened, and I am glad we did. These have been productive negotiations. This version of the bill is endorsed enthusiastically by the International Federation of Professional and Technical Engineers, the largest union at NASA. Labor and management have to work together to have success, and we are.

NASA, too, supports passage today, and we know of no concerns on the part of Chairman Davis from the Government Reform Committee. This version of the bill is also closer to the bill reported out of the Senate Government Affairs Committee on a bipartisan basis, so I am hopeful we will be able to get this bill to the President's desk early this fall. And let me point out that if we report this out, as I anticipate we will, in the Subcommittee, we will know more from Admiral Gehman and his people before the Full Committee acts. But I don't think this is a time for delay. I think we must move forward.

Chairman ROHRABACHER. Thank you very much.

Is there any further discussion? If no, then thus all in favor, I would say, all in favor, say aye. All those opposed, say no. The ayes seem to have it. And the amendment is agreed to.

Let us see. The next amendment to the roster was supposed to be my amendment. And I have reached agreement with Chairman Boehlert to defer my—offering my amendment until the bill goes to Full Committee for consideration. And I have been assured that my amendment will be acceptable to, at least to offer at that time, and perhaps we can work out some of our minor differences that we have with the concept.

Chairman BOEHLERT. Mr. Chairman, if I may.

Chairman ROHRABACHER. Certainly.

Chairman BOEHLERT. And I would point out that the amendment you are referring to is scholarship for service, and that is an enlightened approach to a problem that has to be addressed. And I very much look forward to working with you to make sure we target it specifically, as is needed, to accomplish what we hope to accomplish. So there is no disagreement in principle. We are both enamored with the concept of scholarship for service to help these youngsters pay for their college education in return for a commitment to serve in the agency, and so I am confident we can work this out.

Chairman ROHRABACHER. Right. And there is a commitment on both sides of the aisle and from both Chairmen to make sure that gets done.

Are there any—and so I am withdrawing my amendment.

Are there any further amendments? Hearing none, the question is on the bill, H.R. 1085, the *NASA Flexibility Act of 2003,* as amended. All those in favor, say aye. All those opposed, say no. In the opinion of the Chair, the ayes have it.

I will now recognize Mr. Boehlert to offer a motion.

Chairman BOEHLERT. Mr. Chairman, I move that the Subcommittee favorably report H.R. 1085, as amended, to the Full Committee. Furthermore, I ask unanimous consent that the Staff be instructed to make all necessary technical and conforming changes to the bill, as—well, to the bill, in accordance with the recommendations of the Subcommittee.

Chairman ROHRABACHER. The Chair notes the presence of a quorum. The question is on the motion to report the bill favorably to Full Committee. Those in favor for the motion, signify by saying aye. Those opposed. The ayes appear to have it. The bill is favorably reported. Without objection, the motion to reconsider is laid upon the table.

Chairman ROHRABACHER. Thank you very much.

And this concludes our Committee markup. And without any objection, we will declare this committee adjourned. So I do declare this committee meeting adjourned.

[Whereupon, at 11:25 a.m., the Subcommittee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE FULL COMMITTEE ON H.R. 1297, COLUMBIA ORBITER MEMORIAL ACT

WEDNESDAY, MARCH 26, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:10 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

Chairman BOEHLERT. Good morning. The Committee on Science will be in order. Pursuant to notice, the Committee is meeting today to consider H.R. 1297, the *Columbia Orbiter Memorial Act.* I ask unanimous consent for the authority to recess the Committee at any point. Without objection, so ordered.

Due to the fact that we have an extremely important hearing following this markup and our witnesses have time constraints, I ask unanimous consent that each side of the dais be given a total of seven minutes to be controlled by the Chairman and Ranking Member accordingly. Without objection, so ordered. I will now recognize Mr. Hall on his side of the dais for their seven minutes to present their remarks.

Mr. HALL. Mr. Chairman, thank you. I express my strong support for H.R. 1297. This bill, of course, provides the construction of a memorial in Arlington Cemetery to the crew of the Space Shuttle *Columbia,* and I think that is, of course, a wonderful thing to do and a fitting thing to do. And it carries out the attention that NASA, the President, you, and all of the other Members have and that we went to Houston for the memorial service. There have been a number of memorial services since that time.

These seven brave men and women perished in the service of this country, and three of them now rest out in Arlington. The bill also allows NASA to accept gifts to help pay the cost of a memorial whether it be at Arlington Cemetery or somewhere else. A lot of citizens who want to participate in honoring this crew, and the legislation that you have led here gives us that opportunity to give them that opportunity. I urge my colleagues to support it.

Now how do I do it in my remainder of my—I have got about six and a half minutes left. Could I ask one up and down the line here whether they want——

Chairman BOEHLERT. You know, it is with such great respect that I have for you that I let you precede the Chairman's com-

ments. And so I am reminded that I have to have some comments, and then we will alternate back and forth.

Mr. HALL. Well, that is what you meant a while ago when you said that the decision of the Chairman and the Ranking—you didn't say it is a decision of the Ranking and the Chairman. Go ahead, Mr. Chairman.

Chairman BOEHLERT. Thank you very much. This morning, we are going to consider H.R. 1297, the *Columbia Orbiter Memorial Act*. The bill was introduced by Chairman Bill Young of the Appropriations Committee on March 13, 2003. The Senate has already approved the companion measure sponsored by Senator Ted Stevens. Following a model established after the Challenger disaster, this legislation authorizes the creation of a memorial to the crew of the Space Shuttle *Columbia* to be located in Arlington Memorial Cemetery. This is a fitting tribute for the seven courageous astronauts.

No act of Congress can assuage the deep loss felt by the families of these brave men and women. They left behind friends, husbands and wives, and sons and daughters, all of whom must go about the business of rebuilding their lives. We can, and we must, however, honor their dedication exploring the frontiers of science and draw upon the example they provided to inspire the next generation of explorers and scientists. That will be a living legacy.

This legislation marks an important step toward honoring their memory. I look forward to working closely with my colleagues on both sides of the aisle to see that it is speedily enacted.

[H.R. 1297 follows:]

108TH CONGRESS
1ST SESSION

H. R. 1297

IN THE HOUSE OF REPRESENTATIVES

MARCH 18, 2003

Mr. YOUNG of Florida introduced the following bill

A BILL

To require the construction at Arlington National Cemetery of a memorial to the crew of the Columbia Orbiter.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Columbia Orbiter Memorial Act".

SEC. 2. CONSTRUCTION OF MEMORIAL TO CREW OF COLUMBIA ORBITER AT ARLINGTON NATIONAL CEMETERY.

(a) CONSTRUCTION REQUIRED.—The Secretary of the Army shall, in consultation with the Administrator of the National Aeronautics and Space Administration, construct at an appropriate place in Arlington National Cemetery, Virginia, a memorial marker honoring the seven

members of the crew of the Columbia Orbiter who died on February 1, 2003, over the State of Texas during the landing of space shuttle mission STS–107.

(b) AVAILABILITY OF FUNDS.—Of the amount appropriated or otherwise made available by title II of the Department of Defense Appropriations Act, 2003 (Public Law 107–248) under the heading "OPERATION AND MAINTENANCE, ARMY", $500,000 shall be available for the construction of the memorial marker required by subsection (a).

SEC. 3. DONATIONS FOR MEMORIAL FOR CREW OF COLUMBIA ORBITER.

(a) AUTHORITY TO ACCEPT DONATIONS.—The Administrator of the National Aeronautics and Space Administration may accept gifts and donations of services, money, and property (including personal, tangible, or intangible property) for the purpose of an appropriate memorial or monument to the seven members of the crew of the Columbia Orbiter who died on February 1, 2003, over the State of Texas during the landing of space shuttle mission STS–107, whether such memorial or monument is constructed by the Administrator or is the memorial marker required by section 2.

(b) TRANSFER.—(1) The Administrator may transfer to the Secretary of the Army any services, money, or prop-

erty accepted by the Administrator under subsection (a) for the purpose of the construction of the memorial marker required by section 2.

(2) Any moneys transferred to the Secretary under paragraph (1) shall be merged with amounts in the account referred to in subsection (b) of section 2, and shall be available for the purpose referred to in that subsection.

(c) EXPIRATION OF AUTHORITY.—The authority of the Administrator to accept gifts and donations under subsection (a) shall expire five years after the date of the enactment of this Act.

[The Section-by-Section Analysis of H.R. 1297 follows:]

SECTION-BY-SECTION ANALYSIS OF
H.R. 1297, COLUMBIA ORBITER MEMORIAL ACT

The following summarizes each section of the Act.

Section 1: Short Title.

Section 2: Construction of the Memorial to Crew of Columbia Orbiter at Arlington National Cemetery. This section makes $500,000 available from the Department of Defense Appropriations Act, 2003 (P.L. 107–248) for construction of a memorial marker to honor the seven astronauts of the Columbia Orbiter who perished on February 1, 2003. The Secretary of the Army in consultation with the Administrator of the National Aeronautics and Space Administration (NASA) shall be responsible for its construction.

Section 3: Donations for Memorial for Crew of Columbia Orbiter. This section allows the NASA Administrator to accept gifts and donations of services, money, and property for the purpose of an appropriate memorial to the seven astronauts that perished on February 1, 2003, whether the memorial is constructed by the Administrator or is the memorial described in Section 2. The Section allows the NASA Administrator to transfer the funds mentioned in this section to the Secretary of the Army for the purposes of constructing the memorial required in Section 2.

Chairman BOEHLERT. Now the Chair will now recognize Mr. Rohrabacher, Chairman of the Subcommittee of jurisdiction.

Mr. ROHRABACHER. Thank you very much, Mr. Chairman. A few thoughts, and that is Arlington is a place where we honor our—and memorialize our greatest heroes, thus it is fitting for us to have a memorial there to the crew of the Space Shuttle *Columbia.* I would hope that 100 years or 200 years from now, when some young people are walking through the Arlington Cemetery, that they will come across this memorial. They will remember these heroes, space frontiersmen, leading the way for the United States of America. I support this bill and congratulate Mr. Young for sponsoring it.

Chairman BOEHLERT. Thank you very much. Mr. Gordon.

Mr. GORDON. Thank you, Mr. Chairman. I would like to—just like to add my support for H.R. 1297. It is proper that we honor the memory of these seven brave astronauts who perished on *Columbia.* They died serving this country, and I urge my colleagues to support this bill. I yield back the balance of my time.

Chairman BOEHLERT. Thank you very much. Dr. Gingrey.

Dr. GINGREY. Thank you, Mr. Chairman. I also would like to commend Mr. Young and Chairman Boehlert and Mr. Hall. This is an entirely appropriate thing to do. I think it is a wonderful tribute. It is so easy to forget. We are now engaged in this Iraqi Freedom war and thinking about the men and women who are heroes and are in harm's way, and some of whom will not come back to us. But we don't ever want to forget the seven astronauts who indeed are every much as heroic in giving their lives to this country. And I am not—I don't—think each and every one of those astronauts are eligible to be interred at Arlington National Cemetery, and to have this memorial there, recognizing all of them no matter where they are buried. I think is an entirely appropriate thing to do, and I commend the leadership of this bill. Thank you.

Chairman BOEHLERT. Thank you very much. Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you. And I join you and Ranking Member Hall and the other Members of this committee in honoring the seven extraordinary men and women aboard the Space Shuttle *Columbia* who gave their lives for the pursuit of science and discovery. This memorial will be a place of honor for the seven astronauts, their vision, and their legacy.

We are fortunate to have an astronaut corps comprised of highly trained men and women who regularly bear this risk. Their strong passion for space exploration has benefited our nation and our world. We will never forget the dedication and sacrifice of the crew of *Columbia,* and I strongly support this legislation.

Chairman BOEHLERT. Thank you very much. Mr. Burgess.

Dr. BURGESS. Thank you, Mr. Chairman. I, too, would add my support for what is truly a fitting tribute to the brave crew of the *Columbia.* I think it is not only fitting that we do it, I believe it is our obligation to honor their memory, so I commend Chairman Young for introducing the legislation. Chairman Boehlert, thank you for bringing this to the Committee, and Mr. Hall, as always, I value your leadership, and I learn something every time I hear you speak. I yield back the balance of my time.

Chairman BOEHLERT. Thank you very much, Doctor. Ms. Johnson.

Ms. JOHNSON. Thank you, Mr. Chairman. I am going to ask unanimous consent to file my full statement, and simply say that I really do agree with this legislation and hope that we will also memorialize this outstanding group by continuing space exploration, because I think that we have got much more than what we have given in the research. Thank you very much.

[The statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Let me express my appreciation to the leadership for bringing this forth and to say how important it is that we take the time to give recognition to those heroic persons who did lose their lives. I am very certain, however, that they did not lose their lives in vain.

This space exploration research program has been one of the most successful research programs in the history of this country, and I know that we will investigate well to see what happened and improve upon it.

I also know that, over 40 years ago, the foresight of persons that came along before us caused us to get into this type of research. We also owe those leaders some homage for their foresight, and I am hoping that we will then have the foresight to continue this type of research.

Human space exploration is inherently risky. Distance, speed and an environment that cannot support human life combine to make human space flights particularly precarious.

Unfortunately, the world has new evidence of the dangers associated with space exploration. Millions watched as images of a singular, brilliant point of light in the sky became two, three, and four points of light, as Space Shuttle *Columbia* broke apart over my home State of Texas.

STS–107, which was lost on February 1, 2003, was a 16-day mission dedicated to research in physical, life, and space sciences, conducted in approximately 80 separate experiments, comprised of hundreds of samples and test points. With two Americans and a Russian still stationed at the International Space Station, it is imperative that this program not comes to a halt. This most unfortunate and tragic loss of five men and two women, representing a mosaic of races and nationalities, will be mourned and these great American heroes will not be forgotten.

Chairman BOEHLERT. Thank you. So that we can continue, unless someone feels the need to say something, without objection, all Members' opening statements will be placed in the record at this point. Is there anyone that feels—thank you.

Chairman BOEHLERT. We will now consider H.R. 1297, the *Columbia Orbiter Memorial Act.* I would ask unanimous consent that the bill be considered as read and open to amendment at any point. I would ask the Members to proceed with the amendments in the order of the roster, and there are no amendments, so are there any proposed at this juncture? If not, the question is on the bill, H.R. 1297, the *Columbia Orbiter Memorial Act.* All of those in favor say aye. All those opposed, no. In the opinion of the Chair, the ayes have it unanimously.

Mr. HALL. Mr. Chairman.

Chairman BOEHLERT. Mr. Hall.

Mr. HALL. Is this the time for me to move that the Committee favorably report H.R. 1297 to the House with a recommendation of the bill to pass? Furthermore, I move that staff be instructed to prepare the legislative report and make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the bill before the House for consideration. And I yield back my time.

Chairman BOEHLERT. The Committee has heard the motion. Those in favor will say aye. Opposed, no. The ayes have it. The motion is agreed to. Without objection, the motion to reconsider is laid

on the table. I move, pursuant to clause one of rule 22 of the rules of the House of Representatives, that the Committee authorize the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on the bill, H.R. 1297, or a similar Senate bill. Without objection, so ordered. That concludes the markup of 1297. And we will proceed with the regular order.

[Whereupon, at 10:18 a.m., the Committee proceeded to other business.]

PROCEEDINGS OF THE MARKUP BY THE FULL COMMITTEE ON H.R. 1578, TO PROMOTE AND COORDINATE GLOBAL CHANGE RESEARCH, AND FOR OTHER PURPOSES

THURSDAY, MAY 1, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:11 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

Chairman BOEHLERT. Let us come to order, but let us start the meeting the way I expect the end the meeting, on a most positive note. This is a significant year, 2003. We are celebrating the birthday of our distinguished colleague from Texas, and every day we are having a different celebration. This is our day right here to have another celebration. Let us stand up and give him a round of applause. Happy birthday Ralph.

All in favor say aye. Opposed no. The ayes have it. The bill is passed. Now did you say he was 100?

It is a pleasure to welcome——

Mr. HALL. Thank you very much. Thank you.

Chairman BOEHLERT. You are entirely welcome, Mr. Hall. Pursuant to notice, the Committee on Science is meeting today to consider the following measures, H.R. 766, the *Nanotechnology Research and Development Act of 2003,* and H.R. 1578, *Global Change Research and Data Management Act of 2003.* I ask unanimous consent for the authority to recess the Committee at any point. And without objection, it is so ordered. We will now consider the bill H.R. 766.

It is a pleasure to welcome everyone here this morning for a markup concerning two vitally important areas of research: nanotechnology and climate change. I expect that we are going to have a little more partisan sparring at today's markup than we generally do, so I do want to underscore our major broad points of agreement at the outset.

We will also have debate today about Mr. Udall's bill on climate change research, H.R. 1578, which I will oppose. Some may recall that during the markup of the Energy Bill, I promised Mr. Udall a vote on this measure, and I am keeping that promise.

I want everyone to understand that I view my disagreement with Mr. Udall over this bill as one of tactics rather than substance. I have long advocated the need for a strong, focused, coordinated re-

search program and—in climate change. And I hope that this Science Committee will be able to report out a bipartisan climate research bill this year, preferably before the initiation of the Energy Bill conference, although that may not be possible. But I do not believe that moving this bill at this time will promote the cause of climate change.

Whatever happens today, I look forward to working with my colleagues on both sides of the aisle and with the Administration to craft a climate research bill that can move forward successfully. No one should view our disagreement over this bill as a significant substantive dispute that foretells any kind of realignment on the climate issue. I look forward to today's debate.

We will now consider the bill H.R. 1578. Let us. . .[audio malfunction]e. The Clerk will report the bill. H.R. 1578, I must reluctantly, and let me add most reluctantly, oppose Mr. Udall's bill. And I will oppose all amendments to it, as well.

There is much in the bill that I agree with. As a matter of fact, there is a great deal I agree with. And as I said when we opened this markup, I hope that once this debate is over, the Committee can move forward on a bipartisan basis with climate change legislation, but unfortunately, I don't think this bill fits the bill.

At our energy markup, I promised Mr. Udall as swift vote as we could get on this measure, and I am following through on that commitment. But I think a more cooperative and deliberative process would yield a more productive result, given all of the other considerations that have to be looked at. I will urge my colleagues to defeat this bill and the proposed amendments.

[H.R. 1578 follows:]

108TH CONGRESS
1ST SESSION

H.R. 1578

To promote and coordinate global change research, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 2, 2003

Mr. UDALL of Colorado introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on the Budget, and International Relations, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To promote and coordinate global change research, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Global Change Research and Data Management Act of 2003".

TITLE I—GLOBAL CHANGE RESEARCH

SEC. 101. FINDINGS AND PURPOSE.

(a) FINDINGS.—The Congress makes the following findings:

(1) Industrial, agricultural, and other human activities, coupled with an expanding world population, are contributing to processes of global change that are significantly altering the Earth habitat.

(2) Such human-induced changes, in conjunction with natural fluctuations, may lead to significant alterations of world climate patterns. Over the next century, these changes could adversely effect world agricultural and marine production, coastal habitability, biological diversity, human health, global social and political stability, and global economic activity.

(3) Developments in interdisciplinary Earth sciences, global observing systems, and satellite and computing technologies make possible significant scientific understanding of global changes and their effects, and have resulted in the significant expansion of environmental data and information.

(4) Development of effective policies to prevent, mitigate, and adapt to global change will rely on improvement in scientific understanding of global environmental processes and on development of information that is of use to decisionmakers at the local, regional, and national levels.

(5) Although the United States Global Change Research Program has made significant contributions to understanding Earth's climate and the anthropogenic influences on Earth's climate and its ecosystems, that Program has not produced sufficient information to meet the expressed needs of decisionmakers.

(6) Predictions of future climate conditions for specific regions have considerable uncertainty and are unlikely to be confirmed in a time period necessary to inform decisions on land, water, and resource management. However, improved understanding of global change should be used to assist decisionmakers in the development of policies to ensure that ecological, social, and economic systems are resilient under a variety of plausible climate futures.

(7) In order to most effectively meet the needs of decisionmakers, both the research agenda of the United States Global Change Research Program and its implementation must be informed by continuous feedback from documented users of information generated by the Program.

(b) PURPOSE.—The purpose of this title is to provide for the continuation and coordination of a comprehensive and integrated United States observation and research program which will assist the Nation and the world to understand, assess,

predict, and respond to the effects of human-induced and natural processes of global change.

SEC. 102. DEFINITIONS.

For purposes of this title—

(1) the term "global change" means human-induced or natural changes in the global environment (including alterations in climate, land productivity, oceans or other water resources, atmospheric chemistry, biodiversity, and ecological systems) that may alter the capacity of the Earth to sustain life;

(2) the term "global change research" means study, monitoring, assessment, prediction, and information management activities to describe and understand—

(A) the interactive physical, chemical, and biological processes that regulate the total Earth system;

(B) the unique environment that the Earth provides for life;

(C) changes that are occurring in the Earth system; and

(D) the manner in which such system, environment, and changes are influenced by human actions;

(3) the term "interagency committee" means the interagency committee established under section 103;

(4) the term "Plan" means the National Global Change Research Plan developed under section 105; and

(5) the term "Program" means the United States Global Change Research Program established under section 104.

SEC. 103. INTERAGENCY COOPERATION AND COORDINATION.

(a) ESTABLISHMENT.—The President shall establish an interagency committee to ensure cooperation and coordination of all federal research activities pertaining to processes of global change for the purpose of increasing the overall effectiveness and productivity of federal global change research efforts. The interagency committee shall include representatives of both agencies conducting global change research and agencies with authority over resources likely to be affected by global change.

(b) FUNCTIONS OF THE INTERAGENCY COMMITTEE.—The interagency committee shall—

(1) serve as the forum for developing the Plan and for overseeing its implementation;

(2) serve as the forum for developing the vulnerability assessment under section 107;

(3) ensure cooperation among federal agencies with respect to global change research activities;

(4) work with academic, State, industry, and other groups conducting global change research, to provide for periodic public and peer review of the Program;

(5) cooperate with the Secretary of State in—

(A) providing representation at international meetings and conferences on global change research in which the United States participates; and

(B) coordinating the federal activities of the United States with programs of other nations and with international global change research activities;

(6) work with appropriate Federal, State, regional, and local authorities to ensure that the Program is designed to produce information needed to develop policies to reduce the vulnerability of the United States and other regions to global change; and

(7) identify additional decisionmaking groups that may use information generated through the Program.

SEC. 104. UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM.

The President shall establish an interagency United States Global Change Research Program to improve understanding of global change, to respond to the information needs of communities and decisionmakers, and to provide periodic assessments of the vulnerability of the United States and other regions to global change. The Program shall be implemented in accordance with the Plan.

SEC. 105. NATIONAL GLOBAL CHANGE RESEARCH PLAN.

(a) IN GENERAL.—The President shall develop a National Global Change Research Plan for implementation of the Program. The Plan shall contain recommendations for global change research. The President shall submit the Plan to the Congress within 1 year after the date of enactment of this Act, and shall submit a revised Plan at least once every four years thereafter. In the development of each Plan, the President shall conduct a formal assessment process to determine the

needs of appropriate Federal, State, regional, and local authorities and other interested parties regarding the types of information needed by them in developing policies to reduce society's vulnerability to global change and shall utilize these assessments in developing the Plan.

(b) CONTENTS OF THE PLAN.—The Plan shall—

(1) establish, for the 10-year period beginning in the year the Plan is submitted, the goals and priorities for federal global change research which most effectively advance scientific understanding of global change and provide information of use to Federal, State, regional, and local authorities in the development of policies relating to global change;

(2) describe specific activities, including efforts to determine user information needs, research activities, data collection and data analysis requirements, assessment of model predictability, participation in international research efforts, and information management, required to achieve such goals and priorities;

(3) identify relevant programs and activities of the federal agencies that contribute to the Program directly and indirectly;

(4) set forth the role of each federal agency in implementing the Plan;

(5) consider and utilize, as appropriate, reports and studies conducted by federal agencies, the National Research Council, or other entities;

(6) make recommendations for the coordination of the global change research activities of the United States with such activities of other nations and international organizations, including—

(A) a description of the extent and nature of international cooperative activities;

(B) bilateral and multilateral efforts to provide worldwide access to scientific data and information; and

(C) improving participation by developing nations in international global change research and environmental data collection;

(7) detail budget requirements for federal global change research activities to be conducted under the Plan;

(8) catalog the type of information identified by appropriate Federal, State, regional, and local decisionmakers needed to develop policies to reduce society's vulnerability to global change and indicate how the planned research will meet these decisionmakers' information needs; and

(9) identify the observing systems currently employed in collecting data relevant to global change research and prioritize additional observation systems that may be needed to ensure adequate data collection and monitoring of global change.

(c) RESEARCH ELEMENTS.—The Plan shall include at a minimum the following research elements:

(1) Global measurements, establishing worldwide to regional scale observations prioritized to understand global change and to meet the information needs of decisionmakers on all relevant spatial and time scales.

(2) Information on economic and demographic trends that contribute to changes in the Earth system and that influence society's vulnerability to global change.

(3) Development of indicators and baseline databases to document global change, including changes in species distribution and behavior, extent of glaciations, and changes in sea level.

(4) Studies of historical changes in the Earth system, using evidence from the geological and fossil record.

(5) Assessments of predictability using quantitative models of the Earth system to simulate global and regional environmental processes and trends.

(6) Focused research initiatives to understand the nature of and interaction among physical, chemical, biological, and social processes related to global change.

(7) Focused research initiatives to determine and then meet the information needs of appropriate Federal, State, and regional decisionmakers.

(d) INFORMATION MANAGEMENT.—The Plan shall incorporate, to the extent practicable, the recommendations relating to data acquisition, management, and archiving made by the interagency climate and other global change data management working group established under section 203.

(e) NATIONAL ACADEMY OF SCIENCES EVALUATION.—The President shall enter into an agreement with the National Academy of Sciences under which the Academy shall—

(1) evaluate the scientific content of the Plan; and

(2) recommend priorities for future global change research.

(f) NATIONAL GOVERNORS ASSOCIATION EVALUATION.—The President shall seek to enter into an agreement with the National Governors Association Center for Best Practices under which that Center shall—

(1) evaluate the utility to State, local, and regional decisionmakers of each Plan and of the anticipated and actual information outputs of the Program for development of policies to reduce vulnerability to global change; and

(2) recommend priorities for future global change research.

(g) PUBLIC PARTICIPATION.—In developing the Plan, the President shall consult with academic, State, industry, and environmental groups and representatives. Not later than 90 days before the President submits the Plan, or any revision thereof, to the Congress, a summary of the proposed Plan shall be published in the *Federal Register* for a public comment period of not less than 60 days.

SEC. 106. BUDGET COORDINATION.

(a) IN GENERAL.—The President shall provide general guidance to each federal agency participating in the Program with respect to the preparation of requests for appropriations for activities related to the Program.

(b) CONSIDERATION IN PRESIDENT'S BUDGET.—The President shall identify in each annual budget request submitted to the Congress under section 1105 of title 31, United States Code, those items in each agency's annual budget which are elements of the Program.

SEC. 107. VULNERABILITY ASSESSMENT.

Within one year after the date of enactment of this Act, and at least once every four years thereafter, the President shall submit to the Congress an assessment which—

(1) integrates, evaluates, and interprets the findings of the Program and discusses the scientific uncertainties associated with such findings;

(2) based on indicators and baselines developed under section 105(c)(3), as well as other measurements, analyzes changes to the natural environment, land and water resources, and biological diversity in—

(A) major geographic regions of the United States; and

(B) other continents;

(3) analyzes the effects of global change, including the changes described in paragraph (2), on agriculture, energy production and use, transportation, human health and welfare, and human social and economic systems, including providing information about the differential impacts on specific geographic regions within the United States, on people of different income levels within those regions, and for rural and urban areas within those regions;

(4) analyzes the vulnerability of different geographic regions of the world to global change, including analyses of the implications of global change for international assistance, population displacement, and national security; and

(5) analyzes the adoption rates of policies and technologies available to reduce the vulnerability of society to global change with an evaluation of the market and policy barriers suppressing their adoption in the United States.

SEC. 108. POLICY ASSESSMENT.

Not later than one year after the date of enactment of this Act, and at least once every three years thereafter, the President shall submit to the Congress a policy assessment which—

(1) documents current policy options being utilized by Federal, State, and local governments to mitigate or adapt to the effects of global change;

(2) evaluates the realized and anticipated effectiveness of those current policy options in addressing global change; and

(3) identifies and evaluates additional policy options for mitigating or adapting to the effects of global change.

SEC. 109. ANNUAL REPORT.

Each year at the time of submission to the Congress of the President's budget request, the President shall submit to the Congress a report on the activities conducted pursuant to this title, including—

(1) a summary of the achievements of the Program during the period covered by the report;

(2) an analysis of the progress made toward achieving the goals of the Plan; and

(3) a list of the State, local, and regional decisionmakers identified as potential users of the information generated through the Program and a description of the consultations with this community coordinated through the work of the interagency committee.

SEC. 110. RELATION TO OTHER AUTHORITIES.

The President shall ensure that relevant research activities of the National Climate Program, established by the National Climate Program Act (15 U.S.C. 2901 et seq.), are considered in developing national global change research efforts.

SEC. 111. REPEAL.

The *Global Change Research Act of 1990* (15 U.S.C. 2921 et seq.) is repealed.

TITLE II—CLIMATE AND OTHER GLOBAL CHANGE DATA MANAGEMENT

SEC. 201. FINDINGS AND PURPOSES.

(a) FINDINGS.—The Congress makes the following findings:

(1) Federal agencies have a primary mission to manage and archive climate and other global change data obtained through their research, development, or operational activities.

(2) Maintenance of climate and global change data records is essential to present and future studies of the Earth's atmosphere, biogeochemical cycles, and climate.

(3) Federal capabilities for the management and archiving of these data have not kept pace with advances in satellite and other observational technologies that have vastly expanded the type and amount of information that can be collected.

(4) Proposals and plans for expansion of global observing networks should include plans for the management of data to be collected and budgets reflecting the cost of support for management and archiving of data.

(b) PURPOSES.—The purposes of this title are to establish climate and other global change data management and archiving as federal agency missions, and to establish federal policies for managing and archiving climate and other global change data.

SEC. 202. DEFINITIONS.

For purposes of this title—

(1) the term "metadata" means information describing the content, quality, condition, and other characteristics of climate and other global change data, compiled, to the maximum extent possible, consistent with the requirements of the "Content Standard for Digital Geospatial Metadata" (FGDC–STD–001–1998) issued by the Federal Geographic Data Committee, or any successor standard approved by the working group; and

(2) the term "working group" means the interagency climate and other global change data management working group established under section 203.

SEC. 203. INTERAGENCY CLIMATE AND OTHER GLOBAL CHANGE DATA MANAGEMENT WORKING GROUP.

(a) ESTABLISHMENT.—The President shall establish an interagency climate and other global change data management working group to make recommendations for coordinating federal climate and other global change data management and archiving activities.

(b) MEMBERSHIP.—The working group shall include the Administrator of the National Aeronautics and Space Administration, the Administrator of the National Oceanic and Atmospheric Administration, the Secretary of Energy, the Secretary of Defense, the Director of the National Science Foundation, the Director of the United States Geological Survey, the Archivist of the United States, the Administrator of the Environmental Protection Agency, the Secretary of the Smithsonian Institution, or their designees, and representatives of any other federal agencies the President considers appropriate.

(c) REPORTS.—Not later than 1 year after the date of enactment of this Act, the working group shall transmit a report to the Congress containing the elements described in subsection (d). Not later than three years after the initial report under this subsection, and not later than once every four years subsequent to that, the working group shall transmit reports updating the previous report. In preparing reports under this subsection, the working group shall consult with expected users of the data collected and archived by the Program.

(d) CONTENTS.—The reports and updates required under subsection (c) shall—

(1) include recommendations for the establishment, maintenance, and accessibility of a catalog identifying all available climate and other global change data sets;

(2) identify climate and other global change data collections in danger of being lost and recommend actions to prevent such loss;

(3) identify gaps in climate and other global change data and recommend actions to fill those gaps;

(4) identify effective and compatible procedures for climate and other global change data collection, management, and retention and make recommendations for ensuring their use by federal agencies and other appropriate entities;

(5) develop and propose a coordinated strategy for funding and allocating responsibilities among federal agencies for climate and other global change data collection, management, and retention;

(6) make recommendations for ensuring that particular attention is paid to the collection, management, and archiving of metadata;

(7) make recommendations for ensuring a unified and coordinated federal capital investment strategy with respect to climate and other global change data collection, management, and archiving;

(8) evaluate the data record from each observing system and make recommendations to ensure that delivered data are free from time-dependent biases and random errors before they are transferred to long-term archives; and

(9) evaluate optimal design of observation system components to ensure a cost-effective, adequate set of observations detecting and tracking global change.

TITLE III—INTERNATIONAL COOPERATION IN GLOBAL CHANGE RESEARCH

SEC. 301. FINDINGS AND PURPOSES.

(a) FINDINGS.—The Congress makes the following findings:

(1) Pooling of international resources and scientific capabilities will be essential to a successful international global change program.

(2) While international scientific planning is already underway, there is currently no comprehensive intergovernmental mechanism for planning, coordinating, or implementing research to understand global change and to mitigate possible adverse effects.

(3) An international global change research program will be important in building future consensus on methods for reducing global environmental degradation.

(4) The United States, as a world leader in environmental and Earth sciences, should help provide leadership in developing and implementing an international global change research program.

(b) PURPOSES.—The purposes of this title are to—

(1) promote international, intergovernmental cooperation on global change research;

(2) involve scientists and policymakers from developing nations in such cooperative global change research programs; and

(3) promote international efforts to provide technical and other assistance to developing nations which will facilitate improvements in their domestic standard of living while minimizing damage to the global or regional environment.

SEC. 302. INTERNATIONAL DISCUSSIONS.

(a) GLOBAL CHANGE RESEARCH.—The President shall direct the Secretary of State to initiate discussions with other nations leading toward international protocols and other agreements to coordinate global change research activities. Such discussions should include the following issues:

(1) Allocation of costs in global change research programs, especially with respect to major capital projects.

(2) Coordination of global change research plans with those developed by international organizations such as the International Council on Scientific Unions, the World Meteorological Organization, and the United Nations Environment Program.

(3) Establishment of global change research centers and training programs for scientists, especially those from developing nations.

(4) Development of innovative methods for management of international global change research, including the use of new or existing intergovernmental organizations for the coordination or funding of global change research.

(5) Establishment of international offices to disseminate information useful in identifying, preventing, mitigating, or adapting to the possible effects of global change.

(b) ENERGY RESEARCH.—The President shall direct the Secretary of State (in cooperation with the Secretary of Energy, the Secretary of Commerce, the United States Trade Representative, and other appropriate federal agents) to initiate discussions with other nations leading toward an international research protocol for cooperation on the development of energy technologies which have minimally adverse effects on the environment. Such discussions should include the following issues:

(1) Creation of an international cooperative program to fund research related to energy efficiency and conservation, solar and other renewable energy sources, and passively safe and diversion-resistant nuclear reactors.

(2) Creation of an international cooperative program to develop low-cost energy technologies which are appropriate to the environmental, economic, and social needs of developing nations.

(3) Exchange of information concerning environmentally safe energy technologies and practices, including those described in paragraphs (1) and (2).

SEC. 303. GLOBAL CHANGE RESEARCH INFORMATION OFFICE.

The President shall establish an Office of Global Change Research Information to disseminate to foreign governments, businesses, and institutions, as well as the citizens of foreign countries, scientific research and other information available in the United States which would be useful in preventing, mitigating, or adapting to the effects of global change.

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[The Section-by-Section Analysis of H.R. 1578 follows:]

SECTION-BY-SECTION ANALYSIS OF
H.R 1578, GLOBAL CHANGE RESEARCH AND
DATA MANAGEMENT ACT OF 2003

Sec. 1. Short Title.

"Global Change Research and Data Management Act of 2003"

Title I—Global Change Research

Sec. 101. Findings and Purpose.

Findings: Among the several findings is that human-induced changes, in conjunction with natural fluctuations, may lead to significant alterations of world climate patterns. Additionally, the bill establishes findings that, although the United States Global Change Research Program has made significant contributions to understanding Earth's climate and the anthropogenic influences on Earth's climate and its ecosystems, that Program has not produced sufficient information to meet the expressed needs of decisionmakers.

Purpose: The purpose of Title I is to provide for the continuation and coordination of a comprehensive and integrated United States observation and research program which will assist the Nation and the world to understand, assess, predict, and respond to the effects of human-induced and natural processes of global change.

Sec. 102. Definitions.

This section defines terms used in the text.

Sec. 103. Interagency Cooperation and Coordination.

Establishes an interagency committee to ensure cooperation and coordination of all federal research activities pertaining to processes of global change for the purpose of increasing the overall effectiveness and productivity of federal global change research efforts. This interagency committee would serve as a forum to develop and oversee the National Global Research Plan under Sec. 105, to develop the vulnerability assessment under Sec. 107, and to ensure cooperation among federal agencies with respect to global change research activities.

Sec. 104. United States Global Change Research Program.

Establishes an interagency United States Global Change Research Program to improve understanding of global change, to respond to the information needs of communities and decisionmakers, and to provide periodic assessments of the vulnerability of the United States and other regions to global change.

Sec. 105. National Global Change Research Plan.

Requires a National Global Change Research Plan for implementation of the Program. The Plan should contain: the goals and priorities for federal global change research; a description of specific activities required to achieve such goals and priorities, including efforts to determine user information needs, research activities, data collection and data analysis requirements, assessment of model predictability, participation in international research efforts, and information management; and an explanation of the role of each federal agency in implementing the Plan.

The Plan is to be evaluated by the National Academy of Sciences.

Sec. 106. Budget Coordination.

Requires the President to identify in each annual budget request those items in each agency's annual budget that are elements of the Program.

Sec. 107. Vulnerability Assessment.

Requires a vulnerability assessment that would analyze the effects of global change on agriculture, energy production and use, transportation, and human health, including information about the differential impacts on specific geographic regions within the United States.

Sec. 108. Policy Assessment.

Requires a policy assessment that would document current policy options being utilized by Federal, State, and local governments, evaluates the options, and identifies additional options to mitigate or adapt to the effects of global change.

Sec. 109. Annual Report.

Requires an annual report on the activities conducted by the Program.

Sec. 110. Relation to Other Authorities.

Ensures that the relevant research activities of the National Climate Program, established by the National Climate Program Act (15 U.S.C. 2901 et seq.) are considered in developing national global change research efforts.

Sec. 111. Repeal.

Repeals the *Global Change Research Act of 1990* (15 U.S.C. 2921 et seq.).

Title II—Climate and Other Global Change Data Management

Sec. 201. Findings and Purposes.

Findings: Among the several findings is that federal agencies have a primary mission to manage and archive climate and other global change data obtained through their research, development or operational activities.

Purposes: The purpose of Title II is to establish climate and other global change data management and archiving as federal agency missions, and to establish federal policies for managing and archiving climate and other global change data.

Sec. 202. Definitions.

This section defines terms used in the text.

Sec. 203. Interagency Climate and Other Global Change Data Management Working Group.

Establishes an interagency climate and other global change data management working group to make recommendations for coordinating federal climate and other global change data management and archiving activities. The working group is to submit reports to Congress which: include recommendations for the establishment, maintenance, and accessibility of a catalog identifying all available climate and other global change data sets; identify gaps in climate and other global change data and recommend actions to fill those gaps; and make recommendations for ensuring a unified and coordinated federal capital investment strategy with respect to climate and other global change data collection, management, and archiving.

Title III—International Cooperation in Global Change Research

Sec. 301. Findings and Purposes.

Findings: Among the several findings is that the United States, as a world leader in environmental and Earth sciences, should help provide leadership in developing and implementing an international global change research program.

Purposes: The overall purpose of Title III is to promote international, intergovernmental cooperation on global change research.

Sec. 302. International Discussions.

Requires the Secretary of State to initiate discussions with other nations leading toward international protocols and other agreements to coordinate global change research activities. In addition, the Secretary of State (in cooperation with the Secretary of Energy, the Secretary of Commerce, the United States Trade Representative, and other appropriate federal agents) shall initiate discussions with other nations leading toward an international research protocol for cooperation on the development of energy technologies.

Sec. 303. Global Change Research Information Office.

Requires the establishment of an Office of Global Change Research Information to disseminate to foreign parties information available in the United States that would be useful in preventing, mitigating, or adapting to the effects of global change.

Chairman BOEHLERT. The Chair now recognizes Mr. Udall.

Mr. UDALL. Thank you, Mr. Chairman. I want to begin by thanking you for holding the markup and for keeping your commitment to have this committee act upon my bill even though you have decided to oppose it. As always, I am grateful to the Chairman for his friendship and courtesy, and I am glad to have this opportunity to bring my legislation to the attention of the Committee.

I believe the bill is worthy of consideration, and I believe this committee needs to take a position sooner rather than later on global change research. In the last Congress, this committee did not act to include a reauthorization of the U.S. Global Change Research Program in the Energy Bill. Meanwhile, the Senate's Energy Bill contained three climate titles.

The failure of the House to produce any legislation on global change policy left us in a weak negotiating position as we entered the conference. My bill would reorient the program to accomplish these goals. It would—excuse me, Mr. Chairman. I know that the Chairman has said that the Committee doesn't intend to repeat this error, but we have yet to see a bill from this committee, so I felt it was important to come up with my own.

H.R. 1578 would update and reorient the current U.S. Global Change Research Program, which was first signed into law by President Bush in 1990. The Global Change Program has significantly advanced our scientific knowledge of Earth's atmosphere and climate, but it has not produced sufficient information in terms of both content and format to be the basis for sound decisions.

Over the past year, the Administration has demonstrated through its own efforts that it recognizes the need for current global change research to produce more user-friendly information. Moreover, the National Academy of Science's recent review of the Administration's strategic plan recommended that the plan be revised to enhance efforts to support decision-making.

My bill would reorient the program to accomplish these goals. It would require the Administration to identify and consult with members of the user community in developing the U.S. GCRP research plan. The bill would also mandate the involvement of the National Governor's Association. The bill would also eliminate the detailed organizational structure outlined in the 1990 law. Instead, it would provide the President with the flexibility to assemble an interagency committee and organizational structure. It would best deliver the products Congers requests. The bill would also establish a new interagency working group to coordinate federal policies on data management and archiving.

Advances in computer monitoring and satellite technologies have vastly expanded our ability to collect and analyze data. We must do a better job of managing and archiving these important data resources to support the work of scientists and ourselves as policy makers. As it was clear from the impasse on the climate provisions of the Energy Bill in the last Congress, we have yet to agree on how much more information, if any, is needed before we take actions to slow the effects of human activities on global change. These are tough policy questions that we will continue to wrestle with. This bill does not offer specific policy direction, but it does affirm the need for continued strong federal support for global

change research, and it does map out a new emphasis on production of information needed to inform these important policy debates.

We have divergent views on energy policy, and yet we seem to be able to work through our differences to produce an Energy Bill. I see no reason why we should not be able to do the same on the issue of global change.

While I am disappointed that the Chairman will oppose my bill, I appreciate the courtesy that is—he has shown in bringing my bill forward. I look forward to working with him and other Members of this committee on both sides of the aisle to establish a position on the Global Change Research Program as a basis for our committee's future participation in Energy Bill negotiations.

I would just conclude by saying the jurisdiction of this committee provides us with the unique opportunity to define a House position on global change, and I believe we must not let this opportunity pass us by.

I thank you, Mr. Chairman, and would yield back any time I have remaining at this point.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Mr. Chairman, thank you for holding this markup today and for keeping your commitment to have this committee act upon my bill, even though you've decided to oppose it. As always, I am grateful to the Chairman for his friendship and courtesy, and I am glad to have this opportunity to bring my legislation to the attention of the Committee.

I believe my bill is worthy of consideration, and I believe this committee needs to take a position sooner rather than later on global change research.

In the last Congress, this committee did not act to include a reauthorization of the U.S. Global Change Research Program in the energy bill. Meanwhile, the Senate's energy bill contained three climate titles. The failure of the House to produce any legislation on global change policy left us in a weak negotiating position in this area as we entered the conference.

I know the Chairman has said that the Committee doesn't intend to repeat this error. But we have yet to see a bill from this committee, so I felt it important to come up with my own.

H.R. 1578 would update and reorient the current U.S. Global Change Research Program, which was signed into law by the first President Bush in 1990.

The global change research program has significantly advanced our scientific knowledge of Earth's atmosphere and climate, but it has not produced sufficient information, in terms of both content and format, to be the basis for sound decisions.

Over the past year, the Administration has demonstrated through its own efforts that it recognizes the need for the current global change research program to produce more user-friendly information for decision-makers at all levels of government. Moreover, the National Academy of Sciences' recent review of the Administration's strategic plan for the program recommended that the plan be revised to enhance efforts to support decision-making.

My bill would reorient the program to accomplish these goals. It would require the Administration to identify and consult with members of the user community in developing the USGCRP research plan. The bill would also mandate the involvement of the National Governors Association in evaluating the plan from the perspective of the user community.

My bill would also eliminate the detailed organizational structure outlined in the 1990 law. Instead, it would provide the President with the flexibility to assemble an Interagency Committee and organizational structure that would best deliver the products Congress requests.

My bill would also establish a new interagency working group to coordinate federal policies on data management and archiving. Advances in computer, monitoring, and satellite technologies have vastly expanded our ability to collect and analyze data. We must do a much better job of managing and archiving these important data resources to support the work of scientists and policy-makers.

As was clear from the impasse on the climate provisions of the energy bill in the last Congress, we have yet to agree on how much more information, if any, is needed before we take actions to slow the effects of human activities on global change. These are tough policy questions that we will continue to wrestle with.

This bill does not offer specific policy direction, but it does affirm the need for the continued strong federal support for global change research, and it does map out a new emphasis on production of information needed to inform these important policy debates.

We have divergent views on energy policy—and yet we seem to be able to work through our differences to produce an energy bill. I see no reason why we should not be able to do the same on the issue of global change.

While I am disappointed that the Chairman will oppose my bill, I appreciate the courtesy he has shown in bringing my bill forward. I look forward to working with him and other Members of this committee to establish a position on the global change research program as a basis for our committee's future participation in the energy bill negotiations. The jurisdiction of this committee provides us with a unique opportunity to begin to define a House position on global change. I believe we must not let this opportunity pass us by.

Thank you Mr. Chairman.

Chairman BOEHLERT. Is there anyone else who seeks—where are we right now? Without objection, all Members may place opening statements in the record at this point. And the bill is now open for discussion.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Human activities now occur on a scale that is starting to interfere with complex natural systems such as the global climate. Scientists have learned a great deal in recent decades about climate and how it responds to human activities, particularly the emissions of greenhouse gases such as carbon dioxide, methane, nitrous oxide, etc. Nevertheless, the climate system is so vast and complex that much uncertainty remains.

Climate change poses a serious challenge to policy-makers. Many argue that climate change poses a risk of serious or irreversible damage and that the lack of full scientific certainty should not be used as an excuse to postpone action. Some believe that the risk is manageable and not worth a major shift in the investment of financial and human resources. Somehow, policy-makers must sort through the evidence, weigh the costs and benefits, evaluate the risks, and decide on a course of action.

That is why I am so excited about this Global Change bill and am very happy that Rep. Udall has introduced it. I am offering an amendment on understanding the contribution to the reduction of greenhouse gases that can be made by more effective energy conservation programs, including those dealing with low income and inadequately insulated housing; and the use of clean fuels in residential areas, industrial areas, and transportation, including mass transit systems.

In addition, I am also offering a second amendment would instruct the Director of the National Science Foundation to establish a scholarship program for post-secondary students studying global climate change, including capability in observation, analysis, modeling, paleoclimatology, consequences, and adaptation. As education is the basis for all knowledge, and such funds can help our students learn more about environment and protect our world from harmful effect of global climate change.

I welcome the opportunity to work further on this issue with this committee.

Mr. MATHESON. Mr. Chairman.

Chairman BOEHLERT. Yes.

Mr. MATHESON. I move to strike that last word. Mr. Chairman, I think when we talk about this issue, so often we spend time talking about long-term global climate focus of this research program, and sometimes we may fail to recognize the importance of this program to improving our knowledge of medium term regional climate patterns and understanding how these patterns affect our lives and our resources and our economy.

In Utah, and in other western states, we are in the midst of a severe drought cycle. Farmers and ranchers in our state and water

resource managers are struggling to deal with this situation. The Federal, State, and local governments are all trying to provide assistance to help people get through this cycle. Nothing about drought is easy, but if we better understand our vulnerabilities and if we can better predict the severity and duration of these cycles, we may have the opportunity to plan our water allocations, assistant programs, and other interventions to make the transitions through these drought cycles a little smoother.

And I think it makes good sense to have the Center for Best Practices of the National Governor's Association evaluate this program to ensure that it produces information needed by local and regional decision makers who are responsible for managing resources. A number of states in the west have been working with organizations like the National Drought Mitigation Center to design drought mitigation plans. The approach to drought emphasized by the center is one of improved preparation and development of tools to reduce vulnerability to drought rather than crisis management.

The changes to the U.S. Global Change Research Program made by H.R. 1578 are moving in the same direction, more emphasis on identifying and understanding vulnerabilities and emphasis on developing creative ways to reduce those vulnerabilities. I think these efforts will compliment each other and result in real progress in helping us to cope with unfavorable climate cycles. Global circulation models that generate 100-year climate predications are useful in expanding the horizons of scientific knowledge in giving us a better understanding of the Earth's system as a whole, but these models will not deliver useful information to the people with specific reasons charged with making decisions about resources that are effected by weather and climate on a daily to decadal basis.

So I support these valued improvements to the U.S. Global Change Research Program. I thank Mr. Udall for his leadership, and I urge my colleagues to support this legislation. I yield back the balance of my time.

[The prepared statement of Mr. Matheson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JIM MATHESON

I move to strike the last word.

Mr. Chairman, we spend so much time talking about the long-term, global climate focus of this research program that we fail to recognize the importance of this program to improving our knowledge of medium-term, regional climate patterns and to understanding how these patterns impact our lives, our resources and our economy.

In Utah, and in other western states, we are in the midst of a severe drought cycle. The farmers and ranchers in our state and the water resource managers are struggling to deal with this severe situation. The Federal, State, and local governments are all trying to provide assistance to help people get through this cycle. Nothing about a drought is easy, but if we better understand our vulnerabilities and we can better predict the severity and duration of these cycles we have the opportunity to plan our water allocations, assistance programs, and other interventions to make the transitions through these cycles a little smoother.

I think it makes good sense to have the Center for Best Practices of the National Governors Association evaluate this program to ensure that it produces information needed by local and regional decision-makers who are responsible for managing resources. A number of states in the west have been working with organizations like the National Drought Mitigation Center to design drought mitigation plans. The approach to drought emphasized by the Center is one of improved preparation and development of tools to reduce vulnerability to drought rather than crisis management. The changes to the U.S. Global Change Research program made by H.R. 1578

are moving in this same direction—more emphasis on identifying and understanding vulnerabilities and emphasis on developing creative ways to reduce those vulnerabilities. I think these efforts will complement each other and result in real progress in helping us to cope with unfavorable climate cycles.

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I support these valuable improvements to the U.S. Global Change Research Program and I urge my colleagues to join me in support of this legislation.

Chairman BOEHLERT. Thank you very much. The Chair—I ask unanimous consent that the bill be considered as read and open to amendment at any point. I ask the Members to proceed with the amendments in the order of the roster.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE - FULL COMMITTEE MARKUP
AMENDMENT ROSTER – MAY 1, 2003

H.R. 1578, Global Change Research and Data Management Act of 2003
--Motion to report the bill: Defeated by a roll call vote: Y-18; N-23.

No.	Sponsor	Description	Results
1.	Ms. Jackson Lee #67	Amendment to Sec. 102 and Sec. 105 adds a definition of "abrupt climate change" and adds "Abrupt climate change" to the list of research elements required in the Program's research Plan.	--Defeated by a roll call vote: Y-17; N-19.
2.	Ms. Eddie Bernice Johnson #16	Amendment to Sec. 103. describing additional functions of the interagency committee related to energy conservation and clean fuels.	--Unanimous consent request to withdraw Amendments #2 and #6 was agreed to.
3.	Mr. Miller #4	Amendment to Sec. 103 to authorize a study of technology transfer activities at federal laboratories related to energy efficient technologies.	--Unanimous consent request to withdraw the amendment was agreed to.
4.	Mr. Larson #20	Amendment to Sec. 105 to add a research initiative on greenhouse gases and cloud/aerosol radiation forcing.	--Rejected by a voice vote.
5.	Ms. Jackson Lee #65	Amendment to Sec. 107 to add "public health" to the list of things to be considered in vulnerability analyses.	--Rejected by a voice vote.
6.	Ms. Eddie Bernice Johnson #15	Amendment adds a new Sec. 112 to the end of Title I requiring the Director of NSF to establish a scholarship program for post-secondary students studying climate change.	--Unanimous consent request to withdraw Amendments #2 and #6 was agreed to.

Chairman BOEHLERT. And does everyone have the roster before them? Amendment number 1 by Ms. Jackson Lee. And could I ask if it would be acceptable for amendment number 1 and amendment number 5 to be considered en bloc? Do you have any difficulty with that?

Ms. JACKSON LEE. Mr. Chairman, am I to understand that you are going to give them all—both of them collectively your equal wisdom and support? If that is the case, I would be happy to do it.

Chairman BOEHLERT. That is not the understanding that the gentlelady should take as we proceed.

Ms. JACKSON LEE. Mr. Chairman, if I might, I would like to then ask for a bifurcated vote, but in any event——

Chairman BOEHLERT. All right. Fine. Go ahead. Fine.

Ms. JACKSON LEE. Thank you, Mr. Chairman.

Chairman BOEHLERT. The Clerk will report amendment number 1.

Ms. TESSIERI. Amendment to H.R. 1578 offered by Jackson Lee of Texas.

[The amendment offered by Ms. Jackson Lee follows:]

AMENDMENT TO H.R. 1578

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 4, line 11, through page 5, line 12, redesignate paragraphs (1) through (5) as paragraphs (2) through (6), respectively.

Page 4, after line 10, insert the following:

(1) the term "abrupt global change" means a geophysical or biological change that occurs so rapidly or unexpectedly that human or natural systems may have difficulty in adapting to it;

Page 10, after line 23, insert the following new paragraph and renumber the subsequent paragraphs accordingly:

(5) Research on potential abrupt global change, including—

(A) development of indicators of past instances of abrupt global change;

(B) understanding thresholds in geophysical systems underlying mechanisms of abrupt global change; and

(C) incorporation of instances of abrupt global change into geophysical models.

Chairman BOEHLERT. You are recognized for five minutes.

Ms. JACKSON LEE. Thank you very much, Mr. Chairman. And first, it is my privilege to be able to thank Congressman Udall for his insightful leadership, not insighting, but insightful leadership and clear and very definitive legislation and to add my appreciation, again, for the courtesies of the Chairman for allowing us to have this debate, but also to remind the Chairman of his years of commitment to this concept of global warming and the global change. I recall that the Chairman, I believe, spoke about two years ago on the importance of this issue, so I know that eventually we are going to find common ground. I would hope that we could find common ground on this particular amendment, and I will try to summarize.

Well, let me begin by saying that when we think of climate change, we think of greenhouse gases that are gradually building up in our atmosphere and slowly causing rises in temperatures or causing mildly yearly increases in the severity of storms. Obviously, the gradual rate of change used to leave some to question whether global warming was a real phenomenon at all. Now we know that the problem is real and we now have developed extremely accurate devices from measuring change and estimating changes that have occurred in the past.

However, one unexpected finding of global change research is that sometimes profound changes can occur very rapidly, abrupt changes. Studying weather and weather systems have become one of the classic examples of a chaotic or nonlinear system. And though I have great affection for Houston, my hometown, I know that we can experience that readily, sort of abrupt changes in weather. This means that as the input into the system, such as greenhouse gas, rises slowly into a linear fashion, that climate change can be erratic and come about much faster than one would expect from the rise in greenhouse gas concentration. This is a classic characteristic of complex systems like weather.

My amendment, in particular, does research on potential abrupt global change, including a variety of factors that will be assessed. It looks at the abruptness, and it looks at what may result from that. It is thought, or has been thought, that the Ice Age came from an abrupt change, a dramatic change. It is thought that such nonlinear effects have led to abrupt changes in climate and in the history of our planet. An abrupt change is defined as geophysical or biological change that occurs so rapidly or unexpectedly that human or natural systems may have difficulty in adopting it. And abrupt changes are thought to have caused a mass—caused mass extinctions.

It is also thought that such things could happen again. And as we are sitting around arguing if the temperature has actually risen a half of a degree this year, we should start getting reports—or could start getting reports of catastrophic incidents in some vulnerable areas.

And so I think it is extremely important that we look at what would happen if the jet stream stops. It might impact Western Europe. England, France, and Germany and the nations to the north are at the same latitude as Siberia. But if the jet stream stops, we

might, in fact, have an England, a France, and a Germany that looks, feels, and is as uncomfortable as it might be in Siberia.

I will simply say, Mr. Chairman, that even though we may have some political differences with the old Europe to be known to them as the current Europe, I think it is extremely important that we look at this amendment to help us address the bottom line question of what I am saying the abrupt changes in weather, the abrupt changes in climate. And I would hope that as we move this legislation forward, we look at these types of amendment.

Again, let me thank Congressman Udall for the vision to help us discuss this at this juncture and remind and thank the Chairman for his interest in this area. And I would ask my colleagues to support me in this amendment. I reserve the balance of my time.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

Usually when we think of climate change we think of greenhouse gasses that are gradually building up in our atmosphere and slowly causing rises in temperatures, or causing mild yearly increases in the severity of storms. Obviously, that gradual rate of change used to lead some to question whether global warming was a real phenomenon at all. Now we know that the problem is real and we now have developed extremely accurate devices from measuring change, and estimating changes that have occurred in the past.

However, one unexpected finding of global change research, is that sometimes profound changes can occur—very rapidly. Studying weather and weather systems has become one of the classic examples of a "chaotic" or "nonlinear" system. This means that as the input into the system—such as greenhouse gas-rises slowly, in a linear fashion—that climate change can be erratic and come about much faster than one would expect from the rise in greenhouse gas concentration. This is a classic characteristic of complex systems like weather.

It is thought that such nonlinear effects, have led to "abrupt" changes in climate in the history of our planet. Abrupt change is defined as geophysical or biological change that occurs so rapidly or unexpectedly that human or natural systems may have difficulty in adapting to it. Abrupt changes are thought to have caused mass extinctions. It is also thought that such things could happen again. As we are sitting around arguing if the temperature has actually risen a half of a degree this year, we could start getting reports of catastrophe in some vulnerable areas.

One frightening possibility is in Western Europe, where much England, France, and Germany and the nations to the North, are at a similar latitude to Siberia. Whereas Siberia is known for its brutal winters, Europe is known to be more temperate due to the effects of the Gulf Stream. However, some models have predicted that there may be a threshold level of global warming that could cause, all of a sudden, for the Gulf Stream to become unstable, and to just stop, and turn what we know as Western Europe into another Siberian tundra.

We must get a handle on these kinds of issues. My amendment would add an abrupt global change research component to this bill, and require that results from that research get incorporated into developing geophysical models.

It will complement well this already excellent bill. I hope you will support it. Thank you.

Mr. GUTKNECHT. [Presiding] The gentlelady reserves the balance of her time, which is 46 seconds. Did anyone seek time in the opposition of the amendment?

Let me just exercise the prerogative of the Chair and simply say that I have visited the NOAA headquarters out in Bolder, Colorado. And there is growing evidence that there is a change in the atmosphere. It does not necessarily translate to global climate change. And unfortunately, this amendment and all of the amendments and the bill itself was drafted without a whole lot of cooperation, or participation, I should say, by either republicans on this

committee or people inside the Administration who would be in a position to help. So we are going to oppose this amendment and subsequent amendments, and ultimately, the bill.

Does anybody else seek recognition?

Mr. UDALL. I would move to strike the last word.

Mr. GUTKNECHT. The gentleman from Colorado is recognized for five minutes.

Mr. UDALL. Thank you, Mr. Chairman. I want to make a comment about my colleague's amendment. I think it is a well-considered amendment. I would support it, and I want to thank her for offering it.

I know the Chairman and I have spent time in Colorado touring the NIST laboratory and the NOAA laboratory and some of the other federal facilities, and we were all impressed with the good work that is going on there. The—we have, just for the record, held a number of hearings on the Global Change Research Program and would like to submit those for the record, March 14 in '01, April 17 in '01, July 10 in 2002. And in addition, individual agency participation in the U.S. GCRP has been covered within the context of the Administration's budget request for NOAA, the DOE, NASA, and the National Science Foundation.

And the changes that we made in H.R. 1578 are based on testimony received by the Committee in the hearing records over the past two years and upon recommendations made with the National Academy reviews of the U.S. GCRP and the recent review of the Administration's research plan. So we have had an impressive record that I have used in order to construct this legislation. And Chairman Boehlert has acknowledged earlier today, and I anticipate he will in the future, that we need to move ahead in this particularly important area but that he has a disagreement with my approach when it comes to the tactical situation which we find ourselves.

And I would be happy to—I would reserve the balance of my time.

Ms. JACKSON LEE. Would the gentleman yield?

Mr. UDALL. The gentleman—I would be happy to yield.

Ms. JACKSON LEE. I thank the gentleman. I think it is important to procedurally lay out the record. Mr. Chairman, I want you to know that we offered this particular amendment really some days ago, but really offered it in the spirit of seeking to work with any of our colleagues on the other side of the aisle that wanted to jointly sponsor it and, as well, work with us on the language.

The key element of the amendment, and I thank the gentleman for both yielding but also for his support of the amendment, Mr. Udall, but the key element of the amendment is to address the reality of where we are today, that we can face abrupt climate changes, and that they can severely alter the quality of life around the world, particularly I cited the example of France and Germany, the nexus to Siberia and the contrast in the weather there. If the jet stream stops, we could have an abrupt change. And I think scientists either in the room or outside of the room could document that there is support to suggest that possibly the abrupt change in weather created the Ice Age, and we know what happened during that period where there was a great deal of extinction.

So I am suggesting that if we have the creative ability to look at this question now that we should do so and not be looking over our shoulder wishing and wondering what we could have done. We sit now in a time that we have the time, the wisdom, the talent to do this, and I would like my colleagues to consider this amendment and ask for their support.

Mr. GUTKNECHT. Will you yield back?

Mr. UDALL. I am happy to yield back, Mr. Chairman.

Mr. GUTKNECHT. The gentleman yields back the balance of his time. Anyone else?

Mr. CALVERT. Mr. Chairman.

Mr. GUTKNECHT. The gentleman from California, Mr. Calvert.

Mr. CALVERT. I am sorry I was not here during the debate on this issue and that I have not been able to listen to all of the various comments, but I spent some time on this issue at a number of hearings on global climate change. I have been to most of all of the worldwide conferences, and I went there with a delegation. We were somewhat critical of some of the science that has been taking place up to this point, and my feelings about that have not changed. I don't think this legislation is warranted at this time. There is a belief the global climate change is taking place, and it may—very well may be taking place.

But there is no definitive science, in my mind, that proves that human activity is the cause of that climate change, that we know from the hearings we had in this very room that 95 percent of the so-called greenhouse gases that create this phenomenon, or supposed phenomenon, are created by natural activity and that actually less than five percent of these greenhouse gases or basket of gases are caused by human activity. And so I would agree with the gentleman who is offering this legislation that we need to work toward, for common sense reasons, different energy sources, such as hydrogen, and have worked with the gentleman on hydrogen research, and we need to do that, because we can not stay indefinitely involved with a hydro-based economy—hydrocarbon-based economy, but we can do that, I think, by promoting good science and by moving toward a new energy in the future, a new infrastructure in this country, which is going to take a lot of money, a lot of investment. And I think we ought to focus more time on that, and I think we would probably get more bang out of our dollar by moving toward a hydrogen-based economy sooner rather than later.

With that, Mr. Chairman, I yield back.

Mr. UDALL. Would the gentleman yield?

Mr. CALVERT. I would be happy to yield to the gentleman.

Mr. UDALL. I thank the gentleman for yielding, and I first want to acknowledge our partnership on this whole exciting and emerging area of hydrogen fuel cells, and all of the benefits that accrue to not only our society but the world when we bring those technologies online.

I agree that—the points that you raised about the uncertainty of the science are legitimate. The bill, however, is directed at ensuring that the $2 billion that we now put into this kind of research is effective research and is research that is going to be useful to us. And that is really the overall thrust of the legislation and why it has gathered such wide-ranging support, particularly in the sci-

entific community as well as across the community of policy-makers.

Mr. GUTKNECHT. Would the gentleman further yield back to the Chair, I would just——

Mr. CALVERT. I would yield.

Mr. GUTKNECHT.—submit a couple of points, and that is that what bothers me about the bill and the amendment is that it presupposes we are not doing anything or doing very little about this. And if you compare the American taxpayers' investment in global climate research and technologies to the rest of the world, we are up to about $4 billion American taxpayer dollars per year that we are spending on technologies, on research, on NASA, on NOAA all to try and understand more about our environment and what we might be able to do about it.

Having said all of that, the home that I live in in Rochester, Minnesota, 10,000 years ago was covered with a plate of ice about 1,000 feet thick. Now most of us who live in that part of the world are kind of glad that over the last 10,000 years we have had a certain amount of global warming. In fact, those of us in Minnesota would probably like to see a little bit more, because I got a report yesterday that in northern Minnesota, finally, the ice is going out of the lakes. Now this is, what, the 1st of May, and you know, that will vary from year to year when the ice finally goes out of the lakes, but this is one of the latest years we have had.

So whether there is global climate change, whether there isn't, and whether or not we are doing enough about it as American taxpayers and as public policy makers, I think the predicate of this bill is somewhat unfair to those of us who have been willing to spend the taxpayers' money on this kind of research, both on the basic sciences and on the technologies that may ultimately lead to improvements for our environment whether or not it effects the climate or not.

With that, any other comments or questions on the amendment, otherwise, I am going to call the vote on the amendment provided by the lady from Texas? Hearing none, all those in favor will please say aye. Those opposed——

Ms. JACKSON LEE. Roll call.

Mr. GUTKNECHT.—will say no.

Ms. JACKSON LEE. Roll call.

Mr. GUTKNECHT. In the opinion of the Chair, the nos have it.

Ms. JACKSON LEE. Roll call.

Mr. GUTKNECHT. The gentlelady has requested a roll call. The Clerk will call the roll.

Ms. TESSIERI. Mr. Boehlert.

[No response.]

Ms. TESSIERI. Mr. Lamar Smith.

[No response.]

Ms. TESSIERI. Mr. Weldon.

[No response.]

Ms. TESSIERI. Mr. Rohrabacher.

Mr. ROHRABACHER. Yes.

Ms. TESSIERI. Mr. Rohrabacher votes yes. Mr. Barton.

[No response.]

Ms. TESSIERI. Mr. Calvert.

Mr. CALVERT. No.
Ms. TESSIERI. Mr. Nick Smith.
[No response.]
Ms. TESSIERI. Mr. Bartlett.
[No response.]
Ms. TESSIERI. Mr. Ehlers.
Dr. EHLERS. No.
Ms. TESSIERI. Mr. Ehlers votes no. Mr. Gutknecht.
Mr. GUTKNECHT. No.
Ms. TESSIERI. Mr. Gutknecht votes no. Mr. Nethercutt.
Mr. NETHERCUTT. No.
Ms. TESSIERI. Mr. Nethercutt votes no. Mr. Lucas.
Mr. LUCAS. No.
Ms. TESSIERI. Mr. Lucas votes no. Mrs. Biggert.
Mrs. BIGGERT. No.
Ms. TESSIERI. Mrs. Biggert votes no. Mr. Gilchrest.
[No response.]
Ms. TESSIERI. Mr. Akin.
[No response.]
Ms. TESSIERI. Mr. Johnson.
Mr. JOHNSON. No.
Ms. TESSIERI. Mr. Johnson votes no. Ms. Hart.
Ms. HART. No.
Ms. TESSIERI. Ms. Hart votes no. Mr. Sullivan.
[No response.]
Chairman BOEHLERT. Excuse me. I am in the midst of an important telephone call. How am I recorded?
Ms. TESSIERI. The Chairman is not recorded.
Chairman BOEHLERT. The Chairman votes no.
Ms. TESSIERI. Mr. Boehlert votes no.
Mr. GUTKNECHT. Mr. Chairman.
Ms. TESSIERI. Mr. Forbes.
Mr. FORBES. No.
Ms. TESSIERI. Mr. Forbes votes no. Mr. Gingrey.
Mr. GINGREY. No.
Ms. TESSIERI. Mr. Gingrey votes no. Mr. Bishop.
Mr. BISHOP. No.
Ms. TESSIERI. Mr. Burgess.
Mr. BURGESS. No.
Ms. TESSIERI. Mr. Burgess votes no. Mr. Bonner.
Mr. BONNER. No.
Ms. TESSIERI. Mr. Bonner votes no. Mr. Feeney.
[No response.]
Ms. TESSIERI. Mr. Hall.
[No response.]
Ms. TESSIERI. Mr. Gordon.
Mr. GORDON. Aye.
Ms. TESSIERI. Mr. Gordon votes yes. Mr. Costello.
Mr. COSTELLO. Aye.
Ms. TESSIERI. Mr. Costello votes yes. Ms. Johnson.
Ms. JOHNSON. Aye.
Ms. TESSIERI. Ms. Johnson votes yes. Ms. Woolsey.
[No response.]
Ms. TESSIERI. Mr. Lampson.

[No response.]
Ms. TESSIERI. Mr. Larson.
Mr. LARSON. Aye.
Ms. TESSIERI. Mr. Larson votes yes. Mr. Udall.
Mr. UDALL. Aye.
Ms. TESSIERI. Mr. Udall votes yes. Mr. Wu.
Mr. WU. Aye.
Ms. TESSIERI. Mr. Wu votes yes. Mr. Honda.
Mr. HONDA. Aye.
Ms. TESSIERI. Mr. Honda votes yes. Mr. Bell.
Mr. BELL. Yes.
Ms. TESSIERI. Mr. Bell votes yes. Mr. Miller.
Mr. MILLER. Yes.
Ms. TESSIERI. Mr. Miller votes yes. Mr. Davis.
Mr. DAVIS. Yes.
Ms. TESSIERI. Mr. Davis votes yes. Ms. Jackson Lee.
Ms. JACKSON LEE. Aye.
Ms. TESSIERI. Ms. Jackson Lee votes yes. Ms. Lofgren.
[No response.]
Ms. TESSIERI. Mr. Sherman.
Mr. SHERMAN. Yes.
Ms. TESSIERI. Mr. Sherman votes yes. Mr. Baird.
Mr. BAIRD. Yes.
Ms. TESSIERI. Mr. Baird votes yes. Mr. Moore.
Mr. MOORE. Yes.
Ms. TESSIERI. Mr. Moore votes yes. Mr. Weiner.
[No response.]
Ms. TESSIERI. Mr. Matheson.
Mr. MATHESON. Aye.
Ms. TESSIERI. Mr. Matheson votes yes. Mr. Cardoza.
[No response.]
Mr. SMITH OF TEXAS. Mr. Chairman, how am I recorded, please?
Ms. TESSIERI. Mr. Lamar Smith is not recorded.
Mr. SMITH OF TEXAS. No.
Ms. TESSIERI. Mr. Lamar Smith votes no.
Mr. AKIN. Mr. Chairman, how am I recorded?
Mr. GUTKNECHT. Mr. Akin.
Ms. TESSIERI. Mr. Akin is not recorded.
Mr. GUTKNECHT. And he votes no.
Ms. TESSIERI. Mr. Akin votes no.
Mr. GILCHREST. Mr. Chairman, Mr. Gilchrest, how is—how am I recorded?
Ms. TESSIERI. Mr. Gilchrest is not recorded.
Mr. GILCHREST. No.
Ms. TESSIERI. Mr. Gilchrest votes no.
Mr. BARTLETT. How am I recorded?
Ms. TESSIERI. Mr. Bartlett is not recorded.
Mr. BARTLETT. Bartlett votes no.
Ms. TESSIERI. Mr. Bartlett votes no.
Mr. BARTON. Mr. Chairman, I want to vote no for myself and Mr. Hall, if you will let me.
Ms. TESSIERI. Mr. Barton votes no.
Mr. HALL. Mr. Hall votes yes.
Ms. TESSIERI. Mr. Hall votes yes.

Mr. GUTKNECHT. The Clerk will report.
Ms. TESSIERI. Mr. Chairman, yes, 17, no, 19.

COMMITTEE ON SCIENCE - ROLL CALL – 108th CONGRESS

DATE: SUBJECT: Amendment #1 to HR 5086 by Judy Lee

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2246	53665	Mr. Boehlert, R-NY		✓			
2231	54236	Mr. Lamar Smith, R-TX		✓			
2466	52011	Mr. Weldon, R-PA			—		
2338	52415	Mr. Rohrabacher, R-CA	✓				
2109	52002	Mr. Barton, R-TX		✓			
2201	51986	Mr. Calvert, R-CA		✓			
2305	56276	Mr. Nick Smith, R-MI			—		
2412	52721	Mr. Bartlett, R-MD		✓			
1714	53831	Mr. Ehlers, R-MI		✓			
425	52472	Mr. Gutknecht, R-MN		✓			
2443	52006	Mr. Nethercutt, R-WA		✓			
2342	55565	Mr. Lucas, R-OK		✓			
1213	53515	Mrs. Biggert, R-IL		✓			
2245	55311	Mr. Gilchrest, R-MD		✓			
117	52561	Mr. Akin, R-MO		✓			
1229	52371	Mr. Johnson, R-IL		✓			
1508	52565	Ms. Hart, R-PA		✓			
114	52211	Mr. Sullivan, R-OK			—		
307	56365	Mr. Forbes, R-VA		✓			
1118	52931	Mr. Gingrey, R-GA		✓			
124	50453	Mr. Bishop, R-UT		✓			
1721	57772	Mr. Burgess, R-TX		✓			
315	54931	Mr. Bonner, R-AL		✓			
323	52706	Mr. Feeney, R-FL			—		
		Vacancy					
2405	***56673***	***Mr. Hall, D-TX***	✓				
2304	***54231***	***Mr. Gordon, D-TN***	✓				
2454	***55661***	***Mr. Costello, D-IL***	✓				
1511	***58885***	***Ms. Johnson, D-TX***	✓				
2263	***55161***	***Ms. Woolsey, D-CA***			—		
405	***56565***	***Mr. Lampson, D-TX***			—		
1005	***52265***	***Mr. Larson, D-CT***	✓				
115	***52161***	***Mr. Udall, D-CO***	✓				
1023	***50855***	***Mr. Wu, D-OR***	✓				
1713	***52631***	***Mr. Honda, D-CA***	✓				
216	***57508***	***Mr. Bell, D-TX***	✓				
1505	***53032***	***Mr. Miller, D-NC***	✓				
504	***56831***	***Mr. Davis, D-TN***	✓				
2435	***53816***	***Ms. Jackson-Lee, D-TX***	✓				
102	***53072***	***Ms. Lofgren, D-CA***			—		
1030	***55911***	***Mr. Sherman, D-CA***	✓				
1421	***53536***	***Mr. Baird, D-WA***	✓				
431	***52865***	***Mr. Moore, D-KS***	✓				
1122	***56616***	***Mr. Weiner, D-NY***			—		
410	***53011***	***Mr. Matheson, D-UT***	✓				
503	***56131***	***Mr. Cardoza, D-CA***			—		
		Vacancy					
		TOTAL	17	19			

Attest: Vivian A. Simmons (Clerk)

Ms. JACKSON LEE. Mr. Chairman, do I continue with amendment 5?

Mr. GUTKNECHT. One moment. After consulting with the Committee Counsel, we could not bifurcate the amendment without a clearly divisible amendment, and therefore we must move on to amendment number 2 by Ms. Johnson.

[The amendment offered by Ms. Johnson follows:]

AMENDMENT TO H.R. 1578

OFFERED BY MS. EDDIE BERNICE JOHNSON OF TEXAS

Page 6, line 22, and page 7, line 3, redesignate paragraphs (6) and (7) as paragraphs (7) and (8), respectively.

Page 6, after line 21, insert the following new paragraph:

(6) work to understand the contribution to the reduction of greenhouse gases that can be made by—

(A) more effective energy conservation programs, including those dealing with low income and inadequately insulated housing; and

(B) the use of clean fuels in residential areas, industrial areas, and transportation, including mass transit systems;

Ms. JOHNSON. Thank you very much, Mr. Chairman. It is clear that this bill is going to be voted down, so I would just like to ask unanimous consent to be heard on the amendment.

Mr. GUTKNECHT. I am sorry.

Ms. JOHNSON. I would just like to ask unanimous consent just to be heard on the amendment, and I can—I am going to pull it down at the end of the——

Mr. GUTKNECHT. Without objection, the gentlelady is recognized for five minutes.

Ms. JOHNSON. Thank you, Mr. Chairman. I took this piece of legislation very seriously, and I had hoped that the Committee would do so as well. But since the bill is not going to pass, I would just simply like to request that some Members on both sides of the aisle in this committee come up with some legislation. It is not a myth that we are into global warming. My state has suffered much damage through the temperatures and extreme weather from flooding to drying up all of the crops.

Also, many of the scientists have traced which way bacteria is moving and how this will affect it. We are not going to be long and coming. We will have our own SARS probably, but I think it is important that—I know that we are doing research. I think it ought to be coordinated and directed so that we can get the best for the investment. But we have got to look more seriously at this environment as far as global warming is concerned. I take an antihistamine every day to be in this city. And I know the easy thing would be to retire, but everybody else is breathing the same air, and we have simply got to take some measures, and maybe we will be in hydrogen research or the—leading in that direction.

But whatever direction we lean, I think we ought to go ahead sometime soon and address it in this committee. We are seeing the effects of very poor environments with more asthma, more pneumonia, more costs to taxpayers. I think we are asking for a lot more investment by delaying the consideration of legislation of this sort, because the ill effects of a poor environment are none clean air. It will effect everyone eventually. And most especially it would effect the most vulnerable, those people that don't have health insurance. And we pick up their tab.

In addition to that, we want to rise to the occasion of addressing issues that are very serious to all of the people. We see more and more environmentalists raising their voices. We see more and more green candidates because they feel that we are not addressing the issue.

And Mr. Chairman, I also withdraw the next amendment I have here.

[The amendment offered by Ms. Johnson follows:]

AMENDMENT TO H.R. 1578
OFFERED BY MS. EDDIE BERNICE JOHNSON OF TEXAS

Page 16, after line 3, insert the following new section:

SEC. 112. NATIONAL SCIENCE FOUNDATION SCHOLARSHIPS.

The Director of the National Science Foundation shall establish a scholarship program for post-secondary students studying global climate change, including capability in observation, analysis, modeling, paleoclimatology, consequences, and adaptation.

Ms. JOHNSON. I thought they were very—both very important amendments. I was really asked by my state agency to carry one of them, but I don't want to prolong the time any longer. I just want to make the request of the Committee to address it.

Thank you.

Mr. GUTKNECHT. Well, we—on behalf of the Committee, we appreciate that, Ms. Johnson, and both amendments, by unanimous consent, are withdrawn. And now we will proceed—I would—the Chair would recognize Ms. Jackson Lee, so she may proceed with amendment number 5.

[The amendment offered by Ms. Jackson Lee follows:]

AMENDMENT TO H.R. 1578

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 14, line 8, insert "public health," after "population displacement,".

Ms. JACKSON LEE. Mr. Chairman, I thank you very much. The House Floor has called me, and I have an amendment on the Floor as I—as we speak. My amendment number 5 I am going to yield to Mr. Udall as I offer it. It simply adds the language public health to the list of subjects to be covered by the vulnerability assessment. I think it follows the very eloquent statement of Ms. Johnson about how important public health is. I would ask my colleagues to consider it, and I am going to yield to the distinguished gentleman from Colorado. And I would ask for a yes vote on my amendment.

Mr. UDALL. I thank my colleague, Ms. Jackson Lee, for offering her important amendment for yielding to me. Before I comment on Ms. Jackson Lee's amendment, I would like to thank my colleague, Ms. Johnson, for her work and for offering her two amendments. I think they both add significant heft to the purposes of the legislation.

Again, I wanted to just say to the Committee, we are having an important discussion here, almost a hearing in a sense, on a bill that we are marking up, and as I think we all expect, will not leave the Committee at this time. But the bill does not mandate any climate policy changes. It does not mandate any new regulations, create any mandatory registries or data collection from the private sector or create any new programs. It simply updates the existing U.S. Global Change Research Program, which this Congress and this Administration believe are crucial to understanding the effects of greenhouse gas emissions, not just on weather, but on human systems and on human activities. And both of the amendments offered by Ms. Johnson would have given the Global Climate Change Research Program additional areas in which to study and to report back to us and to the other policy makers that are involved.

Congresswoman Jackson Lee's amendment would do the same thing, adding public health to the list of things that would be considered in vulnerability analyses, which is one of the changes that we make in the legislation in the U.S. GCRP's portfolio. So I would urge passage and acceptance of Ms. Jackson Lee's amendment, because it would help us do an even better job in our research programs of understanding what we face.

Chairman BOEHLERT. Thank you very much. If there are no further discussion—Mr. Baird.

Mr. BAIRD. I move to strike the last word. I would like to echo my colleague on—friend, Mr. Udall's, remarks.

We talk a lot in environmental policy about the need to base policy on sound science. The essence of Mr. Udall's bill, the underlying bill, and the amendments is to ensure that the science is, indeed, sound. And when we talk about human health, it is a fine thing to look at the economic benefits or the various activities that contribute to greenhouse gas, and we all benefit from those. But as there is global environmental change, there will also be global environmental health consequences, including in our own country, including those in the research directed by this bill makes a great deal of sense to me.

I just want to add one other thing. I was out during the discussion of the gentlelady's prior amendment. This notion of immediate climate change, I had the opportunity to scuba dive in the Maldives Islands a couple years back. The Maldives Islands experienced a

95-degree temperature—water temperature event for three weeks, and it killed virtually all of the coral reefs there. This is an island chain that depends for its very existence on the existence of these coral reefs. When you see that with your own eyes, when you get in the water and see what used to be one of the most beautiful coral systems, ecosystems in the world now looking like a gray bone yard, the reality of global warming hits you right in the face.

And Mr. Udall's initiative in trying to make sure our research is sound on this is vital. And I support the underlying bill, and I support these amendments designed to make sure that we really study the impact of this profound change, not only in our system today, but on the Earth our kids are going to inherit.

And I yield back.

Chairman BOEHLERT. Thank you very much. If there is no further discussion, the question is on the amendment. All those in favor, say aye. Opposed no. The nos appear to have it.

And the next amendment is amendment number 3. And we are advised by the Floor that we can anticipate within the next 10 minutes or so a series of votes, so I hope we can move with some dispatch to conclude our business before that vote.

Amendment number 4. The Clerk will report the amendment.

Ms. TESSIERI. Amendment number 3?

Chairman BOEHLERT. Number 3. I——

Ms. TESSIERI. Amendment number 3 to H.R. 1578 offered by Mr. Miller of North Carolina.

[The amendment offered by Mr. Miller follows:]

AMENDMENT TO H.R. 1578

OFFERED BY MR. MILLER OF NORTH CAROLINA

Page 7, line 2, strike "and".

Page 7, line 5, strike the period and insert "; and"

Page 7, after line 5, insert the following new paragraph:

(8) cooperate with the Assistant Secretary of Technology Policy to conduct a study of technology transfer barriers, best practices, and outcomes of technology transfer activities at Federal laboratories related to the licensing and commercialization of energy efficient technologies, and submit the results of such study to the Committee on Commerce, Science, and Transportation of the Senate and to the Committee on Science of the House of Representatives within 6 months after the date of enactment of this Act.

Chairman BOEHLERT. Thank you very much. Mr. Miller is recognized.

Mr. MILLER. Thank you, Mr. Chairman. I also recognize the futility of trying to attach a car to a stalled train. This amendment does try to look at what is working in technology transfer, in energy conservation, specifically. We have talked a fair amount on this committee about technology transfer, how to move research into practical application into use in the real world.

It is particularly important in energy, because of the possibility of climate change and the effect that it has on climate change and in pollution, generally. In my state, one in five emergency room admissions are for pediatric asthma. Those are panicked parents taking their children to the emergency room, because their children can not catch their breath. A large—the largest contributor to that pollution that causes the asthma is the coal-fired power plants that are used to generate electricity.

We need to figure out what is working in trying to get energy conservation technology into practical application, what gets in the way, what has helped research get into real world use, and what has not worked. That is what the purpose of this amendment is.

In deference to the Committee's time and to the futility of the exercise, Mr. Chairman, I will withdraw the amendment. Thank you.

Chairman BOEHLERT. Thank you very much, Mr. Miller, and I appreciate that. Without objection, the amendment is withdrawn.

The following amendment listed on our docket is amendment number 4 by Mr. Larson. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 1578 offered by Mr. Larson of Connecticut.

[The amendment offered by Mr. Larson follows:]

AMENDMENT TO H.R. 1578

OFFERED BY MR. LARSON OF CONNECTICUT

Page 10, line 8, strike "Global" and insert "Sustained global".

Page 11, after line 10, insert the following new paragraph:

(8) Focused research initiatives to understand and monitor changes to the atmosphere, including greenhouse gases and cloud/aerosol radiation forcing.

Mr. LARSON. Mr. Chairman, I seek unanimous consent that the amendment be considered as read.

Chairman BOEHLERT. Without objection, so ordered. Mr. Larson is recognized——

Mr. LARSON. I thank the Chairman for his indulgence and want to make it clear that I support my colleague in his underlying bill and want to commend him and especially Jan Barrett on his staff for the amount of time and effort that they have put in here.

And I am offering this amendment, because I believe it is technical in nature and would indulge the Chairman, who we know conceptually favors this kind of approach but has tactical concerns. I am just maintaining that the amendment that I am offering, which focuses on taking a look at adding the word "sustained" to global measurements and focuses on the opportunity for us to look at atmospheric monitoring are technical changes to a bill. And if we were to seek unanimous consent to adopt the amendment in a bill that obviously is probably going to be voted down, we could move forward.

Chairman BOEHLERT. You are so persuasive, but you didn't make the complete sell. And you have no idea how much this pains the Chair, particularly dealing with this subject, to respond in the manner I feel constrained to respond in. But you are right: it is not a substantive disagreement, it is a tactical disagreement. And based upon that and all of the circumstances, I will oppose the amendment.

Mr. LARSON. Well——

Chairman BOEHLERT. Is there any other——

Mr. LARSON. Well, just taking back my time, Mr. Chairman, I, just for the record, wanted to make sure that the Committee understands the importance of making sure that we have sustained global measurements and that because of the importance that has been found to current research and the heavy focus on land that I want to make the added point that I believe atmospheric monitoring is equally important and wanted to include that.

And thank you.

Chairman BOEHLERT. Thank you very much. Is there anyone else who seeks recognition? If not—Mr. Gordon.

Mr. GORDON. Mr. Chairman, I know we have got to move, so just let me just quickly say that you and other Members of the majority have, on a variety of occasions, said that this is an important issue that needs to be addressed but not now and not this way. I would just like to ask if not now, when? And if not Mr. Udall's way, what way?

Chairman BOEHLERT. The when is not far distant in the future. It is my hope that we will be able to work on a bipartisan bill that we can report out of this committee, consider to report out of this committee in a timely fashion. I have been one of those who have been in the forefront of the battle on global change, and I have got scars to prove it, I might add. But that has never stopped me or deterred me. It is just that, I think, this time right now is not the time. But the time is not way off in the future. I think it is sooner rather than later. And I appreciate your observation.

Is there anyone else who seeks recognition? If not, the vote is on the amendment. All those in favor, say aye. Opposed no. The aye—nos have it. Is there any other——

Mr. LARSON. Oh, Mr. Chairman. Chairman, it sounded an awful lot like the ayes had that.

Chairman BOEHLERT. Well, the Chairman does not have the benefit of his electronic device that modern man—my hearing aid. I really don't have it. But I thought I heard what I heard, and so that is—I made a declaration from the Chair. And the Chair isn't always accepted at face value, but that is my determination.

Are there any further amendments?

Mr. LARSON. No. Mr. Chairman, in deference to you and the time that is involved, the—I will not call for the yeas and nays.

Chairman BOEHLERT. And I appreciate the considerable courtesy being extended to me by the gentleman from Connecticut and Mr. Udall. We are kindred spirits in so many of our battles.

If there are no further amendments, the question is on the bill H.R. 1578.

Mr. ROHRABACHER. Mr. Chairman, is there no——

Chairman BOEHLERT. Mr. Rohrabacher.

Mr. ROHRABACHER. I have been holding off my comments for the general debate, if I could be indulged.

Chairman BOEHLERT. You are indulged for five minutes.

Mr. ROHRABACHER. Let me suggest that I was perfectly willing to support all of the amendments of my colleagues. As a matter of courtesy to my colleagues, I think we should have permitted them to have whatever amendments they wanted, especially those of us who opposed the underlying bill. So that is why you caught me saying yes, I mean, just as a matter of courtesy. You should be able to present your best case.

Now let me note that while I was supporting your amendments, I certainly don't agree with the premise of the bill. And we have—I have been here for 14 years now. I am on my 15th year as a Member of Congress, and I can tell you that we have studied this issue not only to death, but we have studied—or said this issue at the expense of so many other programs, it is incredible. We have spent tens of billions of dollars in research on global warming, but there never is enough. There is never enough research. We have got to spend billions of dollars more every year. And during the previous Administration, anyone who wanted a grant from the Federal Government knew they would get it if they could convince people that they were going to come up with something that would prove global warming.

Let me note that we have just had one of the coldest winters in my lifetime, and—in California and throughout the country. This is, of course, explained away as an anomaly or, in fact, some of the people who advocate global warming suggest, aha, see, that actually proves—the global cooling proves the global warming because of some kind of——

Mr. BAIRD. Would the gentleman yield?

Mr. ROHRABACHER. No, no. No, no. I have got to have my say here on this. Let me just note that we have done these studies. I think that we have over and over again seen people trying to—in my view, trying to explain away why there is a drought in Utah.

That is global warming, but why we have cold weather in the country and the world as a whole, why that isn't global warming or that is global warming, it is—I see a very—a pattern here among people who want to believe in global warming.

Now let me just suggest this. Whether or not the Earth is one or two degrees warmer now than it was 150 years ago, I don't know. I do know that we have gone through ice ages back and forth, and there has been change in the climate throughout the history of the world long before mankind even emerged on the world. In fact, the basic question today isn't whether there is global warming or not. The question is whether or not it is human activity that is changing the climate. And the reason why people want to prove that human activity is changing the climate is because people want to regulate human activity. Behind the push for global warming is a push for $5 a gallon gasoline. And of course, the real price of gasoline is much cheaper, the rest would be made up in taxes that would be shifted away to the government, and then the resources would be used by the bureaucracy, for our benefit, of course.

Global warming, as I say, could well be with us, and it could well be a natural occurrence, or we could be going through global cooling as a natural occurrence. But what we do know that human activity, at the most, would contribute five percent of the so-called gases that would make the world go in the global warming direction. Five percent are caused—but 95 percent are natural with volcanoes and the—and of course, the—what I like the best is one of the greatest contributors is the decay of wood and the decay and termites, the action of bugs on that wood, so that if you really believed in global warming, you should be trying to eliminate all old growth trees, especially jungles, and bulldoze them and plant them with young trees, so—which would have the opposite effect on global warming.

Or if someone really believes in global warming, they would actually want to support nuclear energy. I mean, if you want hydrogen, which I think it would be a good thing to help us develop hydrogen, but if you rule out nuclear energy, it is going to be very tough to find a way to produce hydrogen in a way that makes any sense economically. However, making sense isn't what this debate is all about, and the debate on global warming isn't about making sense, and thus, I have to suggest that I oppose the underlying amendment.

Thank you very much.

Chairman BOEHLERT. Thank you very much for those interesting observations.

The question is on the bill H.R. 1578, Global Change Research and Data Management Act of—Mr. Baird.

Mr. BAIRD. Mr. Chairman, I don't know if it is appropriate, I just would like just maybe 30 seconds.

Chairman BOEHLERT. In the spirit of the day, we will recognize for a nanosecond.

Mr. BAIRD. Thank you. I would just suggest that this is, after all, the Science Committee. And the National Academies of Science seems to me to have issued a fairly extensive report, and various world scientific bodies have issued fairly extensive reports suggesting that my distinguished colleague from California is just sim-

ply wrong on this. It is fine to say that laymen know everything, and there are some bright folks out there, but the scientific bodies chartered and funded by this United States Congress have concluded that human activity is the significant contributor and that while there will be microvariations in local climates, and we do—we are remiss, I think, in suggesting that one warm area here or one snowy area here proves that global warming is or is not happening. The bulk of the research shows that, over time, the climate is increasing in temperature worldwide, and that a significant contributor to that is human production of carbon dioxide.

That is what Mr. Udall's bill is about. The reason we need more research is not because we haven't got sufficient evidence right now, it is because this Administration refuses to act on that research and make substantive measures, which would not damage our economy but would enhance our economy to reduce the production of CO_2 by this country in the world. That is what this is about, and all of the other stuff, frankly, is not substantive, and we ought to reject it, and we ought to pass this bill.

I thank the gentleman for my time.

Chairman BOEHLERT. I thank the gentleman for that intervention. The Chair is not prepared to say one of our distinguished colleagues who chairs a very important Subcommittee is wrong. The Chair is willing to acknowledge that the very distinguished Chairman of the very important Subcommittee is not as conversant with some of the information as you and I are.

Now with that in mind, the question is on the bill H.R. 1578, *Global Change Research and Data Management Act of 2003.* All those in favor will say aye. Opposed will say no. In the opinion of the Chair, the nos have it.

Mr. UDALL. Mr. Chairman, I would ask for a recorded vote.

Chairman BOEHLERT. The Clerk will call the roll.

Ms. TESSIERI. Mr. Boehlert.

Chairman BOEHLERT. No.

Ms. TESSIERI. Mr. Boehlert votes no. Mr. Lamar Smith.

Mr. SMITH OF TEXAS. No.

Ms. TESSIERI. Mr. Smith votes no. Mr. Weldon.

[No response.]

Ms. TESSIERI. Mr. Rohrabacher.

Mr. ROHRABACHER. No.

Ms. TESSIERI. Mr. Rohrabacher votes no. Mr. Barton.

Mr. BARTON. No.

Ms. TESSIERI. Mr. Barton votes no. Mr. Calvert.

Mr. CALVERT. No.

Ms. TESSIERI. Mr. Calvert votes no. Mr. Nick Smith.

[No response.]

Ms. TESSIERI. Mr. Bartlett.

Mr. BARTLETT. No.

Ms. TESSIERI. Mr. Bartlett votes no. Mr. Ehlers.

Dr. EHLERS. No.

Ms. TESSIERI. Mr. Ehlers votes no. Mr. Gutknecht.

Mr. GUTKNECHT. No.

Ms. TESSIERI. Mr. Gutknecht votes no. Mr. Nethercutt.

Mr. NETHERCUTT. No.

Ms. TESSIERI. Mr. Nethercutt votes no. Mr. Lucas.

Mr. LUCAS. No.
Ms. TESSIERI. Mr. Lucas votes no. Mrs. Biggert.
Mrs. BIGGERT. No.
Ms. TESSIERI. Mrs. Biggert votes no. Mr. Gilchrest.
Mr. GILCHREST. No.
Ms. TESSIERI. Mr. Gilchrest votes no. Mr. Akin.
Mr. AKIN. No.
Ms. TESSIERI. Mr. Akin votes no. Mr. Johnson.
[No response.]
Ms. TESSIERI. Ms. Hart.
Ms. HART. No.
Ms. TESSIERI. Ms. Hart votes no. Mr. Sullivan.
[No response.]
Ms. TESSIERI. Mr. Forbes.
Mr. FORBES. No.
Ms. TESSIERI. Mr. Forbes votes no. Mr. Gingrey.
Mr. GINGREY. No.
Ms. TESSIERI. Mr. Gingrey votes no. Mr. Bishop.
Mr. BISHOP. No.
Ms. TESSIERI. Mr. Bishop votes no. Mr. Burgess.
Mr. BURGESS. No.
Ms. TESSIERI. Mr. Burgess votes no. Mr. Bonner.
Mr. BONNER. No.
Ms. TESSIERI. Mr. Bonner votes no. Mr. Feeney.
Mr. FEENEY. No.
Ms. TESSIERI. Mr. Feeney votes no. Mr. Johnson.
Mr. JOHNSON. Johnson votes no.
Ms. TESSIERI. Mr. Johnson votes no. Mr. Hall.
[No response.]
Ms. TESSIERI. Mr. Gordon.
Mr. GORDON. Aye.
Ms. TESSIERI. Mr. Gordon votes yes. Mr. Costello.
Mr. COSTELLO. Aye.
Ms. TESSIERI. Mr. Costello votes yes. Ms. Johnson.
Ms. JOHNSON. Aye.
Ms. TESSIERI. Ms. Johnson votes yes. Ms. Woolsey.
Ms. WOOLSEY. Aye.
Ms. TESSIERI. Ms. Woolsey votes yes. Mr. Lampson.
Mr. LAMPSON. Aye.
Ms. TESSIERI. Mr. Lampson votes yes. Mr. Larson.
Mr. LARSON. Yes.
Ms. TESSIERI. Mr. Larson votes yes. Mr. Udall.
Mr. UDALL. Yes.
Ms. TESSIERI. Mr. Udall votes yes. Mr. Wu.
Mr. WU. Yes.
Ms. TESSIERI. Mr. Wu votes yes. Mr. Honda.
Mr. HONDA. Yes.
Ms. TESSIERI. Mr. Honda votes yes. Mr. Bell.
Mr. BELL. Yes.
Ms. TESSIERI. Mr. Bell votes yes. Mr. Miller.
Mr. MILLER. Aye.
Ms. TESSIERI. Mr. Miller votes yes. Mr. Davis.
Mr. DAVIS. Aye.
Ms. TESSIERI. Mr. Davis votes yes. Ms. Jackson Lee.

[No response.]
Ms. TESSIERI. Ms. Lofgren.
Ms. LOFGREN. Aye.
Ms. TESSIERI. Ms. Lofgren votes yes. Mr. Sherman.
Mr. SHERMAN. Aye.
Ms. TESSIERI. Mr. Sherman votes yes. Mr. Baird.
Mr. BAIRD. Yes.
Ms. TESSIERI. Mr. Baird votes yes. Mr. Moore.
Mr. MOORE. Yes.
Ms. TESSIERI. Mr. Moore votes yes. Mr. Weiner.
[No response.]
Ms. TESSIERI. Mr. Matheson.
Mr. MATHESON. Aye.
Ms. TESSIERI. Mr. Matheson votes yes. Mr. Cardoza.
Mr. CARDOZA. Aye.
Ms. TESSIERI. Mr. Cardoza votes yes. Mr. Hall has passed, Mr. Chairman. Mr. Hall votes no.
Chairman BOEHLERT. Do we have the count? Mr. Weldon has emerged.
Mr. WELDON. No.
Ms. TESSIERI. Mr. Weldon votes no.
Chairman BOEHLERT. The Clerk will report the tally.
Ms. TESSIERI. Mr. Chairman, yes, 18, no, 23.

COMMITTEE ON SCIENCE - ROLL CALL – 108th CONGRESS

DATE: SUBJECT: Motion to report HR 1578 - Defeated

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2246	53665	Mr. Boehlert, R-NY		✓			
2231	54236	Mr. Lamar Smith, R-TX		✓			
2466	52011	Mr. Weldon, R-PA		✓			
2338	52415	Mr. Rohrabacher, R-CA		✓			
2109	52002	Mr. Barton, R-TX		✓			
2201	51986	Mr. Calvert, R-CA		✓			
2305	56276	Mr. Nick Smith, R-MI					
2412	52721	Mr. Bartlett, R-MD		✓			
1714	53831	Mr. Ehlers, R-MI		✓			
425	52472	Mr. Gutknecht, R-MN		✓			
2443	52006	Mr. Nethercutt, R-WA		✓			
2342	55565	Mr. Lucas, R-OK		✓			
1213	53515	Mrs. Biggert, R-IL		✓			
2245	55311	Mr. Gilchrest, R-MD		✓			
117	52561	Mr. Akin, R-MO		✓			
1229	52371	Mr. Johnson, R-IL		✓			
1508	52565	Ms. Hart, R-PA		✓			
114	52211	Mr. Sullivan, R-OK					
307	56365	Mr. Forbes, R-VA		✓			
1118	52931	Mr. Gingrey, R-GA		✓			
124	50453	Mr. Bishop, R-UT		✓			
1721	57772	Mr. Burgess, R-TX		✓			
315	54931	Mr. Bonner, R-AL		✓			
323	52706	Mr. Feeney, R-FL		✓			
		Vacancy					
2405	***56673***	***Mr. Hall, D-TX***		✓			
2304	***54231***	***Mr. Gordon, D-TN***	✓				
2454	***55661***	***Mr. Costello, D-IL***	✓				
1511	***58885***	***Ms. Johnson, D-TX***	✓				
2263	***55161***	***Ms. Woolsey, D-CA***	✓				
405	***56565***	***Mr. Lampson, D-TX***	✓				
1005	***52265***	***Mr. Larson, D-CT***	✓				
115	***52161***	***Mr. Udall, D-CO***	✓				
1023	***50855***	***Mr. Wu, D-OR***	✓				
1713	***52631***	***Mr. Honda, D-CA***	✓				
216	***57508***	***Mr. Bell, D-TX***	✓				
1505	***53032***	***Mr. Miller, D-NC***	✓				
504	***56831***	***Mr. Davis, D-TN***	✓				
2435	***53816***	***Ms. Jackson-Lee, D-TX***			—		
102	***53072***	***Ms. Lofgren, D-CA***	✓				
1030	***55911***	***Mr. Sherman, D-CA***	✓				
1421	***53536***	***Mr. Baird, D-WA***	✓				
431	***52865***	***Mr. Moore, D-KS***	✓				
1122	***56616***	***Mr. Weiner, D-NY***			—		
410	***53011***	***Mr. Matheson, D-UT***	✓				
503	***56131***	***Mr. Cardoza, D-CA***	✓				
		Vacancy					
		TOTAL	18	23			

Attest: Vivian A. Testini (Clerk)

Chairman BOEHLERT. And the motion—the bill is not reported. The Chair declares the Committee adjourned, and let me thank all of you for being in attendance and engaged. We are constructive. We are moving forward.

[Whereupon, at 1:23 p.m., the Committee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON SPACE AND AERONAUTICS ON H.R. 2450, HUMAN SPACE FLIGHT INDEPENDENT INVESTIGATION COMMISSION ACT OF 2003

WEDNESDAY, OCTOBER 8, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPACE AND AERONAUTICS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:08 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Dana Rohrabacher [Chairman of the Subcommittee] presiding.

Chairman ROHRABACHER. Good morning. I call this meeting of the Subcommittee to order. And pursuant to notice, the Subcommittee on Space and Aeronautics is meeting today to consider the four following measures: H.R. 3245, the *Commercial Space Act of 2003;* H.R. 912, the *Charles "Pete" Conrad Astronomy Awards Act;* H.R. 1292, the *Remote Sensing Applications Act of 2003;* and H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.*

At this point, I would ask unanimous consent for the authority to recess the Committee at any point, and without objection, so ordered.

Okay. At this point, I will make a few opening remarks and then turn to Bart Gordon, our Ranking Member, for his opening remarks.

Today we will mark up four bills, including two that I have sponsored, H.R. 3245, the *Commercial Space Act of 2003,* and H.R. 912, the *Charles "Pete" Conrad Astronomy Awards Act of 2003.* I believe that most Members of Congress share my view that the aerospace industry plays a critical role in advancing America into the future and especially America into space onto the next frontier. Innovative and creative thinking have always been the hallmarks of the private sector, and we can not just leave it up to government to solve the perplexing problems or to actually make sure that America meets its potential.

H.R. 3245 promotes development of operationally safe suborbital vehicles and services by directing the government to build an affirmative, enabling regulatory and legal framework for this emerging industry. I want to thank my Democratic colleagues for their support of H.R. 3245. H.R. 912 encourages average citizens to sur-

vey the heavens for threatening near-Earth objects. Both H.R. 3245 and H.R. 912, as I said, recognizes the value of having our private citizens involved in the process.

And we will markup, as well today, H.R. 1292, the *Remote Sensing Applications Act of 2003.* This bill establishes a NASA program of grants for competitively awarded pilot projects using government and commercial remote sensing capabilities to help address the needs of State, local, regional, and tribal agencies. The remaining legislation for markup is H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003,* which Mr. Gordon has been involved with authoring and has held off until now in order to make sure the Gehman Commission could do its work. And now we can follow up with Mr. Gordon's legislation.

This morning I look forward to working with Members on both sides of the aisle. And as we say, we have some good pieces of legislation here to move through the Subcommittee. And I will count on Mr. Gordon for his remarks.

[The prepared statement of Mr. Rohrabacher follows:]

PREPARED STATEMENT OF CHAIRMAN DANA ROHRABACHER

Today we will mark up four bills, including two that I have sponsored, H.R. 3245, the *Commercial Space Act of 2003* and H.R. 912, the *Charles 'Pete' Conrad Astronomy Awards Act of 2003.* I believe that most Members of Congress share my view that the aerospace industry plays a critical role in advancing America's space frontier. Innovative and creative thinking have always been the hallmarks of the private sector in helping the government solve perplexing problems.

H.R. 3245 promotes development of operationally safe suborbital vehicles and services by directing the government to build an affirmative, enabling regulatory and legal framework for this emerging industry. I want to thank my Democratic colleagues for their support of H.R. 3245. H.R. 912 encourages average citizens to survey the heavens for threatening near-Earth objects. Both H.R. 3245 and H.R. 912 recognize the value of the private sector in helping us realize our space goals.

We will also markup H.R. 1292, the *Remote Sensing Applications Act of 2003.* This bill establishes a NASA program of grants for competitively awarded pilot projects using government and commercial remote sensing capabilities to help address the needs of State, local, regional and tribal agencies. The remaining legislation for markup is H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.*

This morning I look forward to working with Members on both sides of the aisle in a spirit of bipartisanship.

Mr. GORDON. Mr. Chairman, let me just briefly say you have always been good to work with and plus you are a decent fellow. And we appreciate the opportunity to markup two of the Minority bills today. And we would remind you that Mr. Larsen and Mr. Lampson also have good bills that we hope that you will review and that we can get to those at another date. And Mr. Hall's, of course.

Chairman ROHRABACHER. Okay. I would like to now pay the courtesy to Mr. Hall, who is, of course, former Chairman of this committee and provided great leadership here and one who adds a great contribution through institutional memory, you might say, of everything we have been through. And Ralph, would you like to say a few words today before we start?

Mr. HALL. I will just say a few, Mr. Chairman, and I thank you for the chance to.

I note that we are marking up 3245, that is your bill. As you know, I have introduced a bill 3219, which is an older bill than yours by about six hours, I think, four, five, or six hours. And I am

not surprised that my bill is not on here. I know it is not a technical omission or anything. And I understand that we are to have some kind of a meeting here in the next 20 or 30 minutes. The future of my bill might be discussed at that time. Is that right? Is that a good summation of it?

Chairman ROHRABACHER. Yes, sir.

Mr. HALL. I thank you. You are a good guy, too.

Chairman ROHRABACHER. Let me note that the Chairman is at this time a co-sponsor of Chairman Hall's bill. And we are going to have a very in-depth discussion of it shortly after this markup.

So today—okay. Without objection, all Members may place their opening statements in the record.

We now have before us to consider the bill H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.* I now recognize Mr. Gordon, the author of H.R. 2450, for five minutes to offer any remarks that he may have on the legislation.

Mr. GORDON. Thank you, Mr. Chairman.

The *Human Space Flight Independent Investigation Commission Act of 2003* is a bipartisan bill that provides a road map for conducting future human space flight accident investigations. We hopefully never have to make such use of the provisions of H.R. 2450, but space flight involves risk, and I think we would be remiss if we didn't have a well-defined plan in place in the event of another accident.

My bill draws on the lessons learned from the creation of the *Columbia* and *Challenger* Accident Investigation Boards to set up a clear, independent, and accountable process for determining the cause of an accident and correcting it. Key provisions of the bill include the following. It assures that the independence of the investigating Commission by requiring 14 of its 15 members be presidentially appointed and prohibits active NASA employees and contractors from being appointed to the Commission. It also ensures that the Commission has access to independent staff. It ensures that the Commission has relevant expertise by making the Chairman of the National Transportation and Safety Board an automatic member and providing that appointees include some individuals with expertise in human space flight.

It defines the Commission's task to be the determination of the accident's cause, identification of any contributing factors, and the recommendations of corrective actions. It provides the Commission with the ability to conduct hearings and take evidence as well as to subpoena witnesses, records, and documents. It ensures the Commission reports directly to Congress, the President, and the American people.

Mr. Chairman, the *Columbia* Accident Investigation Board performed an important service for the Nation, and they deserve our thanks. However, this task was made more difficult by some of the issues surrounding their charter and composition. I believe that this bipartisan legislation will prevent such issues from arising in the future.

I understand the Chairman will offer an amendment to clarify the intent of the legislation. It is a constructive amendment, and I welcome it.

With that, I urge my colleagues to support this bill.

I yield back the balance of my time.

Chairman ROHRABACHER. Thank you very much.

And Mr. Bishop.

[No response.]

Chairman ROHRABACHER. Mr. Hall.

Mr. HALL. Mr. Chairman, it is a good bill, and I think I understand that you are supportive of it. You are not a co-sponsor of it, but you are supportive of it, and I think that highlights your independence, your normal, usual independence. That is a book on you. I appreciate your support on this and urge the passage of this bill.

Chairman ROHRABACHER. Ms. Johnson.

Ms. JOHNSON. Thank you very much, Mr. Chairman.

I fully support this bill, and I hope that you will join in as a co-sponsor. I think it goes a long way in ensuring or at least encouraging more public support and less questions. It provides, I think, what we call transparency and its results, not to imply that it hasn't been, but I think when it is independent, it creates much more confidence, and I would urge its passage.

Chairman ROHRABACHER. Thank you very much.

Let me note that the Chairman is a co-sponsor of the legislation. If I am not officially, I make it official now. And I want to commend Mr. Gordon for the work—not only the work that he has put in, but I want the spirit of cooperation that he has had in bringing this bill forward.

During the time when—after the *Columbia* tragedy, we spoke about this legislation, and Mr. Gordon had first wanted to move forward at that time. And he realized, after discussion, we all sat down and talked about it, that it would be better to get that investigation behind us rather than move forward with it right now. And I really appreciate the fact that you were that considerate of the Nation and of the Congress that you let us get our job done there and then to move forward in laying the foundation for the future.

I think this is very good legislation. And whenever we have a major challenge, I don't care if it is foreign policy, I don't care if it is airplanes flying into buildings or crashes up in the heavens of one of our major space assets or whatever it is that is a major crisis for the Congress, we should have an independent task force or commission investigating and spending their full time prestigious Americans, who we can trust, to give us an independent assessment of what happened and where people failed. And I don't care—that just should be a principle with all of us, because we need people who are not beholding to the person who appoints them to give us their opinions on these things so we will know what the truth is. And Mr. Gordon has shaped this legislation to try to help us so next time there is a tragedy and every time you try to accomplish great deeds, there will be a tragedy in the future, just as there has been in the past. But we are ready for it now, because Mr. Gordon is laying the foundation so that hopefully a decade or two decades or in—long into the future, if this happens again, there will be a system set up, unlike what we just went through where we didn't know exactly what procedure to use. So I am very happy to be a co-sponsor.

I ask unanimous consent that the bill is considered as read, okay, and open to amendment at any point and that the Members may proceed with amendments in order of the roster. Without objection, so ordered.

[H.R. 2450 follows:]

108TH CONGRESS
1ST SESSION

H. R. 2450

To provide for the establishment of an independent, Presidentially-appointed investigative Commission in the event of incidents in the Nation's human space flight program that result in loss of crew, passengers, or the spacecraft, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 12, 2003

Mr. GORDON (for himself, Mr. SENSENBRENNER, Ms. JACKSON-LEE of Texas, Mr. UDALL of Colorado, Mr. COOPER, Mr. FRANK of Massachusetts, Mr. LAMPSON, Mr. HALL, Mr. SHERMAN, Mr. LARSON of Connecticut, Mr. WEINER, Ms. LOFGREN, Mr. HONDA, Mr. FROST, Mr. COSTELLO, Mr. DAVIS of Tennessee, Mr. WYNN, Mr. BAIRD, and Ms. EDDIE BERNICE JOHNSON of Texas) introduced the following bill; which was referred to the Committee on Science

---

A BILL

To provide for the establishment of an independent, Presidentially-appointed investigative Commission in the event of incidents in the Nation's human space flight program that result in loss of crew, passengers, or the spacecraft, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Human Space Flight Independent Investigation Commission Act of 2003".

SEC. 2. DEFINITIONS.

For purposes of this Act—

(1) the term "incident" means either an accident or a deliberate act;

(2) the term "NASA" means the National Aeronautics and Space Administration;

(3) the term "NASA Administrator" means the Administrator of NASA; and

(4) the term "NTSB" means the National Transportation Safety Board.

SEC. 3. ESTABLISHMENT OF COMMISSION.

(a) ESTABLISHMENT.—The President shall establish an independent, nonpartisan Commission within the executive branch to investigate any incident that results in the loss of—

(1) a Space Shuttle;

(2) the International Space Station or its operational viability;

(3) any other United States space vehicle carrying humans;

(4) any space vehicle carrying United States citizens; or

(5) a crew member or passenger of any space vehicle described in this subsection.

(b) DEADLINE FOR ESTABLISHMENT.—The President shall issue an executive order establishing a Commis-

sion within 7 days after an incident specified in subsection (a).

SEC. 4. COMPOSITION OF COMMISSION.

(a) NUMBER OF COMMISSIONERS.—A Commission established pursuant to this Act shall consist of 15 members.

(b) SELECTION.—The members of a Commission established pursuant to this Act shall be chosen in the following manner:

(1) The Chairman of the NTSB shall be a member of the Commission.

(2) The President shall appoint the remaining 14 members, and shall designate the Chairman and Vice Chairman of the Commission from among its members.

(3) Four of the 14 members appointed by the President shall be selected by the President in the following manner:

(A) The Majority Leader of the Senate, the Minority Leader of the Senate, the Speaker of the House of Representatives, and the Minority Leader of the House of Representatives shall each provide to the President a list of candidates for membership on the Commission.

(B) The President shall select one of the candidates from each of the 4 lists for membership on the Commission.

(4) With the exception of the Chairman of the NTSB, no officer or employee of the Federal Government shall serve as a member of the Commission.

(5) No member of the Commission shall have, or have pending, a contractual relationship with NASA. The President shall not appoint any individual as a member of a Commission under this section who has a current or former relationship with the NASA Administrator that the President determines would constitute a conflict of interest.

(6) To the extent practicable, the President shall ensure that the members of the Commission include some individuals with experience relative to the human carrying spacecraft being investigated, as well as some individuals with investigative experience and some individuals with legal experience.

(7) To the extent practicable, the President shall seek diversity in the membership of the Commission.

(c) DEADLINE FOR APPOINTMENT.—All members of the Commission shall be appointed no later than 30 days after the incident.

(d) INITIAL MEETING.—The Commission shall meet and begin operations as soon as practicable.

(e) QUORUM; VACANCIES.—After its initial meeting, the Commission shall meet upon the call of the Chairman or a majority of its members. Eight members of the Commission shall constitute a quorum. Any vacancy in the Commission shall not affect its powers, but shall be filled in the same manner in which the original appointment was made.

SEC. 5. TASKS OF THE COMMISSION.

A Commission established pursuant to this Act shall, to the extent possible, undertake the following tasks:

(1) Investigate the incident.

(2) Determine the cause of the incident.

(3) Identify all contributing factors to the cause of the incident.

(4) Make recommendations for corrective actions.

(5) Provide any additional findings or recommendations deemed by the Commission to be important, whether or not they are related to the specific incident under investigation.

(6) Prepare a report to Congress, the President, and the public.

SEC. 6. POWERS OF COMMISSION.

(a) IN GENERAL.—

(1) HEARINGS AND EVIDENCE.—A Commission established pursuant to this Act or, on the authority of the Commission, any subcommittee or member thereof, may, for the purpose of carrying out this Act—

(A) hold such hearings and sit and act at such times and places, take such testimony, receive such evidence, administer such oaths; and

(B) subject to paragraph (2)(A), require, by subpoena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memoranda, papers, and documents,

as the Commission or such designated subcommittee or designated member may determine advisable.

(2) SUBPOENAS.—

(A) ISSUANCE.—

(i) IN GENERAL.—A subpoena may be issued under this subsection only—

(I) by the agreement of the Chairman and the Vice Chairman; or

(II) by the affirmative vote of 8 members of the Commission.

(ii) SIGNATURE.—Subject to clause (i), subpoenas issued under this subsection may be issued under the signature of the Chairman or any member designated by a majority of the Commission, and may be served by any person designated by the Chairman or by a member designated by a majority of the Commission.

(B) ENFORCEMENT.—

(i) IN GENERAL.—In the case of contumacy or failure to obey a subpoena issued under subsection (a), the United States district court for the judicial district in which the subpoenaed person resides, is served, or may be found, or where the subpoena is returnable, may issue an order requiring such person to appear at any designated place to testify or to produce documentary or other evidence. Any failure to obey the order of the court may be punished by the court as a contempt of that court.

(ii) ADDITIONAL ENFORCEMENT.—In the case of any failure of any witness to comply with any subpoena or to testify

when summoned under authority of this section, the Commission may, by majority vote, certify a statement of fact constituting such failure to the appropriate United States attorney, who may bring the matter before the grand jury for its action, under the same statutory authority and procedures as if the United States attorney had received a certification under sections 102 through 104 of the Revised Statutes of the United States (2 U.S.C. 192 through 194).

(b) CONTRACTING.—A Commission established pursuant to this Act may, to such extent and in such amounts as are provided in appropriation Acts, enter into contracts to enable the Commission to discharge its duties under this Act.

(c) INFORMATION FROM FEDERAL AGENCIES.—

(1) IN GENERAL.—A Commission established pursuant to this Act is authorized to secure directly from any executive department, bureau, agency, board, commission, office, independent establishment, or instrumentality of the Government, information, suggestions, estimates, and statistics for the purposes of this Act. Each department, bureau,

agency, board, commission, office, independent establishment, or instrumentality shall, to the extent authorized by law, furnish such information, suggestions, estimates, and statistics directly to the Commission, upon request made by the Chairman, the chairman of any subcommittee created by a majority of the Commission, or any member designated by a majority of the Commission.

(2) RECEIPT, HANDLING, STORAGE, AND DISSEMINATION.—Information shall only be received, handled, stored, and disseminated by members of the Commission and its staff consistent with all applicable statutes, regulations, and Executive orders.

(d) ASSISTANCE FROM FEDERAL AGENCIES.—

(1) GENERAL SERVICES ADMINISTRATION.—The Administrator of General Services shall provide to a Commission established pursuant to this Act on a reimbursable basis administrative support and other services for the performance of the Commission's tasks.

(2) OTHER DEPARTMENTS AND AGENCIES.—In addition to the assistance prescribed in paragraph (1), departments and agencies of the United States may provide to the Commission such services, funds, facilities, staff, and other support services as they

may determine advisable and as may be authorized by law.

(e) POSTAL SERVICES.—A Commission established pursuant to this Act may use the United States mails in the same manner and under the same conditions as departments and agencies of the United States.

SEC. 7. PUBLIC MEETINGS, INFORMATION, AND HEARINGS.

(a) PUBLIC MEETINGS AND RELEASE OF PUBLIC VERSIONS OF REPORTS.—A Commission established pursuant to this Act shall—

(1) hold public hearings and meetings to the extent appropriate; and

(2) release public versions of the reports required under this Act.

(b) PUBLIC HEARINGS.—Any public hearings of a Commission shall be conducted in a manner consistent with the protection of information provided to or developed for or by the Commission as required by any applicable statute, regulation, or Executive order.

SEC. 8. STAFF OF COMMISSION.

(a) IN GENERAL.—

(1) APPOINTMENT AND COMPENSATION.—The Chairman, in consultation with Vice Chairman, in accordance with rules agreed upon by a Commission established pursuant to this Act, may appoint and

fix the compensation of a staff director and such other personnel as may be necessary to enable the Commission to carry out its functions, without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and without regard to the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, except that no rate of pay fixed under this subsection may exceed the equivalent of that payable for a position at level V of the Executive Schedule under section 5316 of title 5, United States Code. Employees of NASA shall not be appointed to the staff of a Commission.

(2) PERSONNEL AS FEDERAL EMPLOYEES.—

(A) IN GENERAL.—The executive director and any personnel of a Commission established pursuant to this Act who are employees shall be employees under section 2105 of title 5, United States Code, for purposes of chapters 63, 81, 83, 84, 85, 87, 89, and 90 of that title.

(B) MEMBERS OF COMMISSION.—Subparagraph (A) shall not be construed to apply to members of a Commission established pursuant to this Act.

(b) DETAILEES.—Any Federal Government employee, except for an employee of NASA, may be detailed to a Commission established pursuant to this Act without reimbursement from the Commission, and such detailee shall retain the rights, status, and privileges of his or her regular employment without interruption.

(c) CONSULTANT SERVICES.—A Commission established pursuant to this Act is authorized to procure the services of experts and consultants in accordance with section 3109 of title 5, United States Code, but at rates not to exceed the daily rate paid a person occupying a position at level IV of the Executive Schedule under section 5315 of title 5, United States Code. Any consultant or expert whose services are procured under this subsection shall disclose any contract or association it has with NASA or any NASA contractor.

SEC. 9. COMPENSATION AND TRAVEL EXPENSES.

(a) COMPENSATION.—Each member of a Commission established pursuant to this Act may be compensated at not to exceed the daily equivalent of the annual rate of basic pay in effect for a position at level IV of the Executive Schedule under section 5315 of title 5, United States Code, for each day during which that member is engaged in the actual performance of the duties of the Commission.

(b) TRAVEL EXPENSES.—While away from their homes or regular places of business in the performance of services for the Commission, members of the Commission shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703(b) of title 5, United States Code.

SEC. 10. SECURITY CLEARANCES FOR COMMISSION MEMBERS AND STAFF.

The appropriate Federal agencies or departments shall cooperate with a Commission established pursuant to this Act in expeditiously providing to the Commission members and staff appropriate security clearances to the extent possible pursuant to existing procedures and requirements. No person shall be provided with access to classified information under this Act without the appropriate security clearances.

SEC. 11. REPORTING REQUIREMENTS AND TERMINATION.

(a) INTERIM REPORTS.—A Commission established pursuant to this Act may submit to the President and Congress interim reports containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of Commission members.

(b) FINAL REPORT.—A Commission established pursuant to this Act shall submit to the President and Congress, and make concurrently available to the public, a final report containing such findings, conclusions, and recommendations for corrective actions as have been agreed to by a majority of Commission members. Such report shall include any minority views or opinions not reflected in the majority report.

(c) TERMINATION.—

(1) IN GENERAL.—A Commission established pursuant to this Act, and all the authorities of this Act with respect to that Commission, shall terminate 60 days after the date on which the final report is submitted under subsection (b).

(2) ADMINISTRATIVE ACTIVITIES BEFORE TERMINATION.—A Commission may use the 60-day period referred to in paragraph (1) for the purpose of concluding its activities, including providing testimony to committees of Congress concerning its reports and disseminating the final report.

SEC. 12. ROLE OF NTSB.

The NTSB shall assume responsibility for the investigation of any incident described in section 3(a) immediately upon the occurrence of that incident. The NTSB shall transfer responsibility for the investigation to a Com-

mission established pursuant to this Act as soon as the Commission holds its initial meeting under section 4(d).

SEC. 13. FUNDING.

Such sums as are necessary to carry out this Act are authorized to be appropriated. Sums authorized by this Act shall remain available until the termination of the Commission for which they are appropriated.

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[The Section-by-Section Analysis of H.R. 2450 follows:]

SECTION-BY-SECTION ANALYSIS OF H.R. 2450, HUMAN SPACE FLIGHT INDEPENDENT INVESTIGATION COMMISSION ACT OF 2003

Summary of the "Human Space Flight Independent Investigation Commission Act of 2003."

This bill provides for the establishment of an independent, Presidentially-appointed investigative Commission in the event of incidents in the Nation's human space flight program that result in loss of crew, passengers, or spacecraft. This bill authorizes such sums as are necessary to carry out this bill.

Section 1. Short Title.

Section 2. Definitions.

This section defines key terms used throughout the bill.

Section 3. Establishment of Commission.

This section directs the President to establish an independent, nonpartisan Commission to investigate any incident resulting from the loss of: 1) a Space Shuttle; 2) the International Space Station or its operational viability; 3) any other U.S. space vehicle carrying humans; 4) any space vehicle carrying U.S. citizens; or 5) a crew member or passenger of any space vehicle. The President is directed to issue an executive order establishing a Commission within 7 days after an incident.

Section 4. Composition of Commission.

This section directs that such a Commission will consist of 15 members, to include the Chairman of the NTSB and 14 members appointed by the President. The President shall designate the Commission's Chairman and Vice Chairman. Four of the 14 members shall be selected by the President based on lists of candidates from the Majority Leader of the Senate, the Minority Leader of the Senate, the Speaker of the House of Representatives, and the Minority Leader of the House of Representatives. Except for the Chairman of the NTSB, no officer or employee of the Federal Government shall serve as a member of the Commission. No member of the Commission shall have, or have pending, a contractual relationship with NASA. The President shall not appoint any individual as a member of a Commission under this section who has a current or former relationship with the NASA Administrator that the President determines would constitute a conflict of interest. The President shall ensure that the Commission members include individuals with human space flight, investigative, and legal experiences, and the President shall seek diversity in the Commission's membership. All members of the Commission shall be appointed no later than 30 days after the incident, and the Commission shall meet and begin operations as soon as practicable. The Commission shall meet upon the call of the Chairman, with eight members of the Commission constituting a quorum. Vacancies shall be filled in the same manner as the original appointment was made.

Section 5. Tasks of the Commission.

This section establishes the tasks the Commission shall undertake, to include the following: investigate and determine the cause of the incident; identify all contributing factors to the cause of the incident; make recommendations for corrective actions; provide any additional findings or recommendations deemed by the Commission to be important, whether or not they are related to the specific incident under investigation; and to prepare a report to Congress, the President, and the public.

Section 6. Powers of Commission.

This section authorizes the Commission to hold hearings and require, by subpoena or otherwise, the attendance and testimony of such witnesses and the production of such books, records, correspondence, memoranda, papers, and documents as the Commission determines advisable. A subpoena is authorized only by agreement of 1) the Commission Chairman and Vice-Chairman; or 2) an affirmative vote of eight Commission members. Such subpoenas may be issued under the signature of the Chairman or any member designated by a majority of the Commission, and these subpoenas may be served by any person designated by the Chairman or by a member designated by a majority of the Commission. This section authorizes federal courts to order a witness to testify or produce documentary or other evidence if a subpoena from the Commission fails to compel a witness. Any failure to obey the order of the court may be punished by the court as a contempt of that court. The

Commission may also certify a statement of fact to the appropriate U.S. attorney whom may bring the matter before the grand jury.

This section also authorizes the Commission to enter into contracts to enable the Commission to discharge its duties under this Act. The Commission is authorized to secure directly from any executive department, bureau, agency, board, commission, office, independent establishment, or instrumentality of the Government information, suggestions, estimates, and statistics for the purposes of carrying out the tasks specified in this bill, and each of these organizations shall furnish such assistance directly to the Commission. The General Services Administration shall provide to the Commission administrative support and other services for the performance of the Commission's tasks, and other departments and agencies may also provide such services, funds, facilities, staff, and other support services as they may determine advisable and as may be authorized by law.

Section 7. Public Meetings, Information, and Hearings.

This section directs the Commission to hold public hearings and meetings and release public versions of the reports required under this bill.

Section 8. Staff of Commission.

This section authorizes the Commission Chairman, in consultation with the Vice Chairman, to appoint and compensate staff, in accordance with current law. Any Federal Government employee, except for NASA employees, may be appointed or detailed to Commission staff. The Commission may procure services of outside experts and consultants under conditions specified in the bill.

Section 9. Compensation and Travel Expenses.

This section authorizes the compensation for pay and travel expenses for the Commission members in accordance with current law.

Section 10. Security Clearances for Commission Members and Staff.

This section directs appropriate federal agencies and departments to cooperate in expeditiously providing security clearances to the Commission members and staff.

Section 11. Reporting Requirements and Termination.

The Commission may submit to the President and Congress interim reports containing findings, conclusions, and recommendations for corrective actions agreed upon by the majority of Commission members. The Commission is directed to submit a final report containing findings, conclusions, and recommendations for corrective action agreed upon by the majority of Commission members to the President, Congress, and public. Such report shall include any minority views or opinions not reflected in the majority report. The Commission shall terminate 60 days after this final report is submitted.

Section 12. Role of NTSB.

This section requires the NTSB to assume responsibility for the investigation of any incident described in this bill upon occurrence of the incident. The NTSB is directed to transfer responsibility for the investigation to the Commission as soon as the Commission holds its initial meeting.

Section 13. Funding.

This section authorizes to be appropriated such sums as are necessary to carry out this bill. Sums authorized shall remain available until the termination of the Commission.

[The Summary of H.R. 2450 follows:]

SUMMARY OF H.R. 2450, HUMAN SPACE FLIGHT INDEPENDENT INVESTIGATION COMMISSION ACT OF 2003

Sponsored by: Rep. Bart Gordon (D–TN)

Co-Sponsors (18): Rep. Ralph Hall (D–TX), Rep. Jim Sensenbrenner (R–WI), Rep. Mike Honda (D–CA), Rep. Eddie Bernice Johnson (D–TX), Rep. John Larson (D–CT), Rep. Sheila Jackson Lee (D–TX), Rep. Brian Baird (D–WA), Rep Jerry Costello (D–IL), Rep Martin Frost (D–TX), Rep Nick Lampson (D–TX), Rep. Zoe Lofgren (D–CA), Rep. Barney Frank (D–MA), Rep. Brad Sherman (D–CA), Rep. Anthony Weiner (D–NY), Rep. Albert Wynn (D–MD), Rep. Mark Udall (D–CO), Rep Lincoln Davis (D–TN), Rep Jim Cooper (D–TN)

This bill provides for the establishment of an independent, Presidentially-appointed investigative Commission in the event of incidents in the Nation's human space flight program that result in loss of crew, passengers, or the spacecraft. This bill authorizes such sums as are necessary for the Commission to conduct its work.

Establishment of Commission: The President shall establish an independent, nonpartisan Commission to investigate any incident resulting from the loss of: 1) a Space Shuttle; 2) the International Space Station or its operational viability; 3) any other United States space vehicle carrying humans; 4) any space vehicle carrying United States citizens; or 5) a crew member or passenger of any space vehicle. The President is directed to issue an, executive order establishing a Commission within seven days after an incident.

Composition of Commission: This Commission will consist of 15 members, to include the Chairman of the NTSB and 14 members appointed by the President and drawn in part from lists of candidates from the Majority Leader of the Senate, the Minority Leader of the Senate, the Speaker of the House of Representatives, and the Minority Leader of the House of Representatives. Except for the Chairman of the NTSB, no officer or employee of the Federal Government shall serve as a member of the Commission. The President shall ensure that the Commission members include individuals with human space flight, investigative, and legal experiences. No member of the Commission shall have, or have pending, a contractual relationship with NASA or relationship with the NASA Administrator that would constitute a conflict of interest. All members of the Commission shall be appointed no later than 30 days after the incident.

Commission Tasks: The tasks for the Commission include the following: investigate and determine the cause of the incident; identify all contributing factors to the cause of the incident; make recommendations for corrective actions and provide any additional findings or recommendations deemed by the Commission to be important; and prepare a report to Congress, the President, and the public. The Commission is to terminate 60 days after the release of its final report.

Powers of Commission: The Commission, and its subcommittees or members thereof, may hold hearings for the purpose of examining evidence in the form of witness testimony, books, records, correspondence, memoranda, papers, and documents, and may issue subpoenas to ensure such evidence is presented to the Commissioners. The Commission may enter into contracts for the purpose of discharging its duties, as well as securing support and information from any executive agency of the Federal Government as needed.

Commission Staff: The Commission Chairman, in consultation with the Vice Chairman, may appoint and compensate staff, in accordance with current law, and procure services of outside experts and consultants. Commission members and staff will be granted security clearances to the extent possible pursuant to existing procedures and requirements.

Role of NTSB: The NTSB is to assume responsibility for the investigation of any human space flight incident immediately upon the occurrence of that incident, and the NTSB shall later transfer responsibility for the investigation to a Commission.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON SPACE AND AERONAUTICS

October 8, 2003

AMENDMENT ROSTER

H.R. 2450, the Human Space Flight Independent Investigation Commission Act of 2003

No.	Sponsor	Description	Results
1	Mr. Rohrabacher	Limits scope by excluding commercial human spaceflight missions.	--Adopted by a voice vote.

Chairman ROHRABACHER. The first amendment is offered by the Chair. And I have an amendment at the desk. The Clerk will now report the amendment.

The CLERK. Amendment to H.R. 2450 offered by Mr. Rohrabacher——

[The amendment offered by Mr. Rohrabacher follows:]

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AMENDMENT TO H.R. 2450

OFFERED BY MR. ROHRABACHER

Page 2, lines 19 and 20, strike paragraph (3).

Page 2, lines 21 and 23, redesignate paragraphs (4) and (5) as paragraphs (3) and (4), respectively.

Page 2, line 22, insert "for the purpose of carrying out United States Government activities" after "United States citizens".

Chairman ROHRABACHER. I ask unanimous consent to dispense further reading. Without objection, so ordered.

Chairman ROHRABACHER. The Chairman will offer a brief discussion of the amendment. I consider that Members—I—excuse me. I recommend that Members vote in favor of this amendment to H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.* H.R. 2450 authorizes the President to establish an independent Commission to investigate any incidents resulting from the loss of a wide array of human-carrying space vehicles.

Without the amendment, H.R. 2450's scope could be interpreted to include commercial flights, things—space flights, space missions that are really not under the purview of the government. The amendment limits the scope of the Act to U.S. Government-related activities. And I believe this amendment strengthens 2450, and I encourage my colleagues to vote in favor of the amendment.

The Chair now recognizes Mr. Gordon.

Mr. GORDON. Mr. Chairman, I concur that it is a constructive amendment, and I appreciate your insight in making this bill better.

Chairman ROHRABACHER. Thank you very much.

Is there any further discussion? If no, the vote occurs on the amendment. All in favor, say aye. All opposed, say no. The ayes seem to have it, and the amendment is agreed to. Are there any further amendments? Hearing none, the question is on the bill, H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003,* as amended. All of those in favor will say aye. All of those opposed, say no. In the opinion of the Chair, the ayes have it.

I will now recognize the Ranking Minority Member for a motion.

Mr. GORDON. Mr. Chairman, I move that the Subcommittee favorably report the bill H.R. 2450, as amended, to the Full Committee with the recommendation that it be in order for the bill, as amended by the Subcommittee, to be incorporated into the amendment in the nature of a substitute for the consideration of the original bill for the purpose of amendment under the five-minute rule at Full Committee.

Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill as amended in accordance with the recommendations of the Subcommittee.

Chairman ROHRABACHER. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes appear to have it. The bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental Minority or additional views on the measure. Without objection, so ordered.

This concludes the Subcommittee markup. And let me again assure that—Chairman Hall, that although his bill did not make it to markup today, that it is this Chair's intention to work with you, Mr. Hall, and to try to move forward with your legislation as it develops.

Mr. HALL. Thank you, Mr. Chairman. As you know, the major thrust from this point forward needs to be safety. And your bill encompasses that. Every bill we have addressed today has tipped its hat to safety, and I think that has got to be the watchword for us for the next year or so.

Chairman ROHRABACHER. Thank you very much, Mr. Hall. Again, we appreciate your continued leadership.

This concludes our Subcommittee markup. We are adjourned.

[Whereupon, at 10:42 a.m., the Subcommittee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON RESEARCH ON H.R. 2692, UNITED STATES FIRE ADMINISTRATION AUTHORIZATION ACT OF 2003

THURSDAY, JULY 17, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON RESEARCH,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to other business, at 11:30 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Nick Smith [Chairman of the Subcommittee] presiding.

Chairman SMITH. The Subcommittee will be in order. Pursuant to notice, the Subcommittee on Research is meeting today to consider the following measures: H.R. 2692, the *United States Fire Administration Authorization Act of 2003.*

I ask unanimous consent for the authority to recess the Subcommittee at any point, and without objection, hearing none, it is so ordered.

Of course, we have just discussed this legislation in the proceeding hearing, so Members and staff should be familiar with the provisions of the legislation. However, I will take a moment to briefly summarize a couple of provisions that are in the base bill. The bill would authorize appropriations for base activities at the U.S. Fire Administration through fiscal year 2006. That is, all traditional USFA activities, except the Assistance to Firefighters Grant Program that was established in fiscal year 2001, is currently authorized through the end of fiscal year 2004. The legislation reinstates the position of the U.S. Fire Administration as a Presidentially-appointed Senate-confirmed position, and that reacts to our effort to make sure that it is separate and distinct. It reverses what we believe was an inadvertent elimination of the position by language that was part of last year's bill establishing the Department of Homeland Security.

It also transfers ultimate responsibility for administration of the Assistance to Firefighters Grant Program from the Director of FEMA to the U.S. Fire Administrator. This will not result in any functional changes to the Grant Program, but instead clarifies the existing structure and sends somewhat of a symbolic message, at least I believe, as does the fire service community that the Grant Program's proper home is within USFA.

This is a bipartisan legislation. I am pleased that we were able to put this together in this fashion. I believe we will have a smooth

markup of the legislation today, and next—again next week at Full Committee so that the bill can make its way to the House floor. And we will pass it hopefully when we return to—from the August recess. The Chair now recognizes Mrs. Eddie Bernice Johnson, the Ranking Minority Member of the Subcommittee, for an opening statement.

Ms. Johnson.

Ms. JOHNSON. Thank you, Mr. Chairman. As co-sponsor of this legislation, I speak in support of its favorable consideration by the Research Subcommittee today. The Fire Administration has long enjoyed bipartisan support because of its vital mission to improve the safety of all of our citizens. I would like to commend you, Mr. Chairman, for working with me in a collegial way in developing H.R. 2692, and I also thank you for bringing the bill before the Subcommittee for its consideration today.

H.R. 2692 will help maintain the visibility of the Fire Administration and its vital programs within the new Department of Homeland Security. It reestablishes the position of Fire Administrator as a Presidentially-appointed and Senate-confirmed post, and it formally places the Fire Grants Program under the Fire Administration, which has had an excellent record to date in running the Grants Program. I believe the resources authorized for the Fire Administration will allow the Agency to meet its critical responsibilities for firefighter and first responder training, for gathering fire data and for fire research, and for public education programs.

I'd like to do more, except that this may not be possible under the current Federal Budget climate. Mr. Chairman, I know that you will offer a substitute to the bill to incorporate provisions from H.R. 545, which are now included in the Senate's version of the Fire Administration Authorization Bill. I generally support this substitute, although I am not yet convinced that the weakening of the requirements in H.R. 545 regarding standards for firefighting equipment obtained under the Fire Grants Program is a good idea. I would much prefer a requirement that new equipment meet existing consensus standards where they exist. I would not, however, object to providing some flexibility to this requirement.

For example, the Fire Administrator could be given the authority to waive the requirements of a grantee, if a grantee could show a good reason to do so. I will defer to Full Committee any proposal for alternative language to this provision. I am pleased to recommend H.R. 2692 to my colleagues, and seek their approval to favorably report the legislation to Full Committee. Thank you.

Chairman SMITH. We will now consider H.R. 2622, and without objection, all Members may place opening statements into the record.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Mr. Chairman, as the co-sponsor of this legislation, I speak in support of its favorable consideration by the Research Subcommittee today. The Fire Administration has long enjoyed bipartisan support because of its vital mission to improve the safety of all our citizens.

I would like to commend you, Chairman Smith, for working with me in a collegial way in developing H.R. 2692, and I also thank you for bringing the bill before the Subcommittee for its consideration today.

H.R. 2692 will help maintain the visibility of the Fire Administration and its vital programs within the new Department of Homeland Security. It reestablishes the position of Fire Administrator as a Presidentially appointed and Senate confirmed post, and it formally places the FIRE Grants program under the Fire Administration, which has had an excellent record to date in running the grants program.

I believe the resources authorized for the Fire Administration will allow the agency to meet its critical responsibilities for firefighter and first responder training, for gathering fire data, for fire research, and for public education programs. I would like to do more, but accept that this may not be possible under the current federal budget climate.

The Chairman will offer a substitute to the bill to incorporate provisions from H.R. 545, which are now included in the Senate's version of the Fire Administration authorization bill. I generally support this substitute, although I am not yet convinced that the weakening of the requirement in H.R. 545 regarding standards for firefighting equipment obtained under the FIRE Grants program is a good idea.

I would much prefer a requirement that new equipment meet existing consensus standards where they exist. I would not, however, object to providing some flexibility to this requirement.

For example, the Fire Administrator could be given the authority to waive the requirement if, a grantee could show a good reason to do so. I will defer to Full Committee any proposal for alternative language to this provision.

Mr. Chairman, I am pleased to recommend H.R. 2692 to my colleagues and seek their approval to favorably report the legislation to Full Committee.

Chairman SMITH. I ask unanimous consent that the bill be considered as read and opening amendments at any point. I ask the Members to proceed with the amendments in the order on the roster, and without objection, so ordered. It is so ordered.

[H.R. 2692 follows:]

108TH CONGRESS
1ST SESSION

H. R. 2692

To authorize appropriations for activities under the *Federal Fire Prevention and Control Act of 1974* for fiscal years 2004 through 2006, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 10, 2003

Mr. SMITH of Michigan (for himself and Ms. EDDIE BERNICE JOHNSON of Texas) introduced the following bill; which was referred to the Committee on Science

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A BILL

To authorize appropriations for activities under the *Federal Fire Prevention and Control Act of 1974* for fiscal years 2004 through 2006, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "United States Fire Administration Authorization Act of 2003".

SEC. 2. UNITED STATES FIRE ADMINISTRATOR.

Notwithstanding section 1513 of the *Homeland Security Act of 2002* (6 U.S.C. 553), the Administrator of the United States Fire Administration shall continue to be appointed and compensated as provided under section 5(b) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2204(b)).

SEC. 3. NATIONAL RESIDENTIAL FIRE SPRINKLER STRATEGY.

Section 30 of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2226) is amended——

(1) by inserting "(a) IN GENERAL.—" before "The Director, acting"; and

(2) by adding at the end the following new subsection:

"(b) NATIONAL RESIDENTIAL FIRE SPRINKLER STRATEGY.—The Administrator shall develop and implement a strategy for promoting the installation and use of residential fire sprinklers. The strategy shall include——

"(1) advocacy and informational support to relevant stakeholders, including builders, insurers, and State and local decisionmakers;

"(2) promotion of residential sprinklers in residences supported by the Federal Government;

"(3) a particular focus on residences——

"(A) at high risk to fire hazards; and

"(B) with occupants at high risk to fire hazards, such as senior citizens; and

"(4) a particular focus on localized fire suppression in high-risk areas of residences, such as kitchens.".

SEC. 4. SUPPORT FOR TRAINING TO FIGHT MARITIME FIRES.

Subsection (b)(3)(B) of the first section 33 of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2229(b)(3)(B)) is amended by inserting "maritime firefighting," after "arson prevention and detection,".

SEC. 5. FIREFIGHTER ASSISTANCE GRANTS PROGRAM.

The first section 33 of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2229) is amended——

(1) by striking "Director" each place it appears and inserting "Administrator";

(2) by amending subsection (b)(2) to read as follows:

"(2) ADMINISTRATIVE ASSISTANCE.—The Administrator shall establish specific criteria for the selection of recipients of assistance under this section and shall provide grant-writing assistance to applicants."; and

(3) in subsection (e)(2), by striking "operate the office established under subsection (b)(2) and".

SEC. 6. AUTHORIZATION OF APPROPRIATIONS.

Section 17(g) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2216(g)) is amended by striking "to carry out the purposes" and all that follows through the end of subparagraph (K) and inserting "to the Administrator to carry out the purposes of this Act, other than the firefighter assistance program under section 33——

"(A) $61,000,000 for fiscal year 2004;

"(B) $62,830,000 for fiscal year 2005; and

"(C) $65,000,000 for fiscal year 2006.".

SEC. 7. COURSES AND TRAINING ASSISTANCE.

Section 7(l) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2206(l)) is amended by adding at the end the following: "The Superintendent shall offer, at the Academy and at other sites, courses and training assistance as necessary to accommodate all geographic regions and needs of career and volunteer firefighters.".

○

[The Section-by-Section Analysis follows:]

SECTION-BY-SECTION ANALYSIS OF
H.R. 2692, AS AMENDED BY THE RESEARCH SUBCOMMITTEE

Introduced by Mr. Smith of Michigan and Ms. Johnson of Texas

Section 1. Short Title.

"United States Fire Administration Authorization Act of 2003".

Section 2. United States Fire Administrator.

Preserves the position of U.S. Fire Administrator as a Presidentially-appointed, Senate-confirmed position.

Section 3. National Residential Fire Sprinkler Strategy.

Requires the Administrator to develop and implement a strategy for promoting the installation and use of residential fire sprinklers. Requires strategy to include advocacy and informational support to relevant stakeholders, with a particular focus on residences at high risk to fire hazards and occupants at high risk to fire hazards (such as senior citizens).

Section 4. Support for Training to Fight Maritime Fires.

Amends the Assistance to Firefighters Grant Program to allow support for training to fight maritime fires as an eligible grant activity.

Section 5. Firefighters Assistance Grants Program.

Transfers responsibility for administration of the program from the Director of the Federal Emergency Management Agency (FEMA) to the Administrator of the U.S. Fire Administration (USFA).

Section 6. Authorization of Appropriations.

Authorizes appropriations for USFA of $58.928, $60.7, and $62.52 million annually for fiscal years FY 2004 through FY 2006, respectively.

Section 7. Courses and Training Assistance.

Clarifies that National Fire Academy Superintendent, in offering training courses, work to accommodate as many geographic areas and needs of firefighters as possible.

Section 8. New firefighting technology.

Subsection (a) would establish a new section 8(e) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2207). This new subsection would direct the Administrator, in consultation with the National Institute of Standards and Technology, the Inter-Agency Board for Equipment Standardization and Inter-Operability, national voluntary consensus standards development organizations, and other interested parties, to develop new, and utilize existing, measurement techniques and testing methodologies for evaluating the performance of new firefighting technology, including:

- personal protection equipment;
- devices for advance warning of extreme hazard;
- equipment for enhanced vision;
- devices to locate victims, firefighters, and other rescue personnel in above-ground and below-ground structures;
- equipment and methods to provide information for incident command, including the monitoring and reporting of individual personnel welfare;
- equipment and methods for training, especially for virtual reality training; and
- robotics and other remote-controlled devices.

The Administrator would also be required to evaluate the compatibility of new equipment and technology with existing firefighter technology, and support the development of new voluntary consensus standards through national voluntary consensus standards organizations for new firefighting technologies.

For fire departments applying for equipment under the Assistance to Firefighters grant program that does not meet applicable voluntary consensus standards, appli-

cants must include in their applications an explanation of why the equipment will serve their needs better than equipment that does meet the standards.

Authorizes appropriations of $2.2, $2.25, and $2.3 million for fiscal years 2004 through 2006 to carry out this section.

Sec. 9. Coordination of response to national emergency.

Subsection (a) would create a new section 10(b) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2209). New subsection (b) would require the Administrator, after consultation with the Director of FEMA, to provide technical assistance and training to State and local fire service officials to establish nationwide and State mutual aid systems for dealing with national emergencies. These mutual aid systems would include threat assessment and equipment deployment strategies, and include means of collecting asset and resource information to provide accurate and timely data for regional deployment. These mutual aid systems also would have to be consistent with FEMA's Federal Response Plan. The Administrator, in consultation with the Director of FEMA, would be required to develop and make available to State and local fire service officials model mutual aid plans for both intrastate and interstate assistance.

Subsection (b) would require the Administrator to report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science, within 90 days after the date of enactment of this Act, on the need for a strategy concerning the deployment of volunteers and emergency response personnel (as defined in section 6 of the Firefighters' Safety Study Act (15 U.S.C. 2223e)), including a national credentialing system, in the event of a national emergency.

Subsection (c) would require the Director of FEMA to revise the Federal Response Plan within 180 days after the date of enactment of this Act to incorporate plans for responding to terrorist attacks, particularly in urban areas, including fire detection and suppression and related emergency services. The Director of FEMA would also be required to transmit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science on these revisions.

Sec. 10. Training.

Subsection (a) would amend section 8(d)(1) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2206(d)(1) to authorize the Superintendent of the National Fire Academy to conduct training in the following areas:

(i) strategies for building collapse rescue;

(ii) the use of technology in response to fires, including terrorist incidents and other national emergencies;

(iii) response, tactics, and strategies for dealing with terrorist- caused national catastrophes;

(iv) use of and familiarity with FEMA's Federal Response Plan;

(v) leadership and strategic skills, including integrated management systems operations and integrated response;

(vi) applying new technology and developing strategies and tactics for fighting forest fires;

(vii) integrating terrorism response agencies into the national terrorism incident response system; and

(viii) response tactics and strategies for fighting fires at United States ports, including fires on the water and aboard vessels.

Subsection (b) would authorize the Superintendent of the National Fire Academy to consult with other Federal, State, and local government officials in developing curricula for classes at the Academy.

Subsection (c) would require the Administrator to coordinate the training provided under section 8(d)(1) of the *Federal Fire Prevention and Control Act of 1974* (15 U.S.C. 2206(d)(1)) with the Attorney General, the Secretary of Health and Human Services, and the heads of other federal agencies, to ensure that such training does not duplicate existing courses available to fire service personnel and to establish a mechanism for eliminating duplicative training programs.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON RESEARCH

July 17, 2003

AMENDMENT ROSTER

H.R. 2692, United States Fire Administration Authorization Act of 2003

No.	Sponsor	Description	Results
1	Mr. Smith (MI)	Manager's Amendment	Adopted by voice vote

Chairman SMITH. I move—let us see. The—we will move to what is now the only amendment on the roster, which is an amendment in the nature of a substitute offered by the Chairman. I ask unanimous consent that the amendment be considered in block. Without objection, it is so ordered.

The Clerk will report the amendment.

The CLERK. Amendment in the nature of a substitute offered by Mr. Smith of Michigan.

[The amendment offered by Mr. Smith follows:]

AMENDMENT IN THE NATURE OF A SUBSTITUTE OFFERED BY MR. SMITH OF MICHIGAN

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "United States Fire Administration Authorization Act of 2003".

SEC. 2. UNITED STATES FIRE ADMINISTRATOR.

Notwithstanding section 1513 of the Homeland Security Act of 2002 (6 U.S.C. 553), the Administrator of the United States Fire Administration shall continue to be appointed and compensated as provided under section 5(b) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2204(b)).

SEC. 3. NATIONAL RESIDENTIAL FIRE SPRINKLER STRATEGY.

Section 30 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2226) is amended—

(1) by inserting "(a) IN GENERAL.—" before "The Director, acting"; and

(2) by adding at the end the following new subsection:

"(b) NATIONAL RESIDENTIAL FIRE SPRINKLER STRATEGY.—The Administrator shall develop and imple-

ment a strategy for promoting the installation and use of residential fire sprinklers. The strategy shall include—

"(1) advocacy and informational support to relevant stakeholders, including builders, insurers, and State and local decisionmakers;

"(2) promotion of residential sprinklers in residences supported by the Federal Government;

"(3) a particular focus on residences—

"(A) at high risk to fire hazards; and

"(B) with occupants at high risk to fire hazards, such as senior citizens; and

"(4) a particular focus on localized fire suppression in high-risk areas of residences, such as kitchens.".

SEC. 4. SUPPORT FOR TRAINING TO FIGHT MARITIME FIRES.

Subsection (b)(3)(B) of the first section 33 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2229(b)(3)(B)) is amended by inserting "maritime firefighting," after "arson prevention and detection,".

SEC. 5. FIREFIGHTER ASSISTANCE GRANTS PROGRAM.

The first section 33 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2229) is amended—

(1) by striking "Director" each place it appears and inserting "Administrator";

(2) by amending subsection (b)(2) to read as follows:

"(2) ADMINISTRATIVE ASSISTANCE.—The Administrator shall establish specific criteria for the selection of recipients of assistance under this section and shall provide grant-writing assistance to applicants."; and

(3) in subsection (e)(2), by striking "operate the office established under subsection (b)(2) and".

SEC. 6. AUTHORIZATION OF APPROPRIATIONS.

Section 17(g) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2216(g)) is amended by striking "to carry out the purposes" and all that follows through the end of subparagraph (K) and inserting "to the Administrator to carry out the purposes of this Act, other than the firefighter assistance program under section 33—

"(A) $58,928,000 for fiscal year 2004;

"(B) $60,700,000 for fiscal year 2005; and

"(C) $62,520,000 for fiscal year 2006.".

SEC. 7. COURSES AND TRAINING ASSISTANCE.

Section 7(l) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2206(l)) is amended by adding at the end the following: "The Superintendent shall offer, at the Academy and at other sites, courses and training

assistance as necessary to accommodate all geographic regions and needs of career and volunteer firefighters.".

SEC. 8. NEW FIREFIGHTING TECHNOLOGY.

(a) IN GENERAL.—Section 8 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2207) is amended—

(1) by redesignating subsection (e) as subsection (f); and

(2) by inserting after subsection (d) the following:

"(e) DEVELOPMENT OF NEW TECHNOLOGY.—

"(1) IN GENERAL.—In addition to, or as part of, the program conducted under subsection (a), the Administrator, in consultation with the National Institute of Standards and Technology, the Inter-Agency Board for Equipment Standardization and Inter-Operability, national voluntary consensus standards development organizations, interested Federal, State, and local agencies, and other interested parties, shall—

"(A) develop new, and utilize existing, measurement techniques and testing methodologies for evaluating new firefighting technologies, including—

"(i) personal protection equipment;

"(ii) devices for advance warning of extreme hazard;

"(iii) equipment for enhanced vision;

"(iv) devices to locate victims, firefighters, and other rescue personnel in above-ground and below-ground structures;

"(v) equipment and methods to provide information for incident command, including the monitoring and reporting of individual personnel welfare;

"(vi) equipment and methods for training, especially for virtual reality training; and

"(vii) robotics and other remote-controlled devices;

"(B) evaluate the compatibility of new equipment and technology with existing firefighting technology; and

"(C) support the development of new voluntary consensus standards through national voluntary consensus standards organizations for new firefighting technologies based on techniques and methodologies described in subparagraph (A).

"(2) STANDARDS FOR NEW EQUIPMENT.—If an applicant for a grant under section 33 proposes to purchase, with assistance provided under the grant, equipment or systems that do not meet or exceed applicable voluntary consensus standards, the applicant shall include in the application an explanation of why such equipment or systems will serve the needs of the applicant better than equipment or systems that do meet or exceed such standards.".

(b) AUTHORIZATION OF APPROPRIATIONS.—Section 17 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2216) is amended by adding at the end the following:

"(i) DEVELOPMENT OF NEW TECHNOLOGY.—There are authorized to be appropriated to the Administrator to carry out section 8(e)—

"(1) $2,200,000 for fiscal year 2004;

"(2) $2,250,000 for fiscal year 2005; and

"(3) $2,300,000 for fiscal year 2006.".

SEC. 9. COORDINATION OF RESPONSE TO NATIONAL EMERGENCY.

(a) IN GENERAL.—Section 10 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2209) is amended—

(1) by redesignating subsection (b) as subsection (c); and

(2) by inserting after subsection (a) the following:

"(b) MUTUAL AID SYSTEMS.—

"(1) IN GENERAL.—The Administrator, after consultation with the Director of the Federal Emergency Management Agency, shall provide technical assistance and training to State and local fire service officials to establish nationwide and State mutual aid systems for dealing with national emergencies that—

"(A) include threat assessment and equipment deployment strategies;

"(B) include means of collecting asset and resource information to provide accurate and timely data for regional deployment; and

"(C) are consistent with the Federal Emergency Management Agency's Federal Response Plan.

"(2) MODEL MUTUAL AID PLANS.—The Administrator, in consultation with the Director of the Federal Emergency Management Agency, shall develop and make available to State and local fire serv-

ice officials model mutual aid plans for both intrastate and interstate assistance.".

(b) REPORT ON STRATEGIC NEEDS.—Within 90 days after the date of enactment of this Act, the Administrator of the United States Fire Administration shall report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science on the need for a strategy concerning deployment of volunteers and emergency response personnel (as defined in section 6 of the Firefighters' Safety Study Act (15 U.S.C. 2223c), including a national credentialing system, in the event of a national emergency.

(c) UPDATE OF FEDERAL RESPONSE PLAN.—Within 180 days after the date of enactment of this Act, the Director of the Federal Emergency Management Agency shall—

(1) revise that Agency's Federal Response Plan to incorporate plans for responding to terrorist attacks, particularly in urban areas, including fire detection and suppression and related emergency services; and

(2) transmit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science de-

scribing the action taken to comply with paragraph (1).

SEC. 10. TRAINING.

(a) IN GENERAL.—Section 7(d)(1) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2206(d)(1)) is amended—

(1) by striking "and" after the semicolon in subparagraph (E);

(2) by redesignating subparagraph (F) as subparagraph (N); and

(3) by inserting after subparagraph (E) the following:

"(F) strategies for building collapse rescue;

"(G) the use of technology in response to fires, including terrorist incidents and other national emergencies;

"(H) response, tactics, and strategies for dealing with terrorist-caused national catastrophes;

"(I) use of and familiarity with the Federal Emergency Management Agency's Federal Response Plan;

"(J) leadership and strategic skills, including integrated management systems operations and integrated response;

"(K) applying new technology and developing strategies and tactics for fighting forest fires;

"(L) integrating terrorism response agencies into the national terrorism incident response system;

"(M) response tactics and strategies for fighting fires at United States ports, including fires on the water and aboard vessels; and".

(b) CONSULTATION ON FIRE ACADEMY CLASSES.—The Superintendent of the National Fire Academy may consult with other Federal, State, and local agency officials in developing curricula for classes offered by the Academy.

(c) COORDINATION WITH OTHER PROGRAMS TO AVOID DUPLICATION.—The Administrator of the United States Fire Administration shall coordinate training provided under section 7(d)(1) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2206(d)(1)) with the Attorney General, the Secretary of Health and Human Services, and the heads of other Federal agencies—

(1) to ensure that such training does not duplicate existing courses available to fire service personnel; and

(2) to establish a mechanism for eliminating duplicative training programs.

Chairman SMITH. I ask unanimous consent that we dispense with the total reading of the amendment that essentially has the existing language of the bill, and includes Mr. Camp's bill at the end, essentially. Without objection, it is so ordered.

Chairman SMITH. I recognize myself for a few minutes to explain what the amendment is. The amendment in the nature of a substitute being considered is essentially the language of H.R. 545, added at the end of H.R. 2692. A few of the provisions include improving the support for the Fire Services through three primary provisions. One, providing support for the development of voluntary consensus standards for firefighting equipment and technology. Two, establishment of a nationwide and State mutual aid system for dealing with the national emergencies; and three, authorizing the National Fire Academy to train firefighters to respond to acts of terrorism and other national emergencies.

In addition to making a couple of minor technical and conforming changes, the sub-suit amendment modifies the provisions we discussed during the hearing, requiring equipment purchased through Assistant Fire Grant Program to meet applicable voluntary consensus standards. The language in the substitute replaces this requirement with language requiring applicants applying for grants to purchase equipment, and Madam Vice-Chairman, Ranking Member will work on this and come to hopefully some agreement that still allows the flexibility that was called for by the Administrator and the Chief, and the sponsor of the bill, Mr. Camp, as we proceed to Full Committee.

Is there further discussion on the amendment? If not, the vote occurs on the amendment. All in favor will say aye. Those opposed say no. The ayes have it, and the amendment in the nature of substitute is agreed to.

After the motion to report the bill, does the Ranking Member or do I do this? Oh, are there any further amendments? Hearing none, the questions on the bill H.R. 2692, as amended, the United States Fire Administration Authorization Act, all those in favor will say aye. All those opposed say no. And in the opinion of the Chair, the ayes have it.

And the Ranking Member.

Ms. JOHNSON. Thank you, Mr. Chairman. I move that the Subcommittee favorably report the bill H.R. 2692, as amended, to the Full Committee, with the recommendation that it be an order for the bill as amended by the Subcommittee to be incorporated into an amendment in the nature of a substitute for consideration as an original bill for the purpose of amendment under the five-minute rule at Full Committee.

Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill, as amended, in accordance with the recommendations of the Subcommittee.

Chairman SMITH. The Subcommittee has heard the motion. Is there any further discussion? All those in favor will say aye. Those opposed will say no. The ayes have it, and the motion is agreed to, and without objection, the motion to consider is laid upon the table.

This concludes our subcommittee markup. I thank the Members, certainly again thank the witnesses and staff before us today. Dan,

you did an excellent job, if you are still here. And with that, the Subcommittee is adjourned.

[Whereupon, at 11:40 a.m., the Subcommittee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON SPACE AND AERONAUTICS ON H.R. 2734, FEDERAL AVIATION ADMINISTRATION RESEARCH AND DEVELOPMENT REAUTHORIZATION ACT

THURSDAY, JUNE 26, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPACE AND AERONAUTICS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Dana Rohrabacher [Chairman of the Subcommittee] presiding.

Chairman ROHRABACHER. I now call the Subcommittee on Space and Aeronautics to order. Good morning. And pursuant to notice to the Subcommittee on Space and Aeronautics is that we are meeting today to consider the following measures: H.R. 1085, the *NASA Flexibility Act of 2003,* and then the Committee Print for the *Federal Aviation Administration Research and Development Reauthorization Act.*

And I welcome everyone to this markup this morning. And this is the first markup of this subcommittee for the 108th Congress. Let me also be the first to thank Chairman Boehlert for his leadership. Is he here with us yet? He will be. Chairman Boehlert is on his way, and we appreciate his leadership for tackling a difficult, yet crucial, issue and that is NASA's workforce needs.

Today's markup concerns H.R. 1085, the *NASA Flexibility Act of 2003.* NASA is facing a crisis regarding its workforce. A significant portion of the workforce will be eligible to retire soon, so action needs to be taken. H.R. 1085 is intended to provide NASA the flexibility necessary to attract the best of the brightest talent in the fields of engineering and science by helping NASA address the problems of recruiting and retaining highly skilled technical personnel. H.R. 1085 provides NASA with the authority needed to ensure that our skilled workforce continues to be our greatest asset for pushing the boundaries of this great new frontier of space.

We will also markup the *Federal Aviation Administration Research and Development Reauthorization Act.* This bill authorizes funding for civil aviation research and development. It also calls for a joint FAA and NASA initiative aimed at resolving the problems facing our national air traffic management system.

This morning, I look forward to working with my colleagues on both sides of the aisle, and I am confident that our efforts will help maintain America's leadership role in aerospace.

I also would like to thank Bart Gordon, the Ranking Member of the Subcommittee, for his hard work on this and his openness and willingness to work in a very bipartisan manner on this bill. And I know there were some rough edges we had to work out, and I appreciate that he did this with good will and went forward in trying to make sure that we could get this job done. And I certainly now would recognize you for any opening remarks that you would like to make.

[The prepared statement of Chairman Rohrabacher follows:]

PREPARED STATEMENT OF CHAIRMAN DANA ROHRABACHER

I want to welcome everyone here this morning for the Space Subcommittee's first markup of the 108th Congress. Let me also be the first to thank Chairman Boehlert for his leadership in tackling a difficult, and yet, crucial issue—NASA's workforce needs.

Today's markup concerns H.R. 1085, the *NASA Flexibility Act of 2003.* NASA is facing a crisis regarding its workforce. A significant portion of the workforce will be eligible to retire soon. So action needs to be taken. H.R. 1085 is intended to provide NASA the flexibility necessary to attract the best and brightest talent in the fields of engineering and science.

By helping NASA address the problem of recruiting and retaining highly skilled technical personnel, H.R. 1085 provides NASA with the authority needed to ensure that a skilled workforce continues to be our greatest asset for pushing the boundaries of new frontiers.

We will also markup the *Federal Aviation Administration Reauthorization Act.* This bill authorizes funding for civil aviation research and development. It also calls for a joint FAA and NASA initiative aimed at solving the problems facing our national air traffic management system.

This morning I look forward to working with my colleagues on both sides of the aisle. I am confident that our efforts today will help to maintain our leadership role in aerospace.

Chairman ROHRABACHER. We now turn our attention to the markup of the Committee Print of the *Federal Aviation Administration Research and Development Reauthorization Act.* And the—you don't think so? Okay. Oh, I thought it was going to be quick. Okay. Five minutes. This committee is in recess until five minutes after the last vote that we are going to on the Floor.

[Recess.]

Chairman ROHRABACHER. This hearing will now come back to order. And we will now turn our attention to the markup of the Committee Print of the *Federal Aviation Administration Research and Development Authorization Act.* The FAA and NASA and industry have all worked together to develop air traffic control hardware and systems needed to meet near- and long-term challenges to America's airspace system. The bill, this bill, will help in this regard by calling for the establishment of a join program office between the FAA and NASA to conduct long-term air traffic management research and development. This bill also bolsters ongoing efforts to shore up deficiencies in civil aviation research and development as well by making research and development in the civil aviation area a higher priority.

I now will recognize Mr. Gordon, Ranking Minority Member of the Subcommittee, to present his opening remarks.

Mr. GORDON. Thank you, Mr. Chairman. I am very pleased to express my support for the FAA legislation that we are marking up

today. We have had some amendments that we will be offering to perfect the bill, but in general, I think it is a very good piece of legislation. Chairman Rohrabacher has been—has already summarized the provisions of the bill, so I will confine my remarks to a few observations.

First, I am pleased that Chairman Rohrabacher has taken a bipartisan approach to the crafting of this legislation. I am particularly heartened by the fact that it tracks in large part the FAA Title of Mr. Larson's "Aeronautics Research and Development Revitalization Act." That bill was introduced in the last Congress and gained broad bipartisan sponsorship. It was reintroduced earlier this year as H.R. 586 and is again attracting bipartisan co-sponsorship. It is a good bill, and I am glad to see that much of the FAA Title has found its way into the legislation before us today. When we consider a NASA Authorization bill, I hope that the Committee will give equally serious consideration to the NASA aeronautics R&D provisions contained in Mr. Larson's bill.

I am also pleased that Chairman Rohrabacher has incorporated Ms. Johnson's "Airport Cooperative Research Program" provisions to the bill. It is a constructive provision that, if enacted, will do much to bring innovative solutions to the challenges confronting our nation's airport operating authorities.

The bill also focuses on R&D challenges facing our nation's air traffic management system. It proposes a coordinated effort to address the development of the next generation air traffic management system and delineates some clear objectives. It is an approach worth supporting.

More broadly, the bill recognizes the importance of considering aviation-related R&D on a unified basis. Research priorities and plans should not be captive to budget categories. Instead, they need to be examined within the context of overall FAA R&D efforts.

Mr. Chairman, we will have several amendments to the bill, and I believe they will prove non-controversial and acceptable to the Members. They will improve what is already a good bill, and I intend to support this legislation, and I hope that it will be speedily enacted into law.

And thank you. I yield back the balance of my time.

[The prepared statement of Mr. Gordon follows:]

PREPARED STATEMENT OF REPRESENTATIVE BART GORDON

I want to express my support for the FAA legislation that we are marking up today. We will have some amendments that we will offer to perfect the bill, but in general I think that it is a good piece of legislation. Chairman Rohrabacher has already summarized the provisions of the bill, so I will confine my remarks to a few observations.

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More broadly, the bill recognizes the importance of considering aviation-related R&D on a unified basis. Research priorities and plans should not be captive to budget categories—instead they need to be examined within the context of the overall FAA R&D effort.

Mr. Chairman, we will have several amendments to the bill that I believe will prove non-controversial and acceptable to the Members. They will improve what is already a good bill. I intend to support this legislation and hope that it will be speedily enacted into law.

Thank you, and I yield back the balance of my time.

Chairman ROHRABACHER. Thank you very much.

The Chairman notes that when we talk about research and development and how it is going to play an important role in shaping America's transportation system, we often think of it more in terms of research and development of aircraft, and this is going to make America more competitive, etcetera. But the Chair believes, and I certainly agree with Mr. Gordon, that the air traffic control system and focusing on the way air traffic is managed and the technology necessary to develop, perhaps, a revolutionary new concept of air traffic control in this country could well be more important than developing the airplanes themselves. And we can make the aviation industry here much more efficient and much more effective.

Our airlines are not making a profit right now. One of the problems is the high cost of fuel, but perhaps the way we have organized the system and the technology on which that organization is based can actually play a major role in making our airlines profitable again. So that is why this is very important, and again demonstrating the bipartisan nature of the Subcommittee and the Committee that we all have those goals in mind.

Without objection, all Members may place an opening statement on the Committee Print of the *Federal Aviation Administration Research and Development Reauthorization Act* in the record at this point.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Thank you Mr. Chairman and Ranking Member Gordon. I am pleased that the Majority has decided to include language that I provided to create an Airport Cooperative Research Program in this legislation.

This research program will identify and sponsor research on problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing federal research programs.

As a Member of both this committee and the Transportation and Infrastructure Committee, I believe an Airport Cooperative Research Program is necessary in order to coordinate the efforts of thousands off public and private airport operators, regulators, suppliers, and users at all levels of government and industry so that the aviation industry can provide a consumer friendly product that is safe, secure, and environmentally sound.

Thank you again Mr. Chairman for including this research program—I appreciate the Committee's support in establishing this critical step towards coordination and cooperation in aviation research.

[The prepared statement of Mr. Larson follows:]

PREPARED STATEMENT OF REPRESENTATIVE JOHN LARSON

Thank you, Mr. Chairman. First I want to thank for marking-up this important legislation.

For the past two Congresses, along with my Science Committee colleague, Mr. Forbes, I have introduced bipartisan legislation to address the crisis affecting the aeronautics industry in this country. A broad range of non-partisan organizations that understand that this country is facing a crisis in our aviation industry has supported that bill, the Aeronautics Research and Development Revitalization act. We have all heard the figures. From reduced lost market share to greatly decreased R&D expenditures, the U.S. is lagging behind international competitors in manufacturing and innovation of commercial airplanes—and our economic and national security are, will continue to, suffer from it.

The legislation I introduced would have established a comprehensive aeronautics R&D endeavor that would have cut across agency divisions between NASA and FAA and would have put forth a goal-oriented effort to take commercial aviation in this country to new heights.

I am pleased that the legislation before us today closely mirrors the FAA portion of my bill and I am fully supportive of it. I am worried, however, that the authorization figures in the bill before us today may be a bit low, considering what is needed to reverse the decline in our aviation industry and to effectively compete with our global competitors. I hope we can work on this before Full Committee markup. But for now, I am pleased that my efforts for the past two years have borne fruit and that people have been listening.

I urge my colleagues to support the bill.

Thank you Mr. Chairman.

Chairman ROHRABACHER. Okay. The bill is now open for discussion. And I ask unanimous consent that the bill—should we have the first reading of the bill? Okay. So I ask unanimous consent that the bill is considered as read and open to amendment at any point and that Members may proceed with amendments in order of the roster. And without any objections, so ordered.

[H.R. 2734 follows:]

COMMITTEE PRINT

JUNE 24, 2003

108TH CONGRESS
1ST SESSION

H. R. _____

IN THE HOUSE OF REPRESENTATIVES

Mr. ROHRABACHER introduced the following bill; which was referred to the Committee on _____

A BILL

To authorize appropriations for the civil aviation research and development projects and activities of the Federal Aviation Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Federal Aviation Administration Research and Development Reauthorization Act".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

Section 48102(a) of title 49, United States Code, is amended—

(1) by striking "to carry out sections 44504" and inserting "for conducting civil aviation research and development under sections 44504";

(2) by striking "and" at the end of paragraph (7);

(3) by striking the period at the end of paragraph (8) and inserting a semicolon; and

(4) by adding at the end the following new paragraphs:

"(9) for fiscal year 2004, $349,817,000, including—

"(A) $168,500,000 for Research, Engineering, and Development, of which—

"(i) $65,000,000 shall be for Improving Aviation Safety;

"(ii) $24,000,000 shall be for Weather Safety Research;

"(iii) $15,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development

Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $27,500,000 shall be for Human Factors and Aeromedical Research;

"(v) $10,000,000 shall be for Environmental Research and Development;

"(vi) $7,000,000 shall be for Research Mission Support; and

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program;

"(B) $163,900,000 for Facilities and Equipment, of which—

"(i) $42,800,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $30,300,000 shall be for Safe Flight 21; and

"(iii) $90,800,000 shall be for the Center for Advanced Aviation System Development; and

"(C) $17,417,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,667,000 shall be for Airports Technology-Safety; and

"(ii) $7,750,000 shall be for Airports Technology-Efficiency;

"(10) for fiscal year 2005, $374,540,000, including—

"(A) $185,000,000 for Research, Engineering, and Development, of which—

"(i) $65,705,000 shall be for Improving Aviation Safety;

"(ii) $24,260,000 shall be for Weather Safety Research;

"(iii) $30,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $27,800,000 shall be for Human Factors and Aeromedical Research;

"(v) $10,109,000 shall be for Environmental Research and Development;

"(vi) $7,076,000 shall be for Research Mission Support; and

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program;

"(B) $172,000,000 for Facilities and Equipment, of which—

"(i) $43,300,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $31,100,000 shall be for Safe Flight 21;

"(iii) $95,400,000 shall be for the Center for Advanced Aviation System Development; and

"(iv) $2,200,000 shall be for Free Flight Phase 2; and

"(C) $17,592,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,764,000 shall be for Airports Technology-Safety; and

"(ii) $7,828,000 shall be for Airports Technology-Efficiency; and

"(11) for fiscal year 2006, $390,340,000, including—

"(A) $206,472,000 for Research, Engineering, and Development, of which—

"(i) $66,447,000 shall be for Improving Aviation Safety;

"(ii) $24,534,000 shall be for Weather Safety Research;

"(iii) $50,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $28,112,000 shall be for Human Factors and Aeromedical Research;

"(v) $10,223,000 shall be for Environmental Research and Development;

"(vi) $7,156,000 shall be for Research Mission Support; and

"(vii) $20,000,000 shall be for the Airport Cooperation Research Program;

"(B) $166,100,000 for Facilities and Equipment, of which—

"(i) $42,200,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $23,900,000 shall be for Safe Flight 21; and

"(iii) $100,000,000 shall be for the Center for Advanced Aviation System Development; and

"(C) $17,768,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,862,000 shall be for Airports Technology-Safety; and

"(ii) $7,906,000 shall be for Airports Technology-Efficiency.".

SEC. 3. NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT JOINT PROGRAM OFFICE.

(a) ESTABLISHMENT.—There is established a Next Generation Air Traffic Management Research and Development Joint Program Office (referred to in this section

as the "Office"). The Office shall be jointly managed by the Federal Aviation Administration and the National Aeronautics and Space Administration. The objective of the Office shall be to carry out research and development of an air traffic management system designed to meet national long-term aviation security, safety, and capacity needs.

(b) DIRECTOR AND DEPUTY DIRECTOR.—The Office shall be headed by a Director who shall be a senior executive of the Federal Aviation Administration. The Deputy Director shall be a senior executive of the National Aeronautics and Space Administration. Not later than 120 days after the date of enactment of this Act, the Administrators of the Federal Aviation Administration and the National Aeronautics and Space Administration shall jointly appoint the Director and Deputy Director of the Office.

(c) FUNCTIONS OF THE OFFICE.—The Office shall manage air traffic management research and development programs and initiatives within the Federal Aviation Administration and the National Aeronautics and Space Administration. The responsibilities of the Office shall include—

(1) establishing and managing a research and development program for a next generation air traf-

fic management system capable of tripling capacity by the year 2025;

(2) entering into grants, cooperative agreements or contracts, or otherwise awarding or using funds appropriated for air traffic management research and development to carry out paragraph (1);

(3) utilizing the facilities, capabilities, expertise, and experience of Federal agencies, national laboratories, universities, nonprofit organizations, industrial entities, and other non-Federal entities to carry out paragraph (1);

(4) coordinating with the Department of Defense, the Department of Commerce, the Under Secretary for Science and Technology at the Department of Homeland Security, the National Security Council, the Department of Transportation, and other Federal agencies; and

(5) consulting with the private sector (including representatives of general aviation, commercial aviation, and the space industry), members of the public, and other interested parties on the program.

(d) NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT PLAN.—

(1) REQUIREMENT.—The Office shall develop a research and development plan to carry out this section.

(2) GOAL.—The goal of the plan shall be to enable the creation of a National Airspace System architecture that would—

(A) be based on emerging ground-based and space-based communications, navigation, and surveillance technologies;

(B) increase the level of safety, security, and efficiency of the National Airspace System;

(C) integrate data and information flow effectively with other Federal agencies responsible for providing for our Nation's defense and security;

(D) be scalable to accommodate and encourage substantial growth in domestic and international transportation;

(E) anticipate and accommodate continuing technology upgrades; and

(F) accommodate a wide range of aircraft operations, including airlines, air taxis, helicopters, general aviation, and unmanned aerial vehicles.

(3) CONTENTS.—The plan shall describe, at a minimum—

(A) the most significant technical hurdles that stand in the way of achieving the goal described in paragraph (2);

(B) the research and development projects that will be carried out to overcome the technical hurdles described in subparagraph (A), including, for each project, whether it would be funded by the Federal Aviation Administration, the National Aeronautics and Space Administration, or both, and whether the work would be carried by the Federal Government, corporations, or universities, or a combination thereof;

(C) the annual anticipated cost of carrying out the plan;

(D) the technical milestones that will be used to evaluate progress in carrying out the plan; and

(E) how the research and development activities will be coordinated with other appropriate Federal agencies.

(e) REPORTS.—The Director of the Office shall transmit to the Committee on Science of the House of

Representatives and to the Committee on Commerce, Science, and Transportation of the Senate—

(1) not later than 120 days after the date of enactment of this Act, the plan required under subsection (d); and

(2) annually at the time of the President's budget request, a report describing the progress in carrying out the plan required under subsection (d) and any changes to that plan.

SEC. 4. BUDGET DESIGNATION FOR RESEARCH AND DEVELOPMENT ACTIVITIES.

Section 48102 of title 49, United States Code, is amended by inserting after subsection (f) the following new subsection:

"(g) DESIGNATION OF ACTIVITIES.—(1) The amounts appropriated under subsection (a) are for the support of all research and development activities carried out by the Federal Aviation Administration that fall within the categories of basic research, applied research, and development, including the design and development of prototypes, in accordance with the classifications of the Office of Management and Budget Circular A–11 (Budget Formulation/Submission Process).

"(2) The Department of Transportation's annual budget request for the Federal Aviation Administration

shall identify all of the activities carried out by the Administration within the categories of basic research, applied research, and development, as classified by the Office of Management and Budget Circular A–11. Each activity in the categories of basic research, applied research, and development shall be identified regardless of the budget category in which it appears in the budget request.".

SEC. 5. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511 of title 49, United States Code, is amended by adding at the end the following new subsection:

"(f) AIRPORT COOPERATIVE RESEARCH PROGRAM.—

"(1) ESTABLISHMENT.—The Secretary of Transportation shall establish an airport cooperative research program to—

"(1) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

"(B) fund research to address those problems.

"(2) GOVERNANCE.—The Secretary of Transportation shall appoint an independent governing board for the research program established under

this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

"(3) IMPLEMENTATION.—The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to carry out projects proposed by the governing board that the Secretary considers appropriate.".

SEC. 6. DEVELOPMENT OF ANALYTICAL TOOLS AND CERTIFICATION METHODS.

The Federal Aviation Administration shall conduct research to promote the development of analytical tools to improve existing certification methods and to reduce the overall costs for the certification of new products.

SEC. 7. RESEARCH PROGRAM TO REDUCE COMMUNITY EXPOSURE TO AIRCRAFT NOISE AND EMISSIONS.

(a) IN GENERAL.—Subchapter I of chapter 475 of title 49, United States Code, is amended by adding a new section at the end as follows:

"§ 47511. Research program to reduce community exposure to aircraft noise and emissions

"The Secretary shall provide an amount equal to 10 percent of the amount to be made available under section 47117(e)(1)(A) of this title, as estimated at the beginning of a fiscal year, but not to exceed $20,000,000, for research activities related to reducing community exposure to civilian aircraft noise or emissions through grants or other measures authorized under section 106(l)(6) of this title, including reimbursable agreements with other Federal agencies.".

(b) CONFORMING AMENDMENT.—The analysis of such subchapter I of chapter 475 is amended by adding at the end the following:

"47511. Research program to reduce community exposure to aircraft noise and emissions.".

[The Section-by-Section Analysis of H.R. 2734 follows:]

SECTION-BY-SECTION ANALYSIS OF
H.R. 2734, FEDERAL AVIATION ADMINISTRATION R&D REAUTHORIZATION ACT

Sec. 1. Short Title

"Federal Aviation Administration Research and Development Reauthorization Act."

Sec. 2. Authorization of Appropriations

Authorizes appropriations for Federal Aviation Administration (FAA) Research and Development programs, projects and activities.

Program Account	FY03 Actual	FY04 Request	FY04 Auth.	FY05 Auth.	FY06 Auth.
Research, Engineering & Development	$147.5M	$100.0M	$168.5M	$184.9M	$206.5M
Facilities and Equipment*	$177.5M	$163.9M	$163.9M	$172.0M	$166.1M
Airport Improvement Program*	$ 0.0M	$ 17.4M	$ 17.4M	$ 17.6M	$ 17.7M
Total	**$325.0M**	**$281.3M**	**$349.8M**	**$374.5M**	**$390.3M**

*Research and development projects and activities only.

Sec. 3. Next Generation Air Traffic Management Research and Development Joint Program Office

Requires FAA and the National Aeronautics and Space Administration (NASA) to establish a Joint Program Office (JPO) to conduct Next Generation Air Traffic Management research and development. Requires the FAA and NASA Administrators to jointly appoint an FAA senior executive to be Director, and a NASA senior executive to be Deputy Director.

Requires the JPO to establish and carry out, on behalf of FAA and NASA, long-term air traffic management R&D capable of tripling our domestic capacity by 2025. The JPO is authorized to spend agency funds dedicated to air traffic management R&D on behalf of NASA and FAA. Authorizes the JPO to use the facilities and expertise of other federal agencies, national laboratories, universities, non-profit organizations, and private sector entities.

Requires the JPO to develop a research and development plan with cost and schedule milestones. Requires the JPO to make an annual report to Congress on progress to date, and program plans for the following year.

Authorizes a total of $95 million over five years.

Sec. 4. Budget Designation for Research and Development Activities

Amends 49 USC 48102 (FAA Research and Development), to require future FAA budgets to identify all research and development activities that would be classified as basic research, applied research, or development under the guidelines established by the Office of Management and Budget Circular A–11, regardless of the budget category in which it appears in the budget request.

Sec. 5. Airport Cooperative Research Program

Requires the Secretary of Transportation to establish an airport cooperative research grant program to identify problems—shared by airport operating agencies—that can be solved through applied research, and to fund research addressing those problems.

Requires the Secretary to appoint a governing board from candidates proposed by national associations representing airport executives, public airport operating agencies, State aviation officials, and the scheduled airlines. The board will solicit, review and propose airport R&D projects. The Secretary will review and approve projects for funding.

Authorizes $20 million annually from the Research, Engineering and Development account.

Sec. 6. Development of Analytical Tools and Certification Methods

Directs FAA to conduct research to promote development of analytical tools to improve existing certification methods for new aircraft, engines, and aircraft systems, to reduce overall certification costs for new products.

Sec. 7. Research Program to Reduce Community Exposure to Aircraft Noise and Emissions

Establishes a program to fund research and development of noise and emissions reduction technologies. Authorizes up to $20 million annually using noise mitigation funds from the Airport Improvement Program.

[The Summary of H.R. 2734 follows:]

SUMMARY OF COMMITTEE PRINT

The Federal Aviation Administration Research and Development Reauthorization Act

- Reauthorizes the FAA's Research and Development program for FY04, FY05, and FY06.
- Establishes an FAA–NASA Next Generation Air Traffic Management Joint Program Office. Requires a research and development plan that will enable development of an air traffic management system capable of tripling capacity by the year 2025. Authorizes $95 million (aggregate) over the life of the bill.
- Amends Section 48102 of Title 49, United States Code, to clarify that amounts appropriated under this subsection support all research and development activities carried out by FAA.
- Establishes an Airport Cooperative Research Program. Authorizes $20 million annually.
- Requires FAA to conduct research on development of analytical tools to help reduce the cost of certifying new aircraft, aircraft engines, and related systems.
- Establishes a research program to reduce community exposure to aircraft noise and emissions. Authorizes $20 million annually.

FAA Research and Development Funding History with Bill Authorization Levels

Program	FY02 Actual	FY03 Actual	FY04 Request	FY04 Auth.	FY05 Auth.	FY06 Auth.
Res., Eng., and Develop.	$244.8M	$147.5M	$100.0M	$168.5M	$184.9M	$206.5M
Facilities & Equip.	$178.3M	$177.5M	$163.9M	$163.9M	$172.0M	$166.1M
AIP	$0.0M	$0.0M	$17.4M	$17.4M	$17.6M	$17.7M
Total	**$423.1M**	**$325.0M**	**$281.3M**	**$349.8M**	**$374.5M**	**$390.3M**

Chairman ROHRABACHER. So the bill is now open for amendment. And the first amendment will be an amendment by Mr. Gordon. Mr. Gordon, you are recognized.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON SPACE & AERONAUTICS

June 26, 2003

AMENDMENT ROSTER

Committee Print of the FAA Research and Development Reauthorization Bill

No.	Sponsor	Description	Suggested Vote
1	Mr. Gordon	to authorize human factors research projects at undergraduate and technical colleges	Adopted by Voice Vote
2	Mr. Weiner	to authorize noise and emissions research	Adopted by Voice Vote
3	Mr. Boehlert	specifying that the National Academy of Sciences shall provide staff support to the governing board	Adopted by Voice Vote

Mr. GORDON. Okay. I have an amendment at the desk.

Chairman ROHRABACHER. The Clerk will read the—report the amendment.

The CLERK. Amendment to the Committee Print, offered by Mr. Gordon, page 2, line 13, strike "$349,817,000" and insert——

Mr. GORDON. I ask unanimous consent that the reading of the amendment be dispensed with.

[The amendment offered by Mr. Gordon follows:]

AMENDMENT TO THE COMMITTEE PRINT

OFFERED BY MR. GORDON

Page 2, line 13, strike "$349,817,000" and insert "$351,317,000".

Page 2, line 15, strike "$168,500,000" and insert "$170,000,000".

Page 3, line 10, strike "and".

Page 3, line 12, insert "and" after the semicolon.

Page 3, after line 12, insert the following new clause:

"(viii) $1,500,000 shall be for carrying out subsection (h) of this section;

Page 4, line 5, strike "$374,540,000" and insert "$376,190,000".

Page 4, line 7, strike "$185,000,000" and insert "$186,650,000".

Page 5, line 4, strike "and".

Page 5, line 6, insert "and" after the semicolon.

Page 5, after line 6, insert the following new clause:

"(viii) $1,650,000 shall be for carrying out subsection (h) of this section;

Page 6, line 1, strike "$390,340,000" and insert "$392,155,000".

Page 6, line 3, strike "$206,472,000" and insert "$208,287,000".

Page 6, line 24, strike "and".

Page 7, line 2, insert "and" after the semicolon.

Page 7, after line 2, insert the following new clause:

"(viii) $1,815,000 shall be for carrying out subsection (h) of this section;

At the end of the bill insert the following new section:

SEC. 8. RESEARCH ON AVIATION TRAINING.

Section 48102(h)(1) of title 49, United States Code, is amended—

(1) by striking "or" at the end of subparagraph (B);

(2) by striking the period at the end of subparagraph (C) and inserting "; or"; and

(3) by adding at the end the following new subparagraph:

"(D) research on the impact of new technologies and procedures, particularly those related to aircraft flight deck and air traffic management functions, on training requirements for pilots and air traffic controllers.".

Chairman ROHRABACHER. So ordered without objection. The gentleman is recognized for five minutes to offer his amendment.

Mr. GORDON. Mr. Chairman, I believe that the amendment I am offering is straightforward. The 1998 FAA R&D Authorization bill created the Research Grants Program involving undergraduate students and directed the FAA Administrator to establish a program that would involve undergraduate and technical colleges, including historically black colleges and universities, and Hispanic-serving institutions, in research on subjects relevant to the needs of the FAA. My amendment would update the statute to highlight the importance of research on the impact of new technologies and procedures on the training requirements for pilots and air traffic controllers.

There continue to be dramatic changes in both cockpit technologies and in air traffic management technologies. These technologies will put unique demands on future training requirements. Research in this area would be of enormous value, and I think we should encourage it. In addition, my amendment would extend the funding of the undergraduate research program for another three years. Although the amounts requested are modest, the benefits of the program will be significant.

I hope the Members will support this amendment, and I yield back the balance of my time.

Chairman ROHRABACHER. Thank you very much.

The Chairman would like to note that he will support the amendment, gladly. And is there any further discussion on this amendment? Hearing none, all in favor of this amendment, say aye. All opposed, say no. The ayes seem to have it, and it is agreed to.

We have a second amendment. It is an amendment by Mr. Weiner from New York. Are you ready to proceed with your amendment? You have an amendment at the desk, and the Clerk will report the amendment.

The CLERK. [No response.]

[The amendment offered by Mr. Weiner follows:]

AMENDMENT TO THE COMMITTEE PRINT

OFFERED BY MR. WEINER

Page 2, line 13, strike "$349,817,000" and insert "$369,817,000".

Page 2, line 15, strike "$168,500,000" and insert "$188,500,000".

Page 3, line 7, strike "$10,000,000" and insert "$30,000,000".

Page 3, line 8, insert ", of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions" after "Development".

Page 4, line 5, strike "$374,540,000" and insert "$394,540,000".

Page 4, line 7, strike "$185,000,000" and insert "$205,000,000".

Page 5, line 1, strike "$10,109,000" and insert "$30,109,000".

Page 5, line 2, insert ", of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions" after "Development".

Page 6, line 1, strike "$390,340,000" and insert "$410,340,000".

Page 6, line 3, strike "$206,472,000" and insert "$226,472,000".

Page 6, line 21, strike "$10,223,000" and insert "$30,223,000".

Page 6, line 22, insert ", of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions" after "Development".

Page 14, line 20, through the end of the bill, strike section 7.

Chairman ROHRABACHER. You are—that is—hearing no objection, you may proceed with your statement.

Mr. WEINER. [No response.]

Chairman ROHRABACHER. I would ask Mr. Weiner if he could turn on the microphone that we could all hear you better.

Mr. WEINER. Let me be—let me start again. No, I am just kidding.

The problem became once we had phased in stage three aircraft there was no longer any benchmark for aircraft manufacturers and airlines to meet. So-called stage four hadn't been created. That changed this year in the reauthorization bill that we just did in the Transportation Committee. We have essentially said that now we have to start hitting even quieter benchmarks for the next generation of aircraft.

As with so many areas of research, research into quieter aircraft engines has always been started on the federal level. We heard testimony in the Transportation Committee and in this committee saying that essentially the money that we provide for research, whether it be via NASA or the Federal Aviation Administration, provides the benchmark for technology that is eventually used in commercial aircraft.

The problem that I found is that the money that we added for this new program to do more research was taken from the FAA's noise abatement program. That noise abatement program benefits all of our Districts. And it is a program that does things like makes—replaces windows in schools, that does noise monitoring around airports all around the country. And what my amendment would do is say, "Let us create this environmental research and development account, but let us not cannibalize the noise abatement program." So my amendment would take that $20 million that was identified in the Committee Print and simply move it to create, essentially, a $20 million increase in the environmental research and development account and restore the noise abatement program, creating, essentially, the same effect but would not take the funds any longer, if my amendment were passed, from the noise abatement program.

I would hope that the Chairman and my colleagues would support it. I think it gets us where we need to go without reducing a program that I think benefits all of our Districts already.

And I yield back the balance of my time.

Chairman ROHRABACHER. The Chair would like to announce that he will favor the amendment and commends Mr. Weiner, because let me just recognize that I remember one of your first speeches on—in this committee dealt with aircraft noise. And you really focused on that and made that a really important part of your agenda. So the Chairman gladly accepts this amendment and supports it. Does anyone else have any discussion?

Mr. Gordon.

Mr. GORDON. I have, but I better not. I don't want to mess it up, so let me just quickly say I concur with this common sense amendment.

Chairman ROHRABACHER. Okay. With that said, if there is no other discussion, all those in favor of this amendment, say aye. All

opposed, say no. Well, the ayes appear to have it. The amendment is agreed to.

We have another amendment. Ms. Jackson Lee is not here for her amendment yet, but we do have an amendment by myself, on behalf of Mr. Boehlert. The next amendment on the roster is amendment number three, offered, as I say, by myself, on behalf of Mr. Boehlert. And I have an amendment at the desk. Will the Clerk please report the amendment?

The CLERK. The amendment to the Committee Print, offered by Mr. Boehlert, page 14, line 11, insert "to provide staff support to the governing board established under paragraph (2) and" after "National Academy of Sciences".

Chairman ROHRABACHER. I ask unanimous consent to dispense with any further reading of the amendment. So ordered.

[The amendment offered by Mr. Boehlert follows:]

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AMENDMENT TO THE COMMITTEE PRINT

OFFERED BY MR. BOEHLERT

Page 14, line 11, insert "to provide staff support to the governing board established under paragraph (2) and" after "National Academy of Sciences".

Chairman ROHRABACHER. And I now recognize myself to discuss the amendment. In brief, the amendment specifies that the National Academy of Sciences shall provide staff support for the cooperative research program governing board. So it is as simple as that. And this is a very simple amendment, and it clarifies how the airport cooperative research program will work. This program is based on existing highway and transit research programs. The amendment simply makes clearer that the National Academy of Sciences will provide staff support for the governing board that will guide the program as well as manage the actual research projects that the Secretary selects.

I believe that this is a non-controversial amendment, and I would urge its adoption.

So with that said, is there any further discussion? If not, all in favor of this amendment, say aye. All opposed say nay. The ayes seem to have it. The amendment is agreed to.

We have one further amendment, if Ms. Jackson Lee is here, or is there someone who would like to—all right. Ms. Jackson Lee will be free to submit her amendment at Full Committee.

And with that said, I think that we now will move on to the adoption of the bill. Are there any further amendments? Hearing none, the question is on the bill. The *Committee Print of the Federal Aviation Administration Research and Development Reauthorization Act,* as amended. All those in favor will say aye. All those opposed, say no. It appears that the ayes have it.

I now recognize Mr. Gordon to offer a motion.

Mr. GORDON. Mr. Chairman, I move the Subcommittee to favorably report the bill, the Federal Aviation Administration Research and Development Reauthorization Act, as amended, to the Full Committee. Furthermore, I ask unanimous consent that the Staff be instructed to make all necessary technical and conforming changes to the bill, as amended, in accordance with the recommendations of the Subcommittee.

Chairman ROHRABACHER. The Chair notes the presence of a reporting quorum. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. All opposed, no. The ayes appear to have it. The bill is favorably reported.

Mr. LARSON. Mr. Chairman.

Chairman ROHRABACHER. Yes.

Mr. LARSON. Mr. Chairman, I would——

Chairman ROHRABACHER. Well, wait a minute. Without objection, the motion will be—to reconsider is laid upon the table. Yes.

Mr. LARSON. Thank you, Mr. Chairman.

Mr. Chairman, I just wanted to thank you personally and the Staff and Mr. Gordon for their help and assistance and my colleague, Mr. Forbes from Virginia, for working on a matter that is of crucial importance to the aeronautical industry and commend you for your continued support and efforts in this area. I am concerned that the monies are a bit low and hope that we can continue to work on that as the bill moves forward to the Floor.

Chairman ROHRABACHER. Thank you very much.

And this concludes our Committee markup. And without any objection, we will declare this committee adjourned. So I do declare this committee meeting adjourned.

[Whereupon, at 11:25 a.m., the Subcommittee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE FULL COMMITTEE ON H.R. 2734, FEDERAL AVIATION ADMINISTRATION RESEARCH AND DEVELOPMENT REAUTHORIZATION ACT

TUESDAY, JULY 22, 2003

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to other business, in Room 2318 of the Rayburn House Office Building, Hon. Sherwood D. Boehlert [Chairman of the Committee] presiding.

Mr. FORBES. [Presiding] We will now consider the bill H.R. 2734, the *Federal Aviation Administration Research and Development Reauthorization Act,* as amended.

[The prepared statement of Chairman Rohrabacher follows:]

PREPARED STATEMENT OF CHAIRMAN DANA ROHRABACHER

I am pleased that the House Science Committee is considering H.R. 2734 today because of its support for a vital governmental agency—the Federal Aviation Administration. H.R. 2734, through its authorization of appropriations for civil aviation research and development projects, will assist the agency in accomplishing its mission to ensure safe air travel within the United States. This bill emphasizes (a) aviation safety by authorizing funds to improve aviation safety and weather safety research, and (b) the development of next-generation technology through the development of more modern air traffic management equipment and noise emission reduction concepts.

I urge my colleagues to support this important piece of legislation.

I yield back the balance of my time.

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
SUITE 2320 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6301
(202) 225-6371
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http://www.house.gov/science/welcome.htm

Memorandum

To:	Chairman Boehlert
From:	Chairman Rohrabacher
Subject:	Subcommittee Markup of the Committee Print, the "Federal Aviation Administration Research and Development Reauthorization Act"
Date:	July 9, 2003

I am pleased to report that on June 26, 2003, the Subcommittee on Space and Aeronautics favorably reported the "Federal Aviation Administration Research and Development Reauthorization Act" out of subcommittee with three amendments. The Subcommittee passed all amendments and the legislation by voice vote.

Ranking Member Gordon offered an amendment to expand eligible research projects conducted by undergraduate and technical colleges by authorizing research on the impact of new technologies and procedures on training requirements for pilots and air traffic controllers. His amendment authorized spending to support this initiative in the following amounts: $1.5 million in FY04; $1.65 million in FY05; and $1.815 million in FY06.

Rep. Weiner offered an amendment to authorize spending for noise and emissions research and development from FAA's Research, Engineering, and Development account. The committee print, as drafted, authorized noise and emissions research spending from the Airport Improvement Program account.

Finally, your amendment was accepted that directed the National Academy of Sciences to provide staff services to the governing board of the Airport Cooperative Research Program.

COMMITTEE PRINT

SHOWING THE FAA RESEARCH AND DEVELOPMENT REAUTHORIZATION ACT AS AMENDED BY THE SUBCOMMITTEE ON SPACE AND AERONAUTICS ON JUNE 26, 2003.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Federal Aviation Administration Research and Development Reauthorization Act".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

Section 48102(a) of title 49, United States Code, is amended—

(1) by striking "to carry out sections 44504" and inserting "for conducting civil aviation research and development under sections 44504";

(2) by striking "and" at the end of paragraph (7);

(3) by striking the period at the end of paragraph (8) and inserting a semicolon; and

(4) by adding at the end the following new paragraphs:

"(9) for fiscal year 2004, $371,317,000, including—

"(A) $190,000,000 for Research, Engineering, and Development, of which—

"(i) $65,000,000 shall be for Improving Aviation Safety;

"(ii) $24,000,000 shall be for Weather Safety Research;

"(iii) $15,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $27,500,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,000,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions;

"(vi) $7,000,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program; and

"(viii) $1,500,000 shall be for carrying out subsection (h) of this section;

"(B) $163,900,000 for Facilities and Equipment, of which—

"(i) $42,800,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $30,300,000 shall be for Safe Flight 21; and

"(iii) $90,800,000 shall be for the Center for Advanced Aviation System Development; and

"(C) $17,417,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,667,000 shall be for Airports Technology-Safety; and

"(ii) $7,750,000 shall be for Airports Technology-Efficiency;

"(10) for fiscal year 2005, $396,192,000, including—

"(A) $206,600,000 for Research, Engineering, and Development, of which—

"(i) $65,705,000 shall be for Improving Aviation Safety;

"(ii) $24,260,000 shall be for Weather Safety Research;

"(iii) $30,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $27,800,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,109,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community

exposure to civilian aircraft noise or emissions;

"(vi) $7,076,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program; and

"(viii) $1,650,000 shall be for carrying out subsection (h) of this section;

"(B) $172,000,000 for Facilities and Equipment, of which—

"(i) $43,300,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $31,100,000 shall be for Safe Flight 21;

"(iii) $95,400,000 shall be for the Center for Advanced Aviation System Development; and

"(iv) $2,200,000 shall be for Free Flight Phase 2; and

"(C) $17,592,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,764,000 shall be for Airports Technology-Safety; and

"(ii) $7,828,000 shall be for Airports Technology-Efficiency; and

"(11) for fiscal year 2006, $412,157,000, including—

"(A) $228,289,000 for Research, Engineering, and Development, of which—

"(i) $66,447,000 shall be for Improving Aviation Safety;

"(ii) $24,534,000 shall be for Weather Safety Research;

"(iii) $50,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $28,114,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,223,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions;

"(vi) $7,156,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperation Research Program; and

"(viii) $1,815,000 shall be for carrying out subsection (h) of this section;

"(B) $166,100,000 for Facilities and Equipment, of which—

"(i) $42,200,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $23,900,000 shall be for Safe Flight 21; and

"(iii) $100,000,000 shall be for the Center for Advanced Aviation System Development; and

"(C) $17,768,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,862,000 shall be for Airports Technology-Safety; and

"(ii) $7,906,000 shall be for Airports Technology-Efficiency.".

SEC. 3. NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT JOINT PROGRAM OFFICE.

(a) ESTABLISHMENT.—There is established a Next Generation Air Traffic Management Research and Development Joint Program Office (referred to in this section as the "Office"). The Office shall be jointly managed by the Federal Aviation Administration and the National Aeronautics and Space Administration. The objective of the Office shall be to carry out research and development of an air traffic management system designed to meet national long-term aviation security, safety, and capacity needs.

(b) DIRECTOR AND DEPUTY DIRECTOR.—The Office shall be headed by a Director who shall be a senior executive of the Federal Aviation Administration. The Deputy Director shall be a senior executive of the National Aeronautics and Space Administration. Not later than 120

days after the date of enactment of this Act, the Administrators of the Federal Aviation Administration and the National Aeronautics and Space Administration shall jointly appoint the Director and Deputy Director of the Office.

(c) FUNCTIONS OF THE OFFICE.—The Office shall manage air traffic management research and development programs and initiatives within the Federal Aviation Administration and the National Aeronautics and Space Administration. The responsibilities of the Office shall include—

(1) establishing and managing a research and development program for a next generation air traffic management system capable of tripling capacity by the year 2025;

(2) entering into grants, cooperative agreements or contracts, or otherwise awarding or using funds appropriated for air traffic management research and development to carry out paragraph (1);

(3) utilizing the facilities, capabilities, expertise, and experience of Federal agencies, national laboratories, universities, nonprofit organizations, industrial entities, and other non-Federal entities to carry out paragraph (1);

(4) coordinating with the Department of Defense, the Department of Commerce, the Under Secretary for Science and Technology at the Department of Homeland Security, the National Security Council, the Department of Transportation, and other Federal agencies; and

(5) consulting with the private sector (including representatives of general aviation, commercial aviation, and the space industry), members of the public, and other interested parties on the program.

(d) NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT PLAN.—

(1) REQUIREMENT.—The Office shall develop a research and development plan to carry out this section.

(2) GOAL.—The goal of the plan shall be to enable the creation of a National Airspace System architecture that would—

(A) be based on emerging ground-based and space-based communications, navigation, and surveillance technologies;

(B) increase the level of safety, security, and efficiency of the National Airspace System;

(C) integrate data and information flow effectively with other Federal agencies responsible

for providing for our Nation's defense and security;

(D) be scalable to accommodate and encourage substantial growth in domestic and international transportation;

(E) anticipate and accommodate continuing technology upgrades; and

(F) accommodate a wide range of aircraft operations, including airlines, air taxis, helicopters, general aviation, and unmanned aerial vehicles.

(3) CONTENTS.—The plan shall describe, at a minimum—

(A) the most significant technical hurdles that stand in the way of achieving the goal described in paragraph (2);

(B) the research and development projects that will be carried out to overcome the technical hurdles described in subparagraph (A), including, for each project, whether it would be funded by the Federal Aviation Administration, the National Aeronautics and Space Administration, or both, and whether the work would be carried by the Federal Government, corporations, or universities, or a combination thereof;

(C) the annual anticipated cost of carrying out the plan;

(D) the technical milestones that will be used to evaluate progress in carrying out the plan; and

(E) how the research and development activities will be coordinated with other appropriate Federal agencies.

(e) REPORTS.—The Director of the Office shall transmit to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate—

(1) not later than 120 days after the date of enactment of this Act, the plan required under subsection (d); and

(2) annually at the time of the President's budget request, a report describing the progress in carrying out the plan required under subsection (d) and any changes to that plan.

SEC. 4. BUDGET DESIGNATION FOR RESEARCH AND DEVELOPMENT ACTIVITIES.

Section 48102 of title 49, United States Code, is amended by inserting after subsection (f) the following new subsection:

"(g) DESIGNATION OF ACTIVITIES.—(1) The amounts appropriated under subsection (a) are for the support of all research and development activities carried out by the Federal Aviation Administration that fall within the categories of basic research, applied research, and development, including the design and development of prototypes, in accordance with the classifications of the Office of Management and Budget Circular A–11 (Budget Formulation/Submission Process).

"(2) The Department of Transportation's annual budget request for the Federal Aviation Administration shall identify all of the activities carried out by the Administration within the categories of basic research, applied research, and development, as classified by the Office of Management and Budget Circular A–11. Each activity in the categories of basic research, applied research, and development shall be identified regardless of the budget category in which it appears in the budget request.".

SEC. 5. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511 of title 49, United States Code, is amended by adding at the end the following new subsection:

"(f) AIRPORT COOPERATIVE RESEARCH PROGRAM.—

"(1) ESTABLISHMENT.—The Secretary of Transportation shall establish an airport cooperative research program to—

"(1) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

"(B) fund research to address those problems.

"(2) GOVERNANCE.—The Secretary of Transportation shall appoint an independent governing board for the research program established under this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

"(3) IMPLEMENTATION.—The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board established under

paragraph (2) and to carry out projects proposed by the governing board that the Secretary considers appropriate.".

SEC. 6. DEVELOPMENT OF ANALYTICAL TOOLS AND CERTIFICATION METHODS.

The Federal Aviation Administration shall conduct research to promote the development of analytical tools to improve existing certification methods and to reduce the overall costs for the certification of new products.

SEC. 7. RESEARCH ON AVIATION TRAINING.

Section 48102(h)(1) of title 49, United States Code, is amended—

(1) by striking "or" at the end of subparagraph (B);

(2) by striking the period at the end of subparagraph (C) and inserting "; or"; and

(3) by adding at the end the following new subparagraph:

"(D) research on the impact of new technologies and procedures, particularly those related to aircraft flight deck and air traffic management functions, on training requirements for pilots and air traffic controllers.".

Section-by-Section of the Federal Aviation Administration R&D Reauthorization Act (as amended by the Subcommittee)

Sec. 1. Short Title

"Federal Aviation Administration Research and Development Reauthorization Act."

Sec. 2. Authorization of Appropriations

Authorizes appropriations for Federal Aviation Administration (FAA) Research and Development programs, projects and activities for Fiscal Years 2004 – 2006.

Program Account	FY03 Actual	FY04 Request	FY04 Auth.	FY05 Auth.	FY06 Auth.
Research, Engineering & Development	$147.5M	$100.0M	$190.0M	$206.6M	$228.3M
Facilities and Equipment*	$177.5M	$163.9M	$163.9M	$172.0M	$166.1M
Airport Improvement Program*	$ 0.0M	$ 17.4M	$ 17.4M	$ 17.6M	$ 17.7M
Total	**$325.0M**	**$281.3M**	**$371.3M**	**$396.2M**	**$412.2M**

*Research and development projects and activities only.

Sec. 3. Next Generation Air Traffic Management Research and Development Joint Program Office

Requires FAA and the National Aeronautics and Space Administration (NASA) to establish a Joint Program Office (JPO) to conduct Next Generation Air Traffic Management research and development. Requires the FAA and NASA Administrators to jointly appoint an FAA senior executive to be Director, and a NASA senior executive to be Deputy Director.

Requires the JPO to establish and carry out, on behalf of FAA and NASA, long-term air traffic management R&D capable of tripling our domestic capacity by 2025. The JPO is authorized to spend agency funds dedicated to air traffic management R&D on behalf of NASA and FAA. Authorizes the JPO to use the facilities and expertise of other Federal agencies, national laboratories, universities, non-profit organizations, and private sector entities.

Requires the JPO to develop a research and development plan with cost and schedule milestones. Requires the JPO to make annual reports to Congress on progress to date, compliance with milestones, and program plans for the following year.

Authorizes a total of $95 million over three years.

Sec. 4. Budget Designation for Research and Development Activities

Amends 49 USC 48102 (FAA Research and Development), to require future FAA budgets to identify all research and development activities that would be classified as basic research, applied research, or development under the guidelines established by the Office of Management and Budget Circular A-11, regardless of the budget category in which it appears in the budget request.

Sec. 5. Airport Cooperative Research Program

Requires the Secretary of Transportation to establish an airport cooperative research grant program to identify problems – shared by airport operating agencies – that can be solved through applied research, and to fund research addressing those problems.

Requires the Secretary to appoint a governing board from candidates proposed by national associations representing airport executives, public airport operating agencies, State aviation officials, and the scheduled airlines. Requires the Secretary to enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board. The board will solicit, review and propose airport R&D projects. The Secretary will review and approve projects for funding.

Authorizes $20 million annually from the Research, Engineering and Development account.

Sec. 6. Development of Analytical Tools and Certification Methods

Directs FAA to conduct research to promote development of analytical tools to improve existing certification methods for new aircraft, engines, and aircraft systems, to reduce overall certification costs for new products.

Sec. 7. Research on Aviation Training

Authorizes research on the impact of new technologies and procedures on training requirements for pilots and air traffic controllers, to be conducted through the research grants program for undergraduate and technical colleges.

Mr. FORBES. I would like to first make some opening remarks as to this bill. The Federal Aviation Administration plays a unique and critical role in our economy. The FAA provides air traffic control services 24 hours a day, 365 days a year and ensures that the aircraft we fly are safe. We have all heard the expression that an ounce of prevention is worth a pound of cure. In essence, that is why the Government spends money on R&D. Every dollar we spend a day on curing diseases or protecting our homeland is money saved down the road in health care costs and more importantly, save lives.

Without FAA, commercial air transportation, a huge source of high paying, high quality jobs, could not operate. To carry out its mission, FAA must build, maintain and operate a complex system of communications, navigation and surveillance systems to monitor and separate aircraft. It must also stay current on new designs and technologies that are constantly emerging from aerospace industry manufacturers and suppliers.

I am troubled that FAA's research and development budget is relatively modest compared to the Agency's overall spending profile. FAA must perform research and development to increase the capacity of our air traffic management system at a rate equal to projected growth, otherwise our national air transportation system will suffer and so will our economy.

FAA's research and development program must also keep pace with the introduction of new products, designs and technologies that manufacturers are bringing to market and certify their safety and performance. I believe the FAA must be provided with a much more robust research and development program.

H.R. 2734 is a start. This bill provides the Agency with increased authorization levels for FAA's research and development program. It establishes a joint program office to manage research and development for the next generation air traffic management system. It continues important research programs to address aging aircraft, fire safety and air traffic control technology, and it authorizes new spending for aircraft noise and emissions reductions research. I now recognize Mr. Hall for five minutes.

[The prepared statement of Mr. Forbes follows:]

PREPARED STATEMENT OF REPRESENTATIVE J. RANDY FORBES

Mr. Chairman, the Federal Aviation Administration plays a unique and critical role in our economy. The FAA provides air traffic control services 24 hours a day, 365 days a year, and ensures that the aircraft we fly in are safe. Without FAA, commercial air transportation—a huge source of high-paying, high quality jobs—could not operate.

To carry out its mission, FAA must build, maintain, and operate a complex system of communications, navigation and surveillance systems to monitor and separate aircraft. It must also stay current on new designs and technologies that are constantly emerging from aerospace industry manufacturers and suppliers.

I am troubled that FAA's research and development budget is relatively modest compared to the agency's overall spending profile. FAA must perform research and

development to increase the capacity of our air traffic management system at a rate equal to projected growth, otherwise our national air transportation system will suffer, and so will our economy. FAA's research and development program must also keep pace with the introduction of new products, designs, and technologies that manufacturers are bringing to market, and certify their safety and performance.

I believe FAA must be provided with a much more robust research and development program. H.R. 2734 is a start. This bill provides the agency with increased authorization levels for FAA's research and development program, it establishes a Joint Program Office to manage research and development for the next generation air traffic management system, it continues important research programs to address aging aircraft, fire safety, and air traffic control technology, and it authorizes new spending for aircraft noise and emissions reduction research.

I urge all Members to support this worthwhile legislation. Thank you.

Mr. HALL. Mr. Chairman, I won't use the five minutes. I am pleased to support this bill, the *FAA Research and Development Reauthorization Act.* It is a good bill. It reflects the Committee's long-held interest in ensuring that the Nation's aviation system is safe and efficient. Now, we have several Members, I think two from this side of the aisle, who intend to offer some very constructive amendments to the bill, and I hope the Chairman will give these amendments careful consideration. With that, I yield back my time.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF REPRESENTATIVE RALPH M. HALL

Mr. Chairman, I am pleased to support H.R. 2734, the *FAA Research And Development Reauthorization Act.* It is a good bill, and it reflects this committee's long-held interest in ensuring that the Nation's aviation system is safe and efficient. It also is a bill that incorporates good ideas from both sides of the aisle.

The specific features of the bill have already been described, so I will be brief in my comments. I would just note that the bill takes an important step in pulling together the resources of the government to meet the challenge of designing the next generation air traffic management system. Our air traffic management system is critical to the continued viability of our aviation sector, and R&D has an important role to play in ensuring that it keeps up with the future demands on it.

I would also note that the bill takes a unified approach to the FAA's R&D activities. Such an approach is necessary if we are to make sure that resources are wisely applied and critical research issues are addressed.

Mr. Chairman, a number of Members from this side of the aisle intend to offer some constructive amendments to the bill, and I hope that the Chairman will give those amendments careful consideration.

In closing, I would once again say that I think this is a good bill, and I hope that the Committee will report it out favorably.

Thank you, and I yield back the balance of my time.

Mr. FORBES. Thank you. Without objection, all Members may place opening statements in the record at this point in time.

[The prepared statement of Mr. Costello follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Good morning. Today, the House Science Committee is considering six bills for markup. Most are non-controversial and receive wide bipartisan support.

However, I have strong reservations regarding H.R. 1085, the *NASA Flexibility Act of 2003.* I believe we must wait for recommendations and guidance from the Gehman Commission that will address management issues. If we are going to address the problems concerning NASA, we need to take into account the goals and vision of NASA and manned space flight. I understand that NASA needs to do more to attract and retain the best possible workforce; however, I believe we can assist NASA by waiting to hear what recommendations the Gehman Commission makes so we can address all the management problems affecting NASA and its workforce. I believe we must also continue to review NASA's existing workforce authority and why it is underutilized.

Mr. Chairman, instead of rushing to complete this significant legislation, I believe we must take a step back and review all our options before moving forward on legislation that does not address the problem.

Aside from H.R. 1085, I believe the other pieces of legislation have been considered in a bipartisan fashion and expand programs in numerous agencies. For example, H.R. 2692, the *United States Fire Administration (USFA) Authorization Act of 2003,* authorizes funding for USFA activities, such as training, fire research and public education over the next three years. Over the last three decades, America's fire safety record has significantly improved. However, there are still opportunities for further improvements in our fire safety record, such as encouraging. the use of sprinkler systems in homes. H.R. 2692 will lead us in the right direction. As a member of the Congressional Fire Services Caucus, I am proud to support this legislation.

Further, I am glad the House Science Committee is moving forward on the *FAA Research and Development Reauthorization Act of 2003.* As a conferee to the FAA bill for the Science Committee, I look forward to working with my colleagues to enhance the research and development programs as laid out in the legislation before this committee.

Mr. Chairman, I want to thank the Committee for all their hard work on these important issues and look forward to today's proceedings.

[H.R. 2734 follows:]

I

108TH CONGRESS
1ST SESSION

H. R. 2734

To authorize appropriations for the civil aviation research and development projects and activities of the Federal Aviation Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 15, 2003

Mr. FORBES (for himself, Mr. ROHRABACHER, Mr. LARSON of Connecticut, and Mr. GORDON) introduced the following bill; which was referred to the Committee on Science

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A BILL

To authorize appropriations for the civil aviation research and development projects and activities of the Federal Aviation Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Federal Aviation Administration Research and Development Reauthorization Act".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

Section 48102(a) of title 49, United States Code, is amended—

(1) by striking "to carry out sections 44504" and inserting "for conducting civil aviation research and development under sections 44504";

(2) by striking "and" at the end of paragraph (7);

(3) by striking the period at the end of paragraph (8) and inserting a semicolon; and

(4) by adding at the end the following new paragraphs:

"(9) for fiscal year 2004, $371,317,000, including—

"(A) $190,000,000 for Research, Engineering, and Development, of which—

"(i) $65,000,000 shall be for Improving Aviation Safety;

"(ii) $24,000,000 shall be for Weather Safety Research;

"(iii) $15,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and

Development program under such section 3;

"(iv) $27,500,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,000,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions;

"(vi) $7,000,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program; and

"(viii) $1,500,000 shall be for carrying out subsection (h) of this section;

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"(i) $65,705,000 shall be for Improving Aviation Safety;

"(ii) $24,260,000 shall be for Weather Safety Research;

"(iii) $30,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation Administration Research and Development Reauthorization Act for the Next Genera-

tion Air Traffic Management Research and Development program under such section 3;

"(iv) $27,800,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,109,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions;

"(vi) $7,076,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperative Research Program; and

"(viii) $1,650,000 shall be for carrying out subsection (h) of this section;

"(B) $172,000,000 for Facilities and Equipment, of which—

"(i) $43,300,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $31,100,000 shall be for Safe Flight 21;

"(iii) $95,400,000 shall be for the Center for Advanced Aviation System Development; and

"(iv) $2,200,000 shall be for Free Flight Phase 2; and

"(C) $17,592,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,764,000 shall be for Airports Technology-Safety; and

"(ii) $7,828,000 shall be for Airports Technology-Efficiency; and

"(11) for fiscal year 2006, $412,157,000, including—

"(A) $228,289,000 for Research, Engineering, and Development, of which—

"(i) $66,447,000 shall be for Improving Aviation Safety;

"(ii) $24,534,000 shall be for Weather Safety Research;

"(iii) $50,000,000 shall be made available to the Next Generation Air Traffic Management Research and Development Joint Program Office established under section 3 of the Federal Aviation

Administration Research and Development Reauthorization Act for the Next Generation Air Traffic Management Research and Development program under such section 3;

"(iv) $28,114,000 shall be for Human Factors and Aeromedical Research;

"(v) $30,223,000 shall be for Environmental Research and Development, of which $20,000,000 shall be for research activities related to reducing community exposure to civilian aircraft noise or emissions;

"(vi) $7,156,000 shall be for Research Mission Support;

"(vii) $20,000,000 shall be for the Airport Cooperation Research Program; and

"(viii) $1,815,000 shall be for carrying out subsection (h) of this section;

"(B) $166,100,000 for Facilities and Equipment, of which—

"(i) $42,200,000 shall be for Advanced Technology Development and Prototyping;

"(ii) $23,900,000 shall be for Safe Flight 21; and

"(iii) $100,000,000 shall be for the Center for Advanced Aviation System Development; and

"(C) $17,768,000 for Airport Improvement Program Research and Development, of which—

"(i) $9,862,000 shall be for Airports Technology-Safety; and

"(ii) $7,906,000 shall be for Airports Technology-Efficiency.".

SEC. 3. NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT JOINT PROGRAM OFFICE.

(a) ESTABLISHMENT.—There is established a Next Generation Air Traffic Management Research and Development Joint Program Office (referred to in this section as the "Office"). The Office shall be jointly managed by the Federal Aviation Administration and the National Aeronautics and Space Administration. The objective of the Office shall be to carry out research and development of an air traffic management system designed to meet national long-term aviation security, safety, and capacity needs.

(b) DIRECTOR AND DEPUTY DIRECTOR.—The Office shall be headed by a Director who shall be a senior executive of the Federal Aviation Administration. The Deputy Director shall be a senior executive of the National Aeronautics and Space Administration. Not later than 120 days after the date of enactment of this Act, the Administrators of the Federal Aviation Administration and the National Aeronautics and Space Administration shall jointly appoint the Director and Deputy Director of the Office.

(c) FUNCTIONS OF THE OFFICE.—The Office shall manage air traffic management research and development programs and initiatives within the Federal Aviation Administration and the National Aeronautics and Space Administration. The responsibilities of the Office shall include—

(1) establishing and managing a research and development program for a next generation air traffic management system capable of tripling capacity by the year 2025;

(2) entering into grants, cooperative agreements or contracts, or otherwise awarding or using funds appropriated for air traffic management research and development to carry out paragraph (1);

(3) utilizing the facilities, capabilities, expertise, and experience of Federal agencies, national laboratories, universities, nonprofit organizations, industrial entities, and other non-Federal entities to carry out paragraph (1);

(4) coordinating with the Department of Defense, the Department of Commerce, the Under Secretary for Science and Technology at the Department of Homeland Security, the National Security Council, the Department of Transportation, and other Federal agencies; and

(5) consulting with the private sector (including representatives of general aviation, commercial aviation, and the space industry), members of the public, and other interested parties on the program.

(d) NEXT GENERATION AIR TRAFFIC MANAGEMENT RESEARCH AND DEVELOPMENT PLAN.—

(1) REQUIREMENT.—The Office shall develop a research and development plan to carry out this section.

(2) GOAL.—The goal of the plan shall be to enable the creation of a National Airspace System architecture that would—

(A) be based on emerging ground-based and space-based communications, navigation, and surveillance technologies;

(B) increase the level of safety, security, and efficiency of the National Airspace System;

(C) integrate data and information flow effectively with other Federal agencies responsible for providing for our Nation's defense and security;

(D) be scalable to accommodate and encourage substantial growth in domestic and international transportation;

(E) anticipate and accommodate continuing technology upgrades; and

(F) accommodate a wide range of aircraft operations, including airlines, air taxis, helicopters, general aviation, and unmanned aerial vehicles.

(3) CONTENTS.—The plan shall describe, at a minimum—

(A) the most significant technical hurdles that stand in the way of achieving the goal described in paragraph (2);

(B) the research and development projects that will be carried out to overcome the tech-

nical hurdles described in subparagraph (A), including, for each project, whether it would be funded by the Federal Aviation Administration, the National Aeronautics and Space Administration, or both, and whether the work would be carried by the Federal Government, corporations, or universities, or a combination thereof;

(C) the annual anticipated cost of carrying out the plan;

(D) the technical milestones that will be used to evaluate progress in carrying out the plan; and

(E) how the research and development activities will be coordinated with other appropriate Federal agencies.

(e) REPORTS.—The Director of the Office shall transmit to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate—

(1) not later than 120 days after the date of enactment of this Act, the plan required under subsection (d); and

(2) annually at the time of the President's budget request, a report describing the progress in

carrying out the plan required under subsection (d) and any changes to that plan.

SEC. 4. BUDGET DESIGNATION FOR RESEARCH AND DEVELOPMENT ACTIVITIES.

Section 48102 of title 49, United States Code, is amended by inserting after subsection (f) the following new subsection:

"(g) DESIGNATION OF ACTIVITIES.—(1) The amounts appropriated under subsection (a) are for the support of all research and development activities carried out by the Federal Aviation Administration that fall within the categories of basic research, applied research, and development, including the design and development of prototypes, in accordance with the classifications of the Office of Management and Budget Circular A–11 (Budget Formulation/Submission Process).

"(2) The Department of Transportation's annual budget request for the Federal Aviation Administration shall identify all of the activities carried out by the Administration within the categories of basic research, applied research, and development, as classified by the Office of Management and Budget Circular A–11. Each activity in the categories of basic research, applied research, and development shall be identified regardless of the budget category in which it appears in the budget request.".

SEC. 5. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511 of title 49, United States Code, is amended by adding at the end the following new subsection:

"(f) AIRPORT COOPERATIVE RESEARCH PROGRAM.—

"(1) ESTABLISHMENT.—The Secretary of Transportation shall establish an airport cooperative research program to—

"(A) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

"(B) fund research to address those problems.

"(2) GOVERNANCE.—The Secretary of Transportation shall appoint an independent governing board for the research program established under this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

"(3) IMPLEMENTATION.—The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board established under paragraph (2) and to carry out projects proposed by the governing board that the Secretary considers appropriate.".

SEC. 6. DEVELOPMENT OF ANALYTICAL TOOLS AND CERTIFICATION METHODS.

The Federal Aviation Administration shall conduct research to promote the development of analytical tools to improve existing certification methods and to reduce the overall costs for the certification of new products.

SEC. 7. RESEARCH ON AVIATION TRAINING.

Section 48102(h)(1) of title 49, United States Code, is amended—

(1) by striking "or" at the end of subparagraph (B);

(2) by striking the period at the end of subparagraph (C) and inserting "; or"; and

(3) by adding at the end the following new subparagraph:

"(D) research on the impact of new technologies and procedures, particularly those related to aircraft flight deck and air traffic man-

agement functions, on training requirements for pilots and air traffic controllers.".

○

Mr. FORBES. I ask unanimous consent that the bill is considered as read and opened to amendment at any point, and that the Members proceed with the amendments in the order of the roster. Without objection, so ordered. The first amendment on the roster is Amendment number 1, offered by Mr. Matheson from Utah. Are you ready to proceed?

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE
FULL COMMITTEE MARKUP
July 22, 2003

AMENDMENT ROSTER

H.R. 2734, Federal Aviation Administration Research and Development Reauthorization Act

--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended: agreed to by a voice vote.

No.	Sponsor	Description	Results
1.	Mr. Matheson	Amendment adds a new provision to the next generation air traffic management R&D program specifying the plan shall take into consideration noise pollution reduction.	--Adopted by a voice vote.
2.	Mr. Weldon	Amendment provides funding for the Rotocraft Research and Development Initiative.	--Adopted by a voice vote.
3.	Mr. Moore	Amendment permits flexibility of between 50-90 percent for federal cost share for centers of regional excellence.	--Unanimous consent request to withdraw the amendment; agreed to by a voice vote.
4.	Ms. Jackson Lee	Amendment adds a new section to the bill – Sec. 8--Pilot Retirement Age Study.	--Adopted by a voice vote.

Mr. MATHESON. Thank you, Mr. Chairman. I have an amendment at the desk.

Mr. FORBES. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 2734 offered by Mr. Matheson.

[The amendment offered by Mr. Matheson follows:]

AMENDMENT TO H.R. 2734

OFFERED BY MR. MATHESON

Page 11, line 14, strike "and".

Page 11, line 18, strike the period and insert "; and".

Page 11, after line 18, insert the following new subparagraph:

(G) incorporate noise pollution reduction concerns.

Mr. FORBES. I ask unanimous consent to dispense with the reading. Without objection, so ordered. Mr. Matheson is recognized for five minutes to offer his amendment.

Mr. MATHESON. Well, thank you, Mr. Chairman. I want to commend the Chair and Ranking Member Hall for their important work on this measure and I will make a very brief statement. My amendment to this bill is quite simple. It asks the FAA to prioritize noise pollution when redesigning commercial airspace.

Though safety is always an important consideration in airspace design, I believe that consideration of noise pollution is also essential in order to provide the public with the best possible flight paths. This is an issue that is ongoing right now in my own Congressional district. I think it is important it be part of the R&D bill, and I hope my colleagues will join me in supporting this amendment. I yield back to——

Ms. LOFGREN. Would the gentleman yield? I would just like to say, so I don't have to get my own time, how grateful I am to your—to you for offering this amendment. Obviously, safety has to be the first level of decision-making. No one would dispute that, but I am so eager for the FAA to take more account of noise.

Recently, the airspace into San Francisco International Airport was redone and they completely ignored the impact of air traffic over the larger city, the city of San Jose, which my constituents were a little grumpy about, and—including myself, I might add, so I am hopeful that we can come together, understanding that this will never trump safety, but I sure would like to have them take a look at noise, and thank you for yielding and thank you for the amendment.

Mr. MATHESON. And I will just say this is a common discussion that I have had with a lot of folks. I think it is important this issue be considered, and with that, Mr. Chairman, now, I will yield back.

Ms. WOOLSEY. And Mr. Chairman.

Mr. FORBES. Thank you for——

Ms. WOOLSEY. I would like to speak in favor of Mr. Matheson's amendment. My constituents in Marin County, California, just across the Golden Gate Bridge are talking to my office daily about the changes in the air patterns and noise and what is going on, and we, too, know that safety is it, and I know that probably a great majority of the travelers are from my district, but they still want to make sure that low-flying planes and convenience doesn't trump noise. Safety, yes, but not convenience, and I totally support Mr. Matheson's amendment.

Mr. FORBES. The Chair certainly recognizes all these good comments and hopes that bill—the amendment will be accepted. Is there further discussion? If no, the vote occurs on the amendment. All in favor say aye. Those opposed, say no. The ayes have it and the amendment is agreed to. The next amendment on the roster is Amendment number 2, offered by the distinguished gentleman from Pennsylvania, Mr. Weldon. Mr. Weldon, are you ready to proceed with your amendment?

Mr. WELDON. I am ready. Mr. Chairman, I ask unanimous consent that the revised amendment, just a technical change, be distributed to Members in lieu of the original one.

Mr. FORBES. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 2734——
[The amendment offered by Mr. Weldon follows:]

AMENDMENT TO H.R. 2734

OFFERED BY MR. WELDON OF PENNSYLVANIA

At the end of the bill, insert the following new section:

SEC. 8. ROTORCRAFT RESEARCH AND DEVELOPMENT INITIATIVE.

(a) OBJECTIVE.—The Administrator of the Federal Aviation Administration shall establish a rotorcraft initiative with the objective of developing, and demonstrating in a relevant environment, within 10 years after the date of the enactment of this Act, technologies to enable rotorcraft with the following improvements relative to rotorcraft existing as of the date of the enactment of this Act:

(1) 80 percent reduction in noise levels on takeoff and on approach and landing as perceived by a human observer.

(2) Factor of 10 reduction in vibration.

(3) 30 percent reduction in empty weight.

(4) Predicted accident rate equivalent to that of fixed-wing aircraft in commercial service within 10 years after the date of the enactment of this Act.

(5) Capability for zero-ceiling, zero-visibility operations.

(b) IMPLEMENTATION.—Within 180 days after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration, in cooperation with the Administrator of the National Aeronautics and Space Administration, shall provide a plan to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate for the implementation of the initiative described in subsection (a). The implementation plan shall include—

(1) technological roadmaps for achieving each of the improvements specified in subsection (a);

(2) an estimate of the 10-year funding profile required to achieve the objective specified in subsection (a);

(3) a plan for carrying out a formal quantification of the estimated costs and benefits of each technological option selected for development beyond the initial concept definition phase;

(4) a plan for transferring the technologies to industry, including the identification of requirements for prototype demonstrations, as appropriate;

(5) a plan to perform rotorcraft system architecture studies to identify revolutionary technologies for future investments in research and development: and

(6) a plan to increase the use of vertical-take-off-and-landing vehicles to improve transportation service in urban areas.

(c) FUNDING AGREEMENTS.—The Administrator of the Federal Aviation Administration shall enter into appropriate funding agreements with other Federal agencies and departments linked to national rotorcraft industry and academic research and development.

(d) CENTER FOR ROTORCRAFT TECHNOLOGY.—The Federal Aviation Administration is authorized to contribute up to $5,000,000 for the operation of a center for rotorcraft technology to house a research, testing, and training facility and administrative center in the vicinity of existing helicopter manufacturing and research for the purpose of improving upon and developing new rotorcraft technologies, new design capabilities, and manufacturing techniques, including the objectives described in subsection (a), led by helicopter manufacturers, the maintenance industry, retrofitters, universities, and industry suppliers.

(e) AUTHORIZATION OF APPROPRIATIONS.—In addition to amounts authorized to be appropriated by the amendments made by this Act, there are authorized to be appropriated to the Administrator of the Federal Aviation Administration to carry out this section—

(1) $40,000,000 for fiscal year 2004;

(2) $40,000,000 for fiscal year 2005;

(3) $40,000,000 for fiscal year 2006;

(4) $50,000,000 for fiscal year 2007; and

(5) $70,000,000 for fiscal year 2008.

Mr. FORBES. I ask unanimous consent to dispense with the reading. Without objection, that is so ordered. Mr. Weldon is recognized for five minutes to offer his amendment.

Mr. WELDON. Mr. Chairman, this amendment is actually being offered by myself and Mr. Larson of Connecticut. It is a bipartisan amendment that is based on Mr. Larson's original bill, to focus on rotocraft research. As you know, we have conducted hearings and have unfortunately found out that, in the case of science and research, our country has been falling behind the rest of the world in the area of rotocraft. We tend to focus a lot of our effort in this committee on space and on aviation, but we tend to forget about rotocraft, and if you are from the State of Texas, as my good friend from—the Ranking Member is, Bell Textron is almost totally a rotocraft company. If you are from Pennsylvania, in Bob Brady's district, Boeing is a rotocraft manufacturer. If you are from Connecticut, you have a major presence of Sikorsky. Unfortunately, NASA has been pulling out of this effort, in fact just shut down their two big wind tunnels out at NASA Ames in California, which is devastating.

This is an effort with the support of the FAA, who does have a focus on rotocraft safety, to put back into place an authorization for a new initiative. This effort, as I said, was developed by Mr. Larson. It is an outstanding piece of legislation that I took and incorporated into this broader bill, to allow for increased rotocraft research. This legislation, this amendment is supported by the American Helicopter Association. It is supported by the three major helicopter manufacturers, the CEO of Bell Textron, the CEO of Boeing Helicopters and the CEO of Sikorsky. It is supported by the major academic institutions doing rotocraft research, and that includes Penn State, Georgia Tech and the University of Maryland. It is supported by all of the major players in rotocraft as a sign, as a symbol that we want this country to get back into full competition.

Now, Mr. Chairman, this legislation is consistent with the final report of the Commission on the Future of the United States Aerospace Industry. In fact, I have some quotes from that document that specifically highlight the need to address what we are doing here.

Now, a quote from this document, in terms of discussing rotocraft. "Although we are ahead of other countries in investment in military technology and capability, we are on the edge of dropping out of the race in the civilian sector. Starved of funds, the U.S. Government research and development infrastructure in rotocraft is deteriorating as well. Instead of increasing private funding for basic rotocraft R&D, U.S. industry spending has fallen off, too. A reduction in federal funding is matched by a corresponding decrease in industry funding. Companies have little incentive to fund basic research on their own, because capital markets and stockholders shy away from these investments with their indeterminate returns."

Yet, on the other hand, the foreign governments are significantly increasing their investment in rotocraft research, and that is why companies like Eurocopter, Augusta and others are making significant headway in denying the market to our companies.

In fact, Mr. Chairman, we used to have four major rotocraft producers in America. We are now down to three, and if we don't help reverse this difficult trend, you are going to see that industrial base shrink to two. We don't want to see that happen. This allows for a planned, coordinated effort to increase funding in rotocraft research, and I ask my colleagues to support this amendment.

Ms. LOFGREN. Would the gentleman yield for a question? You mentioned the closure, or proposed closure of the wind tunnels at NASA Ames which did concern me, since we have made substantial public sector investments to create state of the art wind tunnels, and I was stunned when the proposal was to close them after we spent all that money recently just to build them. The answer we got was that they would do everything with computer modeling and they didn't need the wind tunnels, which I must admit, I was somewhat skeptical about, so I guess question number one is could we do wind—modeling rather than these centers, and question number two, if we need the centers, can we utilize as part of your plan, or do you envision that these investments, that NASA Ames might be part of what you are doing?

Mr. WELDON. Well, the gentlelady asks a very important question. I have gone on the record publicly opposing NASA Ames' decision to shut down the infrastructure facilities at NASA Ames. It is a preliminary decision that will not take full force and effect for one year. This initiative, if we put it forward in this legislation, I think will send a signal to NASA that they are going in the wrong direction. In talking to the scientists and the leaders of the major helicopter manufacturers, they say there is a role for computerized simulation, but that does not replace the need for the kind of capabilities at NASA Ames, which are the largest wind tunnels.

Ms. LOFGREN. Right.

Mr. WELDON. Of their type in the world.

Ms. LOFGREN. Yes.

Mr. WELDON. And so hopefully, this will help us turn around that decision and the lady—gentlelady has my full support to continue the pressure on NASA Ames to reverse that decision over the next year. It is only a partial decision. They have not yet——

Ms. LOFGREN. Thank you for your—the answer.

Mr. FORBES. Once again, the Chair is prepared to accept this amendment and hopes it will be adopted. Is there any further discussion? If no, the vote occurs on the amendment. All in favor, say aye. Those opposed, say no. The ayes have it, and the amendment is agreed to. The next amendment on the roster is Amendment number 3, offered by Mr. Moore from Kansas. Are you ready to proceed with your amendment?

Mr. MOORE. I—are we on 2734, Mr. Chairman?

Mr. FORBES. Yes, sir. The——

[The amendment offered by Mr. Moore follows:]

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AMENDMENT TO H.R. 2734
OFFERED BY MR. MOORE

At the end of the bill, insert the following new section:

SEC. 8. CENTERS OF EXCELLENCE.

Section 44513(f) of title 49, United States Code, is amended by striking "is 50 percent" and inserting "shall be between 50 and 90 percent".

Mr. MOORE. Unanimous consent to withdraw the amendment I had proposed.

Mr. FORBES. Without objection, consent is given to withdraw the amendment. The next amendment on the roster is Amendment number 4, offered by Ms. Jackson Lee from Texas. Are you ready to proceed with your amendment?

Ms. JACKSON LEE. I am, Mr. Chairman.

Mr. FORBES. The Clerk will report the amendment.

Ms. TESSIERI. Amendment to H.R. 2734 offered by Ms. Jackson Lee of Texas.

[The amendment offered by Ms. Jackson Lee follows:]

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AMENDMENT TO H.R. 2734
OFFERED BY MS. JACKSON-LEE OF TEXAS

At the end of the bill, insert the following new section:

SEC. 8. PILOT RETIREMENT AGE STUDY.

The Administrator of the Federal Aviation Administration shall conduct a research study of whether commercial airline pilots between the ages of 60 and 64 who are employed by foreign air carriers pose a significant safety risk to United States passengers and airspace. The Administrator shall transmit the results of the study to the Congress not later than 6 months after the date of the enactment of this Act.

Mr. FORBES. And I ask unanimous consent to dispense with the reading. Without objection, it is so ordered. Ms. Jackson Lee is recognized for five minutes——

Ms. JACKSON LEE. Thank you.

Mr. FORBES. ——to offer her amendment.

Ms. JACKSON LEE. Thank you very much, Mr. Chairman. Right now, FAA rules require that U.S. commercial airline pilots retire at the age of 60. The reasoning is that as people get older, their mental and physical faculties decay to a level that they pose a safety risk in flight. All of us would be concerned if that was actually the case. However, these are the more experienced pilots in the fleet. By FAA rules, they have a comprehensive medical exam twice per year. They have regular tests on the state of the art computer flight simulators to make sure their skills are sharp, and however, regardless of their experience level or safety record or health status, they are forced to give up their careers at the age of 60.

My amendment is simple, because I recognize, Mr. Chairman, that there are a wide breadth of opinions on this, and I respect all of the opinions that have been offered, but I think this would be very instructive, if we were to have an amendment that asks the FAA to assess why pilots flying international can be over 60 and those flying within the United States under FAA rules cannot. What is the distinction? This is a very finite, very precise study. It will provide information to us to ensure that we give a fair hearing to everyone's point of view, and might I say on the record, Mr. Chairman, one of the concerns of the FAA is the time in which they take to do studies, or the resources that might be utilized, I have made sure that this is such a narrow area of focus that this can be done with the most fiscally conservative resources that one might use and, I would hope, that as we explore this question, as I understand the Transportation Committee will be holding hearings, that none of this will be limiting the Transportation Committee from having a broad view of this question, so maybe we can answer it once and for all.

If the answer proves that we should remain with the 60 cap, 60-year-old cap, all of us who are concerned about safety would readily support this enthusiastically. If we show that there are some other options, I think this committee should be aware of it. With that, I ask my colleagues to support this amendment and I yield back.

Mr. FORBES. Is there any further discussion? If no, the vote occurs on the amendment. All in favor say aye. Those opposed, say no. The ayes have it and the amendment is agreed to. Are there any further amendments? Hearing none, the question is on the bill, H.R. 2734, the *Federal Aviation Administration Research and Development Reauthorization Act,* as amended. All those in favor will say aye. All those opposed will say no. In the opinion of the Chair, the ayes have it. I will now recognize Mr. Hall to offer a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report H.R. 2734, as amended, to the House with the recommendation that the bill, as amended, do pass. Furthermore, I move that staff be instructed to prepare the legislative report and make necessary technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Mr. FORBES. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes appear to have it and the bill is favorably reported. Without objection, the motion to reconsider is laid upon the table. I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorize the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on the bill H.R. 2734 or a similar Senate bill. Without objection, so ordered.

[Whereupon, the Committee proceeded to other business.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON SPACE AND AERONAUTICS ON H.R. 3245, COMMERCIAL SPACE ACT OF 2003

WEDNESDAY, OCTOBER 8, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SPACE AND AERONAUTICS,
COMMITTEE ON SCIENCE,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:08 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Dana Rohrabacher [Chairman of the Subcommittee] presiding.

Chairman ROHRABACHER. Good morning. I call this meeting of the Subcommittee to order. And pursuant to notice, the Subcommittee on Space and Aeronautics is meeting today to consider the four following measures: H.R. 3245, the *Commercial Space Act of 2003;* H.R. 912, the *Charles "Pete" Conrad Astronomy Awards Act;* H.R. 1292, the *Remote Sensing Applications Act of 2003;* and H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.*

At this point, I would ask unanimous consent for the authority to recess the Committee at any point, and without objection, so ordered.

Okay. At this point, I will make a few opening remarks and then turn to Bart Gordon, our Ranking Member, for his opening remarks.

Today we will markup four bills, including two that I have sponsored, H.R. 3245, the *Commercial Space Act of 2003,* and H.R. 912, the *Charles "Pete" Conrad Astronomy Awards Act of 2003.* I believe that most Members of Congress share my view that the aerospace industry plays a critical role in advancing America into the future and especially America into space onto the next frontier. Innovative and creative thinking have always been the hallmarks of the private sector, and we can not just leave it up to government to solve the perplexing problems or to actually make sure that America meets its potential.

H.R. 3245 promotes development of operationally safe suborbital vehicles and services by directing the government to build an affirmative, enabling regulatory and legal framework for this emerging industry. I want to thank my Democratic colleagues for their support of H.R. 3245. H.R. 912 encourages average citizens to survey the heavens for threatening near-Earth objects. Both H.R. 3245

and H.R. 912, as I said, recognizes the value of having our private citizens involved in the process.

And we will markup, as well today, H.R. 1292, the *Remote Sensing Applications Act of 2003.* This bill establishes a NASA program of grants for competitively awarded pilot projects using government and commercial remote sensing capabilities to help address the needs of State, local, regional, and tribal agencies. The remaining legislation for markup is H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003,* which Mr. Gordon has been involved with authoring and has held off until now in order to make sure the Gehman Commission could do its work. And now we can follow up with Mr. Gordon's legislation.

This morning I look forward to working with Members on both sides of the aisle. And as we say, we have some good pieces of legislation here to move through the Subcommittee. And I will count on Mr. Gordon for his remarks.

[The prepared statement of Mr. Rohrabacher follows:]

PREPARED STATEMENT OF CHAIRMAN DANA ROHRABACHER

Today we will markup four bills, including two that I have sponsored, H.R. 3245, the *Commercial Space Act of 2003* and H.R. 912, the *Charles 'Pete' Conrad Astronomy Awards Act of 2003.* I believe that most Members of Congress share my view that the aerospace industry plays a critical role in advancing America's space frontier. Innovative and creative thinking have always been the hallmarks of the private sector in helping the government solve perplexing problems.

H.R. 3245 promotes development of operationally safe suborbital vehicles and services by directing the government to build an affirmative, enabling regulatory and legal framework for this emerging industry. I want to thank my Democratic colleagues for their support of H.R. 3245. H.R. 912 encourages average citizens to survey the heavens for threatening near-Earth objects. Both H.R. 3245 and H.R. 912 recognize the value of the private sector in helping us realize our space goals.

We will also markup H.R. 1292, the *Remote Sensing Applications Act of 2003.* This bill establishes a NASA program of grants for competitively awarded pilot projects using government and commercial remote sensing capabilities to help address the needs of State, local, regional and tribal agencies. The remaining legislation for markup is H.R. 2450, the *Human Space Flight Independent Investigation Commission Act of 2003.*

This morning I look forward to working with Members on both sides of the aisle in a spirit of bipartisanship.

Mr. GORDON. Mr. Chairman, let me just briefly say you have always been good to work with and plus you are a decent fellow. And we appreciate the opportunity to markup two of the Minority bills today. And we would remind you that Mr. Larsen and Mr. Lampson also have good bills that we hope that you will review and that we can get to those at another date. And Mr. Hall's, of course.

Chairman ROHRABACHER. Okay. I would like to now pay the courtesy to Mr. Hall, who is, of course, former Chairman of this committee and provided great leadership here and one who adds a great contribution through institutional memory, you might say, of everything we have been through. And Ralph, would you like to say a few words today before we start?

Mr. HALL. I will just say a few, Mr. Chairman, and I thank you for the chance to.

I note that we are marking up 3245, that is your bill. As you know, I have introduced a bill 3219, which is an older bill than yours by about six hours, I think, four, five, or six hours. And I am not surprised that my bill is not on here. I know it is not a tech-

nical omission or anything. And I understand that we are to have some kind of a meeting here in the next 20 or 30 minutes. The future of my bill might be discussed at that time. Is that right? Is that a good summation of it?

Chairman ROHRABACHER. Yes, sir.

Mr. HALL. I thank you. You are a good guy, too.

Chairman ROHRABACHER. Let me note that the Chairman is at this time a co-sponsor of Chairman Hall's bill. And we are going to have a very in-depth discussion of it shortly after this markup.

So today—okay. Without objection, all Members may place their opening statements in the record.

[The prepared statement of Ms. Johnson follows:]

PREPARED STATEMENT OF REPRESENTATIVE EDDIE BERNICE JOHNSON

Thank you, Chairman Rohrabacher, for calling this markup of H.R. 3245, the *Commercial Space Act of 2003,* before the Subcommittee on Space and Aeronautics.

I am a proud co-sponsor of this legislation. This bill establishes a regulatory mechanism for licensing commercial suborbital human space flight activities.

The issues we have faced since the tragic *Columbia* Space Shuttle accident have had a lasting affect on how many view space exploration.

The space exploration research program has been one of the most successful research programs in the history of this country.

The much-publicized space tourist flights of Dennis Tito and Mark Shuttleworth make it clear that an alternative motivation for human space flight has emerged. Human space flight is no longer only about meeting the priorities of national governments and space agencies, but is also about the tangible possibility of ordinary people seeing the Earth from a previously exclusive vantage point.

The rationale for human space flight is evolving due to a growing commercial motivation. Human space flight can profit from an increased synergy between the public and private sectors. Space tourism can benefit immensely from the development of the necessary infrastructure, while public space programs can benefit from increased awareness and support for human space flight, generated by high-profile space tourism flights and a growing perception that space travel is closer to being within the grasp of ordinary citizens.

With that being said, the need for further investigation and study into future regulation is clearly necessary. That is why I am a strong supporter of this bill, and I urge my colleagues to support its passage.

Thank you and I yield back my time to the Chair.

Chairman ROHRABACHER. And at this point, we will now consider H.R. 3245, a bill that I authored, for consideration.

[H.R. 3245 follows:]

I

108TH CONGRESS
1ST SESSION

H. R. 3245

To promote the development of the commercial space transportation industry, to authorize appropriations for the Office of the Associate Administrator for Commercial Space Transportation, to authorize appropriations for the Office of Space Commerce, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 2, 2003

Mr. ROHRABACHER (for himself, Mr. GORDON, and Mr. HALL) introduced the following bill; which was referred to the Committee on Science

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A BILL

To promote the development of the commercial space transportation industry, to authorize appropriations for the Office of the Associate Administrator for Commercial Space Transportation, to authorize appropriations for the Office of Space Commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Commercial Space Act of 2003".

SEC. 2. FINDINGS.

The Congress finds that—

(1) a prolonged and severe downturn in the market for commercial space launches has resulted in—

(A) a significant reduction in the United States global market share in orbital space launches;

(B) a severe decrease in the number of Government-licensed orbital launches; and

(C) a commercial space transportation industry dependent upon Government business opportunities;

(2) the continuous reduction of cost and improvement in safety and reliability of commercial space transportation capabilities is a necessary ingredient to achieving most United States space goals;

(3) the opening of outer space to the American people and their economic, scientific, and cultural enterprises is a priority goal which should guide Federal space investments, policy development, and regulatory action;

(4) despite a weak United States launch industry, recent industrial and technical developments indicate that commercial suborbital human spaceflight vehicles are under active development in both the

United States and other nations, and greater private investment in these development efforts will promote greater innovation and competitiveness for the United States commercial space transportation industry as a whole;

(5) space transportation is not without risks;

(6) a critical area of responsibility for the Office of the Associate Administrator for Commercial Space Transportation is to ensure that the Federal regulation of this new commercial suborbital human spaceflight industry should focus on protecting the safety of the general, uninvolved public, while allowing involved persons to assume risks which are inherent to human spaceflight activities;

(7) enactment of a 3-year extension of the excess third party claims payment provision of chapter 701 of title 49, United States Code (Commercial Space Launch Activities) is necessary to provide an appropriate period to evaluate recommended changes to the Government's commercial space launch indemnification regime;

(8) the Secretary of Transportation should establish regulatory guidelines that foster an efficient and cost-effective process for ensuring safe commer-

cial space launch operations at the Nation's launch ranges and bases; and

(9) the public interest is served by creating a clear legal and regulatory regime for commercial space transportation, including an unambiguous delineation of regulatory roles and responsibilities.

SEC. 3. AMENDMENTS.

(a) AUTHORIZATION OF APPROPRIATIONS FOR OFFICE OF COMMERCIAL SPACE TRANSPORTATION.—Section 70119 of title 49, United States Code, is amended by striking paragraphs (1) and (2) and inserting the following:

"(1) $11,523,000 for fiscal year 2004; and

"(2) $11,000,000 for fiscal year 2005.".

(b) FINDINGS.—Section 70101(a) of title 49, United States Code, is amended—

(1) in paragraph (3), by inserting "human spaceflight," after "research,"; and

(2) in paragraph (4), by striking "satellite" and inserting "space", and by striking "services now available from" and inserting "capabilities of".

(c) DEFINITIONS.—Section 70102 of title 49, United States Code, is amended—

(1) by redesignating paragraphs (2) through (16) as paragraphs (3), (4), (5), (6), (7), (8), (9),

(10), (11), (12), (13), (14), (16), (19), and (20), respectively;

(2) by inserting after paragraph (1) the following new paragraph:

"(2) 'crew' means an individual or individuals carried within a launch or reentry vehicle who performs a function necessary for the protection of public safety. ";

(3) in paragraph (9), as so redesignated by paragraph (1) of this subsection—

(A) by inserting "an individual or" after "means";

(B) by inserting "or return from" after "to place in"; and

(C) by striking "that object" and inserting "that individual or object";

(4) by inserting after paragraph (14), as so redesignated by paragraph (1) of this subsection, the following new paragraph:

"(15) 'spaceflight participant' means an individual who is not crew carried within a launch or reentry vehicle during a launch or reentry.";

(5) by inserting after paragraph (16), as so redesignated by paragraph (1) of this subsection, the following new paragraphs:

"(17) 'suborbital rocket' means a rocket-propelled vehicle intended for flight on a suborbital trajectory whose thrust is greater than its lift for the majority of the powered portion of its flight.

"(18) 'suborbital trajectory' means the intentional flight path of a launch vehicle, reentry vehicle, or any portion thereof, whose vacuum instantaneous impact point does not leave the surface of the Earth."; and

(6) in paragraph (19), as so redesignated by paragraph (1) of this subsection—

(A) by striking "or" at the end of subparagraph (C);

(B) by striking the period at the end of subparagraph (D) and inserting "; and"; and

(C) by adding at the end the following new subparagraph:

"(E) crew or spaceflight participants.".

(d) COMMERCIAL HUMAN SPACEFLIGHT.—(1) Section 70104 of title 49, United States Code, is amended—

(A) by redesignating subsection (c) as subsection (d); and

(B) by inserting after subsection (b) the following new subsection:

"(c) COMPLIANCE WITH SPACEFLIGHT PARTICIPANT REQUIREMENTS.—The holder of a license under this chapter may launch or reenter a spaceflight participant only if—

"(1) the spaceflight participant has received training and met medical or other standards specified in the license;

"(2) the spaceflight participant is informed of the safety record of the launch or reentry vehicle type; and

"(3) the launch or reentry vehicle is marked in a manner specified by the Secretary of Transportation which identifies it as a launch or reentry vehicle rather than an aircraft.".

(2) Section 70112(b)(1) of title 49, United States Code, is amended by striking "property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees" and inserting "personal injury, death, property damage, or loss it sustains, and for personal injury to, death of, or property damage or loss sustained by its own employees,".

SEC. 4. REGULATORY FRAMEWORK.

The Secretary of Transportation shall take appropriate efforts, including realignment of personnel and resources, to create a streamlined, cost-effective, and ena-

bling regulatory framework for the United States commercial human spaceflight industry. The Secretary of Transportation shall clearly distinguish the Department's regulation of air commerce from its regulation of commercial human spaceflight, and focus the Department's regulation of commercial human spaceflight activities on protecting the safety of the general public, while allowing spaceflight participants who have been trained and meet license-specific standards to assume an informed level of risk. Not later than 6 months after the date of enactment of this Act, the Secretary of Transportation shall transmit to the Congress a report on the progress made in implementing this section.

SEC. 5. COMMERCIAL SPACE TRANSPORTATION INDEMNIFICATION EXTENSION.

Section 70113(f) of title 49, United States Code, is amended by striking "December 31, 2004" and inserting "December 31, 2007".

SEC. 6. LIABILITY REGIME FOR COMMERCIAL SPACE TRANSPORTATION.

(a) APPLICATIONS.—Not later than 60 days after the date of the enactment of this Act, the Secretary of Transportation shall enter into an appropriate arrangement with the National Academy of Public Administration to conduct a study on the liability risk-sharing regime in the

United States for commercial space transportation. The study shall recommend modifications to the liability regime and characterization of actions required to implement those modifications. The study shall analyze the adequacy, propriety, and effectiveness of, and the need for, the current liability risk-sharing regime. The study shall specifically consider—

(1) other countries' regimes;

(2) the use of the designation of "ultra hazardous" for space transportation activities;

(3) relevant international treaties;

(4) impacts of reusable launch vehicles and spaceports; and

(5) the feasibility of airline-like liability regimes.

The study shall use a clearly described, analytical methodology to specify the factors used in evaluating the current regime and alternative approaches to the current regime. Estimates of impacts shall be quantified where possible.

(b) COMPLETION DATE.—The results of the study described in subsection (a) shall be transmitted to the Congress not later than 18 months after the date of the enactment of this Act.

SEC. 7. OFFICE OF SPACE COMMERCE.

(a) REDESIGNATION.—The Office of Space Commercialization established under section 8 of the Technology Administration Act of 1998 (15 U.S.C. 1511e) is redesignated as the Office of Space Commerce.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Commerce for the Office of Space Commerce—

(1) $1,800,000 for fiscal year 2004; and

(2) $2,000,000 for fiscal year 2005.

SEC. 8. DELEGATION OF LICENSING AUTHORITY.

(a) DELEGATION.—The Secretary of Commerce shall delegate the authority provided to the Secretary under title II of the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5621 et seq.) to the Director of the Office of Space Commerce.

(b) AMENDMENT.—Section 8(c) of the Technology Administration Act of 1998 (15 U.S.C. 1511e(c)) is amended—

(1) by striking "and" at the end of paragraph (6);

(2) by striking the period at the end of paragraph (7) and inserting a semicolon; and

(3) by adding at the end the following:

"(8) licensing private sector parties to operate private remote sensing space systems; and

"(9) serving as the Executive Secretary for the Interagency Global Positioning System Executive Board.".

○

[The Section-by-Section Analysis of H.R. 3245 follows:]

SECTION-BY-SECTION ANALYSIS OF H.R. 3245,
COMMERCIAL SPACE ACT OF 2003

The bill clarifies the regulatory framework for commercial human space flight. The bill extends the existing commercial space transportation indemnification regime by three years, through December 31, 2007, and mandates a study on the liability risk-sharing regime for commercial space transportation. The bill specifies that the licensing authority for private-sector remote sensing systems within the Commerce Department be delegated to the Office of Space Commerce. The bill authorizes to be appropriated $11,523,000 and $11,000,000 for fiscal years 2004 and 2005, respectively, for the FAA Office of Commercial Space Transportation. The bill also authorizes to be appropriated $1,800,000 and $2,000,000 for fiscal years 2004 and 2005, respectively, for the Department of Commerce's Office of Space Commerce.

Section 1. Short Title.

Section 2. Findings.

This section makes certain findings regarding the U.S. commercial space transportation industry and commercial suborbital human space flight in general.

Section 3. Amendments.

This section authorizes to be appropriated $11,523,000 and $11,000,000 for FY 2004 and FY 2005, respectively, for the FAA Office of Commercial Space Transportation. The bill amends the Commercial Space Launch Activities Act (Title 49, U.S.C., Subtitle IX, Chapter 701) to clarify the regulatory purview of the FAA Office of Commercial Space Transportation to include licensing of commercial human space flight by defining certain terms relevant to commercial human space flight. These terms include the following: crew, space flight participant, suborbital rocket, and suborbital trajectory.

This section directs that the holder of a commercial human space flight license may launch or re-enter a space flight participant only if the participant has received training and met medical or other standards specified in the license, the participant is informed of the safety record of the launch or re-entry vehicle type, and the launch or re-entry vehicle is marked in a manner to identify it as a launch or re-entry vehicle rather than an aircraft. This section also includes a provision requiring a reciprocal waiver of liability claims between the holder of a license, its contractors, subcontractors, and its customers ("spaceflight participants").

Section 4. Regulatory Framework.

This section directs the Secretary of Transportation to undertake efforts to create a streamlined, cost-effective, and enabling regulatory framework for the U.S. commercial human space flight industry that is clearly distinguished from the Transportation Department's regulation of air commerce, focuses its regulation of commercial human space flight on protecting the safety of the general public, and allows space flight participants who are trained and meet license-specific standards to assume an informed level of risk. The Secretary is directed to report to Congress within six months after the date of enactment of this bill on progress made in implementing this section.

Section 5. Commercial Space Transportation Indemnification Extension.

This section amends existing law by extending the existing commercial space launch indemnification regime by three years, through December 31, 2007.

Section 6. Liability Regime for Commercial Space Transportation.

This section directs the Secretary of Transportation to enter into an arrangement with the National Academy of Public Administration (NAPA) not later than 60 days after enactment of this bill to conduct a study on the liability risk-sharing regime in the United States for commercial space transportation. The study shall recommend modifications and actions required for alternative approaches to the current liability risk-sharing regime. The study results shall be transmitted to the Congress not later than 18 months after enactment of this bill.

Section 7. Office of Space Commerce.

This section redesignates the Office of Space Commercialization as the Office of Space Commerce. The section also authorizes the appropriation of $1,800,000 for FY 2004 and $2,000,000 for FY 2005 for the Office of Space Commerce.

Section 8. Delegation of Licensing Authority.

This section requires the Secretary of Commerce to delegate the authority to license private-sector remote sensing space systems operators provided under current law to the Director of the Office of Space Commerce. This section also amends current law by adding additional functions and duties to the Office of Space Commerce.

[The Summary of H.R. 3245 follows:]

SUMMARY OF H.R. 3245,
COMMERCIAL SPACE ACT OF 2003

Sponsored by: Rep. Dana Rohrabacher (R–CA)

Co-Sponsors (2): Rep. Ralph Hall (D–TX), Rep. Bart Gordon (D–TN)

The bill establishes a regulatory regime for licensing commercial suborbital human space flight activities and specifies that the licensing authority for private-sector remote sensing systems within the Commerce Department be delegated to the Office of Space Commerce. The bill extends the existing commercial space transportation indemnification regime by three years, through December 31, 2007. The bill authorizes to be appropriated $11,523,000 and $11,000,000 for fiscal years 2004 and 2005, respectively, for the FAA's Office of Commercial Space Transportation. The bill also authorizes to be appropriated $1,800,000 and $2,000,000 for fiscal years 2004 and 2005, respectively, for,the Office of Space Commerce within the Department of Commerce.

Regulatory Framework for Commercial Space Transportation: The bill amends the Commercial Space Launch Activities Act by clarifying that the regulatory purview of the FAA Office of Commercial Space Transportation includes the licensing of commercial human space flight. The bill also includes a provision requiring a reciprocal waiver of liability claims between the holder of a license, its contractors, subcontractors, and its customers ("space flight participants").

The bill directs the Secretary of Transportation to create a streamlined, cost-effective, and enabling regulatory framework for the U.S. commercial human space flight industry. The Secretary of Transportation is to provide a progress report to Congress not later than six months after enactment of this bill.

Commercial Space Transportation Indemnification Extension: The bill extends the existing commercial space launch indemnification regime by three years, through December 31, 2007.

Commercial Space Transportation Liability Risk-Sharing Study: The bill directs the Secretary of Transportation to arrange for the National Academy of Public Administration (NAPA) to conduct a study on the U.S. liability risk-sharing regime for commercial space transportation, considering several cases specified in the bill, and report these results within 18 months after enactment of this bill.

Office of Space Commerce: The bill renames the Office of Space Commercialization to the Office of Space Commerce and authorizes to be appropriated $1,800,000 and $2,000,000 for FY 2004 and FY 2005, respectively. The bill directs the Secretary of Commerce to delegate the authority to license private-sector remote sensing space systems under the *Land Remote Sensing Policy Act of 1992* to the Director of the Office of Space Commerce that is currently delegated to the NOAA Administrator. This bill also amends the duties of the Director to serve as the Executive Secretary for the Interagency Global Positioning System Executive Board.

Chairman ROHRABACHER. H.R. 3245, the *Commercial Space Act of 2003* instructs the Department of Transportation that this new suborbital reusable launch vehicle industry should be nurtured by a streamlined and careful regulatory system. The bill specifically defines terms in law that were previously left undefined and directs the Secretary of Transportation to set up an enabling regulatory regime for these new RLVs and that is separate from how the FAA regulates the 100-year-old aviation industry.

This provision of the bill—and in this provision of the bill, it follows directly from an important joint hearing that the—that our Subcommittee held with the Senate Subcommittee on Science, Technology, and Space last July. At that hearing, all five witnesses said the first barrier facing the emerging space transportation industry is the near for clear and streamlined regulation. And I believe this legislation will take us several steps in the right direction.

The bill establishes a regulatory regime for licensing commercial suborbital human space flight activities under the jurisdiction of the FAA's Office of Commercial Space Transportation and specifies that the licensing authority for the private sector remote sensing systems within the Commerce Department be delegated to the Office of Space Commerce.

The bill extends the existing commercial space transportation indemnification regime by three years through December 31, 2007. The bill also authorizes funding for the FAA's Office of Commercial Space Transportation and the Office of Space Commercialization in the Department of Commerce.

And I now would recognize our Ranking Member, Bart Gordon, for five minutes.

Mr. GORDON. Thank you, Mr. Chairman.

As you know, I am very happy to be an original co-sponsor of this legislation, and I want to speak in support of its primary intent: promoting the growth of the Nation's infant commercial human space flight industry. I think it is important to allow innovative space transportation concepts to get their chance in the marketplace while at the same time ensuring that public safety is protected.

One of the important features of the legislation is a set of definitions developed cooperatively by industry and the Department of Transportation to clarify the definitions of suborbital rocket and suborbital trajectory. At a joint hearing with the Senate in July, we received unanimous testimony from industry that such a clarification is urgently needed. I want to commend you for taking action in this bill to address that concern. Of course, the legislation before us today contains many other provisions. And, as I have discussed with you, Mr. Chairman, I believe that we would benefit from additional discussions of a number of provisions in the bill, including such things as: the extension of the commercial space transportation identification for three years, the need for another study of the existing liability regime given the completion of a similar study just 18 months ago, proposed changes to the existing law to incorporate commercial human space flight, and the transfer of commercial remote sensing licensing authority from NOAA to the Office of Space Commerce. While the schedule has precluded much discus-

sion before this subcommittee markup, I am confident that we will have the opportunity for a comprehensive review of the provisions prior to consideration of this legislation by the Full Committee. In light of that, I have no objection to moving the bill out of the Subcommittee, and I look forward to working constructively with you, Mr. Chairman, to develop a bill that we can move through the Congress and get enacted into law.

Thank you, and I yield back the balance of my time.

Chairman ROHRABACHER. Thank you very much.

Mr. Hall, would you like to comment?

Mr. HALL. I think the Ranking Member has pretty well expressed my views. And as you know, I am a co-sponsor on it, and I look forward to working with you as we work the details out and add as much of my bill into yours as possible.

Chairman ROHRABACHER. All right. Ms. Johnson.

Ms. JOHNSON. Thank you very much, Mr. Chairman. I appreciate you having this markup. And I am proud to be a co-sponsor, and I do hope that you and the Ranking Member get together and make for a stronger bill.

I do think that it is timely, because the general private sector is interested. And usually, that will help to give it some catalyst. The much publicized space tourist flights of Dennis Title and Mark Shuttleworth make it clear that an alternative motivation for the human space flight has emerged. Mr. Title was also a speaker from the Science and Technology Brain Trust on the Congressional Black Caucus's annual conference. And it even made me interested, I just don't have $20 million.

But the rationale is evolving due to growing commercial motivation, and I would recommend that we pass this bill. I think the common thread is safety.

Thank you.

Chairman ROHRABACHER. Well, thank you very much.

Let me note that I went out to the Mojave Desert and saw some of these vehicles being put together, and people, the Rattan brothers, who are very famous for their exploits in aviation, are both involved with this—with trying to develop these new type of craft, and I think there is going to be a dramatic—you know, we have always had—when the government has invested in space projects and aviation projects, there has been a spin-off to the private sector. And I believe what we are going to find in this situation that with investment in the private sector, there is going to be a spin-off to the public sector. And so it is extraordinarily exciting to see space pioneers and entrepreneurs melding out there into this new project.

I ask unanimous consent that H.R. 3245 is considered as read and open to amendment at any point and that Members proceed with the amendments in order of the roster. Without objection, so ordered.

And are there any amendments? Hearing none, the question is on the bill H.R. 3245, the *Commercial Space Act of 2003.* All in favor will say aye. All those opposed will say no. In the opinion of the Chair, the ayes have it.

I now recognize the Ranking Member for a motion.

Mr. GORDON. Mr. Chairman, I move that the Subcommittee favorably report the bill H.R. 3245 to the Full Committee with the recommendation that it be favorably reported to the House. Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill in accordance with the recommendations of the Subcommittee.

Chairman ROHRABACHER. The question is on the motion to report the bill favorably. Those in favor that the bill—or the motion will signify by saying aye. Those opposed, no. All right. The ayes appear to have it, and the bill is favorably reported. Without objection, the motion to reconsider is laid upon the table. I move now that Members have two subsequent calendar days in which to submit supplemental Minority or additional views on the measure. Without objection, so ordered.

This concludes the Subcommittee markup. And let me again assure that—Chairman Hall, that although his bill did not make it to markup today, that it is this Chair's intention to work with you, Mr. Hall, and to try to move forward with your legislation as it develops.

Mr. HALL. Thank you, Mr. Chairman. As you know, the major thrust from this point forward needs to be safety. And your bill encompasses that. Every bill we have addressed today has tipped its hat to safety, and I think that has got to be the watchword for us for the next year or so.

Chairman ROHRABACHER. Thank you very much, Mr. Hall. Again, we appreciate your continued leadership.

This concludes our Subcommittee markup. We are adjourned.

[Whereupon, at 10:42 a.m., the Subcommittee was adjourned.]

PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS ON H.R. 4546, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACT

WEDNESDAY, SEPTEMBER 29, 2004

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

The Subcommittee met, pursuant to call, at 2:05 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Vernon J. Ehlers [Chairman of the Subcommittee] presiding.

Chairman EHLERS. Good afternoon. The Subcommittee will be in order.

Pursuant to notice, the Subcommittee on Environment, Technology, and Standards meets today to consider the following measure: H.R. 4546, the *National Oceanic and Atmospheric Administration Act.* I ask unanimous consent for the authority to recess the Subcommittee at any point, and without objection, it is so ordered.

We will now consider—and I am pleased to welcome the Subcommittee Chair—I am sorry, Ranking Member. I just demoted myself.

We will now consider the bill H.R. 4546 and proceed with opening remarks. I recognize myself for such time as I may consume.

I welcome you, all of you, to today's markup of H.R. 4546, the *National Oceanic and Atmospheric Administration Act.* The legislation we are considering today is an organic act for the National Oceanic and Atmospheric Administration, better known as NOAA.

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: to understand and predict changes in the Earth's oceans and atmospheres; to conserve and manage coastal, ocean, and Great Lakes ecosystems; and to educate the public about these topics. This 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 that placed the agency in the Department of Commerce and transferred various oceanic and atmospheric functions from other agencies into the new NOAA. Since that time, Congress

has passed a hodgepodge of issue-specific legislation for NOAA, resulting in a confusing collection of laws that are not coordinated by an overarching mission for the agency. And for this reason, we started working last year on an organic act for NOAA. NSF, for example, has had an organic act for many years, and it is desperately needed in the case of NOAA to have one act that defines all of their powers, responsibilities, and missions, and can serve as a guide for them. And in the future, all amendments will be made to that organic act rather than passing new acts for them to deal with.

Let me just interrupt briefly to say I was expecting votes at this point. We will complete our opening statements, and then we will have to go vote and return for the final steps of the markup.

In April, the U.S. Commission on Ocean Policy released its preliminary report, which called for Congress to pass an organic act for NOAA. That recommendation was supported by all the witnesses at a Science Committee hearing on the report. I had been working on such an act for almost a year, and after consultation with many experts, introduced H.R. 4546. This subcommittee held a hearing on H.R. 4546 on July 15 and received comments on the bill from the Administration and outside experts. At the hearing, the bill received overwhelming support from the ocean and atmospheric science communities.

You may wonder why we are moving this bill so late in the legislative session. The final report from the Ocean Commission was released just last week, creating much momentum for ocean issues pending before the Congress. As the House authorizing committee for a large part of NOAA, I believe it is our responsibility to move this bill along as far as possible this year. Also, our colleagues in the Senate are working quickly on similar legislative initiatives and we must be prepared to work with them when the time comes, which, of course, would be if they get their bill passed.

Today's markup should be straightforward and non-controversial. I will offer a manager's amendment that I will explain later, and I understand Mr. Udall has an amendment regarding research laboratories.

I should note that H.R. 4546 contains very little language about fisheries or resource management at NOAA, because those topics are under the jurisdiction of the Resources Committee, in particular the subcommittee chaired by my colleague from Maryland, Mr. Gilchrest. I understand it will be difficult to pass a NOAA organic act through that committee this year, but I look forward to working with my colleagues first thing in the next Congress to pass truly comprehensive legislation for NOAA. In the meantime, it is important that the Science Committee move forward with this portion now.

[The prepared statement of Chairman Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

I welcome all of you to today's markup of H.R. 4546, the *National Oceanic and Atmospheric Administration Act.* The legislation we are considering today is an organic act for the National Oceanic and Atmospheric Administration (better know as NOAA).

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 Lakes 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 that placed the agency in the Department of Commerce and transferred various oceanic and atmospheric functions from other agencies into the new NOAA. Since that time Congress has passed a hodgepodge of issue-specific legislation for NOAA, resulting in a confusing collection of laws that are not coordinated by an overarching mission for the agency.

In April, the U.S. Commission on Ocean Policy released its preliminary report, which called for Congress to pass an organic act for NOAA. That recommendation was supported by all the witnesses at a Science Committee hearing on the report. I had been working on such an act for almost a year and after consultation with many experts, introduced H.R. 4546. This subcommittee held a hearing on H.R. 4546 on July 15 and received comments on the bill from the Administration and outside experts. At the hearing the bill received overwhelming support from the ocean and atmospheric science communities.

You may wonder why we are moving this bill so late in the legislative session. The final report from the Ocean Commission was released last week, creating much momentum for ocean issues pending before the Congress. As the House authorizing committee for a large part of NOAA, I believe it is our responsibility to move this bill along as far as possible this year. Also, our colleagues in the Senate are working quickly on similar legislative initiatives and we must be prepared to work with them when the time comes.

Today's markup should be straightforward and non-controversial. I will offer a manager's amendment that I will explain later, and I understand Mr. Udall has an amendment regarding research laboratories.

I should note that H.R. 4546 contains very little language about fisheries or resource management at NOAA because those topics are under the jurisdiction of the Resources Committee, in particular the subcommittee chaired by my colleague from Maryland, Mr. Gilchrest. I understand it will be difficult to pass a NOAA organic act through that committee this year, but I look forward to working with my colleagues first thing next Congress to pass truly comprehensive legislation for NOAA. In the meantime, it is important that the Science Committee move forward with this portion now.

Chairman EHLERS. I am now pleased to recognize Mr. Udall for five minutes to present his opening remarks.

Mr. UDALL. Mr. Chairman, thank you. Before I share my formal remarks, I want to thank you for the confidence that we are both going to be rehired on November 2 and able to return and work together in the 109th Congress. Although somebody clipped to me there is only two ways to run for re-election is to come unopposed or scared. And I think both you and I are scared, is that the case, I believe?

Chairman EHLERS. I have never been scared in my life.

But I like the statement.

Mr. UDALL. I would like to thank the Chairman for beginning the work to provide the National Oceanic and Atmospheric Administration with an organic act. The completion of the Ocean Commission's work, which the Chairman mentioned, has emphasized the importance of NOAA's role in protecting our coastal and oceanic resources. NOAA also has an important role to play in the protection of life and property through the development of improved understanding of climate and weather and the delivery of timely weather forecasts and warnings.

We will be making some improvements to the bill this afternoon, as the Chairman mentioned, and I look forward to continuing to work with the Chairman to further improve the bill in the next Congress with the hope of enacting it next year. I believe this committee also needs to write an authorization bill for NOAA's programs. There are a number of issues we should be addressing in the context of authorizations for NOAA's programs.

Adoption of the Ocean Commission's recommendations to increase ocean research programs and to expand ocean exploration and observations will require substantial new resources for NOAA. The recent hurricanes and the associated storm surge and rainfall events that accompanied them have once again demonstrated the need to improve NOAA's inland flood forecasting ability. There are other examples. I am sure the Chairman and the other Members of this committee could add to the list as well.

We have a great deal of work to do to ensure that NOAA has the resources and authorities it needs to meet its statutory responsibilities and to accomplish its resource management and public safety missions. This bill makes a very good start for what I anticipate will be a full agenda for this committee in the next Congress.

Mr. Chairman, with that, I would yield back any time I have remaining and look forward to the markup.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Good afternoon. I'd like to thank the Chairman for beginning the work to provide the National Oceanic and Atmospheric Administration with an organic act.

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We have a great deal of work to do to ensure that NOAA has the resources and authorities it needs to meet its statutory responsibilities and to accomplish its resource management and public safety missions. This bill makes a good start on what I anticipate will be a full agenda for this committee in the next Congress.

Chairman EHLERS. Without objection, all Members may place opening statements in the record at this time. So ordered.

[The prepared statement of Mr. Miller follows:]

PREPARED STATEMENT OF REPRESENTATIVE BRAD MILLER

Mr. Chairman, I thank you for incorporating my amendment into H.R. 4546 with this substitute amendment.

My amendment explicitly states NOAA's role in understanding and predicting changes in the Earth's hydrologic systems. In layman's terms, the hydrologic cycle is the water cycle. Water moves from the land, oceans, lakes and streams and is returned in precipitation events. NOAA's role in understanding climatic events, drought cycles and changes in rain and snowfall patterns all require an understanding of the hydrologic cycle.

NOAA's ability to better predict inland flooding due to stone surge and heavy rainfall associated with hurricanes and other extreme weather events rests on their ability to better understand hydrologic systems.

The Committee passed a bill in the last Congress sponsored by my colleague, Bob Etheridge, to improve forecasting of inland flooding. The Inland Flood Forecasting and Warning System Act directed NOAA to devote resources to improving their capabilities for forecasting inland floods.

The people of North Carolina are all too familiar with the dangers and destruction of inland flooding. Hurricane Floyd in 1999 caused 48 deaths in North Carolina primarily through inland flooding associated with this storm. Unfortunately, we are experiencing another active hurricane season and again lives have been lost due to inland flooding.

Inland flood forecasting is a complex business because it requires not only an ability to predict precipitation, but the ability to predict overland flow, river and stream flow and in some areas, the effects of storm surge. By explicitly including hydrologic systems in this organic act we make clear the necessity of NOAA's participation through research and operations in furthering our understanding of the water cycle and applying that knowledge to NOAA's important public safety mission.

Thank you again, Mr. Chairman.

Chairman EHLERS. With—I ask unanimous consent that the bill be considered as read and open to amendment at any point and that the Members proceed with the amendments in the order of the roster. Without objection, so ordered.

[H.R. 4546 follows:]

I

108TH CONGRESS
2D SESSION

H. R. 4546

To provide for the National Oceanic and Atmospheric Administration, to authorize appropriations for the National Oceanic and Atmospheric Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 14, 2004

Mr. EHLERS introduced the following bill; which was referred to the Committee on Science, and in addition to the Committee on Resources, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To provide for the National Oceanic and Atmospheric Administration, to authorize appropriations for the National Oceanic and Atmospheric Administration, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

TITLE I—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEC. 101. SHORT TITLE.

This title may be cited as the "National Oceanic and Atmospheric Administration Act".

SEC. 102. DEFINITIONS.

In this title:

(1) The term "Administration" means the National Oceanic and Atmospheric Administration.

(2) The term "Secretary" means the Secretary of Commerce.

(3) The term "Administrator" means the Administrator of the National Oceanic and Atmospheric Administration.

SEC. 103. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

(a) IN GENERAL.—There shall be in the Department of Commerce an agency known as the National Oceanic and Atmospheric Administration.

(b) MISSION.—The mission of the Administration is to understand and predict changes in the Earth's ocean and atmosphere and the effects of such changes on the land environment, to conserve and manage coastal, ocean, and Great Lakes ecosystems to meet national economic,

social, and environmental needs, and to educate the public about these topics.

(c) FUNCTIONS.—The functions of the Administration shall include—

(1) collecting, through observation and other means, communicating, analyzing, processing, providing, and disseminating comprehensive scientific data and information about weather and climate, solar and geophysical events on the Sun and in the space environment, and about the coasts, oceans, Great Lakes, and upper reaches of estuaries;

(2) operating and maintaining a system for the storage, retrieval, and dissemination of data relating to weather and climate, solar and geophysical events on the Sun and in the space environment, and about the coasts, oceans, Great Lakes, and upper reaches of estuaries;

(3) conducting and supporting basic and applied research and development of technology as may be necessary to carry out the functions described in this subsection;

(4) issuing weather, water, climate, and space weather forecasts and warnings;

(5) coordinating efforts of Federal agencies in support of national and international programs with respect to meteorological services;

(6) coordinating weather research activities of Federal agencies, as provided by law;

(7) understanding the science of Earth's climate and related systems, and undertaking research, development, and demonstration to enhance society's ability to plan and respond to climate variability and change;

(8) protecting, restoring, and managing the use of the coasts, oceans, and Great Lakes through ecosystem-based research, development, demonstration, and management;

(9) coordinating efforts of Federal agencies in support of national and international programs with respect to integrated Earth observing systems;

(10) administering public outreach and education programs and services to increase scientific and environmental literacy about weather and climate, solar and geophysical events on the Sun and in the space environment, and the coasts, oceans, Great Lakes, and upper reaches of estuaries;

(11) cooperating, in consultation with the Secretary of State, with international organizations and

scientists in bilateral and multilateral research, development, conservation, and service programs related to coastal, ocean, and Great Lakes issues; and

(12) any other function assigned to the Administration by law.

SEC. 104. ADMINISTRATION LEADERSHIP.

(a) ADMINISTRATOR.—

(1) IN GENERAL.—There shall be, as the Administrator of the Administration, an Under Secretary of Commerce for Oceans and Atmosphere. The Administrator shall be appointed by the President, by and with the advice and consent of the Senate. The Administrator shall be paid at the rate of basic pay for level III of the Executive Schedule.

(2) FUNCTIONS.—The Administrator shall perform such functions and exercise such powers with respect to the Administration as the Secretary may prescribe, including—

(A) general management;

(B) policy development and guidance;

(C) budget formulation, guidance, and execution; and

(D) serving as the Department of Commerce official for all ocean and atmosphere issues with other elements of the Department of

Commerce and with other Federal agencies, State, tribal, and local governments, and the public.

(3) DELEGATION OF AUTHORITY.—The Administrator may, except as otherwise prohibited by law—

(A) delegate any functions, powers, or duties of the Administrator to such officers and employees of the Administration as the Administrator may designate; and

(B) authorize such successive redelegations of such functions, powers, or duties within the Administration as the Administrator considers necessary or appropriate.

(b) ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall be, as Deputy Administrator of the Administration, an Assistant Secretary of Commerce for Oceans and Atmosphere. The Assistant Secretary shall be appointed by the President, by and with the advice and consent of the Senate. The Assistant Secretary shall be the Administrator's first assistant for purposes of subchapter III of chapter 33 of title 5, United States Code. The

Assistant Secretary shall be paid at the rate of basic pay for level IV of the Executive Schedule.

(2) FUNCTIONS.—The Assistant Secretary shall perform such functions and exercise such powers as the Secretary or Administrator may prescribe and shall act as Administrator during the absence or disability of the Administrator or in the event of a vacancy in the office of Administrator.

(c) DEPUTY UNDER SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Under Secretary for Oceans and Atmosphere. The Deputy Under Secretary shall be appointed by the Secretary. The position of Deputy Under Secretary shall be a Senior Executive Service position authorized under section 3133 of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Under Secretary—

(A) shall serve as an advisor to the Administrator on all program and policy issues;

(B) shall ensure the timely and effective implementation of Administration policies and objectives;

(C) in the absence or disability of the Assistant Secretary, or in the event of a vacancy in such position, shall act in that position; and

(D) shall perform such other duties as the Secretary or Administrator shall prescribe.

(d) DEPUTY ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Assistant Secretary for Oceans and Atmosphere. The Deputy Assistant Secretary for Oceans and Atmosphere shall be appointed by the Secretary. The position of Deputy Assistant Secretary for Oceans and Atmosphere shall be a Senior Executive Service position authorized under section 3133 of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Assistant Secretary for Oceans and Atmosphere—

(A) shall serve as an advisor to the Administrator on program and policy issues related to environmental policy, strategic planning, and program analysis;

(B) shall ensure the timely and effective implementation of Administration policies and objectives related to environmental policy, strategic planning, and program analysis; and

(C) shall perform such other duties as the Secretary or Administrator shall prescribe.

(e) DEPUTY ASSISTANT SECRETARY FOR INTERNATIONAL AFFAIRS.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Assistant Secretary for International Affairs. The Deputy Assistant Secretary for International Affairs shall be appointed by the Secretary. The position of Deputy Assistant Secretary for International Affairs shall be a Senior Executive Service position authorized under section 3133 of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Assistant Secretary for International Affairs—

(A) shall serve as an advisor to the Administrator on program and policy issues related to coordination of United States policy with respect to international oceanic and atmospheric matters, and shall focus on international environmental issues critical to the United States;

(B) shall participate in international negotiations concerning oceanic and atmospheric matters; and

(C) shall perform such other duties as the Secretary or Administrator shall prescribe.

(f) DEPUTY ASSISTANT SECRETARY FOR SCIENCE AND TECHNOLOGY.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Assistant Secretary for Science and Technology, who shall coordinate and oversee the science and technology activities of the Administration and ensure that Administration decisions are informed by the results of appropriate and relevant research. The Deputy Assistant Secretary for Science and Technology shall be appointed by the Secretary. The position of Deputy Assistant Secretary for Science and Technology shall be a Senior Executive Service career reserved position as defined in section 3132(a)(8) of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Assistant Secretary for Science and Technology shall—

(A) coordinate research and development activities across the Administration, including coordination of research and development budgets;

(B) advise the Administrator on how programs can be transitioned from research to operational use;

(C) provide advice to the Administrator regarding science and technology issues and their

relationship to Administration policies, procedures, and decisions;

(D) participate in developing the Administration's strategic plans and policies and review the science and technology aspects of those plans and policies;

(E) develop and oversee guidelines for the dissemination of research and development results conducted, sponsored, or cited by the Administration to the public;

(F) develop and oversee guidelines for peer review of science and technology research sponsored by the Administration;

(G) oversee implementation of the strategic plan for science and technology research, development, and demonstration required under section 109(b);

(H) oversee management of research laboratories in the Administration; and

(I) perform such other duties as the Secretary or Administrator shall prescribe.

(3) QUALIFICATIONS.—An individual appointed under paragraph (1) shall be a person who has an outstanding science and technology background, in-

cluding research accomplishments, scientific reputation, and public policy experience.

(4) CONSULTATION.—Before appointing an individual under paragraph (1), the Secretary shall consult with the National Academy of Sciences, the Science Advisory Board of the Administration, and other appropriate scientific organizations.

(g) GENERAL COUNSEL.—

(1) IN GENERAL.—There shall be in the Administration a General Counsel. The General Counsel shall be appointed by the Secretary. The General Counsel shall be paid at the rate of basic pay for level V of the Executive Schedule.

(2) FUNCTIONS.—The General Counsel—

(A) shall serve as the chief legal officer of the Administration for all legal matters that arise in connection with the conduct of the functions of the Administration; and

(B) shall perform such other functions and exercise such powers as the Secretary or Administrator may prescribe.

(h) CONTINUATION OF SERVICE.—Any individual serving on the date of enactment of this Act in a position provided for in this Act may continue to serve in that position until a successor is appointed under this Act. Nothing

in this title shall be construed to require the appointment of a successor under this Act sooner than would have been required under law as in effect before the date of enactment of this Act.

SEC. 105. NATIONAL WEATHER SERVICE.

(a) IN GENERAL.—The Secretary shall maintain within the Administration a National Weather Service.

(b) MISSION.—The mission of the National Weather Service is to provide weather, water, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy.

(c) GOALS.—The goals of the National Weather Service shall include—

(1) to provide timely and accurate weather, water, climate, and space weather forecasts; and

(2) to provide timely and accurate warnings of weather, water, and climate natural hazards, and of space weather hazards.

(d) FUNCTIONS.—The functions of the National Weather Service shall include—

(1) maintaining a network of regional and local weather forecast offices;

(2) maintaining a network of observation systems to collect weather and climate data;

(3) operating national centers to deliver guidance, forecasts, warnings, and analysis about weather, water, climate, and space weather phenomena for the Administration and the public;

(4) conducting and supporting applied research to facilitate the rapid incorporation of weather and climate science advances into operational tools; and

(5) such other functions to serve the mission of the National Weather Service as the Administrator may prescribe.

(e) PUBLIC-PRIVATE PARTNERSHIPS.—Not less than once every 5 years, the Secretary shall develop and submit to Congress a policy the defines processes for making decisions about the roles of the National Weather Service and the private sector in providing weather and climate related products, technologies, and services. The first such policy shall be completed not less than 12 months after the date of enactment of this Act. At least 90 days before submitting the policy to Congress, the Secretary shall publish the policy in the Federal Register for a public comment periods of not less than 60 days.

SEC. 106. OPERATIONS AND SERVICES.

(a) IN GENERAL.—The Secretary shall maintain within the Administration operational and service programs to support routine data collection and direct serv-

ices and products regarding satellite, observations, and coastal, ocean, and Great Lakes information.

(b) FUNCTIONS.—To support the mission described in section 102(b), and in addition to the functions described in section 102(c), the operations and service functions of the Administration shall include—

(1) acquiring, managing, and operating coastal, ocean, and Great Lakes observing systems;

(2) ensuring the availability of a global Earth-observing system, integrating remote sensing and in situ assets that provide critical data needed to support the mission of the Administration, and providing that data to decisionmakers and the public;

(3) developing, acquiring, and managing operational environmental satellite constellations and associated ground control and data acquisition facilities to support the mission of the Administration;

(4) managing and distributing atmospheric, geophysical, and marine data and data products for the Administration through national environmental data centers;

(5) providing for long-term stewardship of environmental data, products, and information via data processing, storage, and archive facilities;

(6) promoting widespread availability of environmental data and information through full and open access and exchange to the greatest extent possible;

(7) issuing licenses for private remote sensing space systems under the Land Remote Sensing Policy Act of 1992;

(8) administering a national water level observation network, which shall include monitoring of the Great Lakes;

(9) providing charts and other information for safe navigation of the oceans and inland waters, as provided by law; and

(10) such other functions to serve the operations and services mission of the Administration as the Administrator may prescribe.

SEC. 107. RESEARCH AND EDUCATION.

(a) IN GENERAL.—The Secretary shall maintain within the Administration programs to conduct and support research and education and the development of technologies relating to weather, climate, and the coasts, oceans, and Great Lakes.

(b) FUNCTIONS.—To support the mission described in section 102(b), and in addition to the functions de-

scribed in section 102(c), the research and education functions of the Administration shall include—

(1) conducting and supporting research and development of technology to improve the Administration's capabilities in collecting, through observation and otherwise, communicating, analyzing, processing, providing, and disseminating comprehensive scientific data and information about weather, climate, and the coasts, oceans, and Great Lakes;

(2) improving environmental prediction and management capabilities through ecosystem-based research and development;

(3) improving knowledge of Earth's climate and related systems through research and observation for decision support;

(4) reducing uncertainty in projections of how the Earth's climate and related systems may change in the future;

(5) fostering the public's ability to understand and integrate scientific information into considerations of national environmental issues through education and public outreach activities;

(6) administering the National Sea Grant College Program Act;

(7) conducting and supporting research and development of technology for exploration of the oceans;

(8) maintaining a system of laboratories to perform the functions described in this subsection;

(9) supporting extramural peer-reviewed competitive grant programs to assist the Administration in performing the functions described in this subsection; and

(10) such other functions to serve the research and education mission of the Administration as the Administrator may prescribe.

SEC. 108. SCIENCE ADVISORY BOARD.

(a) IN GENERAL.—There shall be within the Administration a Science Advisory Board, which shall provide such scientific advice as may be requested by the Administrator, the Committee on Commerce, Science and Transportation of the Senate, or the Committee on Science or on Resources of the House of Representatives.

(b) PURPOSE.—The purpose of the Science Advisory Board is to advise the Administrator and Congress on long-range and short-range strategies for research, education, and the application of science to resource management and environmental assessment and prediction.

(c) MEMBERS.—

(1) IN GENERAL.—The Science Advisory Board shall consist of not more than 15 members appointed by the Administrator to ensure a balanced representation among preeminent scientists, engineers, educators, industry, and science policy experts reflecting the full breadth of the Administration's areas of responsibility.

(2) TERMS OF SERVICE.—Members shall be appointed for 3-year terms, renewable once, and shall serve at the discretion of the Administrator. An individual serving a term as a member of the Science Advisory Board on the date of enactment of this Act may complete that term, and may be reappointed once for another term of 3 years unless the term being served on such date of enactment is the second term served by that individual. Vacancy appointments shall be for the remainder of the unexpired term of the vacancy, and an individual so appointed may subsequently be appointed for 2 full 3-year terms if the remainder of the unexpired term is less than one year.

(3) CHAIRPERSON.—The Administrator shall designate a chairperson from among the members of the Board.

(4) APPOINTMENT.—Members of the Science Advisory Board shall be appointed as special Government employees, within the meaning given such term in section 202(a) of title 18, United States Code.

(5) CRITERIA FOR SELECTION.—The Administrator shall develop and apply standard criteria, in accordance with applicable Department of Commerce guidance, for the selection of members of the Science Advisory Board.

(d) ADMINISTRATIVE PROVISIONS.—

(1) REPORTING.—The Science Advisory Board shall report to the Administrator and the appropriate requesting party.

(2) ADMINISTRATIVE SUPPORT.—The Administrator shall provide administrative support to the Science Advisory Board.

(3) MEETINGS.—The Science Advisory Board shall meet at least twice each year, and at other times at the call of the Administrator or the Chairperson.

(4) COMPENSATION AND EXPENSES.—A member of the Science Advisory Board shall not be compensated for service on such board, but upon request by the member may be allowed travel expenses, in-

cluding per diem in lieu of subsistence, in accordance with subchapter I of chapter 57 of title 5, United States Code.

(5) SUBCOMMITTEES.—The Science Advisory Board may establish such subcommittees of its members as may be necessary. The Science Advisory Board may establish task forces and working groups consisting of Board members and outside experts as may be necessary.

(e) EXPIRATION.—Section 14 of the Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the Science Advisory Board.

SEC. 109. REPORTS.

(a) REPORT ON DATA MANAGEMENT, ARCHIVAL, AND DISTRIBUTION.—Not later than 1 year after the date of enactment of this Act the Secretary shall develop and transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives a report on the environmental data and information systems of the Administration. The report shall include—

(1) an assessment of the adequacy of the environmental data and information systems of the Administration to—

(A) provide adequate capacity to manage, archive and disseminate environmental information collected and processed, or expected to be collected and processed, by the Administration and other appropriate departments and agencies;

(B) establish, develop, and maintain information bases, including necessary management systems, which will provide for consistent, efficient, and compatible transfer and use of data;

(C) develop effective interfaces among the environmental data and information systems of the Administration and other appropriate departments and agencies;

(D) develop and use nationally accepted formats and standards for data collected by various national and international sources; and

(E) integrate and interpret data from different sources to produce information that can be used by decisionmakers in developing policies that effectively respond to national and global environmental concerns; and

(2) a strategic plan to—

(A) set forth modernization and improvement objectives for an integrated national envi-

ronmental data access and archive system for the 10 year period beginning with the year in which the plan is transmitted, including facility requirements and critical new technology components that would be necessary to meet the objectives set forth;

(B) propose specific Administration programs and activities for implementing the plan;

(C) identify the data and information management, archival, and distribution responsibilities of the Administration with respect to other Federal departments and agencies and international organizations; and

(D) provide an implementation schedule and estimate funding levels necessary to achieve modernization and improvement objectives.

(b) STRATEGIC PLAN FOR SCIENTIFIC RESEARCH.—Not later than 1 year after the date of enactment of this Act the Secretary shall develop and transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives a strategic plan for science and technology research, development, and demonstration at the Administration. The plan shall include an assessment of the science and technology needs of the Administration

and a strategic plan for coordinating research, development, and demonstration activities across the Administration to effectively meet those needs.

SEC. 110. EFFECT OF REORGANIZATION PLAN.

Reorganization Plan No. 4 of 1970 shall have no further force and effect.

TITLE II—AUTHORIZATION OF APPROPRIATIONS

SEC. 201. SHORT TITLE.

This title may be cited as the "National Oceanic and Atmospheric Administration Authorization Act of 2004"

SEC. 202. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Administrator—

(1) for Program Support—

(A) $300,000,000 for fiscal year 2005;

(B) $306,000,000 for fiscal year 2006; and

(C) $312,000,000 for fiscal year 2007;

(2) for the National Ocean Service—

(A) $490,000,000 for fiscal year 2005;

(B) $500,000,000 for fiscal year 2006; and

(C) $510,000,000 for fiscal year 2007;

(3) for the Office of Oceanic and Atmospheric Research—

(A) $414,000,000 for fiscal year 2005;

(B) $422,000,000 for fiscal year 2006; and

(C) $430,000,000 for fiscal year 2007;

(4) for the National Weather Service—

(A) $836,000,000 for fiscal year 2005;

(B) $853,000,000 for fiscal year 2006; and

(C) $870,000,000 for fiscal year 2007;

(5) for the National Environmental Satellite Data and Information Service—

(A) $897,000,000 for fiscal year 2005;

(B) $915,000,000 for fiscal year 2006; and

(C) $933,000,000 for fiscal year 2007; and

(6) for the Office of Program Planning and Integration—

(A) $2,000,000 for fiscal year 2005;

(B) $2,000,000 for fiscal year 2006; and

(C) $2,000,000 for fiscal year 2007.

TITLE III—COASTAL OCEAN SCIENCE PROGRAM

SEC. 1. SHORT TITLE.

This title may be cited as the "Coastal Ocean Science Program Act of 2004".

SEC. 2. COASTAL OCEAN SCIENCE PROGRAM.

Section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992 is amended to read as follows:

"(c) COASTAL OCEAN SCIENCE PROGRAM.—

"(1) IN GENERAL.—There shall be in the National Oceanic and Atmospheric Administration a Coastal Ocean Science Program that supports Great Lakes, estuarine, and coastal ocean research and assessment through competitive, peer-reviewed research programs.

"(2) PROGRAM ELEMENTS.—The Coastal Ocean Science Program shall augment and integrate existing research capabilities of the National Oceanic and Atmospheric Administration, other Federal agencies, and the academic community. Research shall be conducted to improve predictions of ecosystem trends in coastal, ocean, and Great Lakes ecosystems, and upper reaches of estuaries; to better conserve and manage coastal, ocean, and Great Lakes ecosystems; to improve predictions of effects of coastal and Great Lakes pollution to help correct and prevent environmental degradation; to improve understanding and characterization of the role oceans play in global climate and environmental analysis; and to improve predictions of coastal hazards to protect human life, personal property, and ecosystem function.

"(3) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Commerce for implementing the Coastal Ocean Science Program such sums as may be necessary for each of fiscal years 2005 through 2008.".

TITLE IV—MARINE RESEARCH

SEC. 401. SHORT TITLE.

This title may be cited as the "Marine Research Act".

SEC. 402. PURPOSES.

The purposes of this title are to provide for—

(1) Presidential support and coordination of interagency marine research programs; and

(2) development and coordination of a comprehensive and integrated United States ocean, coastal, and Great Lakes research and monitoring program that will assist this Nation and the world to understand, use, and respond to the interactions of humans and the marine environment.

SEC. 403. INTERAGENCY MARINE RESEARCH PROGRAM.

(a) COORDINATION.—The President, through the National Science and Technology Council, shall coordinate and support a national research program to improve understanding of the interactions of humans and the marine environment.

(b) IMPLEMENTATION PLAN.—Within 1 year after the date of enactment of this Act, the National Science and Technology Council, through the Director of the Office of Science and Technology Policy, shall develop and submit to the Congress a plan for coordinated Federal activities under the program. Nothing in this subsection is intended to duplicate or supersede the activities of the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia established under section 603 of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note). In developing the plan, the National Science and Technology Council shall consult with the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia. Such plan shall build on and complement the ongoing activities of the National Oceanic and Atmospheric Administration, the National Science Foundation, and other departments and agencies, and shall—

(1) establish, for the 10-year period beginning in the year it is submitted, the goals and priorities for Federal research which most effectively advance scientific understanding of the connections between humans and the marine environment, provide usable information for the protection of human life, and use the biological potential of the oceans for development of new products;

(2) describe specific activities required to achieve such goals and priorities, including the funding of competitive research grants, ocean and coastal observations, training and support for scientists, and participation in international research efforts;

(3) identify and address, as appropriate, relevant programs and activities of the Federal agencies and departments that would contribute to the program;

(4) consider and use, as appropriate, reports and studies conducted by Federal agencies and departments, the National Research Council, the Ocean Research Advisory Panel, the Commission on Ocean Policy, and other expert scientific bodies; and

(5) estimate Federal funding for research activities to be conducted under the program.

(c) PROGRAM SCOPE.—The program may include the following activities related to the interaction of humans and the marine environment:

(1) Interdisciplinary research among the ocean and biological sciences, and coordinated research and activities to improve understanding of processes within the ocean that may affect human life and to explore the potential contribution of marine organisms to medicine and research.

(2) Coordination with the National Ocean Research Leadership Council (10 U.S.C. 7902(a)) to ensure that any integrated ocean and coastal observing system provides information necessary to support the program described in this section, including detection of contaminants in marine waters and seafood.

(3) Development through partnerships among Federal agencies, States, or academic institutions of new technologies and approaches for detecting and reducing hazards to human life from ocean sources and to strengthen understanding of the value of marine biodiversity.

(4) Support for scholars, trainees, and education opportunities that encourage an interdisciplinary and international approach to exploring the diversity of life in the oceans.

SEC. 404. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION MARINE RESEARCH INITIATIVE.

(a) ESTABLISHMENT.—As part of the interagency program planned and coordinated under section 403, the Secretary of Commerce is authorized to establish a Marine Research Initiative to coordinate and implement research and activities of the National Oceanic and Atmospheric

Administration related to the program. The Marine Research Initiative is authorized to provide support for—

(1) centralized program and research coordination;

(2) one or more National Oceanic and Atmospheric Administration national centers of excellence;

(3) research grants; and

(4) distinguished scholars and traineeships.

(b) NATIONAL CENTERS.—(1) The Secretary is authorized to identify and provide financial support for, through a competitive process to develop within the National Oceanic and Atmospheric Administration, one or more centers of excellence that strengthen the capabilities of the National Oceanic and Atmospheric Administration to carry out its programs and activities related to the Marine Research Initiative.

(2) The center or centers shall focus on areas related to agency missions, including use of marine organisms as indicators for marine environmental health, ocean pollutants, marine toxins and pathogens, harmful algal blooms, hypoxia, seafood testing, and biology and pathobiology of marine mammals, and on disciplines including marine genomics, marine environmental microbiology, and ecological chemistry.

(3) In selecting centers for funding, the Secretary shall give priority to proposals with strong interdisciplinary scientific merit that encourage educational opportunities and provide for effective partnerships among the National Oceanic and Atmospheric Administration, other Federal entities, and State, academic, and industry participants.

(e) EXTRAMURAL RESEARCH GRANTS.—(1) The Secretary is authorized to provide grants of financial assistance to the scientific community for critical research and projects that explore the interaction of humans and the marine environment and that complement or strengthen programs and activities of the National Oceanic and Atmospheric Administration. Officers and employees of Federal agencies may collaborate with, and participate in, such research and projects to the extent requested by the grant recipient.

(2) Grants under this subsection shall be awarded through a competitive peer-reviewed process that may be conducted jointly with other agencies participating in the interagency program established in section 403.

(d) DISTINGUISHED SCHOLARS AND TRAINEESHIPS.—(1) The Secretary of Commerce is authorized to designate and provide financial assistance to support distinguished scholars from academic institutions,

industry, State governments, or other Federal agencies for collaborative work with National Oceanic and Atmospheric Administration scientists and facilities.

(2) The Secretary of Commerce is authorized to establish a program to provide traineeships, training, and experience to predoctoral and postdoctoral students and to scientists at the beginning of their careers who are interested in research on the interaction of humans and the marine environment conducted under the National Oceanic and Atmospheric Administration initiative.

SEC. 405. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of Commerce to carry out the National Oceanic and Atmospheric Administration Marine Research Initiative established under section 404, $8,000,000 for each of fiscal years 2005 through 2008. Not less than 50 percent of the amounts appropriated to carry out the Initiative for each fiscal year shall be utilized to support the programs described in subsections (c) and (d) of section 404.

TITLE V—OCEAN AND COASTAL OBSERVATION SYSTEMS

SEC. 501. SHORT TITLE.

This title may be cited as the "Ocean and Coastal Observation Systems Act".

SEC. 502. PURPOSES.

The purposes of this title are to provide for—

(1) development and maintenance of an integrated system that provides for sustained ocean and coastal observations from in situ, remote, and vessel platforms, and that promotes improved comprehensive scientific data and information about the ocean and coastal environment; and

(2) implementation of a data and information system required by all components of an integrated ocean and coastal observing system and related research.

SEC. 503. INTEGRATED OCEAN AND COASTAL OBSERVING SYSTEM.

(a) ESTABLISHMENT.—The President, through the National Oceanic and Atmospheric Administration, shall establish and maintain an integrated system of marine monitoring, data communication and management, data analysis, and research designed to provide data and information for the rapid and timely detection and prediction of changes occurring in the ocean and coastal environment that impact the Nation's social, economic, and ecological systems. Such an integrated ocean and coastal observing system shall provide for long-term and continuous observations of the oceans and coasts for the following purposes:

(1) Improving weather forecasts and public warnings of natural disasters and coastal hazards and mitigating such disasters and hazards.

(2) Understanding, assessing, and responding to human-induced and natural processes of global change.

(3) Conducting focused research to enhance the national understanding of coastal and global ocean systems.

(4) Providing information that contributes to public awareness of the condition and importance of the oceans.

(b) FUNCTIONS.—In carrying out responsibilities under this section, the National Oceanic and Atmospheric Administration shall—

(1) serve as the lead entity providing oversight of Federal ocean and coastal observing requirements and activities;

(2) adopt and maintain plans for the design, operation, and improvement of such system;

(3) coordinate and administer a program of research and development to support the operation of an integrated ocean and coastal observing system and advance the understanding of the oceans;

(4) establish a joint operations center to be maintained in conjunction with other Federal agencies;

(5) provide, as appropriate, support for and representation on United States delegations to international meetings on ocean and coastal observing programs and in consultation with the Secretary of State to coordinate relevant Federal activities with those of other nations;

(6) promote collaboration among regional coastal observing systems established pursuant to subsection (d);

(7) prepare annual and long-term plans for the design and implementation of an integrated ocean and coastal observing system, including the regional coastal observing systems and taking into account the science and technology advances considered ready for operational status;

(8) identify requirements for a common set of measurements to be collected and distributed;

(9) establish standards and protocols for quality control and data management and communications, in consultation with the Joint Operations Center established pursuant to subsection (c); and

(10) work with regional coastal observing entities, the National Sea Grant College Program, and other bodies as needed to assess user needs, develop data products, make effective use of existing capabilities, and incorporate new technologies, as appropriate.

(c) JOINT OPERATIONS CENTER.—The Administrator of the National Oceanic and Atmospheric Administration, in conjunction with the Administrator of the National Aeronautics and Space Administration, the Director of the National Science Foundation, the Under Secretary for Science and Technology of the Department of Homeland Security, and any other Federal agent the President considers appropriate, shall operate and maintain a joint operations center—

(1) to acquire, integrate, and deploy required technologies and provide support for an ocean and coastal observing system based on annual long-term plans, developed by the National Oceanic and Atmospheric Administration;

(2) to implement standards and protocols for quality control and data management and communications;

(3) to migrate science and technology advancements from research and development to operational

deployment based on the annual and long-term plans;

(4) to integrate and extend existing programs into an operating ocean and coastal observing system based on the annual and long-term plans;

(5) to coordinate the data communication and management system; and

(6) to certify that regional coastal observing systems meet the standards established in subsection (d) and to ensure a periodic process for review and recertification of the regional coastal observing systems.

(d) REGIONAL COASTAL OBSERVING SYSTEMS.—

(1) IN GENERAL.—The Administrator of the National Oceanic and Atmospheric Administration, through the Joint Operations Center, shall work with representatives of entities in each region that provide ocean data and information to users to form regional associations. The regional associations shall be responsible for the development and operation of observing systems in the coastal regions extending to the seaward boundary of the United States Exclusive Economic Zone, including the Great Lakes. Participation in a regional association may consist of legal entities, including research institutions, institu-

tions of higher learning, for-profit corporations, nonprofit corporations, State, local, and regional agencies, and consortia of 2 or more such institutions or organizations, that—

(A) have demonstrated an organizational structure capable of supporting and integrating all aspects of a coastal ocean observing system within a region or subregion; and

(B) have prepared an acceptable business plan, including research components, and gained documented acceptance of their intended regional or subregional jurisdiction by users and other parties of interest within the region or subregion with the objectives of—

(i) delivering an integrated and sustained system that meets national goals;

(ii) incorporating into the system existing and appropriate regional observations collected by Federal, State, regional, or local agencies;

(iii) responding to the needs of the users, including the public, within the region;

(iv) maintaining sustained, 24-hour-a-day operations and disseminating observa-

tions in a manner that is routine, predictable and, if necessary, in real-time or near real-time;

(v) providing services that include the collection and dissemination of data and data management for timely access to data and information;

(vi) creating appropriate products that are delivered in a timely fashion to the public and others who use, or are affected by, the oceans;

(vii) providing free and open access to the data collected with financial assistance under this title; and

(viii) adhering to national standards and protocols to ensure that data and related products can be fully exchanged among all of the regional coastal systems and will be accessible to any user in any part of the Nation.

(2) CIVIL LIABILITY.—For purposes of determining the civil liability under section 2671 of title 28, United States Code, any regional observing system and any employee thereof that is designated part of a regional association under this subsection

shall be deemed to be an instrumentality of the United States with respect to any act or omission committed by any such system or any employee thereof in fulfilling the purposes of this title.

(e) PILOT PROJECTS.—

(1) IN GENERAL.—The Administrator, in consultation with the Joint Operations Center, may initiate pilot projects. A pilot project is an organized, planned set of activities designed to provide an evaluation of technology, methods, or concepts within a defined schedule and having the goal of advancing the development of the sustained, integrated ocean observing system. The pilot projects shall—

(A) develop protocols for coordinated implementation of the full system;

(B) design and implement regional coastal ocean observing systems;

(C) establish mechanisms for the exchange of data between and among regions and Federal agencies;

(D) specify products and services and related requirements for observations, data management, and analysis in collaboration with user groups; and

(E) develop and test new technologies and techniques to more effectively meet the needs of users of the system.

(2) INFRASTRUCTURE CAPITAL PROJECTS.—The pilot projects shall include one or more projects to capitalize the infrastructure for the collection, management, analysis, and distribution of data and one or more projects where the basic infrastructure and institutional mechanisms already exist for ongoing coastal observations, to fund the operations necessary for the collection of the common set of observations.

SEC. 504. INTERAGENCY FINANCING.

The departments and agencies represented on the joint operations center are authorized to participate in interagency financing and share, transfer, receive, and spend funds appropriated to any member of the joint operations center for the purposes of carrying out any administrative or programmatic project or activity under this title.

SEC. 505. GREAT LAKES.

Provisions of this title relating to ocean and coastal areas shall also apply to the Great Lakes.

SEC. 506. AUTHORIZATION OF APPROPRIATIONS.

(a) OBSERVING SYSTEM AUTHORIZATION.—For development and implementation of an integrated ocean and

coastal observing system under section 503, including financial assistance to regional coastal ocean observing systems and in addition to any amounts previously authorized, there are authorized to be appropriated to—

(1) the National Oceanic and Atmospheric Administration, such sums as may be necessary;

(2) the National Science Foundation, such sums as may be necessary;

(3) the National Aeronautics and Space Administration, such sums as may be necessary; and

(4) other Federal agencies with operational coastal or ocean monitoring systems or which provide funds to States for such systems, such sums as may be necessary.

(b) REGIONAL COASTAL OBSERVING SYSTEMS.—The Administrator of the National Oceanic and Atmospheric Administration shall make at least 51 percent of the funds appropriated pursuant to subsection (a)(1) available as grants for the development and implementation of the regional coastal observing systems based on the plans adopted by the Council, which may be used to leverage non-Federal funds.

TITLE VI—ABRUPT CLIMATE CHANGE

SEC. 601. SHORT TITLE.

This title may be cited as the "Abrupt Climate Change Research Act of 2004".

SEC. 602. ABRUPT CLIMATE CHANGE RESEARCH PROGRAM.

(a) ESTABLISHMENT OF PROGRAM.—The Secretary of Commerce shall establish within the National Oceanic and Atmospheric Administration, and shall carry out, a program of scientific research on abrupt climate change.

(b) PURPOSES OF PROGRAM.—The purposes of the program are as follows:

(1) To develop a global array of terrestrial and oceanographic indicators of paleoclimate in order to sufficiently identify and describe past instances of abrupt climate change.

(2) To improve understanding of thresholds and nonlinearities in geophysical systems related to the mechanisms of abrupt climate change.

(3) To incorporate such mechanisms into advanced geophysical models of climate change.

(4) To test the output of such models against an improved global array of records of past abrupt climate changes.

(c) ABRUPT CLIMATE CHANGE DEFINED.—In this section, the term "abrupt climate change" means a change in the climate that occurs so rapidly or unexpectedly that human or natural systems have difficulty adapting to the climate as changed.

SEC. 603. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of Commerce for such sums as may be necessary to carry out the research program required under section 602.

TITLE VII—UNITED STATES WEATHER RESEARCH PROGRAM

SEC. 701. SHORT TITLE.

This title may be cited as the "United States Weather Research Program Act of 2004".

SEC. 702. PROGRAM FOCUS.

The focus of the United States Weather Research Program, an interagency program established under section 108 of the National Oceanic and Atmospheric Administration Authorization Act of 1992 (15 U.S.C. 313 note), shall be on—

(1) hurricanes, floods, and heavy precipitation, including both snow and rain;

(2) building on existing investments, including those of the National Weather Service modernization

effort, to dramatically accelerate improvement in weather forecasts;

(3) providing attention and resources in areas where progress can be made quickly and where the impact will be greatest;

(4) establishing goals that can be attained by leveraging the resources of several agencies and through the collaborative scientific efforts of the operational and research communities in academia and government; and

(5) making research grants to universities and other research institutions.

SEC. 703. PROGRAM RESEARCH PRIORITIES.

The research priorities of the United States Weather Research Program shall be in the areas of—

(1) hurricanes, to improve—

(A) landfall location forecasts; and

(B) forecasts of hurricane strength;

(2) heavy precipitation, to improve forecasts of both winter storms and rain storms through better prediction of timing, location, and intensity;

(3) floods, to improve—

(A) flood forecasting by coupling precipitation forecasts with hydrologic prediction; and

(B) forecasting and warning systems for inland flooding related to tropical cyclones;

(4) two-to-fourteen day forecasting, to—

(A) improve short and medium range numerical weather predictions and warnings of high-impact weather events;

(B) conduct the Hemispheric Observing System Research and Predictability Experiment (THORpex) to fill observational gaps in the Northern Hemisphere; and

(C) test and evaluate advanced data assimilation techniques in global models;

(5) societal and economic impacts, to—

(A) identify methods of delivering weather information effectively and recommend ways to improve weather communications;

(B) assess social and economic impacts of adverse weather ranging from disastrous to routine;

(C) evaluate what weather information is most useful to public and private decision makers; and

(D) providing for research on societal and economic impact to ensure a connection be-

tween weather research and improvement of the human condition; and

(6) testing research concepts in an environment identical to those used by operational meteorologists, to enable technology transfer to those operational meteorologists.

SEC. 704. INTERAGENCY PLANNING AND PROCESS.

The National Oceanic and Atmospheric Administration, as the lead agency of the United States Weather Research Program, shall coordinate and consult with the National Science Foundation, the National Aeronautics and Space Administration, other appropriate Federal agencies, and other appropriate entities to develop a five-year plan—

(1) describing how Federal agencies can best team with universities and other research institutions;

(2) identifying social, economic, and military needs and requirements for weather information, as well as defining the research required to meet these needs;

(3) outlining methods for dissemination of weather information to user communities; and

(4) describing best practices for transferring United States Weather Research Program research results to forecasting operations.

SEC. 705. REPORTING REQUIREMENTS.

Not later than one year after the date of the enactment of this Act, and every 5 years thereafter, the Administrator of the National Oceanic and Atmospheric Administration shall transmit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which shall include—

(1) the most recent five-year plan developed or updated under section 704, including the roles and funding to be provided by various Federal agencies in achieving the objectives of the plan;

(2) a justification of any changes to the plan since the last transmittal under this section; and

(3) a detailed assessment of the extent to which the objectives of the plan have been achieved.

SEC. 706. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Office of Atmospheric Research of the National Oceanic and Atmospheric Administration for carrying out this title such sums as may be necessary, of which at least 50 percent shall be for competitive, peer-reviewed grants to, or con-

tracts or cooperative agreements with, institutions of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)).

○

[The Section-by-Section Analysis of H.R. 4546 follows:]

SECTION-BY-SECTION ANALYSIS OF H.R. 4546, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACT

BACKGROUND

The National Oceanic and Atmospheric Administration (NOAA) was established by Executive Order in 1970. At that time Executive Reorganization Plans had the effect of law. 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 Undersecretary 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 Costal Observation Systems.

Section 501. Short Title.

The short title of this title is the "Ocean and Costal 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.

[The Amendment Roster follows:]

COMMITTEE ON SCIENCE

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS
September 29, 2004
AMENDMENT ROSTER

H.R. 4546, National Oceanic and Atmospheric Administration Act
--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended, to the Full Committee: agreed to by a voice vote.

No.	Sponsor	Description	Results
1.	Mr. Ehlers	Amendment in the Nature of A Substitute to H.R. 4546.	--Adopted by a voice vote.
2.	Mr. Udall	To establish a facility evaluation process for the reduction or expansion of NOAA facilities.	--Adopted by a voice vote.

The first amendment on the roster is an amendment in the nature of a substitute offered by the Chair.

I have an amendment at the desk, but at this time we will break, and when we return, the Clerk shall report the amendment, and we will proceed from that point.

The hearing stands in recess.

[Recess.]

Chairman EHLERS. The hearing will come to order. We were just about to ask the Clerk to report my amendment.

Ms. TESSIERI. Amendment in the nature of a substitute to H.R. 4546 offered by Mr. Ehlers of Michigan.

[The amendment offered by Mr. Ehlers follows:]

AMENDMENT IN THE NATURE OF A SUBSTITUTE

TO H.R. 4546

OFFERED BY MR. EHLERS OF MICHIGAN

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Oceanic and Atmospheric Administration Act".

SEC. 2. DEFINITIONS.

In this Act:

(1) The term "Administration" means the National Oceanic and Atmospheric Administration.

(2) The term "Administrator" means the Administrator of the National Oceanic and Atmospheric Administration.

(3) The term "Secretary" means the Secretary of Commerce.

SEC. 3. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

(a) IN GENERAL.—There shall be in the Department of Commerce an agency known as the National Oceanic and Atmospheric Administration.

(b) MISSION.—The mission of the Administration is to understand the systems of the Earth's oceans and atmosphere 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 to meet national economic, social, and environmental needs, and to educate the public about these topics.

(c) FUNCTIONS.—The functions of the Administration shall include—

(1) collecting, through observation and other means, communicating, analyzing, processing, and disseminating comprehensive scientific data and information about weather and climate, solar and geophysical events on the Sun and in the space environment, and about the coasts, oceans, Great Lakes, upper reaches of estuaries, and hydrologic systems;

(2) operating and maintaining a system for the storage, retrieval, and dissemination of data relating to weather and climate, solar and geophysical events on the Sun and in the space environment, and about the coasts, oceans, Great Lakes, upper reaches of estuaries, and hydrologic systems;

(3) conducting and supporting basic and applied research and development of technology as may

be necessary to carry out the mission described in subsection (b);

(4) issuing weather, water, climate, and space weather forecasts and warnings;

(5) coordinating efforts of Federal agencies in support of national and international programs with respect to meteorological services;

(6) understanding the science of Earth's climate and related systems, and undertaking research, development, and demonstration to enhance society's ability to plan for and respond to climate variability and change;

(7) protecting, restoring, and managing the use of the coasts, oceans, and Great Lakes through ecosystem-based research, development, demonstration, and management;

(8) coordinating efforts of Federal agencies in support of national and international programs with respect to integrated Earth observing systems;

(9) administering public outreach and education programs and services to increase scientific and environmental literacy about weather and climate, solar and geophysical events on the Sun and in the space environment, and the coasts, oceans, Great

Lakes, upper reaches of estuaries, and hydrologic systems;

(10) cooperating with international organizations and scientists in bilateral and multilateral research, development, conservation, and service programs related to coastal, ocean, Great Lakes, weather, and climate issues; and

(11) any other function assigned to the Administration by law.

SEC. 4. ADMINISTRATION LEADERSHIP.

(a) ADMINISTRATOR.—

(1) IN GENERAL.—There shall be, as the Administrator of the Administration, an Under Secretary of Commerce for Oceans and Atmosphere. The Administrator shall be appointed by the President, by and with the advice and consent of the Senate. The Administrator shall be paid at the rate of basic pay for level III of the Executive Schedule.

(2) FUNCTIONS.—The Administrator shall perform such functions and exercise such powers with respect to the Administration as the Secretary may prescribe, including—

(A) general management;

(B) policy development and guidance;

(C) budget formulation, guidance, and execution; and

(D) serving as the Department of Commerce official for all ocean and atmosphere issues with other elements of the Department of Commerce and with other Federal agencies, State, tribal, and local governments, and the public.

(3) DELEGATION OF AUTHORITY.—The Administrator may, except as otherwise prohibited by law—

(A) delegate any functions, powers, or duties of the Administrator to such officers and employees of the Administration as the Administrator may designate; and

(B) authorize such successive redelegations of such functions, powers, or duties within the Administration as the Administrator considers necessary or appropriate.

(4) AUTHORITIES.—The Administrator shall have the authority to enter into and perform such contracts, leases, grants, and cooperative agreements with Federal agencies, State and local governments, Indian tribes, international organizations, foreign governments, educational institutions, nonprofit or-

ganizations, and commercial organizations, as may be necessary and proper to carry out the Administration's functions under this Act or as otherwise provided by law.

(b) ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall be, as Deputy Administrator of the Administration, an Assistant Secretary of Commerce for Oceans and Atmosphere. The Assistant Secretary shall be appointed by the President, by and with the advice and consent of the Senate. The Assistant Secretary shall be the Administrator's first assistant for purposes of subchapter III of chapter 33 of title 5, United States Code. The Assistant Secretary shall be paid at the rate of basic pay for level IV of the Executive Schedule.

(2) FUNCTIONS.—The Assistant Secretary shall perform such functions and exercise such powers as the Secretary or Administrator may prescribe and shall act as Administrator during the absence or disability of the Administrator or in the event of a vacancy in the office of Administrator.

(c) DEPUTY UNDER SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall, be as the Chief Operating Officer of the Administration, a Deputy Under Secretary of Commerce for Oceans and Atmosphere. The Deputy Under Secretary shall be appointed by the Secretary. The position of Deputy Under Secretary shall be a Senior Executive Service position authorized under section 3133 of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Under Secretary—

(A) shall ensure the timely and effective implementation of Administration policies and objectives;

(B) shall be responsible for all aspects of the Administration's operations and management, including budget, financial operations, information services, facilities, human resources, procurements, and associated services;

(C) in the absence or disability of the Assistant Secretary, or in the event of a vacancy in such position, shall act in that position; and

(D) shall perform such other duties as the Administrator shall prescribe.

(d) DEPUTY ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Assistant Secretary for Oceans and Atmosphere. The Deputy Assistant Secretary for Oceans and Atmosphere shall be appointed by the Secretary. The position of Deputy Assistant Secretary for Oceans and Atmosphere shall be a Senior Executive Service position authorized under section 3133 of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Assistant Secretary for Oceans and Atmosphere—

(A) shall serve as an advisor to the Administrator on program and policy issues related to environmental policy, strategic planning, and program analysis;

(B) shall ensure the timely and effective implementation of Administration policies and objectives related to environmental policy, strategic planning, and program analysis; and

(C) shall perform such other duties as the Administrator shall prescribe.

(e) DEPUTY ASSISTANT SECRETARY FOR SCIENCE, TECHNOLOGY, EDUCATION, AND OUTREACH.—

(1) IN GENERAL.—There shall be in the Administration a Deputy Assistant Secretary for Science, Technology, Education, and Outreach, who shall co-

ordinate and oversee the science and technology activities of the Administration and ensure that Administration decisions are informed by the results of appropriate and relevant research. The Deputy Assistant Secretary for Science, Technology, Education, and Outreach shall be appointed by the Secretary. The position of Deputy Assistant Secretary for Science, Technology, Education, and Outreach shall be a Senior Executive Service career reserved position as defined in section 3132(a)(8) of title 5, United States Code.

(2) FUNCTIONS.—The Deputy Assistant Secretary for Science, Technology, Education, and Outreach shall—

(A) coordinate research and development activities across the Administration, including coordination of research and development budgets;

(B) advise the Administrator on how research activities can be applied to operational use;

(C) provide advice to the Administrator regarding science and technology issues and their relationship to Administration policies, procedures, and decisions;

(D) participate in developing the Administration's strategic plans and policies and review the science and technology aspects of those plans and policies;

(E) develop and oversee guidelines for the dissemination to the public of results from research and development conducted, sponsored, or cited by the Administration;

(F) serve as liaison to the nongovernmental science and technology community;

(G) develop and oversee guidelines for peer review of science and technology research sponsored by the Administration;

(H) oversee implementation of the strategic plan for science and technology research, development, and demonstration required under section 10(b);

(I) oversee management of research laboratories in the Administration;

(J) oversee the research and education programs of the Administration; and

(K) perform such other duties as the Secretary or Administrator shall prescribe.

(3) QUALIFICATIONS.—An individual appointed under paragraph (1) shall be a person who has an

outstanding science and technology background, including research accomplishments, scientific reputation, and public policy experience.

(4) CONSULTATION.—Before appointing an individual under paragraph (1), the Secretary shall consult with the National Academy of Sciences, the Science Advisory Board of the Administration, and other appropriate scientific organizations.

(f) GENERAL COUNSEL.—

(1) IN GENERAL.—There shall be in the Administration a General Counsel. The General Counsel shall be appointed by the Secretary. The General Counsel shall be paid at the rate of basic pay for level V of the Executive Schedule.

(2) FUNCTIONS.—The General Counsel—

(A) shall serve as the chief legal officer of the Administration for all legal matters that arise in connection with the conduct of the functions of the Administration; and

(B) shall perform such other functions and exercise such powers as the Secretary or Administrator may prescribe.

(g) CONTINUATION OF SERVICE.—Any individual serving on the effective date of this Act in a position provided for in this Act may continue to serve in that position

until a successor is appointed under this Act. Nothing in this Act shall be construed to require the appointment of a successor under this Act sooner than would have been required under law as in effect before the effective date of this Act.

SEC. 5. NATIONAL WEATHER SERVICE.

(a) IN GENERAL.—The Secretary shall maintain within the Administration a National Weather Service.

(b) MISSION.—The mission of the National Weather Service is to provide weather, water, climate, and space weather forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy.

(c) GOALS.—The goals of the National Weather Service shall include—

(1) to provide timely and accurate weather, water, climate, and space weather forecasts; and

(2) to provide timely and accurate warnings of weather, water, and climate natural hazards, and of space weather hazards.

(d) FUNCTIONS.—The functions of the National Weather Service shall include—

(1) maintaining a network of local weather forecast offices;

(2) maintaining a network of observation systems to collect weather and climate data;

(3) operating national centers to deliver guidance, forecasts, warnings, and analysis about weather, water, climate, and space weather phenomena for the Administration and the public;

(4) conducting and supporting applied research to facilitate the rapid incorporation of weather and climate science advances into operational tools; and

(5) other functions to serve the mission of the National Weather Service.

(e) PUBLIC-PRIVATE PARTNERSHIPS.—Not less than once every 5 years, the Secretary shall develop and submit to Congress a policy the defines processes for making decisions about the roles of the National Weather Service, the private sector, and the academic community in providing weather-related and climate-related products, technologies, and services. The first such policy shall be completed not less than 12 months after the date of enactment of this Act. At least 90 days before each submission of the policy to Congress, the Secretary shall publish the policy in the Federal Register for a public comment period of not less than 60 days.

SEC. 6. OPERATIONS AND SERVICES.

(a) IN GENERAL.—The Secretary shall maintain within the Administration programs to support operations of ongoing data collection and direct services and products regarding satellite, observations, and coastal, ocean, and Great Lakes information.

(b) FUNCTIONS.—To accomplish the mission described in section 3(b), and in addition to the functions described in section 3(c), the operations and service aspects of the Administration shall include—

(1) acquiring, managing, and operating coastal, ocean, and Great Lakes observing systems;

(2) ensuring the availability of a global Earth-observing system, integrating remote sensing and in situ assets that provide critical data needed to support the mission of the Administration, and providing that data to decisionmakers and the public;

(3) developing, acquiring, and managing operational environmental satellite constellations and associated ground control and data acquisition facilities to support the mission of the Administration;

(4) managing and distributing atmospheric, geophysical, and marine data and data products for the Administration through national environmental data centers;

(5) providing for long-term stewardship of environmental data, products, and information via data processing, storage, reanalysis, reprocessing, and archive facilities;

(6) promoting widespread availability of environmental data and information through full and open access and exchange to the greatest extent possible;

(7) issuing licenses for private remote sensing space systems under the Land Remote Sensing Policy Act of 1992;

(8) administering a national water level observation network, which shall include monitoring of the Great Lakes;

(9) providing charts and other information for safe navigation of the oceans and inland waters, as provided by law; and

(10) such other functions to serve the operations and services mission of the Administration as the Administrator may prescribe.

SEC. 7. RESEARCH AND EDUCATION.

(a) IN GENERAL.—The Secretary shall maintain within the Administration programs to conduct and support research and education and the development of tech-

nologies relating to weather, climate, and the coasts, oceans, and Great Lakes.

(b) FUNCTIONS.—To accomplish the mission described in section 3(b), and in addition to the functions described in section 3(c), the research and education aspects of the Administration shall include—

(1) conducting and supporting research and technology development to improve the Administration's capabilities in collecting, through observation and otherwise, communicating, analyzing, processing, and disseminating comprehensive scientific data and information about weather, climate, and the coasts, oceans, and Great Lakes;

(2) improving environmental prediction and management capabilities through ecosystem-based research and development;

(3) improving knowledge of Earth's climate and related systems through research and observation for decision support;

(4) reducing uncertainty in projections of how the Earth's climate and related systems may change in the future;

(5) fostering the public's ability to understand and integrate scientific information into consider-

ations of national environmental issues through education and public outreach activities;

(6) administering the National Sea Grant College Program Act;

(7) conducting and supporting research and development of technology for exploration of the oceans;

(8) maintaining a system of laboratories to perform the functions described in this subsection;

(9) supporting extramural peer-reviewed competitive grant programs to assist the Administration in performing the functions described in this subsection; and

(10) such other functions to serve the research, development, education, and outreach mission of the Administration as the Administrator may prescribe.

SEC. 8. RESOURCE MANAGEMENT.

The Secretary shall maintain within the Administration an Office of Resource Management to support management, conservation, protection, and restoration of coastal, ocean, and Great Lakes resources.

SEC. 9. SCIENCE ADVISORY BOARD.

(a) IN GENERAL.—There shall be within the Administration a Science Advisory Board, which shall provide such scientific advice as may be requested by the Adminis-

trator, the Committee on Commerce, Science and Transportation of the Senate, or the Committee on Science or on Resources of the House of Representatives.

(b) PURPOSE.—The purpose of the Science Advisory Board is to advise the Administrator and Congress on long-range and short-range strategies for research, education, and the application of science to resource management and environmental assessment and prediction.

(c) MEMBERS.—

(1) IN GENERAL.—The Science Advisory Board shall be composed of at least 15 members appointed by the Administrator. Each member of the Board shall be qualified by education, training, and experience to evaluate scientific and technical information on matters referred to the Board under this section.

(2) TERMS OF SERVICE.—Members shall be appointed for 3-year terms, renewable once, and shall serve at the discretion of the Administrator. An individual serving a term as a member of the Science Advisory Board on the date of enactment of this Act may complete that term, and may be reappointed once for another term of 3 years unless the term being served on such date of enactment is the second term served by that individual. Vacancy appointments shall be for the remainder of the unexpired

term of the vacancy, and an individual so appointed may subsequently be appointed for 2 full 3-year terms if the remainder of the unexpired term is less than one year.

(3) CHAIRPERSON.—The Administrator shall designate a chairperson from among the members of the Board.

(4) APPOINTMENT.—Members of the Science Advisory Board shall be appointed as special Government employees, within the meaning given such term in section 202(a) of title 18, United States Code.

(d) ADMINISTRATIVE PROVISIONS.—

(1) REPORTING.—The Science Advisory Board shall report to the Administrator and the appropriate requesting party.

(2) ADMINISTRATIVE SUPPORT.—The Administrator shall provide administrative support to the Science Advisory Board.

(3) MEETINGS.—The Science Advisory Board shall meet at least twice each year, and at other times at the call of the Administrator or the Chairperson.

(4) COMPENSATION AND EXPENSES.—A member of the Science Advisory Board shall not be com-

pensated for service on such board, but upon request by the member may be allowed travel expenses, including per diem in lieu of subsistence, in accordance with subchapter I of chapter 57 of title 5, United States Code.

(5) SUBCOMMITTEES.—The Science Advisory Board may establish such subcommittees of its members as may be necessary. The Science Advisory Board may establish task forces and working groups consisting of Board members and outside experts as may be necessary.

(e) EXPIRATION.—Section 14 of the Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the Science Advisory Board.

SEC. 10. REPORTS.

(a) REPORT ON DATA MANAGEMENT, ARCHIVAL, AND DISTRIBUTION.—

(1) CONTENTS.—Not later than 1 year after the date of enactment of this Act, and once every 5 years thereafter, the Administrator shall develop a report on the environmental data and information systems of the Administration. The report shall include—

(A) an assessment of the adequacy of the environmental data and information systems of the Administration to—

(i) provide adequate capacity to manage, archive and disseminate environmental information collected and processed, or expected to be collected and processed, by the Administration and other appropriate departments and agencies;

(ii) establish, develop, and maintain information bases, including necessary management systems, which will provide for consistent, efficient, and compatible transfer and use of data;

(iii) develop effective interfaces among the environmental data and information systems of the Administration and other appropriate departments and agencies;

(iv) develop and use nationally accepted formats and standards for data collected by various national and international sources;

(v) integrate and interpret data from different sources to produce information that can be used by decisionmakers in de-

veloping policies that effectively respond to national and global environmental concerns; and

(vi) reanalyze and reprocess the archived data as better science is developed to integrate diverse data sources; and

(B) a strategic plan to—

(i) set forth modernization and improvement objectives for an integrated national environmental data access and archive system for the 10-year period beginning with the year in which the plan is transmitted, including facility requirements and critical new technology components that would be necessary to meet the objectives set forth;

(ii) propose specific Administration programs and activities for implementing the plan;

(iii) identify the data and information management, reanalysis, reprocessing, archival, and distribution responsibilities of the Administration with respect to other Federal departments and agencies and international organizations; and

(iv) provide an implementation schedule and estimate funding levels necessary to achieve modernization and improvement objectives.

(2) NATIONAL ACADEMY OF SCIENCES REVIEW.—The Administrator shall enter into an arrangement with the National Academy of Sciences for a review of the plan developed under paragraph (1).

(3) TRANSMITTAL TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the Administrator shall transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the House of Representatives the initial report developed under paragraph (1) and the review prepared pursuant to paragraph (2). Subsequent reports developed under paragraph (1) shall also be transmitted to those committees.

(b) STRATEGIC PLAN FOR SCIENTIFIC RESEARCH.—

(1) CONTENTS.—Not later than 1 year after the date of enactment of this Act, and once every 5 years thereafter, the Administrator shall develop a strategic plan for science and technology research

and development at the Administration. The plan shall include—

(A) an assessment of the science and technology needs of the Administration based on the Administration's operational requirements and on input provided by external stakeholders at the national, regional, State, and local levels;

(B) a strategic plan for coordinating research and development activities across the Administration to meet the needs identified in subparagraph (A); and

(C) a description of how the Administration plans to utilize extramural, peer-reviewed competitive grant programs to meet its research needs.

(2) NATIONAL ACADEMY OF SCIENCES REVIEW.—The Administrator shall enter into an arrangement with the National Academy of Sciences for a review of the plan developed under paragraph (1).

(3) TRANSMITTAL TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the Administrator shall transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science of the

House of Representatives the initial report developed under paragraph (1) and the review prepared pursuant to paragraph (2). Subsequent reports developed under paragraph (1) shall also be transmitted to those committees.

SEC. 11. EFFECT OF REORGANIZATION PLAN.

Reorganization Plan No. 4 of 1970 shall have no further force and effect.

SEC. 12. SAVINGS PROVISION.

All rules and regulations, determinations, standards, contracts, certifications, authorizations, appointments, delegations, results and findings of investigations, and other actions duly issued, made, or taken by or pursuant to or under the authority of any statute which resulted in the assignment of functions or activities to the Secretary, the Department of Commerce, the Under Secretary of Commerce for Oceans and Atmosphere, the Administrator, or any other officer of the Administration, that is in effect immediately before the date of enactment of this Act, shall continue in full force and effect after the effective date of this Act until modified or rescinded. All suits, appeals, judgements, and proceedings pending on such effective date relating to responsibilities or functions transferred under this Act shall continue without regard to such transfers, except for the transfer of responsibilities or

functions. Any reference in law to a responsibility, function, or office transferred under this Act shall be deemed to refer to the responsibility, function, or office as so transferred.

SEC. 13. TRANSITION.

(a) EFFECTIVE DATE.—

(1) IN GENERAL.—Except as provided in paragraph (2) the provisions of this Act shall become effective 2 years after the date of enactment of this Act.

(2) EXCEPTIONS.—Paragraph (1) shall not apply to sections 10 or 14, or to subsection (b) of this section.

(b) REORGANIZATION.—Not later than 18 months after the date of enactment of this Act, the Administrator shall transmit a plan and budget proposal to Congress setting forth a proposal for program and Administration reorganization for the program areas outlined in this Act.

SEC. 14. SCIENTIFIC REVIEW PRIOR TO CLOSURE OF AN ADMINISTRATION LABORATORY OR INSTITUTE.

No funds shall be expended with respect to closure or transfer of an Administration research laboratory or joint or cooperative research institute without scientific re-

view by the Administration's Science Advisory Board and 60 days prior notice to Congress.

[The Section-by-Section Analysis of the Manager's Amendment follows:]

SECTION-BY-SECTION ANALYSIS OF MANAGER'S AMENDMENT

Section 1. Short Title.

The short title of this Act is the "National Oceanic and Atmospheric Administration Act." In this section, the manager's amendment makes no changes from the bill as introduced.

Section 2. Definitions.

This section defines terms used in the Act. In this section, the manager's amendment makes no changes from the bill as introduced.

Section 3. National Oceanic and Atmospheric Administration.

This section establishes the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce and describes the mission and functions of NOAA. In this section, the manager's amendment makes only minor technical changes from the bill as introduced.

Section 4. Administration Leadership.

This section describes the leadership structure of NOAA, including a new position of a Deputy Assistant Secretary (DAS) for Science and Technology, who shall be responsible for coordinating and managing all research activities across the agency, and must be a career position. The manager's amendment adds responsibility for education and outreach to the DAS for Science and Technology. Also, the manager's amendment adds the title of "Chief Operating Officer" to the Deputy Undersecretary for Oceans and Atmosphere and makes that person responsible for the day-to-day aspects of the Administration's operations and management.

Section 5. National Weather Service.

This section directs the Secretary of Commerce to maintain a National Weather Service (NWS) within NOAA. In this section, the manager's amendment makes only minor technical changes from the bill as introduced.

Section 6. 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. In this section, the manager's amendment makes only minor technical changes from the bill as introduced.

Section 7. Research and Education.

This section directs the Secretary to maintain programs within NOAA to conduct and support research and education functions. In this section, the manager's amendment makes only minor technical changes from the bill as introduced.

Section 8. Resource Management.

This section directs the Secretary to maintain resource management programs within NOAA to support management, conservation, protection and restoration of coastal, ocean and Great Lakes resources. The manager's amendment adds this section to the bill as introduced. This section was not part of the bill as introduced because, while NOAH currently has these responsibilities, jurisdiction of these issues lies with the House Resources Committee.

Section 9. 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. In this section, the manager's amendment makes only minor technical changes from the bill as introduced.

Section 10. 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 NOAH. The manager's amendment adds a requirement that the National Academy of Sciences (NAS) review each report prior to delivery to Congress and extends the deadline by six

months to allow time for the NAS review. Other changes to this section reflected in the manager's amendment are technical clarifications.

Section 11. Effect of Reorganization Plan.

This section repeals the Executive Order that established NOAA in 1970. In this section, the manager's amendment makes no changes from the bill as introduced.

Section 12. Savings Provision.

This section provides that all rules and regulations, and other technical legal topics that were previously assigned to the Administration, remain in effect under this Act. The manager's amendment adds this section to the bill as introduced.

Section 13. Transition.

This section makes the effective date of the Act two years after the date of enactment and requires NOAA to reorganize around the themes outlined in sections five through eight. The manager's amendment adds this section to the bill as introduced.

Section 14. Scientific Review Prior to Closure of an Administration Laboratory or Institute.

This section provides that NOAA cannot expend funds to close or transfer a laboratory or research institute without 60 days notification to Congress and review by the Science Advisory Board. The manager's amendment adds this section to the bill as introduced.

Chairman EHLERS. I ask unanimous consent to dispense with the reading. Without objection, so ordered. I recognize myself for as much time as I might consume.

I am offering an amendment in the nature of a substitute. While H.R. 4546, as introduced, contains several titles and authorizes new and existing programs at NOAA, my manager's amendment strikes all these other sections and makes the complete focus of the bill on the NOAA organic act. This decision was made because there is not enough time remaining in this legislative session to carefully consider and debate all of the details of those other sections.

I am hopeful that in the next Congress we can make it a priority of this subcommittee and the Full Science Committee and the House to move on the provisions in the other titles of H.R. 4546. But as I mentioned in my opening statement, for now, I believe it is our responsibility to act on the organic act piece of the bill.

Briefly, the amendment I am offering clarifies pieces of the NOAA organic act based on feedback from the witnesses at the Subcommittee hearing in July and from many meetings with experts on these issues. Many of the changes are technical in nature, but the policy highlights include: designating a person in the Administration leadership as a chief operating officer responsible for day-to-day management and operations of the agency; expanding the responsibilities of the new deputy assistant secretary for science and technology to include education and outreach; adding concepts that reflect the input of the Minority Members, including Mr. Miller's suggestions on flood monitoring activities; requiring NOAA to reorganize around the four themes, the National Weather Service, research and education, operations and services, and resource management within two years of the date of enactment of the bill.

I urge my colleagues to support my amendment in the nature of a substitute.

[The prepared statement of Chairman Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

I am offering an amendment in the nature of a substitute. While H.R. 4546 as introduced contained several titles and authorized new and existing programs at NOAA, my manager's amendment strikes all these other sections and makes the complete focus of the bill on the NOAA organic act. This decision was made because there is not enough time remaining in this legislative session to carefully consider and debate all the details of those sections. I am hopeful that in the next Congress we can make it a priority of this subcommittee to move on the provisions in the other titles of H.R. 4546, but as I mentioned in my opening statement for now I believe it is our responsibility to act on the organic act piece of the bill.

Briefly, the amendment I am offering today clarifies pieces of the NOAA organic act based on feedback from the witnesses at the Subcommittee hearing in July and from many meetings with experts on these issues. Many of the changes are technical in nature, but the policy highlights include:

- Designating a person in the Administration leadership as a Chief Operating Officer, responsible for day-to-day management and operations of the agency;
- Expanding the responsibilities of the new Deputy Assistant Secretary for Science and Technology to include education and outreach;
- Adding concepts that reflect the input of the minority Members, including Mr. Miller's suggestions on flood monitoring activities; and

- Requiring NOAH to reorganize around the four themes of the National Weather Service, Research and Education, Operations and Services, and Resource Management within two years of the date of enactment of the bill.

I urge my colleagues to support my amendment in the nature of a substitute.

Chairman EHLERS. We will proceed with any discussion on the amendment in the nature—I am sorry. Is there further discussion on this amendment?

Mr. UDALL. Mr. Chairman, I would just like to make public my support for the amendment. I appreciate all of the great work you have done to include some of the suggested changes. I urge support of the amendment.

Chairman EHLERS. The gentleman's time has expired. And I thank him for the comment. And we will consider other amendments. Are there any other amendments?

Mr. UDALL. Mr. Chairman, I have an amendment at the desk.

Chairman EHLERS. The Clerk will report the amendment.

Ms. TESSIERI. Amendment offered by Mr. Udall of Colorado to the amendment in the nature of a substitute.

[The amendment offered by Mr. Udall follows:]

AMENDMENT OFFERED BY MR. UDALL OF COLORADO TO THE AMENDMENT IN THE NATURE OF A SUBSTITUTE

Page 26, line 19, through page 27, line 2, amend section 14 to read as follows:

SEC. 14. FACILITY EVALUATION PROCESS.

(a) PUBLIC NOTIFICATION AND ASSESSMENT PROCESS.— The Administrator shall not close, consolidate, relocate, subdivide, or establish a facility of the Administration unless the Administrator has completed a public notification and assessment process that includes—

(1) publication in the Federal Register of the proposed action and a description of the offices, personnel, and activities of the Administration that would be impacted by the proposed change, and providing for a minimum of 60 days for public comment;

(2) review of the proposed change by the Science Advisory Board of the Administration, if the proposed change involves a science facility of the Administration, and preparation of a summary of their findings regarding the proposed change;

(3) preparation by the Administrator of an analysis of the anticipated costs and savings associated with the proposed facility change, including both initial costs and savings associated with the change and changes in operations and maintenance costs and savings over a ten year period; and

(4) preparation by the Administrator of an analysis of the effects of the facility change on operations and research of the Administration, and the potential impacts on cooperative institutes, other external Administration partnerships, partnerships with other Federal agencies, and any State and local partnerships.

(b) NOTICE TO CONGRESS.—The Administrator shall provide to Congress, at least 90 days before any closure, consolidation, relocation, subdivision, or establishment of a facility of the Administration, a summary of the public comments received pursuant to subsection (a)(1), any summary prepared under subsection (a)(2), and the analyses prepared under subsection (a)(3) and (4), .

(c) WEATHER SERVICE MODERNIZATION.—Nothing in this section shall alter procedures established under the Weather Service Modernization Act (15 U.S.C. 313 note).

(d) DEFINITION.—For purposes of this section, the term "facility" means a laboratory, operations office, ad-

ministrative service center, or other establishment of the Administration with an annual budget of $1,000,000 or greater.

Chairman EHLERS. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

The gentleman from Colorado is recognized for five minutes to explain his amendment.

Mr. UDALL. I thank the Chairman, and I would also like to acknowledge that the Chairman has agreed to accept my amendment, and in that spirit, I would like to describe what the amendment would do.

The amendment establishes a formal process to be followed before NOAA facilities are opened, closed, subdivided, consolidated, or moved. NOAA facilities, which include laboratories, administrative centers, computing facilities, satellite receiving centers, and so on are not merely buildings with equipment. These facilities are workplaces for NOAA employees who have roots in the local communities. NOAA facilities and their personnel maintain both formal and informal relationships with businesses and universities as well as with other federal agencies and State and local agencies. They also require investment of taxpayer dollars to build and maintain. A decision to change the current configuration of facilities affects many people and organizations and has both short-term and long-term implications for NOAA's budget.

This doesn't mean a change should not occur. Indeed, there may be compelling reasons unbalanced to make changes, however, before we expend funds, uproot people, and alter relationships between NOAA and its partners, we should have a consistent base of information which we can use to make these decisions. These kinds of decisions should not be made by an Administration alone. Congress should be a partner in this process.

We have learned from other experiences with federal facility expansion or closure that change costs money. Sometimes the savings that accrue from a closure or consolidation in the long run are worth the short-term costs; sometimes they are not. Expansions are sometimes necessary to accommodate the use of new technologies and improve existing service delivery or to address emerging issues.

But there are other important considerations in addition to financial to take into account before making decisions about moving or closing facilities. We need to understand the potential impacts of a change in NOAA facilities on NOAA's ability to provide consistent and hopefully improved levels of service to our constituents. This Committee has established a process in the past through the *Weather Service Modernization Act of 1992* to address the closure of local weather forecasting offices.

My amendment does not replace the process established for the closure of forecast offices. Instead, it establishes a procedure for other types of facilities. In order to avoid a cumbersome process for very small facilities, my amendment will require this process to apply to facilities with an annual budget of $1 million or more. The amendment requires NOAA to prepare analyses of the anticipated costs and savings associated with the proposed facility change, the effects of the proposed change on NOAA operations and research, and the potential impacts on other federal agencies and external organizations.

It also requires publication of a notice in the *Federal Register* of the proposed change, giving the affected community an opportunity to comment on the proposal. In the case of a change in a NOAA research facility, the NOAA Science Advisory Board shall review the change and summarize its assessment of the proposed change. The information obtained through these processes will be provided to Congress at least 90 days prior to the final decision.

Mr. Chairman, we are both aware that changes are being contemplated for some NOAA facilities in my District and that this committee should have a role to play in these decisions. My amendment assures that we will have a role and that we will have sufficient information to evaluate the merits of the proposed changes to NOAA's facilities.

So in closing, again, I want to thank you for agreeing to accept this amendment, and I look forward to working with you to move this bill forward.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Mr. Chairman, I have an amendment at the desk.

I'd like to thank the Chairman for agreeing to accept my amendment.

My amendment establishes a formal process to be followed before a NOAA facility is opened, closed, subdivided, consolidated or moved.

NOAA facilities—laboratories, administrative centers, computing facilities, satellite receiving centers, and so on—are not merely buildings with equipment. These facilities are workplaces for NOAA employees who have roots in the local communities. NOAA facilities and their personnel maintain both formal and informal relationships with universities and businesses as well as with other federal agencies and State and local agencies. They also require investment of taxpayer dollars to build and maintain.

A decision to change the current configuration of facilities affects many people and organizations and has both short-term and long-term implications for NOAA's budget.

This does not mean that change should not occur. Indeed, there may be compelling reasons, on balance, to make these changes. However, before we expend funds, uproot people and alter relationships between NOAA and its partners, we should have a consistent base of information we can use to make these decisions. The decision should not be made by the Administration alone. Congress should be a partner in this process.

We have learned from other experiences with federal facility expansion or closure that change costs money. Sometimes the savings that accrue from a closure or consolidation in the long run are worth the short-term costs. Sometimes they are not. Expansions are sometimes necessary to accommodate the use of new technologies and improve existing service delivery or to address emerging issues.

But there are other important considerations—in addition to financial considerations—to take into account before making decisions about moving or closing facilities. We need to understand the potential impacts of a change in NOAA facilities on NOAA's ability to provide consistent and hopefully improved levels of service to our constituents.

This committee has established a process in the past—through the *Weather Service Modernization Act of 1992*—to address the closure of local weather forecasting offices. My amendment does not replace the process established for the closure of forecast offices. Instead, it establishes a separate procedure for other types of facilities. In order to avoid a cumbersome process for very small facilities, my amendment would require this process for facilities with an annual budget of $1 million or more.

The amendment requires NOAA to prepare analyses of the anticipated costs and savings associated with the proposed facility change, the effects of the proposed change on NOAA operations and research, and the potential impacts on other federal agencies and external organizations.

It also requires publication of a notice in the *Federal Register* of the proposed change, giving the affected community an opportunity to comment on the proposal. In the case of a change in a NOAA research facility, the NOAA Science Advisory

Board shall review the change and summarize its assessment of the proposed change. The information obtained through these processes will be provided to Congress at least 90 days prior to a final decision on the proposed facility change.

Mr. Chairman, we are both aware that changes are being contemplated for some NOAA facilities in my district, and that this committee should have a role to play in these decisions. My amendment ensures that we will have a role and that we will have sufficient information to evaluate the merits of proposed changes to NOAA's facilities.

Thank you again, Mr. Chairman, for agreeing to accept this amendment. I look forward to working with you to move this bill forward.

Chairman EHLERS. The gentleman's time has expired. I recognize myself for such time as I may consume.

I want to thank Mr. Udall for offering his amendment to ensure that NOAA has a set process by which Congress and the public are notified about the transfer and closure of its facilities. While I am prepared to accept the gentleman's amendment in total today at the Subcommittee markup, I would like to reserve the right to continue to work with him on the details of the language as we go to Full Committee.

I yield the remainder of my time on that. Is there any further discussion on this amendment? If no, the vote occurs on the amendment. All in favor, say aye. Those opposed say no. The ayes have it, and the amendment is agreed to.

Are there any further amendments? Hearing none, the question is on the amendment in the nature of a substitute, as amended. All in favor, say aye. Those opposed say no. The ayes have it, and the amendment in the nature of a substitute, as amended, is agreed to.

The question is now on the bill H.R. 4546, the National Oceanic and Atmospheric Administration Act, as amended. All those in favor will say aye. All those opposed will say no. In the opinion of the Chair, the ayes have it.

I will now recognize Mr. Udall to offer a motion.

Mr. UDALL. Mr. Chairman, I move that the Subcommittee favorably report the bill H.R. 4546, as amended, to the Full Committee. Further, I ask unanimous consent that the staff be instructed to make all necessary technical and conforming changes to the bill, as amended, in accordance with the recommendations of the Subcommittee.

Chairman EHLERS. The question is on the motion to report the bill, as amended, favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it. And the resolution is favorably reported.

Without objection, the motion to reconsider is laid upon the table.

This concludes our subcommittee markup for the day. The meeting is adjourned. Thank you for your attendance and your interest.

[Whereupon, at 2:51 p.m., the Subcommittee was adjourned.]