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HARMFUL ALGAL BLOOM AND HYPOXIA RESEARCH AMENDMENTS ACT OF 2003

OCTOBER 24, 2003.—Ordered to be printed

Mr. BOEHLERT, from the Committee on Science, submitted the following

R E P O R T

together with

ADDITIONAL VIEWS

[To accompany H.R. 1856]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 1856) to reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003".

SEC. 2. RETENTION OF TASK FORCE.

Section 603 of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note) is amended by striking subsection (e).

SEC. 3. SCIENTIFIC ASSESSMENTS AND RESEARCH PLANS.

Such section 603 is further amended—

(1) in subsection (a) by adding at the end the following:

"In developing the assessments and research plans described in subsections (b), (c), (d), (e), and (f), the Task Force shall work with appropriate State, Indian tribe, and local governments to ensure that the assessments and research plans fulfill the requirements of subsections (b)(2), (c)(2), (d)(2), (e)(2), and (f)(2). Additionally, the Task Force shall consult with appropriate industry, academic institutions, and nongovernmental organizations throughout the development of the assessments and research plans."; and

(2) by striking subsections (b) and (c) and inserting the following:

"(b) SCIENTIFIC ASSESSMENTS OF HARMFUL ALGAL BLOOMS.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of harmful algal blooms in United States coastal waters. The first such assessment shall be completed not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 and should consider only marine harmful algal blooms. All subsequent assessments shall examine both marine and freshwater harmful algal blooms, including those in the Great Lakes and upper reaches of estuaries.

"(2) The assessments under this subsection shall—

"(A) examine the causes and ecological consequences, and economic costs, of harmful algal blooms;

"(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating harmful algal blooms;

"(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of harmful algal blooms; and

"(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms.

"(c) SCIENTIFIC ASSESSMENT OF FRESHWATER HARMFUL ALGAL BLOOMS.—(1) Not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of current knowledge about harmful algal blooms in freshwater locations such as the Great Lakes and upper reaches of estuaries, including a research plan for coordinating Federal efforts to better understand freshwater harmful algal blooms.

"(2) The freshwater harmful algal bloom scientific assessment shall—

"(A) examine the causes and ecological consequences, and the economic costs, of harmful algal blooms with significant effects on freshwater locations, including estimations of the frequency and occurrence of significant events;

"(B) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program, as part of the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project, to better understand the causes, characteristics, and impacts of harmful algal blooms in freshwater locations; and

"(C) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms in freshwater locations.

"(d) NATIONAL SCIENTIFIC RESEARCH PLAN INTO REDUCING IMPACTS FROM HARMFUL ALGAL BLOOMS.—(1) Not later than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, the Task Force shall develop and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a research plan providing for a comprehensive and coordinated national research program to develop prevention, control, and mitigation methods to reduce the impacts of harmful algal blooms on coastal ecosystems (including the Great Lakes), public health, and the economy.

"(2) The research plan shall—

"(A) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program on methods for the prevention, control, and mitigation of harmful algal blooms;

"(B) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to the actions described in paragraph (1); and

"(C) 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, and other underrepresented populations.

"(3) The Secretary of Commerce, under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992, and in conjunction with other appropriate Federal agencies, shall establish a research program that meets the priorities and guidelines established under paragraph (2)(A). The Secretary shall ensure, through consultation with Sea Grant Programs, that the results and findings of the research program are communicated to State, Indian tribe, and local governments, and to the general public.

"(e) SCIENTIFIC ASSESSMENTS OF HYPOXIA.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of hypoxia in United States coastal waters including the Great Lakes. The first such assessment shall be completed not less than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.

"(2) The assessments under this subsection shall—

"(A) examine the causes and ecological consequences, and the economic costs, of hypoxia;

"(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating hypoxia;

"(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of hypoxia, including recommendations of how to eliminate significant gaps in hypoxia modeling and monitoring data; and

"(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on hypoxia.

"(f) LOCAL AND REGIONAL SCIENTIFIC ASSESSMENTS.—(1) The Secretary of Commerce, in coordination with the Task Force and appropriate State, Indian tribe, and local governments, shall provide for local and regional scientific assessments of hypoxia or harmful algal blooms, as requested by State, Indian tribe, or local governments, or for affected areas as identified by the Secretary. If the Secretary receives multiple requests, the Secretary shall ensure, to the extent practicable, that assessments under this subsection cover geographically and ecologically diverse locations with significant ecological and economic impacts from hypoxia or harmful algal blooms. The Secretary shall establish a procedure for reviewing requests for local and regional assessments. The Secretary shall ensure, through consultation with Sea Grant Programs, that the findings of the assessments are communicated to the appropriate State, Indian tribe, and local governments, and to the general public.

"(2) The scientific assessments under this subsection shall examine—

"(A) the causes and ecological consequences, and the economic costs, of hypoxia or harmful algal blooms in that area;

"(B) methods to prevent, control, and mitigate hypoxia or harmful algal blooms in that area and the potential ecological and economic costs and benefits of such methods; and

"(C) other topics the Task Force considers appropriate.".

SEC. 4. PREDICTION AND RESPONSE PLAN.

Section 603 of such Act is further amended by adding at the end the following new subsection:

"(g) PREDICTION AND RESPONSE PLAN.—

"(1) DEVELOPMENT OF PLAN.—Not later than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, the President, in conjunction with the chief executive officers of the States, shall develop and submit to the Congress a plan to protect the environment and public health from impacts of harmful algal blooms. In developing the plan, the President shall consult with the Task Force, the coastal States, Indian tribes, local governments, industry, academic institutions, and nongovernmental organizations with appropriate expertise.

"(2) PLAN REQUIREMENTS.—The plan shall—

"(A) review techniques for prediction of the onset, course, and impacts of harmful algal blooms, including an evaluation of their accuracy and utility in protecting the environment and public health and an assessment of the resources required for their implementation; and

"(B) identify innovative response measures for the prevention, control, and mitigation of harmful algal blooms and identify steps needed for their development and implementation.

"(3) PUBLICATION AND OPPORTUNITY FOR COMMENT.—At least 90 days before submitting the plan to Congress, the President shall publish a summary of the proposed plan in the Federal Register for a public comment period of not less than 60 days.".

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

Section 605 of such Act is amended to read as follows:

"SEC. 605. AUTHORIZATION OF APPROPRIATIONS.

"There are authorized to be appropriated to the Secretary of Commerce for research, education, and monitoring activities related to the prevention, reduction, and control of harmful algal blooms and hypoxia, $29,200,000 for fiscal year 2004, $30,700,000 for fiscal year 2005, and $31,200,000 for fiscal year 2006, to remain available until expended. The Secretary shall consult with the States on a regular basis regarding the development and implementation of the activities authorized under this title. Of such amounts for each fiscal year—

"(1) $3,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to enable the National Oceanic and Atmospheric Administration to carry out research and assessment activities, including procurement of necessary research equipment, at research laboratories of the National Ocean Service and the National Marine Fisheries Service;

"(2) $10,200,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992, with $2,000,000 of such amount used to carry out research on freshwater harmful algal blooms;

"(3) $2,000,000 for fiscal year 2004, $3,000,000 for fiscal year 2005, and $3,000,000 for fiscal year 2006 shall be used to carry out the research program described in section 603(d)(3);

"(4) $6,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) project under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992;

"(5) $5,000,000 for fiscal year 2004, $5,500,000 for fiscal year 2005, and $6,000,000 for fiscal year 2006 shall be used for activities related to research and monitoring on hypoxia through the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992; and

"(6) $3,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the activities described in section 603(f).".

SEC. 6. 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, and merit-based 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 Great Lakes, estuarine, and coastal ocean resources; to better conserve and manage living marine resources; 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 $34,000,000 for fiscal year 2004, $36,000,000 for fiscal year 2005, and $38,000,000 for fiscal year 2006.".

II. PURPOSE OF THE BILL

The purpose of the bill is to reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998. The legislation reauthorizes the programs in that Act for Fiscal Years 2004–2006, and provides an updated research framework for addressing harmful algal blooms and hypoxia.

III. BACKGROUND AND NEED FOR THE LEGISLATION

Algae are microscopic, single-celled organisms present in aquatic environments. Under normal conditions, these organisms are benign and serve a critical role as energy producers at the base of aquatic food webs, supporting the growth of higher organisms. Under certain circumstances, however, the population of a single algal species or several related species can rapidly increase in abundance, creating what is referred to as an "algal bloom." Algal blooms have many adverse effects on ecosystems and human health. "Harmful algal blooms" (HABs) are blooms that produce toxins dangerous to humans and aquatic animals. "Hypoxia," caused by the decomposition of algal blooms, is a condition where oxygen levels in the water become depleted to levels unable to support aquatic life.

Harmful Algal Blooms

HABs have occurred throughout recorded history, however in the past 30 years the rate of occurrence and the duration of HABs have increased substantially. In the past year alone, HABs were implicated in the death of 72 manatees in Florida and 57 dolphins and 319 sea lions in Southern California. Warnings for people to avoid swimming because of HABs were posted in parts of the Chesapeake Bay and Lake Erie for much of the summer of 2003. HABs present a major threat to aquatic environments and to human health because of the toxins released during the events. These compounds can kill or injure large quantities of aquatic animals that come in direct contact with them. Also, the toxins can accumulate in animals that are not susceptible and cause illness when they are later consumed by humans, who are susceptible to the toxins. Some toxins are so potent that consumption of a single contaminated clam or mussel can be enough to cause illness. Humans may also be harmed directly by skin contact or inhalation of spray from toxin-contaminated water. To protect the public when harmful algae are

detected, state and local governments must close beaches to swimmers and shellfish beds to commercial and recreational harvesting, and seafood distributors may need to recall already harvested shellfish.

Average economic impacts from HABs total $50 million per year in the United States, although severe single events have cost that amount alone to localities. The economic impacts of HABs include costs associated with conducting research and monitoring programs; short-term and permanent closures of harvestable shellfish and fish stocks; reductions in seafood sales; mortalities of wild and farmed fish, shellfish, submerged aquatic vegetation, and coral reefs; declines in tourism; and treatment of human illness.

Hypoxia

Hypoxia occurs when an algal bloom dies and is decomposed by bacteria in the water. The decomposition process consumes oxygen, creating an environment in which plants and animals cannot survive. Concern about hypoxia has focused primarily on the Gulf of Mexico, where a hypoxic zone the size of New Jersey appears each summer and persists for much of the season. This renders the affected area, which normally contains some of the most valuable fisheries in the United States, essentially lifeless. Other areas of the country that experience chronic hypoxia include the Chesapeake Bay, Long Island Sound, and Sarasota Bay. In 2003, the hypoxia in the Chesapeake Bay has been the worst ever observed, with reports of crabs leaping out of the water gasping for oxygen. The most recent analysis by the National Oceanic and Atmospheric Administration (NOAA) indicates that over half of the country's estuaries experience hypoxia at some time each year.

Most experts agree that the major cause of hypoxia is nutrient pollution in the watersheds of coastal areas. The dead zone in the Gulf of Mexico illustrates the regional and national scale of this problem. The Mississippi River Basin includes drainage from 31 states and carries farm chemicals, treated sewage discharge, storm water runoff, and pollutants from factories and refineries to the Gulf. Given the economic importance and large geographic distribution of the pollutant sources, this presents a challenging, national management problem.

Hypoxia can be caused by any type of algal bloom, not only by blooms of toxin-producing algae. Macroalgal, or seaweed, blooms also can lead to hypoxia. Numerous factors, including nutrient pollution and introduction of invasive species from ballast water, cause macroalgal blooms. The result of these seaweed blooms can be shading or smothering of other organisms that need sunlight to survive, habitat degradation, and hypoxia as the seaweeds decompose.

Congressional Action

In 1997, an outbreak of Pfiesteria piscicida focused public and Congressional attention on harmful algal blooms in the Chesapeake Bay and was partly responsible for prompting the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA). The legislation was referred to the Committee on Science, in addition to the Committee on Resources, and became Title VI of Public Law 105–383, the Coast Guard Authorization Act

of 1998. HABHRCA established an Interagency Task Force on HABs and Hypoxia and required four reports from that task force: the National Harmful Algal Bloom Assessment, the Gulf of Mexico Hypoxia Assessment, the Gulf of Mexico Hypoxia Action Plan, and the National Hypoxia Assessment. The first three were published; the last is finished and awaiting publication. Additionally, a Mississippi River/Gulf of Mexico Watershed Nutrient Task Force was established to implement the Gulf of Mexico Action Plan. This watershed task force consists of Federal, state and local stakeholders and meets regularly to discuss the implementation process.

HABHRCA authorized funding for HAB and hypoxia research through NOAA. In particular, the Act supported the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) program that the Clinton Administration had launched in 1996. This program supports basic research necessary to understand HABs and to produce models to forecast bloom development, persistence and toxicity. Grant applications are solicited from universities, private research institutions, and Federal agencies and are awarded through a merit-reviewed system. NOAA coordinates ECOHAB with the Environmental Protection Agency (EPA), the National Science Foundation (NSF), the U.S. Department of Agriculture (USDA), the Department of the Interior, the National Aeronautics and Space Administration (NASA), and the Office of Naval Research (ONR). HABHRCA also supports the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program, in which local resource managers and scientific institutions form partnerships to enhance existing water and shellfish monitoring programs with new technology, with the ultimate goal of building sustainable regional partnerships that provide managers with crucial information in time for critical decisions needed to mitigate HAB impacts.

The authorizations in HABHRCA expired in fiscal year (FY) 2000, however NOAA has continued to receive around $17 million annually for HAB and hypoxia research. HABs and hypoxia continue to affect communities throughout the United States and there remains much to learn about what can be done to control these events. The research performed under these programs can help local resource managers develop tools for quickly detecting HABs, providing them longer lead time in warning the public about swimming and seafood consumption. Additionally, while research under the 1998 Act provided insights into many marine HAB events, the area of freshwater HABs has not received as much attention. Freshwater HABs are increasing in occurrence, especially in the Great Lakes, and are not as well understood.

IV. Summary of Hearings

March 13, 2003—Harmful Algal Blooms: Strengthening the Science

On March 13, 2003, the Subcommittee on Environment, Technology, and Standards held a hearing to explore the current state of the science in understanding, predicting, and responding to HABs and hypoxia. The witnesses also commented on a draft version of H.R. 1856.

The following witnesses testified before the Committee: (1) Dr. Donald Scavia, Chief Scientist, National Ocean Service, NOAA; (2) Dr. Charles G. Groat, Director, United States Geological Survey;

(3) Dr. Wayne Carmichael, Professor, Aquatic Biology and Toxicology, Department of Biological Sciences, Wright State University, Dayton, Ohio; (4) Dr. Donald Anderson, Senior Scientist, Biology Department, Woods Hole Oceanographic Institute, Massachusetts; and (5) Mr. Dan Ayres, Fish and Wildlife Biologist, Washington State Department of Fish and Wildlife.

Dr. Scavia began the hearing by providing an overview of accomplishments under HABHRCA:

• The Act facilitated the development of an action plan to address hypoxia in the Gulf of Mexico and assessment of the problem of harmful algal blooms nationwide.

• Research under ECOHAB has yielded valuable data about the formation of blooms, which has been applied to developing models for forecasting and tracking blooms.

• Research under MERHAB has led to the development of new tools to provide early warnings about harmful algae and their toxins to state and tribal monitoring programs.

• HABs and hypoxia continue to threaten ecosystems and human health and warrant further research under a revised version of HABHRCA.

Dr. Groat testified about the challenges researchers face in developing useful modeling and monitoring techniques for the Mississippi River Basin:

• Water quality data on the region is gathered by USGS and state agencies. There are inconsistencies in how the data is collected and reported that make it less useful than it could be for developing models.

• Additional watershed level monitoring research would provide better data for modeling and help inform control strategies.

Dr. Carmichael provided testimony on the occurrence and impacts of freshwater HABs:

• There is an emerging link between invasive species and the occurrence of new blooms in the Great Lakes, because the invasive organisms consume the non-toxic algae and create an environment where the toxic algae face decreased competition and can grow abundantly.

• Increased hypoxia also is occurring in the Great Lakes, likely due to the invasive species altering nutrient dynamics in the lake.

• A coordinated Federal, academic and private effort to address freshwater HABs is needed.

Dr. Anderson showed that algal blooms have increased in range and occurrence in the past 30 years and gave an overview of the research findings and agenda for marine HABs:

• Several algal species that cause paralytic shellfish poisoning have been identified and their bloom locations mapped.

• Probes that electronically or chemically detect HAB species are being developed for deployment on buoys to help make HAB forecasts.

• Continued support for HABHRCA and ECOHAB will allow researchers to develop these and other tools, and to perform research on alleviating the impacts of algal blooms.

Mr. Ayres testified about his experiences as a fishery manager responsible for monitoring toxins in razor clam and Dungeness crab fisheries exposed to algal blooms, and his interactions with various government and economic stakeholders in the State of Washington:

• Funding from the MERHAB program has allowed the Washington State Department of Fish and Wildlife to set up a plankton monitoring program, in conjunction with their current shellfish tissue testing program, which helps to provide advanced notice of problems to state and tribal fishery managers.

• Another MERHAB grant assists members of the Olympic Region Harmful Algal Bloom project to develop detection technologies and test kits and perform plankton identification training programs. This collaboration between scientists and resource managers has been valuable to the Washington State Department of Fish and Wildlife.

V. Committee Actions

Congressman Vernon J. Ehlers introduced H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, on April 29, 2003, at which time the bill was referred to the Committee on Science, and in addition to the Committee on Resources. On March 13, 2003 the Environment, Technology and Standards Subcommittee held a hearing on the state of the science in understanding, predicting, and responding to HABs and hypoxia.

The Subcommittee on Environment, Technology and Standards met on June 5, 2003 to consider the bill. Subcommittee Chairman Ehlers offered an amendment, which made technical corrections and made funding under the Coastal Ocean Program, the parent program for HAB and hypoxia research, available only for competitive, peer-reviewed, and merit-based research. Mr. Baird offered an amendment that added a prediction and response plan to review and evaluate techniques for prevention, control, and mitigation of HABs. Both amendments were adopted by voice vote. The Subcommittee favorably reported the bill, H.R. 1856, as amended, by voice vote.

On July 22, 2003, the Committee on Science considered H.R. 1856. Congresswoman Sheila Jackson-Lee offered an amendment requiring that diverse institutions be considered for research grants to the maximum extent possible. The Committee adopted the amendment by voice vote. The Committee favorably reported the bill as amended, by voice vote, and authorized staff to make technical and conforming changes as necessary.

VI. Summary of Major Provisions of the Bill

The legislation amends the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA) (16 U.S.C. 1451 note). HABHRCA provided for an interagency task force to develop two reports assessing harmful algal blooms and hypoxia at the national scale and two reports addressing hypoxia in the Gulf of Mexico. Additionally, HABHRCA authorized funding through NOAA for research on HABs and hypoxia.

The legislation retains the Interagency Task Force on Harmful Algal Blooms and Hypoxia and requires the Task Force to develop national scientific assessments of HABs and hypoxia on a regular basis. The legislation also requires NOAA, with the help of the Task Force, to coordinate regional scale assessments of HABs and hypoxia. The legislation amends the language of HABHRCA to re-

quire stronger consultation with local resource managers in developing the assessments and research plans.

The legislation requires the Task Force to develop a scientific assessment of freshwater HABs and directs NOAA to add freshwater HABs to the research sponsored by the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) program.

The legislation directs NOAA to establish a research program on prevention, control and mitigation techniques for HABs. The legislation also directs the President to develop a prediction and response plan that reviews techniques for prediction of HABs and identifies potential response measures.

The legislation reauthorizes existing research programs through NOAA at the following levels: for NOAA laboratories, $3,000,000 annually for FY 2004–2006; for ECOHAB, $10,200,000 annually for FY 2004–2006, of which $2,000,000 shall be used for research on freshwater HABs; for research on prevention, control and mitigation techniques, $2,000,000 in FY 2004, $3,000,000 in FY 2005, and $3,000,000 in FY 2006; for MERHAB program, $6,000,000 annually for FY 2004–2006; for research and monitoring on hypoxia, $5,000,000 for FY 2004, $5,500,000 for FY 2005, and $6,000,000 for FY 2006; and for the local and regional assessments of HABs and hypoxia, $3,000,000 annually for FY 2004–2006.

The legislation amends the Coastal Ocean Program (section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992) to require that research under this program be competitive, peer-reviewed, and merit-based. The legislation places all authorizations for HAB and hypoxia research programs under the Coastal Ocean Program, as amended.

VII. Section-by-Section Analysis (by Title and Section)

Sec. 1. Short Title

"Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003".

Sec. 2. Retention of Task Force

Amends HABHRCA by striking subsection 605(e), which provided for the disestablishment of the Task Force after the plans and assessments were submitted.

Sec. 3. Scientific Assessments and Research Plans

Amends Sec. 603 of HABHRCA as described below:

Sec. 3 (1). Task Force Activities.—Amends Sec.603(a) of HABHRCA to require the Task Force to work with local resource managers and consult with academic researchers, industry and non-governmental organizations in developing assessments and research plans.

Sec. 3(2).—Amends Sec. 603(b) and (c) of HABHRCA by striking those sections and inserting the sections described below:

Sec.3(2)(b). Scientific Assessments of Harmful Algal Blooms.—Requires a nationwide assessment of HABs once every five years. This first assessment would include only marine HABs and all subsequent assessments would include marine and freshwater (including the Great Lakes and upper reaches of estuaries) HABs. The timing of the first assessment coincides with a revision, already un-

derway, of national research priorities for marine biotoxin and harmful algal bloom research.

Sec. 3(2)(c). Scientific Assessment of Freshwater Harmful Algal Blooms.—Requires a one-time assessment of freshwater HABs that in the future would be incorporated into the HAB assessment in Sec. 3(2)(b). Requires the development of a research plan for incorporating freshwater HAB research into ECOHAB interagency grant program.

Sec. 3(2)(d). National Scientific Research Plan into Reducing Impacts from Harmful Algal Blooms.—Requires a research plan and establishment of a research program based on the plan to develop methods in the prevention, control and mitigation of HABs.

Sec. 3(2)(e). Scientific Assessments of Hypoxia.—Requires national hypoxia scientific assessments once every five years.

Sec. 3(2)(f). Local and Regional Scientific Assessments.—Authorizes funding for local and regional scientific assessments of HABs and hypoxia, as requested by localities and coordinated through the Task Force and the National Ocean Service (NOS) at NOAA.

Sec. 4. Prediction and Response Plan

Requires the development of a plan to protect the environment and public health from impacts of harmful algal blooms. The plan will review HAB prediction techniques, identify innovative HAB response measures, and recommend steps needed for implementation of both of these topics.

Sec. 5. Authorization of Appropriations

Amends Sec. 605 of HABHRCA by striking the original language and inserting authorizations for FY2004, 2005, and 2006. Total authorizations for FY2004 would be $29.2 million; for FY2005, $30.7 million; and for FY2006, $31.2 million. Places authorizations for research programs, in Sec. 5(2), 5(3), 5(4), and 5(5), under the Coastal Ocean Program so that these funds will be distributed on a competitive, peer-reviewed and merit-based basis.

The total amount authorized for all programs in the bill is divided in the following manner:

1. $3 million annually for research and assessment activities at National Ocean Service Laboratories.
2. $10.2 million annually for the ECOHAB program, of which $2 million is to be used for research on freshwater HABs.
3. $2 million in FY2004, $3 million in FY2005 and FY2006 for research on prevention, control and mitigation methods.
4. $6 million annually for the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program.
5. $5 million in FY2004, $5.5 million in FY2005, and $6 million in FY2006 for research and monitoring on hypoxia by the National Ocean Service and the Office of Oceanic and Atmospheric Research of NOAA.
6. $3 million annually for the local and regional assessments in Sec. 3(f).

Sec. 6. Coastal Ocean Science Program

Amends the Coastal Ocean Program in the National Oceanic and Atmospheric Administration Authorization Act of 1992 so that the program supports Great Lakes, estuarine and coastal ocean re-

search and assessment through competitive, peer-reviewed, and merit-based research programs. Sets authorization levels for the Coastal Ocean Science Program at $34,000,000 for FY2004, $36,000,000 for FY2005, and $38,000,000 for FY2006.

VIII. Committee Views

Sec. 2 and Sec. 3(1): Task Force Retention and Responsibilities

HAB and hypoxia events are expected to continue to increase in frequency and duration, and their annual economic impact will likely grow if not addressed adequately. These events continue to create problems that require the attention of multiple agencies. The Committee believes that retaining the Interagency Task Force on Harmful Algal Blooms and Hypoxia will facilitate following through on recommendations from the reports the Task Force produced under HABHRCA. Additionally, retaining the Task Force is necessary for activities in the legislation. The Committee requires the Task Force to work closely with state, Indian tribe and local governments and to consult with industry, academic institutions and non-governmental organizations in carrying out its requirements under H.R. 1856. This close consultation is meant to ensure that the needs of local resource managers are considered in developing research plans. Additionally, the Committee expects the Task Force to utilize the expertise of all of these groups in preparing the assessments required in the legislation.

Sec. 3(2)(b), (c) and (e): Scientific Assessments of Harmful Algal Blooms and Hypoxia

In Sec. 3(2)(b) and 3(2)(c), the Committee requires a scientific assessment of HABs once every five years. These assessments will facilitate periodic review of HAB programs. Twenty-four months after enactment of the legislation, the first of these regular assessments is due to Congress. For this first assessment, the Committee requires freshwater HABs to be examined in a separate report because this is a new area of HAB research under HABHRCA and requires the development of a research plan in addition to an assessment. Research on freshwater HABs lags behind efforts addressing marine blooms and there is no comprehensive source of information on the occurrences and effects of freshwater HABs in the United States. Additionally, the Great Lakes have recently exhibited an increase in the occurrence of HABs and more research is needed to understand this phenomenon. The Committee expects both the Great Lakes and significantly impacted upper reaches of estuaries to be considered in the freshwater HAB assessment. In future scientific assessments of HABs, one assessment should contain information about both marine and freshwater HABs.

In Sec. 3(2)(e), the Committee requires regular assessments of the current understanding and extent of hypoxia in United States waters. Since hypoxia is one symptom of coastal eutrophication (nutrient pollution), the assessments should support part of a multi-agency effort, led by NOAA, already underway to assess the scope and science of coastal eutrophication on a regular basis. The Committee takes note that the first national-scale assessment of hypoxia, which was due to Congress in 1999, has not yet been received. The Committee is extremely disappointed that this report

is four years late and expects that future reports will be delivered on time.

Sec. 3(2)(d): Research Plan Into Reducing Impacts From Harmful Algal Blooms

In the 1998 Act, funding was authorized for research on prevention, control and mitigation techniques for HABs, however NOAA never requested or received funds under this authorization because it did not have a formal research program for utilizing the money. Witnesses at the Subcommittee hearing in March 2003 stated that the science is moving towards developing these techniques and that it is time to develop a coordinated Federal support for this type of research. The Committee is aware of two potential plans in previously issued NOAA reports that the Task Force could use to develop a research plan. H.R. 1856 requires NOAA to establish a research program, based on the Task Force plan, on methods for the prevention, control and mitigation of HABs.

H.R. 1856 requires the Task Force to closely work with local resource managers in developing the research plan to ensure that it will address the needs of those managers. The Committee expects that the prevention, control and mitigation research plan will include plans for pilot-scale studies and for technology transfer and commercial application of successful methods. This will help bridge the gap between basic research and management activities, which scientists believe is an important next step in HAB research.

Sec. 3(2)(f): Local and Regional Assessments of HABs and Hypoxia

The Committee commends the Task Force for undertaking the national scale assessments of HABs and hypoxia. The assessments provide a starting point for addressing these problems that affect waters throughout the country. However, the causes of and potential mitigation methods for HAB or hypoxic events vary with regional water use, land use, and ecology. Therefore, the Act directs NOAA and the Task Force to coordinate local and regional assessments of HABs and hypoxia, as they represent an essential source of information in HABs and hypoxia. When selecting localities and regions in which to perform these assessments, the Act requires that NOAA first consider requests by states, Indian tribes, and local governments. However, NOAA may initiate an assessment if it identifies areas in which an assessment is needed and sufficient funds are available after considering the requests of state, Indian tribe and local governments.

Sec. 5 and 6: Authorizations Under the Coastal Ocean Science Program

The Act requires that all authorizations for research programs (under Sec. 605(2), 605(3), 605(4), and 605(5)) be used for research grants provided under a competitive, peer-reviewed and merit-based process. The Committee expects that, in addition to researchers from academic institutions and industry, researchers at NOAA and other Federal labs also will be able to compete for these funds. Additionally, the Committee expects the appropriate state, Indian tribe and local resource managers to be involved in the review of MERHAB research grant applications submitted under Sec. 605(4),

and prevention, control and mitigation research grant applications submitted under Sec. 605(3).

The Committee was displeased to learn earlier this year that NOAA had used funds for HAB research programs to cover operational expenses at agency labs and wants to ensure that this will not occur in the future. In the past, NOAA had taken small amounts of the funding under the authorizations for ECOHAB and MERHAB and used it for internal lab support. In FY2003, NOAA took much larger portions of this research money for its own labs, leaving researchers without grant money that had already been awarded to them. The Committee directs NOAA to place all of the funding for ECOHAB and MERHAB under the Coastal Ocean Program and to utilize the funding authorized under section 605(1) for internal lab support related to HABs and hypoxia.

IX. Cost Estimate

A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted to the Committee on Science prior to the filing of this report and is included in Section X of this report pursuant to House rule XIII, clause 3(c)(3).

H.R. 1856 does not contain new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 1856 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section X of this report.

X. Congressional Budget Office Cost Estimate

U.S. Congress,
Congressional Budget Office,
Washington, DC, July 29, 2003.

Hon. Sherwood L. Boehlert,
Chairman, Committee on Science,
House of Representatives, Washington, DC.

Dear Mr. Chairman: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1856, the Harmful Algal Bloom and Hypoxia Amendments Act of 2003.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Susanne S. Mehlman.

Sincerely,

Robert A. Sunshine
(For Douglas Holtz-Eakin, Director).

Enclosure.

H.R. 1856—Harmful Algal Bloom and Hypoxia Amendments Act of 2003

Summary: H.R. 1856 would reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 for the next five years. This legislation also would extend the life of a federal interagency task force established to assess the problems of algal blooms and hypoxia. Algal blooms are unusual concentrations of algae that produce toxins that are implicated in fish kills and are considered a possible threat to public health. They also can lead to

other damaging marine conditions such as hypoxia, which occurs when an algal bloom dies and decomposes, reducing oxygen in the water to levels that are harmful to aquatic life.

This legislation would authorize the appropriation of $29 million in 2004 and $91 million over the 2004–2006 period for various efforts by an interagency task force to control aquatic problems related to algal blooms and hypoxia. Such efforts would include research, education, and management activities related to preventing, reducing, and controlling algal blooms, local and regional assessments of harmful algal blooms and hypoxia, and the development of a prediction and response plan to protect the environment and public health from harmful algal blooms.

In addition, H.R. 1856 would authorize the appropriation of $34 million in 2004 and $108 million over the 2004–2006 period for the Coastal Ocean Science Program.

CBO estimates that implementing H.R. 1856 would cost a total of $193 million over the 2004–2008 period, assuming appropriation of the authorized amounts. Enacting H.R. 1856 would not affect direct spending or revenues. The legislation contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of H.R. 1856 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment). For this estimate, CBO assumes that H.R. 1856 will be enacted near the start of fiscal year 2004 and that the amounts authorized by the bill will be appropriated near the start of each fiscal year. Estimated outlays are based on historical spending patterns for similar programs.

	By fiscal year, in millions of dollars—					
	2003	2004	2005	2006	2007	2008
SPENDING SUBJECT TO APPROPRIATION						
Spending under current law:						
Budget authority[1]	28	0	0	0	0	0
Estimated outlays	28	11	3	2	1	0
Proposed changes:						
Algal bloom and hypoxia activities:						
Authorization level	0	29	31	31	0	0
Estimated outlays	0	18	27	29	11	4
Coastal Ocean Science Program:						
Authorization level	0	34	36	38	0	0
Estimated outlays	0	21	31	35	13	4
Spending under H.R. 1856:						
Authorization level[1]	28	63	67	69	0	0
Estimated outlays	28	50	61	66	25	8

[1] The 2003 level is the amount appropriated that year for activities currently being performed under the Harmful Algal Bloom and Hypoxia Research and Control Act and the existing Coastal Ocean Program.

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

Previous CBO estimate: On July 14, 2003, CBO transmitted a cost estimate for S. 247, the Harmful Algal Bloom and Hypoxia Amendments Act of 2003, as ordered reported by the Senate Committee on Commerce, Science, and Transportation on June 17,

2003. Both bills would reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act. CBO estimates that implementing S. 247 would cost $118 million over the 2004–2008 period while implementing H.R. 1856 would cost $192 million over the same period because the House bill would also authorize funding for the Coastal Ocean Science Program.

Estimate prepared by: Federal Costs: Susanne S. Mehlman. Impact on State, Local, and Tribal Governments: Marjorie Miller. Impact on the Private Sector: Cecil McPherson.

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

XI. Compliance With Public Law 104–4

H.R. 1856 contains no unfunded mandates.

XII. Committee Oversight Findings and Recommendations

The Committee on Science's oversight findings and recommendations are reflected in the body of this report.

XIII. Statement on General Performance Goals and Objectives

Pursuant to clause (3)(c)(4) of House rule XIII, the goals and objectives of the bill are to reauthorize programs under the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note) and to reauthorize the Coastal Ocean Science Program (Section 201 of the National Oceanic and Atmospheric Administration Authorization Act of 1992).

XIV. Constitutional Authority Statement

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 1856.

XV. Federal Advisory Committee Statement

H.R. 1856 does not establish nor authorize the establishment of any advisory committee.

XVI. Congressional Accountability Act

The Committee finds that H.R. 1856 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104–1).

XVII. Statement on Preemption of State, Local, or Tribal Law

This bill is not intended to preempt any state, local, or tribal law.

XVIII. Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

HARMFUL ALGAL BLOOM AND HYPOXIA RESEARCH AND CONTROL ACT OF 1998

TITLE VI—HARMFUL ALGAL BLOOMS AND HYPOXIA

* * * * * * *

SEC. 603. ASSESSMENTS.

(a) ESTABLISHMENT OF INTER-AGENCY TASK FORCE.—The President, through the Committee on Environment and Natural Resources of the National Science and Technology Council, shall establish an Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia (hereinafter referred to as the "Task Force"). The Task Force shall consist of the following representatives from—

(1) * * *

* * * * * * *

In developing the assessments and research plans described in subsections (b), (c), (d), (e), and (f), the Task Force shall work with appropriate State, Indian tribe, and local governments to ensure that the assessments and research plans fulfill the requirements of subsections (b)(2), (c)(2), (d)(2), (e)(2), and (f)(2). Additionally, the Task Force shall consult with appropriate industry, academic institutions, and non-governmental organizations throughout the development of the assessments and research plans.

[(b) ASSESSMENT OF HARMFUL ALGAL BLOOMS.—

[(1) Not later than 12 months after the date of the enactment of this title, the Task Force, in cooperation with the coastal States, Indian tribes, and local governments, industry (including agricultural organizations), academic institutions, and non-governmental organizations with expertise in coastal zone management, shall complete and submit to the Congress an assessment which examines the ecological and economic consequences of harmful algal blooms, alternatives for reducing, mitigating, and controlling harmful algal blooms, and the social and economic costs and benefits of such alternatives.

[(2) The assessment shall—

[(A) identify alternatives for preventing unnecessary duplication of effort among Federal agencies and departments with respect to harmful algal blooms; and

[(B) provide for Federal cooperation and coordination with and assistance to the coastal States, Indian tribes, and local governments in the prevention, reduction, management, mitigation, and control of harmful algal blooms and their environmental and public health impacts.

[(c) ASSESSMENT OF HYPOXIA.—

[(1) Not later than 12 months after the date of the enactment of this title, the Task Force, in cooperation with the States, Indian tribes, local governments, industry, agricultural, academic institutions, and non-governmental organizations with expertise in watershed and coastal zone management, shall complete and submit to the Congress an assessment which examines the ecological and economic consequences of hypoxia in United States coastal waters, alternatives for reduc-

ing, mitigating, and controlling hypoxia, and the social and economic costs and benefits of such alternatives.

[(2) The assessment shall—

[(A) establish needs, priorities, and guidelines for a peer-reviewed, inter-agency research program on the causes, characteristics, and impacts of hypoxia;

[(B) identify alternatives for preventing unnecessary duplication of effort among Federal agencies and departments with respect to hypoxia; and

[(C) provide for Federal cooperation and coordination with and assistance to the States, Indian tribes, and local governments in the prevention, reduction, management, mitigation, and control of hypoxia and its environmental impacts.

[(e) DISESTABLISHMENT OF TASK FORCE.—The President may disestablish the Task Force after submission of the plan in section 604(d).]

(b) SCIENTIFIC ASSESSMENTS OF HARMFUL ALGAL BLOOMS.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of harmful algal blooms in United States coastal waters. The first such assessment shall be completed not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 and should consider only marine harmful algal blooms. All subsequent assessments shall examine both marine and freshwater harmful algal blooms, including those in the Great Lakes and upper reaches of estuaries.

(2) The assessments under this subsection shall—

(A) examine the causes and ecological consequences, and economic costs, of harmful algal blooms;

(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating harmful algal blooms;

(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of harmful algal blooms; and

(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms.

(c) SCIENTIFIC ASSESSMENT OF FRESHWATER HARMFUL ALGAL BLOOMS.—(1) Not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of current knowledge about harmful algal blooms in freshwater locations such as the Great Lakes and upper reaches of estuaries, including a research plan for coordinating Federal efforts to better understand freshwater harmful algal blooms.

(2) The freshwater harmful algal bloom scientific assessment shall—

(A) examine the causes and ecological consequences, and the economic costs, of harmful algal blooms with significant effects

on freshwater locations, including estimations of the frequency and occurrence of significant events;

(B) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program, as part of the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project, to better understand the causes, characteristics, and impacts of harmful algal blooms in freshwater locations; and

(C) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms in freshwater locations.

(d) NATIONAL SCIENTIFIC RESEARCH PLAN INTO REDUCING IMPACTS FROM HARMFUL ALGAL BLOOMS.—(1) Not later than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, the Task Force shall develop and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a research plan providing for a comprehensive and coordinated national research program to develop prevention, control, and mitigation methods to reduce the impacts of harmful algal blooms on coastal ecosystems (including the Great Lakes), public health, and the economy.

(2) The research plan shall—

(A) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program on methods for the prevention, control, and mitigation of harmful algal blooms;

(B) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to the actions described in paragraph (1); and

(C) 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, and other underrepresented populations.

(3) The Secretary of Commerce, under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992, and in conjunction with other appropriate Federal agencies, shall establish a research program that meets the priorities and guidelines established under paragraph (2)(A). The Secretary shall ensure, through consultation with Sea Grant Programs, that the results and findings of the research program are communicated to State, Indian tribe, and local governments, and to the general public.

(e) SCIENTIFIC ASSESSMENTS OF HYPOXIA.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of hypoxia in United States coastal waters including the Great Lakes. The first such assessment shall be completed not less than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.

(2) The assessments under this subsection shall—

(A) examine the causes and ecological consequences, and the economic costs, of hypoxia;

(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating hypoxia;

(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of hypoxia, including recommendations of how to eliminate significant gaps in hypoxia modeling and monitoring data; and

(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on hypoxia.

(f) LOCAL AND REGIONAL SCIENTIFIC ASSESSMENTS.—(1) The Secretary of Commerce, in coordination with the Task Force and appropriate State, Indian tribe, and local governments, shall provide for local and regional scientific assessments of hypoxia or harmful algal blooms, as requested by State, Indian tribe, or local governments, or for affected areas as identified by the Secretary. If the Secretary receives multiple requests, the Secretary shall ensure, to the extent practicable, that assessments under this subsection cover geographically and ecologically diverse locations with significant ecological and economic impacts from hypoxia or harmful algal blooms. The Secretary shall establish a procedure for reviewing requests for local and regional assessments. The Secretary shall ensure, through consultation with Sea Grant Programs, that the findings of the assessments are communicated to the appropriate State, Indian tribe, and local governments, and to the general public.

(2) The scientific assessments under this subsection shall examine—

(A) the causes and ecological consequences, and the economic costs, of hypoxia or harmful algal blooms in that area;

(B) methods to prevent, control, and mitigate hypoxia or harmful algal blooms in that area and the potential ecological and economic costs and benefits of such methods; and

(C) other topics the Task Force considers appropriate.

(g) PREDICTION AND RESPONSE PLAN.—

(1) DEVELOPMENT OF PLAN.—Not later than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, the President, in conjunction with the chief executive officers of the States, shall develop and submit to the Congress a plan to protect the environment and public health from impacts of harmful algal blooms. In developing the plan, the President shall consult with the Task Force, the coastal States, Indian tribes, local governments, industry, academic institutions, and nongovernmental organizations with appropriate expertise.

(2) PLAN REQUIREMENTS.—The plan shall—

(A) review techniques for prediction of the onset, course, and impacts of harmful algal blooms, including an evaluation of their accuracy and utility in protecting the environment and public health and an assessment of the resources required for their implementation; and

(B) identify innovative response measures for the prevention, control, and mitigation of harmful algal blooms and

identify steps needed for their development and implementation.

(3) PUBLICATION AND OPPORTUNITY FOR COMMENT.—At least 90 days before submitting the plan to Congress, the President shall publish a summary of the proposed plan in the Federal Register for a public comment period of not less than 60 days.

* * * * * * *

[SEC. 605. AUTHORIZATION OF APPROPRIATIONS.

[There are authorized to be appropriated to the Secretary of Commerce for research, education, and monitoring activities related to the prevention, reduction, and control of harmful algal blooms and hypoxia, $15,000,000 for fiscal year 1999, $18,250,000 for fiscal year 2000, and $19,000,000 for fiscal year 2001, to remain available until expended. The Secretary shall consult with the States on a regular basis regarding the development and implementation of the activities authorized under this section. Of such amounts for each fiscal year—

[(1) $1,500,000 for fiscal year 1999, $1,500,000 for fiscal year 2000, and $2,000,000 for fiscal year 2001 may be used to enable the National Oceanic and Atmospheric Administration to carry out research and assessment activities, including procurement of necessary research equipment, at research laboratories of the National Ocean Service and the National Marine Fisheries Service;

[(2) $4,000,000 for fiscal year 1999, $5,500,000 for fiscal year 2000, and $5,500,000 for fiscal year 2001 may be used to carry out the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project under the Coastal Ocean Program established under section 201(c) of Public Law 102–567;

[(3) $1,000,000 for fiscal year 1999, $2,000,000 for fiscal year 2000, and $2,000,000 for fiscal year 2001 may be used by the National Ocean Service of the National Oceanic and Atmospheric Administration to carry out a peer-reviewed research project on management measures that can be taken to prevent, reduce, control, and mitigate harmful algal blooms;

[(4) $5,500,000 for each of the fiscal years 1999, 2000, and 2001 may be used to carry out Federal and State annual monitoring and analysis activities for harmful algal blooms administered by the National Ocean Service of the National Oceanic and Atmospheric Administration; and

[(5) $3,000,000 for fiscal year 1999, $3,750,000 for fiscal year 2000, and $4,000,000 for fiscal year 2001 may be used for activities related to research and monitoring on hypoxia by the National Ocean Service and the Office of Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration.]

SEC. 605. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of Commerce for research, education, and monitoring activities related to the prevention, reduction, and control of harmful algal blooms and hypoxia, $29,200,000 for fiscal year 2004, $30,700,000 for fiscal year 2005, and $31,200,000 for fiscal year 2006, to remain available until expended. The Secretary shall consult with the States on a regular basis regarding the development and implementation of the ac-

tivities authorized under this title. Of such amounts for each fiscal year—

(1) $3,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to enable the National Oceanic and Atmospheric Administration to carry out research and assessment activities, including procurement of necessary research equipment, at research laboratories of the National Ocean Service and the National Marine Fisheries Service;

(2) $10,200,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992, with $2,000,000 of such amount used to carry out research on freshwater harmful algal blooms;

(3) $2,000,000 for fiscal year 2004, $3,000,000 for fiscal year 2005, and $3,000,000 for fiscal year 2006 shall be used to carry out the research program described in section 603(d)(3);

(4) $6,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) project under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992;

(5) $5,000,000 for fiscal year 2004, $5,500,000 for fiscal year 2005, and $6,000,000 for fiscal year 2006 shall be used for activities related to research and monitoring on hypoxia through the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992; and

(6) $3,000,000 for each of fiscal years 2004, 2005, and 2006 shall be used to carry out the activities described in section 603(f).

* * * * * * *

SECTION 201 OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AUTHORIZATION ACT OF 1992

SEC. 201. NATIONAL OCEAN SERVICE.

(a) * * *

* * * * * * *

[(c) COASTAL OCEAN PROGRAM.—Of the sums authorized under subsection (b)(1), $17,352,000 for each of the fiscal years 1992 and 1993 are authorized to be appropriated for the purposes of conducting a Coastal Ocean Program. Such program shall augment and integrate existing programs of the National Oceanic and Atmospheric Administration and shall include efforts to improve predictions of fish stocks, to better conserve and manage living marine resources, to improve predictions of coastal ocean pollution to help correct and prevent degradation of the ocean environment, to promote development of ocean technology to support the effort of science to understand and characterize the role oceans play in glob-

al climate and environmental analysis, and to improve predictions of coastal hazards to protect human life and personal property.]

(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, and merit-based 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 Great Lakes, estuarine, and coastal ocean resources; to better conserve and manage living marine resources; 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 $34,000,000 for fiscal year 2004, $36,000,000 for fiscal year 2005, and $38,000,000 for fiscal year 2006.

* * * * * * *

XIX. COMMITTEE RECOMMENDATIONS

On July 22, 2003, a quorum being present, the Committee on Science favorably reported the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, by a voice vote, and recommended its enactment.

XX. EXCHANGE OF CORRESPONDENCE FROM OUTSIDE ORGANIZATIONS

State University of New York
COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY

Office of the President

May 27, 2003

Honorable Vernon J. Ehlers
Chairman, Subcommittee on Environment,
Technology and Standards
Committee on Science
U.S. House of Representatives
RHOB 2320
Washington, DC 20515

Dear Chairman Ehlers:

Thank you and the Committee on Science's Subcommittee on Environment, Technology and Standards for your strong leadership advancing H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, reauthorizing, amending and enhancing the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998.

This Act authorizes support for essential peer-reviewed, competitive research programs at the National Oceanic and Atmospheric Administration (NOAA), and specifically authorizes support for heretofore overlooked freshwater harmful algal blooms research needs in the Great Lakes and the development of prevention, control and mitigation methods for Great Lakes freshwater harmful algal blooms.

The State University of New York, College of Environmental Science and Forestry (SUNY-ESF) understands that a Manager's Amendment is in work for H.R. 1856 to ensure that authorized research funding is specifically designated to be used for competitive, merit-based, peer-reviewed research programs, and not other administrative purposes. This is a very good amendment and we most strongly endorse it. We also understand that specific funds—at least $2,000,000 per year—is to be authorized and designated for solely freshwater research. SUNY-ESF and the Great Lakes Research Consortium most strongly endorse such an amendment too.

Last year, a SUNY-ESF led consortium won a $3.3M Great Lakes Harmful Algal Bloom Research competitive, merit-based, peer-reviewed award. This benchmark award was long overdue and promised significant inroads for the protection of North America's largest freshwater resource, the Great Lakes. This year, the SUNY-ESF led consortium suffered a 33% agency-directed rescission. The lost funds were reprogrammed to support other administrative, non-research-based agency activities. The missed

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315-470-6681 ▫ Fax 315-470-6977 ▫ E-mail cbmurphy@esf.edu ▫ Internet: <www.esf.edu>

freshwater research opportunities going forward are significant since our effort is a vital inaugural freshwater effort.

The State University of New York, College of Environmental Science and Forestry, a globally recognized source of expertise in freshwater harmful algal blooms, most strongly supports your efforts to ensure the research authorizations in H.R. 1856 are used for the purposes for which they were intended. We look forward to working with Congress to continue these vital efforts to improve our understanding of harmful algal blooms and hypoxia and protect our Great Lakes freshwater supplies. A similar letter has been sent to Chairman Boehlert and our Congressman, Congressman Walsh.

If we can be of future assistance to you or the Subcommittee please do not hesitate to call on me.

Sincerely,

Cornelius B. Murphy, Jr.

Cornelius B. Murphy, Jr. Ph.D.
President, SUNY-ESF

cc: Dr. Gregory Boyer, Professor of Chemistry, SUNY-ESF
Michael R, Brower, Director Community & Government Relations, SUNY-ESF
Dr. Amy Carroll, Legislative Staff, Subcommittee on Environment, Technology & Standards, Committee on Science

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DEPARTMENT OF FISH AND WILDLIFE

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May 30, 2003

The Honorable Vernon J. Ehlers, Chairman
Subcommittee on Environment, Technology and Standards
United States House of Representatives
2320 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Ehlers:

I am writing to express my support to the bill recently introduced in the House of Representatives supporting the continued research of harmful algal blooms, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, H.R.1856.

Specifically, I want to express support for the proposed amendments to the bill that included the language to amend the Coastal Ocean Program (COP) at National Oceanic and Atmospheric Administration (NOAA) to read that COP shall support "competitive, peer-reviewed, merit-based research programs".

The Washington State Department of Fish and Wildlife (WDFW) recently experienced a major cut in the federal dollars we receive to continue our research and monitoring of harmful algal blooms from the NOAA / Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program. It is our hope that the language changes that have been proposed will prevent future shifts in funding away from such critical research for other purposes.

I was honored by the committee's request to WDFW staff Dan Ayers, to make the trip from Washington State to Washington D.C. to testify at your committee's hearing on "Harmful Algal Blooms and Hypoxia: Strengthening the Science" conducted March 13, 2003.

During Dan's testimony, he expressed how the topic was an especially timely issue for Washington State because our razor clam fisheries had been closed since October due to high levels of domoic acid. This closure represented an estimated $10 million loss to the already depressed economies of our small coastal communities and is the third extended closure of this key fishery because of domoic acid since 1991. In addition, Dan reported that our coastal Dungeness crab fisheries – with an expected value for the fishermen of nearly $60 million dollars this season – had been closed in one area, with the possibility of additional closures looming in the future.

The Honorable Vernon Ehlers
May 30, 2003
Page 2

Dan also had the opportunity to describe the assistance the State of Washington has enjoyed from the NOAA / MERHAB program. Washington State's MERHAB grant has allowed us to be a part of the larger collaborative effort of several state, tribal, federal and private partners under the umbrella of the Olympic Region Harmful Algal Bloom Project – or ORHAB.

The ORHAB project has allowed state and tribal technicians to receive training in the complicated field of plankton identification from world-renowned scientists. The ORHAB partners are working to develop and implement rapid detection technologies and we are currently field-testing "MIST" kits. This technology offers the promise of allowing field staff to determine the presence of toxins in shellfish tissue without having to wait for time-consuming laboratory analysis. ORHAB partners are also working to develop the use of satellite imagery, together with the instruments on a series of moored buoys to track the movement of toxic plankton cells from offshore to nearshore waters.

The cut in federal MERHAB funds by NOAA administration will have a severe impact on the work that the ORHAB project will be able to accomplish in the coming fiscal year and perhaps beyond. The proposed language changes in H.R. 1856 are necessary to prevent such impacts in the future to not only Washington State's ORHAB project, but also to similar HAB research and monitoring efforts occurring in other parts of the United States.

Coincidentally, on May 14, 2003, Washington State Governor Locke signed legislation into law that will provide future state funding for the work begun by ORHAB (as funded by MERHAB) through a surcharge on shellfish licenses. (This license surcharge will also be used to fund the Washington Department of Health's HAB toxin-testing program.)

We are pleased that Washington State has had the opportunity to use the assistance of the federal government to design and implement an effective HAB monitoring program and has now found a way to continue its operation into the future, without relying solely on federal funds.

It is clearly very important that programs like the NOAA / MERHAB program continue so that other groups around the nation who face the challenges created by HAB events have similar opportunities.

We are grateful for the attention paid by the federal government to assist us with harmful algal blooms and especially for the support you and your staff have provided in helping us to secure that federal assistance. Thank you for considering these important amendments to HR 1856. We urge you to support their inclusion in the bill.

Sincerely,

Jeff P. Koenings, Ph.D.
Director

ISSHA

International Society for the Study of Harmful Algae

May 27, 2003

The Honorable Vernon J. Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
U. S. House of Representatives
2320 Rayburn HOB
Washington, D.C. 20515
Fax: 202-226-0113

Dear Chairman Ehlers:

As the President of the International Society for the Study of Harmful Algae (ISSHA) and as a HAB researcher for more than 35 years, I support federal efforts to provide research funds for and encourage HAB research. Several of the objectives of the Society listed in the Society Statutes are "promote the study of harmful algae", "promote harmful algal research, projects, programs and training, and extend these activities to foster the related subjects of harmful algal bloom management and mitigation", and "promote public awareness of the social, economic and ecological effects caused by harmful algae".

I am writing in strong support of the H.R. 1856 bill that reauthorizes the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 and realizes some of the objectives of ISSHA. H.R. 1856 is extremely important legislation that needs to pass. Harmful Algal Blooms or HABs cause significant ecological and economic effects in both freshwater and marine environments. They need to be studied from the aspect of cause, prediction, impacts, and management. Your bill provides federal financial support for HAB studies in the United States and outlines new areas of research deserving attention. Creating assessment phases to evaluate the scientific results of supported research will enhance the program and make information available at all levels. I agree with guidelines for freshwater HAB research and HAB mitigation research to address a competitive, peer-reviewed, merit-based interagency research program that would allow academic, federal and state government, private laboratory and other scientists to submit. Many federal laboratories conduct HAB event response and because of their expertise

and facilities make substantial contributions to identifying and characterizing such events. I know as a state HAB scientist, that these federal laboratory efforts have helped to characterize toxic events. I would hope that there would be discretionary funds available through the federal agencies to continue this type of response.

Respectfully,

Karen A. Steidinger

Karen A. Steidinger, Ph.D.
President, ISSHA

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Donald M. Anderson
Senior Scientist
Department of Biology

May 23, 2003

The Honorable Vernon J. Ehlers
Subcommittee on Environment, Technology and Standards
Committee on Science
U.S. House of Representatives
2320 Rayburn House Office Building
Washington DC

Dear Chairman Ehlers:

I am writing to express my strong support of H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003. As you know, I submitted both oral and written testimony for this legislation, speaking as Director of the US National Office for Marine Biotoxins and Harmful Algal Blooms, and as a researcher with over 30 years of experience with HABs. I have been actively involved in creating and implementing the US HAB program, and feel I have a solid appreciation of the needs of that program, and the sentiments of my colleagues.

I understand that you are working on amendments to this bill that will ensure that research funding is utilized for competitive, merit-based, peer-reviewed research programs, and not for other purposes. This is a much-needed (I would even say essential) change, made all the more apparent by the recent re-direction of significant amounts of FY 03 HAB funds to meet internal NOAA funding shortfalls. Many research programs and teams were affected, including some addressing issues that affect your own district – HAB problems in freshwater lakes. We opposed those diversions, but had little room to argue since the appropriated funds were not specified for competitive, peer-reviewed research. This same situation has occurred in the past with NOAA, so we must protect the funds that are to be directed to the programs you are creating and sustaining. If I had known of this situation at the time I submitted my written testimony for your bill, I would have made this same recommendation – to authorize funds for competitive, peer-reviewed research. It is the most fair and even-handed way to distribute funds, and is the best way to achieve rapid research progress. Leaving funds unencumbered so that congressional staff can use them for earmarks or so that NOAA can re-direct them to non-HAB programs is obviously not the way to build a productive program. Let the scientific community decide what the most important HAB problems are, and who is best able to do that research.

I strongly support your efforts to safeguard the research authorizations in H.R. 1856 so that they are used for the purposes for which they were intended and look forward to working with Congress to continue efforts to improve our understanding of harmful algal blooms and hypoxia.

Respectfully,

Don Anderson

Donald M. Anderson
Senior Scientist
Director, US. National Office for Marine Biotoxins and Harmful Algal Blooms

Biology Department, MS # 32, Woods Hole Oceanographic Institution, Woods Hole MA 02543-1049 USA

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May 22, 2003

The Honorable Vernon J. Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
U.S. House of Representatives
2320 Rayburn HOB

Dear Chairman Ehlers:

I am writing to express my strong support of H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.

This Act would update the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998. It would continue support of essential programs at the National Oceanic and Atmospheric Administration (NOAA), and add support for previously overlooked research needs, namely freshwater harmful algal blooms (the CyanoHABs) in the Great Lakes and the development of prevention, control and mitigation methods for these events.

I understand that you are working on amendments to this bill that will ensure the research funding is utilized for competitive, merit-based, peer-reviewed research programs, and not used for other purposes. Because of limited funding within the amended act and the addition of new research areas such as freshwater HABs it is important to make sure that funds appropriated for the act are directed toward the intended topic – i.e. HABs and are not used for internal NOAA budget needs as happened in 2002-2003. I therefore fully support these efforts to make sure the funds are used for competitive, merit based, peer-reviewed research.

I have worked in the area of freshwater HABs for over 30 years (including the Great Lakes) and have witnessed first hand the increase in blue-green algae (cyanobacteria) HABs in lakes, reservoirs and rivers throughout the world including the US. In March of this year I was one of the five persons giving testimony to your subcommittee. I was pleased to take my time and expense and contribute what I could to the documentation toward the Acts amendments and renewal. I strongly support your efforts to safeguard the research authorizations in H.R. 1856 so that they are used for the purposes for which they were intended and look forward to working with Congress to continue efforts to improve our understanding of harmful algal blooms and hypoxia.

Respectfully,

Wayne W. Carmichael
Professor-Aquatic Biology/Toxicology
Associate Director Environmental Sciences Ph.D. Program

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May 23, 2003

The Honorable Vernon J. Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
U.S. House of Representatives
2320 Rayburn HOB

Dear Chairman Ehlers,

I would like you to know that I support H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003. This 2003 Act will allow the vital work begun by the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 to continue, as well as support important programs at the National Oceanic and Atmospheric Administration.

I am employed by university scientists who study harmful algal blooms and rely on grant funding to conduct their research. As these harmful algal blooms expand their range worldwide and their toxic impacts, it is imperative that we actively fund research to find the means to predict, manage and mitigate the detrimental impacts to people's health, our fisheries, our communities and our coastlines.

Therefore, I support your efforts to add amendments to the 2003 Act that will ensure that research funding is used for competitive, merit-based, peer-reviewed research programs, and add support for previously-overlooked research needs, namely harmful algal blooms in the Great Lakes.

Thank you.

Sincerely,

Jane Hawkey

CENTER OF MARINE BIOTECHNOLOGY
A Research Center of the University of Maryland Biotechnology Institute

The Honorable Vernon J. Ehlers
Chairman
Subcommittee on Environment, Technology and Standards
Committee on Science
U.S. House of Representatives
2320 Rayburn HOB

Dear Chairman Ehlers:

I am writing to express my strong support of H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.

This Act would update the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998. It would continue support of essential programs at the National Oceanic and Atmospheric Administration (NOAA), and add support for previously overlooked research needs, namely harmful algal blooms in the Great Lakes and the development of prevention, control and mitigation methods for these events.

I understand that you are working on amendments to this bill that will ensure the research funding is utilized for competitive, merit-based, peer-reviewed research programs, and not used for other purposes, such as internal funding shortfalls within the NOAA budget. Because of this year's administrative use of extramural funding by NOAA to fund internal budget deficits, only three extramural proposals will be funded. Our multi-regional proposal (North Carolina and Maryland) will not be funded this year because of budget restraints. This is despite our discovery that another Pfiesteria-like-organism may be responsible for many of the fishkills on the Eastern seaboard.

As a Johns Hopkins University graduate and Professor at the Center of Marine Biotechnology, I have seen first hand how the H.R. 1856 funding has exponentially increased our knowledge of harmful algae and how these funds have allowed bright young investigators to be trained to deal with this every increasing economic impact on our Nation's waters. I strongly support your efforts to safeguard the research authorizations in H.R. 1856 so that they are used for the purposes for which they were intended and look forward to working with Congress to continue efforts to improve our understanding of harmful algal blooms and hypoxia.

Respectfully,
Allen R. Place
Allen R. Place
Professor

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29 May 2003

The Honorable Vernon J. Ehlers
Chairman, Subcommittee on Environment, Technology and Standards
Committee on Science
U.S. House of Representatives
2320 Rayburn HOB

Dear Chairman Ehlers:

As an academic who is conducting research on toxic algae on the US west coast, I write to strongly support H.R. 1856, the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003. I am very grateful for your work on this bill. Continued support is critical for Harmful Algal Bloom (HAB) programs at NOAA and for other research (e.g. Great Lakes HAB research) and for applied work to reverse the ill effects of HABs throughout the nation.

I have heard that you will try and amend this H.R. 1856 to assure that research funding will be designated for competitive, merit-based, peer-reviewed research program. Such protection is imperative, as there has been egregious misuse of 2003 funding by NOAA, when monies were not so protected.

I have been working for over 10 years in California on Harmful Algal Blooms, which are common on the entire US west coast. We have known for almost 100 years that the most deadly marine algal toxin, responsible for paralytic shellfish poisoning, occurs annually along our coast. It is still relatively poorly known and little researched here. In the last 10 years we have become aware of another major west coast toxin, responsible for amnesic shellfish poisoning, which appears to be a potentially explosive issue for the public. Last year thousands of marine mammals were beached in California with symptoms of poisoning from this alga and the animal rescue centers last month in southern California were completely full with hundreds of animals being treated again for poisoning by the toxin. The sickened and dying animals had acquired the toxin by consuming "bait" fish, which are both the basis of their own fishery but also the food of some of the most valuable commercial fish landed on the western seaboard. The research community, with critical support from NOAA funding, has developed tools that can ultimately help protect the public against these growing threats, but research funding must be both be continued and augmented to meet the challenge.

I am grateful for your work on the Subcommittee on Environment, Technology and Standards and hope you will do everything possible to safeguard to protect the funding in H.R. 1856 so that it will be used for the purposes intended.

Sincerely,

Mary W. Silver

Mary W. Silver
Professor of Ocean Sciences

XXI. ADDITIONAL VIEWS

Harmful algal blooms (HAB) and hypoxia events continue to have a devastating economic impact on our coastal communities. The HAB program's emphasis on characterization of events and development of improved monitoring has prevented human exposure to algal toxins. Improved monitoring of HAB events also provides the information necessary for fishery managers to adjust open seasons to avoid toxic blooms, mitigating some of the economic losses experienced due to fishery closures. These are valuable results of our investment in this program. Unfortunately, we have not yet made progress reducing the number of bloom events. In fact, in a number of areas the problem is getting worse. The research conducted through the HAB and hypoxia programs must be targeted to address the questions of resource managers at the state and local levels and to supply the information needed to develop effective management options. We must then implement management strategies to reduce bloom events and restore the ecological and economic health of our coastal areas.

The Committee increased authorization levels for the HAB and hypoxia program in H.R. 1856 to accommodate the expansion of the research program to include the study of HAB and hypoxia events in freshwater systems and to support more work on prevention of HAB and hypoxia events. The increased authorizations reflect the Committee's recognition of this problem and the need to provide additional federal funding and leadership to solve it.

Despite the Committee's endorsement of increased funding for these activities, current budget constraints we are operating under will constrain the growth of these programs. The reduction in revenues due to the economic downturn and the implementation of substantial tax cuts, the increased costs of homeland security, and the war and reconstruction in Iraq make the realization of these authorization levels unlikely. Until the budget situation for domestic programs improves, I hold out little hope that we will realize full funding for these programs at the authorization levels contained in the original law, let alone the increased levels contained in H.R. 1856.

H.R. 1856 requires NOAA to undertake new activities in freshwater areas and to develop an action plan. The practical effect in the face of the current budget is that either the agency will not be able to do the new tasks authorized in the bill or the existing projects will have to be cut to make funds available for these new activities. If we believe NOAA needs these funding levels to address these problems we are going to have to revisit the decisions that have been made in the budget resolution and in tax policy. Otherwise, we are doing nothing more than making empty promises to state and local governments and to citizens and businesses through this authorization.

State government budgets are also under tremendous pressure. Although the regional programs such as the Olympic Region Harmful Algal Bloom (ORHAB) program originally envisioned a transition of HAB monitoring projects from federal funding to state and tribal funding after their initial 5-year funding cycle, the current severe constraints on state budgets will put the continuance of these monitoring programs in jeopardy. These monitoring programs must be sustained if we are to minimize the impacts of these bloom events on public health and on our fisheries.

The Harmful Algal Bloom program has made excellent progress in the state of Washington. NOAA has formed a productive partnership with state and tribal organizations to better understand the origins and dynamics of HAB events and to manage the events to prevent human health problems and minimize economic harm to coastal communities. H.R. 1856 continues the partnership between federal, state and local governments in the effort to address this problem and to maintain the health and viability of our coastal ecosystems.

BRIAN BAIRD.

XXII. PROCEEDINGS OF THE MARKUP BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS ON H.R. 1856, HARMFUL ALGAL BLOOM AND HYPOXIA RESEARCH AMENDMENTS ACT OF 2003

THURSDAY, JUNE 5, 2003

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS,
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. Vernon J. Ehlers [Chairman of the Subcommittee] presiding.

Chairman EHLERS. The Subcommittee will be in order. Pursuant to notice, the Subcommittee on Environment, Technology and Standards is meeting today to consider the measure H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.* I ask unanimous consent for the authority to recess the Subcommittee at any point, and without objection, it is so ordered.

Good morning, and welcome to today's markup of H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003,* and to our hearing, which will take place immediately following the markup, "Manufacturing R&D: How Can the Federal Government Help?"

It is estimated that harmful algal blooms cost the U.S. $50,000,000 a year while hypoxia causes—pardon me—severe conditions in many locations, including the Gulf of Mexico, where a dead zone the size of New Jersey develops each summer. The dead zone is an oxygen-deprived area which has no aquatic life at all. Additionally, scientists have recently observed an increase in harmful algal blooms and hypoxia in the Great Lakes, a location closer to my home.

In 1998, the Congress passed the Harmful Algal Bloom and Hypoxia Research and Control Act. The Act created a task force to examine these problems, and authorized $19,000,000 annually for research and monitoring activities related to harmful algal blooms and hypoxia. This subcommittee held a hearing in March on this subject and considered how best to reauthorize the 1998 Act.

The legislation we are considering today, H.R. 1856, will provide an updated research framework for addressing the nationwide problem of harmful algal blooms and hypoxia. The programs in this

bill will improve our ability to understand and predict harmful algal bloom events, adds the Great Lakes as an important area for harmful algal bloom and hypoxia research, and ensures the participation of local resource managers in developing research plans so that the research can be fully utilized by everyone concerned with these important issues. This bill has bipartisan support, especially from Members whose districts have been affected by harmful algal blooms and hypoxia.

I will offer a Manager's Amendment which makes some technical corrections and addresses a concern about research funding that arose after the bill was introduced. Mr. Baird also will have an amendment that will add a response plan to the bill. I urge my colleagues to support these amendments and the underlying bill as we move this important legislation through the process.

[The prepared statement of Chairman Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

Good morning and welcome to today's markup of H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003,* and to our hearing which will take place immediately following the markup, "Manufacturing R&D: How can the Federal Government Help?"

It is estimated that harmful algal blooms cost the U.S. $50 million a year, while hypoxia causes severe conditions in many locations, including the Gulf of Mexico, where a "dead" zone the size of New Jersey develops each summer. Additionally, scientists have recently observed an increase in harmful algal blooms and hypoxia in the Great Lakes, a location closer to my home.

In 1998, Congress passed the Harmful Algal Bloom and Hypoxia Research and Control Act. The Act created a Task Force to examine these problems and authorized $19 million annually for research and monitoring activities related to harmful algal blooms and hypoxia.

This subcommittee held a hearing in March on this subject and considered how best to reauthorize the 1998 Act. The legislation we are considering today, H.R. 1856, will provide an updated research framework for addressing the nationwide problem of harmful algal blooms and hypoxia. The programs in this bill will improve our ability to understand and predict harmful algal bloom events, add the Great Lakes as an important area for harmful algal bloom and hypoxia research, and ensure the participation of local resource managers in developing research plans so that the research can be fully utilized by everyone concerned with these important issues.

This bill has bipartisan support, especially from Members whose districts have been affected by harmful algal blooms and hypoxia. I will offer a Manager's Amendment, which makes some technical corrections and addresses a concern about research funding that arose after the bill was introduced. I believe Mr. Baird also will have an amendment that will add a response plan to the bill. I urge my colleagues to support these amendments and the underlying bill, as we move this important bill through the process.

Chairman EHLERS. The Chairman now recognizes Mr. Udall, the Ranking Minority Member of the Subcommittee, for his opening statement.

Mr. UDALL. Good morning. Thank you, Mr. Chairman, for bringing this bill before the Subcommittee this morning and for working with us on the amendments that you and Mr. Baird will offer. I know we would like to expedite the markup so we can proceed to the hearing that will follow the markup, so without further delay, I would ask my colleagues to support the amendments of Chairman Ehlers and my colleague, Representative Baird, and the underlying bill. With that, I yield back my time.

Chairman EHLERS. Without objection, all other Members of the Subcommittee may place opening statements in the record. So ordered.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF REPRESENTATIVE NICK SMITH

I want to thank Chairman Ehlers for holding this hearing today to markup H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.*

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. Unfortunately, research on freshwater HABs has fallen behind similar efforts targeting marine HABs. I am pleased that H.R. 1856 will provide much needed funding to research Great Lakes HABs and develop ways to prevent and control them.

Chairman EHLERS. We will now consider H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.*

[See Appendix for H.R. 1856.]

Chairman EHLERS. I ask unanimous consent that the bill be considered as read and open to amendment at any point. Without objection, so ordered.

We will move to the first amendment on the roster, which is a Management's Amendment offered by the Chair. We will ask the clerk to read the amendment.

Ms. STRATTON. Amendment to H.R. 1856 offered by Mr. Ehlers.

[See Appendix for the Amendment.]

Chairman EHLERS. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize myself for five minutes to explain the amendment. I have worked closely with Mr. Udall and Mr. Baird to develop this Manager's Amendment. This amendment makes a few technical corrections to the bill and addresses a funding problem that recently arose. NOAA, the National Oceanic and Atmospheric Administration, took fiscal year 2003 funding away from research grants on harmful algal blooms to cover operational expenses at one of its laboratories. That is a no-no in my book.

Many researchers, including some doing Great Lakes research, had their grants reduced by 30 percent. The amendment ensures that funding for research grants must be used only for research purposes. We do this by making funding under the Coastal Ocean Program, the parent program for this type of research, available only for competitive peer-reviewed and merit-based research. However, we ensure that scientists at NOAA laboratories can compete for this funding. I urge my colleagues to support this bipartisan amendment.

I yield back the balance of my time. Is there further discussion? Hearing none, a vote occurs on the amendment. All in favor of the Manager's Amendment will say aye. Those opposed, say no. The ayes have it and the amendment is agreed to.

We will now proceed to the next amendment on the roster which is being offered by Mr. Baird. The Clerk will read the amendment.

Ms. STRATTON. Amendment to H.R. 1856 offered by Mr. Baird.

[See Appendix for the Amendment.]

Chairman EHLERS. I ask unanimous consent to dispense with a further reading of the amendment. Without objection, so ordered. I recognize Mr. Baird for five minutes to explain the amendment.

Mr. BAIRD. Mr. Chairman, I want to thank you and my good friend, the Ranking Member, Mr. Udall from Colorado, for their work on this important piece of legislation and I want to thank the Committee staff for their outstanding efforts on this as well.

This may not seem like a pressing topic to many people, but if you're in an area such as mine or the Chairman's or others who are affected by this, you will understand its importance. People in Washington State on the coast where I live depend on razor clam fisheries for tourism revenue and people get great recreational satisfaction for this, and three times in the last 10 years there have been significant closures costing over $10,000,000 in losses to coastal communities that already have a significant economic impact and downturns of late. This legislation will help solve that problem and the amendment that I have offered today will help us not only study research or provide research to investigate the causes and extent, but also begin to input mechanisms to control and eradicate the problems of harmful algal blooms, so it is taking it in addition to looking at the research and causes, looking at how we can prevent and control algal blooms that do exist.

That is essentially the nature of the amendment, and without taking further time, I would ask my colleagues to support this amendment.

[The prepared statement of Mr. Baird follows:]

PREPARED STATEMENT OF REPRESENTATIVE BRIAN BAIRD

Mr. Chairman, I have an amendment at the desk.

My amendment ensures that the results of the assessments and the research that we have done thus far will be used to address the serious environmental, public health and economic problems caused by the increased intensity and frequency of harmful algal blooms in our coastal waters. Our coastal areas support many important fisheries and a diverse recreational economy.

I support the reauthorization of the research programs that have provided, and continue to provide us with new information about the extent and nature of harmful algal blooms and with more accurate methods for predicting and monitoring the onset, progression, and extent of blooms when they occur. We now need to begin the difficult task of putting our knowledge to use to reduce HAB events. My amendment requires that an action plan to reduce the frequency and intensity of HAB events be developed cooperatively with the coastal States. This will be a difficult task, however, the sooner we begin to tackle the problem the sooner we will be able to solve it.

People in my home state of Washington cannot wait for every research question to be answered before action is taken. The razor clam fisheries along the coast of Washington are subject to the third extended closure in the past 10 years. Each closure of this fishery represents the loss of over $10 million dollars to coastal communities in my home state. The research and assessments that have been carried out under the existing program initiated in 1998 have provided sufficient information for us to begin to address this problem. I urge my colleagues to support my amendment and I thank the Chairman for working with me on my amendment.

Chairman EHLERS. The gentleman yields back the balance of his time. I move to strike the last word and recognize myself for one minute. I am very pleased to support the amendment offered my colleague from Washington. We have worked closely with Mr. Baird and his staff to develop the language for the response plan and I believe this is a good addition to the bill. I encourage my colleagues to support this amendment.

Is there any further discussion on the Baird amendment? Hearing none, we will proceed to the vote. All in favor of approving the amendment will say aye. Those opposed, say no. The ayes have it and the amendment is agreed to.

Are there any other amendments? Hearing none, the question is on the bill H.R. 1856 as amended. All those in favor will say aye. All those opposed will say no. I got ahead of myself. In the opinion of the Chair, the ayes have it definitely. The amendment is approved.

I now recognize Mr. Udall for a motion.

Mr. UDALL. Mr. Chairman, I move that the Subcommittee favorably report the bill H.R. 1856 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 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 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. We will now turn to the second part of the——

[Whereupon, at 10:15 a.m., the Subcommittee proceeded to other business.]

Appendix

ROSTER, AMENDMENTS, H.R. 1856, SECTION-BY-SECTION ANALYSIS

SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS MARKUP
June 5, 2003
10:00 a.m. - 2318 RHOB

AMENDMENT ROSTER

H.R. 1856, Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003

No.	Sponsor	Description	Results
1.	Mr. Ehlers	Manager's Amendment- includes a number of technical changes and adds a new section to ensure that funding for research grants cannot be used for other purposes.	Adopted by a voice vote.
2.	Mr. Baird	Amendment inserts a new section titled, "Prediction and Response Plan." This amendment requires a plan, which reviews and evaluates techniques for prevention, control, and mitigation of harmful algal blooms.	Adopted by a voice vote.

- Motion to adopt the bill, as amended: agreed to by voice vote.
- Motion to report the bill, as amended, to the Full Committee: agreed to by voice vote.

AMENDMENTS TO H.R. 1856
OFFERED BY MR. EHLERS

Page 5, line 18, insert "and" after "harmful algal blooms;".

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

Page 5, line 23, strike "(C)" and insert "(3) The Secretary of Commerce, under the Coastal Ocean Science Program established under section 201(c) of the National Oceanic and Atmospheric Administration Authorization Act of 1992, and in conjunction with other appropriate Federal agencies, shall establish a research program that meets the priorities and guidelines established under paragraph (2)(A). The Secretary shall".

Page 6, line 10, strike "24" and insert "12".

Page 8, line 10, through page 9, line 23, amend section 4 to read as follows:

1 **SEC. 4. AUTHORIZATION OF APPROPRIATIONS.**

2 Section 605 of such Act is amended to read as fol-
3 lows:

4 **"SEC. 605. AUTHORIZATION OF APPROPRIATIONS.**

5 "There are authorized to be appropriated to the Sec-
6 retary of Commerce for research, education, and moni-
7 toring activities related to the prevention, reduction, and

1 control of harmful algal blooms and hypoxia, $29,200,000
2 for fiscal year 2004, $30,700,000 for fiscal year 2005, and
3 $31,200,000 for fiscal year 2006, to remain available until
4 expended. The Secretary shall consult with the States on
5 a regular basis regarding the development and implemen-
6 tation of the activities authorized under this title. Of such
7 amounts for each fiscal year—
8 "(1) $3,000,000 for each of fiscal years 2004,
9 2005, and 2006 shall be used to enable the National
10 Oceanic and Atmospheric Administration to carry
11 out research and assessment activities, including
12 procurement of necessary research equipment, at re-
13 search laboratories of the National Ocean Service
14 and the National Marine Fisheries Service;
15 "(2) $10,200,000 for each of fiscal years 2004,
16 2005, and 2006 shall be used to carry out the Ecol-
17 ogy and Oceanography of Harmful Algal Blooms
18 (ECOHAB) project under the Coastal Ocean Science
19 Program established under section 201(c) of the Na-
20 tional Oceanic and Atmospheric Administration Au-
21 thorization Act of 1992, with $2,000,000 of such
22 amount used to carry out research on freshwater
23 harmful algal blooms;
24 "(3) $2,000,000 for fiscal year 2004,
25 $3,000,000 for fiscal year 2005, and $3,000,000 for

1 fiscal year 2006 shall be used to carry out the re-
2 search program described in section 603(d)(3);
3 "(4) $6,000,000 for each of fiscal years 2004,
4 2005, and 2006 shall be used to carry out the Moni-
5 toring and Event Response for Harmful Algal
6 Blooms (MERHAB) project under the Coastal
7 Ocean Science Program established under section
8 201(c) of the National Oceanic and Atmospheric Ad-
9 ministration Authorization Act of 1992;
10 "(5) $5,000,000 for fiscal year 2004,
11 $5,500,000 for fiscal year 2005, and $6,000,000 for
12 fiscal year 2006 shall be used for activities related
13 to research and monitoring on hypoxia through the
14 Coastal Ocean Science Program established under
15 section 201(c) of the National Oceanic and Atmos-
16 pheric Administration Authorization Act of 1992;
17 and
18 "(6) $3,000,000 for each of fiscal years 2004,
19 2005, and 2006 shall be used to carry out the activi-
20 ties described in section 603(f).".

Page 9, after line 23, insert the following new section:

1 **SEC. 5. COASTAL OCEAN SCIENCE PROGRAM.**

2 Section 201(c) of the National Oceanic and Atmos-
3 pheric Administration Authorization Act of 1992 is
4 amended to read as follows:

5 "(c) COASTAL OCEAN SCIENCE PROGRAM.—

6 "(1) IN GENERAL.—There shall be in the Na-
7 tional Oceanic and Atmospheric Administration a
8 Coastal Ocean Science Program that supports Great
9 Lakes, estuarine, and coastal ocean research and as-
10 sessment through competitive, peer-reviewed, and
11 merit-based research programs.

12 "(2) PROGRAM ELEMENTS.—The Coastal
13 Ocean Science Program shall augment and integrate
14 existing research capabilities of the National Oceanic
15 and Atmospheric Administration, other Federal
16 agencies, and the academic community. Research
17 shall be conducted to improve predictions of eco-
18 system trends in Great Lakes, estuarine, and coastal
19 ocean resources to better conserve and manage living
20 marine resources; to improve predictions of effects of
21 coastal and Great Lakes pollution to help correct
22 and prevent environmental degradation; to improve
23 understanding and characterization of the role
24 oceans play in global climate and environmental
25 analysis; and to improve predictions of coastal haz-

1 ards to protect human life, personal property, and
2 ecosystem function.
3 "(3) AUTHORIZATION OF APPROPRIATIONS.—
4 There are authorized to be appropriated to the Sec-
5 retary of Commerce for implementing the Coastal
6 Ocean Science Program $34,000,000 for fiscal year
7 2004, $36,000,000 for fiscal year 2005, and
8 $38,000,000 for fiscal year 2006.".

AMENDMENT TO H.R. 1856
OFFERED BY MR. BAIRD

Page 8, line 10, redesignate section 4 as section 5.

Page 8, after line 9, insert the following new section:

1 **SEC. 4. PREDICTION AND RESPONSE PLAN.**

2 Section 603 of such Act is further amended by adding
3 at the end the following new subsection:

4 "(g) PREDICTION AND RESPONSE PLAN.—

5 "(1) DEVELOPMENT OF PLAN.—Not later than
6 12 months after the date of enactment of the Harm-
7 ful Algal Bloom and Hypoxia Research Amendments
8 Act of 2003, the President, in conjunction with the
9 chief executive officers of the States, shall develop
10 and submit to the Congress a plan to protect the en-
11 vironment and public health from impacts of harm-
12 ful algal blooms. In developing the plan, the Presi-
13 dent shall consult with the Task Force, the coastal
14 States, Indian tribes, local governments, industry,
15 academic institutions, and nongovernmental organi-
16 zations with appropriate expertise.

17 "(2) PLAN REQUIREMENTS.—The plan shall—

18 "(A) review techniques for prediction of
19 the onset, course, and impacts of harmful algal
20 blooms, including an evaluation of their accu-

1 racy and utility in protecting the environment
2 and public health and an assessment of the re-
3 sources required for their implementation; and
4 "(B) identify innovative response measures
5 for the prevention, control, and mitigation of
6 harmful algal blooms and identify steps needed
7 for their development and implementation.
8 "(3) PUBLICATION AND OPPORTUNITY FOR
9 COMMENT.—At least 90 days before submitting the
10 plan to Congress, the President shall publish a sum-
11 mary of the proposed plan in the Federal Register
12 for a public comment period of not less than 60
13 days.".

108TH CONGRESS
1ST SESSION

H. R. 1856

To reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 29, 2003

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

A BILL

To reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, 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 "Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003".

SEC. 2. RETENTION OF TASK FORCE.

Section 603 of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note) is amended by striking subsection (e).

SEC. 3. SCIENTIFIC ASSESSMENTS AND RESEARCH PLANS.

Such section 603 is further amended—

(1) in subsection (a) by adding at the end the following:

"In developing the assessments and research plans described in subsections (b), (c), (d), (e), and (f), the Task Force shall work with appropriate State, Indian tribe, and local governments to ensure that the assessments and research plans fulfill the requirements of subsections (b)(2), (c)(2), (d)(2), (e)(2), and (f)(2). Additionally, the Task Force shall consult with appropriate industry, academic institutions, and nongovernmental organizations throughout the development of the assessments and research plans."; and

(2) by striking subsections (b) and (c) and inserting the following:

"(b) SCIENTIFIC ASSESSMENTS OF HARMFUL ALGAL BLOOMS.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of harmful algal blooms in United States coastal waters. The first such assessment shall be completed not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 and should consider only marine harmful algal blooms. All subsequent assessments shall examine both marine and freshwater harmful algal blooms, including those in the Great Lakes and upper reaches of estuaries.

"(2) The assessments under this subsection shall—

"(A) examine the causes and ecological consequences, and economic costs, of harmful algal blooms;

"(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating harmful algal blooms;

"(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of harmful algal blooms; and

"(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms.

"(c) SCIENTIFIC ASSESSMENT OF FRESHWATER HARMFUL ALGAL BLOOMS.—(1) Not later than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 the Task Force shall complete and sub-

mit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of current knowledge about harmful algal blooms in freshwater locations such as the Great Lakes and upper reaches of estuaries, including a research plan for coordinating Federal efforts to better understand freshwater harmful algal blooms.

"(2) The freshwater harmful algal bloom scientific assessment shall—

"(A) examine the causes and ecological consequences, and the economic costs, of harmful algal blooms with significant effects on freshwater locations, including estimations of the frequency and occurrence of significant events;

"(B) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program, as part of the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) project, to better understand the causes, characteristics, and impacts of harmful algal blooms in freshwater locations; and

"(C) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms in freshwater locations.

"(d) NATIONAL SCIENTIFIC RESEARCH PLAN INTO REDUCING IMPACTS FROM HARMFUL ALGAL BLOOMS.—(1) Not later than 12 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003, the Task Force shall develop and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a research plan providing for a comprehensive and coordinated national research program to develop prevention, control, and mitigation methods to reduce the impacts of harmful algal blooms on coastal ecosystems (including the Great Lakes), public health, and the economy.

"(2) The research plan shall—

"(A) establish priorities and guidelines for a competitive, peer-reviewed, merit-based interagency research program on methods for the prevention, control, and mitigation of harmful algal blooms;

"(B) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to the actions described in paragraph (1); and

"(C) ensure, through consultation with Sea Grant Programs, that the results and findings of the research program are communicated to State, Indian tribe, and local governments, and to the general public.

"(e) SCIENTIFIC ASSESSMENTS OF HYPOXIA.—(1) Not less than once every 5 years the Task Force shall complete and submit to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a scientific assessment of hypoxia in United States coastal waters including the Great Lakes. The first such assessment shall be completed not less than 24 months after the date of enactment of the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003.

"(2) The assessments under this subsection shall—

"(A) examine the causes and ecological consequences, and the economic costs, of hypoxia;

"(B) describe the potential ecological and economic costs and benefits of possible policy and management actions for preventing, controlling, and mitigating hypoxia;

"(C) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of hypoxia, including recommendations of how to eliminate significant gaps in hypoxia modeling and monitoring data; and

"(D) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on hypoxia.

"(f) LOCAL AND REGIONAL SCIENTIFIC ASSESSMENTS.—(1) The Secretary of Commerce, in coordination with the Task Force and appropriate State, Indian tribe, and local governments, shall provide for local and regional scientific assessments of hypoxia or harmful algal blooms, as requested by State, Indian tribe, or local governments, or for affected areas as identified by the Secretary. If the Secretary receives multiple requests, the Secretary shall ensure, to the extent practicable, that assessments under this subsection cover geographically and ecologically diverse locations with significant ecological and economic impacts from hypoxia or harmful algal blooms. The Secretary shall establish a procedure for reviewing requests for local and regional assessments. The Secretary shall ensure, through consultation with Sea Grant Programs, that the findings of the assessments are communicated to the appropriate State, Indian tribe, and local governments, and to the general public.

"(2) The scientific assessments under this subsection shall examine—

"(A) the causes and ecological consequences, and the economic costs, of hypoxia or harmful algal blooms in that area;

"(B) methods to prevent, control, and mitigate hypoxia or harmful algal blooms in that area and the potential ecological and economic costs and benefits of such methods; and

"(C) other topics the Task Force consider appropriate.".

SEC. 4. AUTHORIZATION OF APPROPRIATIONS.

Section 605 of such Act is amended—

(1) by striking "and $19,000,000 for fiscal year 2001" and inserting "$19,000,000 for fiscal year 2001, $27,200,000 for fiscal year 2004, $28,700,000 for fiscal year 2005, and $29,200,000 for fiscal year 2006";

(2) in paragraph (1) by striking "and" after "2000," and by inserting ", and $3,000,000 for each of fiscal years 2004, 2005, and 2006" after "2001";

(3) in paragraph (2) by striking "and" after "2000," and by inserting ", and $10,200,000, of which $2,000,000 shall be used for the research program described in section 603(c)(2)(B), for each of fiscal years 2004, 2005, and 2006" after "2001";

(4) in paragraph (3) by striking "and" after "2000," and by inserting ", $2,000,000 for fiscal year 2004, $3,000,000 for fiscal year 2005, and $3,000,000 for fiscal year 2006" after "2001";

(5) in paragraph (4) by striking "2001" and inserting "2001, and $6,000,000 for each of fiscal years 2004, 2005, and 2006,";

(6) in paragraph (4) by inserting "the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) project under" after "administered by";

(7) by striking "and" after the semicolon at the end of paragraph (4);

(8) in paragraph (5) by striking "and" after "2000," and by inserting ", $5,000,000 for fiscal year 2004, $5,500,000 for fiscal year 2005, and $6,000,000 for fiscal year 2006" after "2001";

(9) in paragraph (5) by striking "Administration." and inserting "Administration; and"; and

(10) by adding at the end the following:

"(6) $3,000,000 for each of fiscal years 2004, 2005, and 2006 to carry out the activities described in section 603(f).".

SECTION-BY-SECTION ANALYSIS OF H.R. 1856, HARMFUL ALGAL BLOOM AND HYPOXIA RESEARCH AMENDMENTS ACT OF 2003

Summary: This Act would amend the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA) (16 U.S.C. 1451 note). HABHRCA provided for a Task Force to develop two reports assessing harmful algal blooms and hypoxia at the national scale and two reports addressing hypoxia in the Gulf of Mexico. Additionally, HABHRCA authorized funding through the National Oceanic and Atmospheric Association (NOAA) for research on harmful algal blooms and hypoxia. The draft bill would retain the Task Force, reauthorize existing research programs, require an assessment of freshwater harmful algal blooms (HABs), and require NOAA to conduct regional assessments of HABs and hypoxia.

Sec. 1. Short Title.

"Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003".

Sec. 2. Retention of Task Force.

Amends HABHRCA by striking subsection 605(e), which provided for the disestablishment of the Task Force after the plans were submitted. Retaining the Task Force will facilitate following through on recommendations from the reports produced by it and is necessary for other activities in the legislation.

Sec. 3. Scientific Assessments and Research Plans.

Amends Sec. 603 of HABHRCA as described below:

Sec. 3(1). Task Force Activities.

Amends Sec. 603(a) of HABHRCA to require the Task Force to work with local resources managers and consult with academic researchers, industry and nongovernmental organizations in developing assessments and research plans.

Sec. 3(2). Amends Sec. 603(b) and (c) of HABHRCA by striking those sections and inserting the sections described below:

Sec. 3(2)(b). Scientific Assessments of Harmful Algal Blooms.

Requires a nationwide assessment of HABs once every five years. This first assessment would include only marine HABs and all subsequent assessments would include marine and freshwater (including the Great Lakes and upper reaches of estuaries) HABs. The timing of the first assessment coincides with a revision, already underway, of national research priorities for marine biotoxin and harmful algal bloom research.

Sec. 3(2)(c). Scientific Assessment of Freshwater Harmful Algal Blooms.

Requires a one-time assessment of freshwater HABs that in the future would be incorporated into the HAB assessment in Sec. 3(2)(b). Requires the development of a research plan for incorporating freshwater HAB research into the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) interagency grant program. Research on freshwater HABs lags behind efforts addressing marine blooms and there is no comprehensive source of information on the occurrence and effects of freshwater HABs in the United States. Additionally, the Great Lakes have recently exhibited an increase in the occurrence of HABs and more research is needed to understand this phenomenon.

Sec. 3(d). National Scientific Research Plan into Reducing Impacts From Harmful Algal Blooms.

Requires a research plan to develop methods in the prevention, control and mitigation of HABs. In the past, funding for research on such methods never was appropriated because there was no consensus plan for using such funding. There are two potential plans in previously issued NOAA reports that the Task Force could use to develop a research plan. Such a plan would help bridge the gap between basic research and management activities, which scientists believe is an important next step in HAB research.

Sec. 3(e). Scientific Assessments of Hypoxia.

Requires national hypoxia scientific assessments once every five years. Since hypoxia is one symptom of coastal eutrophication (nutrient pollution), the assessments would support part of a multi-agency effort, led by NOAA, already underway to assess the scope and science of coastal eutrophication on a regular basis.

Sec. 3(f). Local and Regional Scientific Assessments.

Authorizes funding for local and regional scientific assessments of HABs and hypoxia, as requested by localities and coordinated through the Task Force and the National Ocean Service (NOS) at NOAA. Local and regional assessments would be more useful to the state and local resource managers because the causes of and potential mitigation methods for HAB or hypoxic events vary with regional water use, land use, and ecology. NOAA and the Task Force are in a good position to help coordinate such assessments since they are a central source of expertise about HABs and hypoxia.

Sec. 4. Authorization of Appropriations.

Amends Sec. 605 of HABHRCA by adding authorizations for 2004, 2005, and 2006. Total authorizations for 2004 would be $29.2 million; for 2005, $30.7 million; and for 2006, $31.2 million.

This total is divided among the following programs:

1. $3 million annually for research and assessment activities at National Ocean Service Laboratories.
2. $10.2 million for the ECOHAB program, of which $2 million should be used for research on freshwater HABs.
3. $2 million in 2004, $3 million in 2005 and 2006 for research on prevention, control and mitigation methods.
4. $6 million annually for the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program.
5. $5 million in 2004, $5.5 million in 2005, and $6 million in 2006 for research and monitoring on hypoxia by the National Ocean Service and the Office of Oceanic and Atmospheric Research of NOAA.
6. $3 million annually for the local and regional assessments in Sec. 3(f).

XXIII. PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 1856, HARMFUL ALGAL BLOOM AND HYPOXIA RESEARCH AMENDMENTS ACT OF 2003

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.

Chairman BOEHLERT. The next item on the agenda is—we will now consider the bill H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003* as amended. I now recognize Mr. Ehlers for an opening statement.

Mr. EHLERS. Thank you, Mr. Chairman. I am pleased to be moving on to a non-controversial bill.

It is estimated that harmful algal blooms, also known as red tides, cost the United States $50 million a year, while hypoxia causes severe problems in the Gulf of Mexico, where a large dead zone of oxygen-depleted water develops each summer, generally in an area about the size of the State of New Jersey. Additionally, scientists have recently observed an increase of harmful algal blooms and hypoxia in the Great Lakes, a growing concern for residents in my home State of Michigan and in other Great Lake states.

In 1998, Congress passed the Harmful Algal Bloom and Hypoxia Research and Control Act. The Act created a task force to examine these problems and authorized $19 million annually for research and monitoring activities. This past March, the Environment, Technology and Standards Subcommittee held a hearing on harmful algal blooms and hypoxia and, based on comments received at that hearing, developed H.R. 1856 to reauthorize the 1998 Act.

H.R. 1856 updates the authorization levels to $30 million annually. The programs in H.R. 1856 will improve our ability to understand and predict harmful algal bloom events, add the Great Lakes as an important area of research on these topics and ensure the participation of local resource managers in developing research plans so that the research can be fully utilized by everyone concerned with these important issues.

Additionally, at the Subcommittee markup, we ensured that harmful algal bloom and hypoxia research funds would be used for peer-reviewed research efforts and not diverted for operational purposes. This was in response to actions this past spring, when

NOAA took fiscal year 2003 money away from research grants to cover operational expenses at one of its laboratories.

H.R. 1856 is an important bill that provides an updated research framework for addressing the nationwide problem of harmful algal blooms and hypoxia. This bill has bipartisan support and I urge my colleagues to support 18—H.R. 1856 as we move this bill through the process.

[The prepared statement of Mr. Ehlers follows:]

PREPARED STATEMENT OF CHAIRMAN VERNON J. EHLERS

It is estimated that harmful algal blooms, also known as red tides, cost the U.S. $50 million a year, while hypoxia causes severe problems in the Gulf of Mexico, where a large "dead zone" of oxygen-depleted water develops each summer. Additionally, scientists have recently observed an increase of harmful algal blooms and hypoxia in the Great Lakes, a growing concern for residents in my home state of Michigan and in other Great Lakes states.

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H.R. 1856 updates the authorization levels to $30 million annually. The programs in H.R. 1856 will improve our ability to understand and predict harmful algal bloom events, add the Great Lakes as an important area for research on these topics, and ensure the participation of local resource managers in developing research plans so that the research can be fully utilized by everyone concerned with these important issues.

Additionally, at the Subcommittee markup we ensured that harmful algal bloom and hypoxia research funds would be used for peer-reviewed research efforts, and not diverted for operational purposes. This was in response to actions this past spring, when NOAA took fiscal year 2003 money away from research grants to cover operational expenses at one of its laboratories.

H.R. 1856 is an important bill that provides an updated research framework for addressing the nationwide problem of harmful algal blooms and hypoxia. This bill has bipartisan support and I urge my colleagues to support H.R. 1856 as we move this bill through the process.

Chairman BOEHLERT. Thank you very much, Dr. Ehlers, and I want to thank you and the gentleman I am now about to recognize for the outstanding cooperative effort you have put into this bill. The Chair now recognizes Mr. Udall for five minutes.

Mr. UDALL. Thank you, Mr. Chairman. I won't take the entire five minutes. It has been a long day. I, too, wanted to lend my support to this important piece of legislation. I want to thank the Chairman of the Subcommittee, Mr. Ehlers, my good friend from Michigan, for his outstanding work, and also acknowledge the work of Mr. Baird on our side of the aisle for his part, and with that, I would urge the Committee pass the bill onto the full House and hopefully, we can see this enacted into law as soon as possible.

Chairman BOEHLERT. Without objection, all Members may place opening statements in the record at this point.

[The prepared statement of Mr. Costello follows:]

PREPARED STATEMENT OF REPRESENTATIVE JERRY F. COSTELLO

Markup of H.R. 1085, *NASA Flexibility Act of 2003;* H.R. 2734, *Federal Aviation Administration Research and Development Authorization Act;* H.R. 1856, *Harmful Algal Bloom and Hypoxia Research Amendments of 2003;* H.R. 2183, *Minority Serving Institution Digital and Wireless Technology Opportunity Act of 2003;* H.R. 2608, *National Earthquake Hazards Reduction Program Reauthorization Act of 2003;* and H.R. 2692, *United States Fire Administration Authorization Act of 2003.*

Goad 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. 262, 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.

Chairman BOEHLERT. I ask unanimous consent that the bill is 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. The bill is now open for amendment. The amendment pending is amendment #1 offered by Ms. Jackson Lee from Texas. Are you ready to proceed?

Ms. JACKSON LEE. I am, Mr. Chairman. Let me thank the Chairman of the Subcommittee and Ranking Member of the Subcommittee for very——

Chairman BOEHLERT. The Clerk will report the amendment.

Ms. JACKSON LEE. I have an amendment at the desk. Moving so quickly.

The CLERK. Amendment to H.R. 1856 offered by Ms. Jackson Lee of Texas.

[The amendment is located in the Appendix.]

Chairman BOEHLERT. I ask unanimous consent to dispense with the reading. Without objection, so ordered. Ms. Jackson Lee is recognized.

Ms. JACKSON LEE. Let me start again.

Chairman BOEHLERT. For five minutes.

Ms. JACKSON LEE. Thank you, Mr. Chairman. Let me thank the Ranking Member and the Chairman of the Subcommittee for a very thoughtful legislative initiative and not belabor the point and say that this amendment is to expand the opportunities, where practical, to include in the research of such important studies regarding the algal blooms, of historically black colleges and universities, Hispanic, Native American, Asian-Pacific Americans, and I

appreciate that the Committee has been generally supportive of these amendments, and I would ask my colleagues to support it.

[The prepared statement of Ms. Lee follows:]

PREPARED STATEMENT OF REPRESENTATIVE SHEILA JACKSON LEE

Mr. Chairman,

It is critical that as we kick off this important research initiative, we ensure that all institutions with great skills and expertise are brought to the table. This nation has a rich and diverse system of institutions of higher learning. This 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 includes to the maximum extent practicable, diverse institutions, including Historically Flack 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 headers and educators in this field is as diverse as this great nation.

There has long been a disparity between funding of large universities and smaller institutions, such as HBCUs and other minority serving colleges. This amendment will ensure that our federal research programs are as inclusive as possible, and not exclusive of people and programs that need and deserve support.

I hope you can support it.

Chairman BOEHLERT. Thank you very much.

Ms. JACKSON LEE. I yield back.

Chairman BOEHLERT. It is a quality amendment. The Chair is prepared to accept the amendment. The vote is on the amendment. All in favor say aye. Aye. Opposed, no. The ayes have it and the amendment is adopted. Is there anyone else that has an amendment? Is there further discussion? If no, the vote occurs, and—we have already voted that. We are getting there. We are moving right along. The question is on the bill, H.R. 1856, the *Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003,* as amended. All those in favor will say aye. Aye. Opposed, say no. In the opinion of the Chair, the ayes have it. I will now recognize Mr. Hall for a motion.

Mr. HALL. Mr. Chairman, I move that the Committee favorably report H.R. 1856, 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 necessary steps to bring the bill before the House for consideration.

Chairman BOEHLERT. The Chair notes the presence of a reported quorum. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. 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. 1856 or a similar Senate bill. Without objection, so ordered.

[Whereupon the Committee proceeded to other business.]

Appendix

AMENDMENT ROSTER, AMENDMENT, H.R. 1856 AS AMENDED BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS, SECTION-BY-SECTION ANALYSIS

COMMITTEE ON SCIENCE

FULL COMMITTEE MARKUP

July 22, 2003

AMENDMENT ROSTER

H.R. 1856, Harmful Algal Bloom and Hypoxia Research Amendments 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	Results
1.	Ms. Jackson Lee	Amendment adds language to the bill on diverse institutions.	--Adopted by a voice vote.

AMENDMENT TO H.R. 1856

OFFERED BY MS. JACKSON-LEE OF TEXAS

Page 5, at the end of line 7, strike "and".

Page 5, line 11, strike the period and insert "; and".

Page 5, after line 11, insert the following:

1 "(C) include to the maximum extent practicable
2 diverse institutions, including Historically Black Col-
3 leges and Universities and those serving large pro-
4 portions of Hispanics, Native Americans, Asian-Pa-
5 cific Americans, and other underrepresented popu-
6 lations.

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

June 5, 2003

MEMORANDUM

TO: Chairman Boehlert

FROM: Vernon Ehlers, Chairman
Subcommittee on Environment, Technology, and Standards

SUBJECT: Subcommittee Markup of H.R. 1856

On June 5, 2003, the Subcommittee on Environment, Technology, and Standards marked up H.R. 1856, Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003. The following actions occurred during the markup:

- A manager's amendment offered by Mr. Ehlers, which included a number of technical changes and adds a new section to ensure that funding for research grants cannot be used for other purposes, was approved by voice vote.
- An amendment offered by Mr. Baird, which inserts a new section titled, "Prediction and Response Plan." This amendment requires a plan, which reviews and evaluates techniques for prevention, control, and mitigation of harmful algal blooms. The amendment was approved by a voice vote.
- Motion to adopt the bill, as amended: agreed to by voice vote.
- Motion to report the bill, as amended, to the Full Committee: agreed to by voice vote.

Attached is a copy of the measure as reported by the subcommittee, as well as the Section-by-section analysis.

Attachments (2)

H.R. 1856, AS AMENDED BY THE SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS ON JUNE 5, 2003

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the "Harmful Algal Bloom
3 and Hypoxia Research Amendments Act of 2003".

4 **SEC. 2. RETENTION OF TASK FORCE.**

5 Section 603 of the Harmful Algal Bloom and Hy-
6 poxia Research and Control Act of 1998 (16 U.S.C. 1451
7 note) is amended by striking subsection (e).

8 **SEC. 3. SCIENTIFIC ASSESSMENTS AND RESEARCH PLANS.**

9 Such section 603 is further amended—

10 (1) in subsection (a) by adding at the end the
11 following:

12 "In developing the assessments and research plans de-
13 scribed in subsections (b), (c), (d), (e), and (f), the Task
14 Force shall work with appropriate State, Indian tribe, and
15 local governments to ensure that the assessments and re-
16 search plans fulfill the requirements of subsections (b)(2),
17 (c)(2), (d)(2), (e)(2), and (f)(2). Additionally, the Task
18 Force shall consult with appropriate industry, academic
19 institutions, and non-governmental organizations through-
20 out the development of the assessments and research
21 plans."; and

1 (2) by striking subsections (b) and (c) and in-
2 serting the following:
3 "(b) SCIENTIFIC ASSESSMENTS OF HARMFUL ALGAL
4 BLOOMS.—(1) Not less than once every 5 years the Task
5 Force shall complete and submit to the Committee on
6 Science of the House of Representatives and the Com-
7 mittee on Commerce, Science, and Transportation of the
8 Senate a scientific assessment of harmful algal blooms in
9 United States coastal waters. The first such assessment
10 shall be completed not later than 24 months after the date
11 of enactment of the Harmful Algal Bloom and Hypoxia
12 Research Amendments Act of 2003 and should consider
13 only marine harmful algal blooms. All subsequent assess-
14 ments shall examine both marine and freshwater harmful
15 algal blooms, including those in the Great Lakes and
16 upper reaches of estuaries.
17 "(2) The assessments under this subsection shall—
18 "(A) examine the causes and ecological con-
19 sequences, and economic costs, of harmful algal
20 blooms;
21 "(B) describe the potential ecological and eco-
22 nomic costs and benefits of possible policy and man-
23 agement actions for preventing, controlling, and
24 mitigating harmful algal blooms;

1 "(C) evaluate progress made by, and the needs
2 of, Federal research programs on the causes, charac-
3 teristics, and impacts of harmful algal blooms; and
4 "(D) identify ways to improve coordination and
5 to prevent unnecessary duplication of effort among
6 Federal agencies and departments with respect to
7 research on harmful algal blooms.
8 "(c) SCIENTIFIC ASSESSMENT OF FRESHWATER
9 HARMFUL ALGAL BLOOMS.—(1) Not later than 24
10 months after the date of enactment of the Harmful Algal
11 Bloom and Hypoxia Research Amendments Act of 2003
12 the Task Force shall complete and submit to the Com-
13 mittee on Science of the House of Representatives and the
14 Committee on Commerce, Science, and Transportation of
15 the Senate a scientific assessment of current knowledge
16 about harmful algal blooms in freshwater locations such
17 as the Great Lakes and upper reaches of estuaries, includ-
18 ing a research plan for coordinating Federal efforts to bet-
19 ter understand freshwater harmful algal blooms.
20 "(2) The freshwater harmful algal bloom scientific
21 assessment shall—
22 "(A) examine the causes and ecological con-
23 sequences, and the economic costs, of harmful algal
24 blooms with significant effects on freshwater loca-

1 tions, including estimations of the frequency and oc-
2 currence of significant events;
3 "(B) establish priorities and guidelines for a
4 competitive, peer-reviewed, merit-based interagency
5 research program, as part of the Ecology and
6 Oceanography of Harmful Algal Blooms (ECOHAB)
7 project, to better understand the causes, characteris-
8 tics, and impacts of harmful algal blooms in fresh-
9 water locations; and
10 "(C) identify ways to improve coordination and
11 to prevent unnecessary duplication of effort among
12 Federal agencies and departments with respect to
13 research on harmful algal blooms in freshwater loca-
14 tions.
15 "(d) NATIONAL SCIENTIFIC RESEARCH PLAN INTO
16 REDUCING IMPACTS FROM HARMFUL ALGAL BLOOMS.—
17 (1) Not later than 12 months after the date of enactment
18 of the Harmful Algal Bloom and Hypoxia Research
19 Amendments Act of 2003, the Task Force shall develop
20 and submit to the Committee on Science of the House of
21 Representatives and the Committee on Commerce,
22 Science, and Transportation of the Senate a research plan
23 providing for a comprehensive and coordinated national
24 research program to develop prevention, control, and miti-
25 gation methods to reduce the impacts of harmful algal

1 blooms on coastal ecosystems (including the Great Lakes),
2 public health, and the economy.
3 "(2) The research plan shall—
4 "(A) establish priorities and guidelines for a
5 competitive, peer-reviewed, merit-based interagency
6 research program on methods for the prevention,
7 control, and mitigation of harmful algal blooms; and
8 "(B) identify ways to improve coordination and
9 to prevent unnecessary duplication of effort among
10 Federal agencies and departments with respect to
11 the actions described in paragraph (1).
12 "(3) The Secretary of Commerce, under the Coastal
13 Ocean Science Program established under section 201(c)
14 of the National Oceanic and Atmospheric Administration
15 Authorization Act of 1992, and in conjunction with other
16 appropriate Federal agencies, shall establish a research
17 program that meets the priorities and guidelines estab-
18 lished under paragraph (2)(A). The Secretary shall en-
19 sure, through consultation with Sea Grant Programs, that
20 the results and findings of the research program are com-
21 municated to State, Indian tribe, and local governments,
22 and to the general public.
23 "(c) SCIENTIFIC ASSESSMENTS OF HYPOXIA.—(1)
24 Not less than once every 5 years the Task Force shall
25 complete and submit to the Committee on Science of the

1 House of Representatives and the Committee on Com-
2 merce, Science, and Transportation of the Senate a sci-
3 entific assessment of hypoxia in United States coastal wa-
4 ters including the Great Lakes. The first such assessment
5 shall be completed not less than 12 months after the date
6 of enactment of the Harmful Algal Bloom and Hypoxia
7 Research Amendments Act of 2003.

8 "(2) The assessments under this subsection shall—

9 "(A) examine the causes and ecological con-
10 sequences, and the economic costs, of hypoxia;

11 "(B) describe the potential ecological and eco-
12 nomic costs and benefits of possible policy and man-
13 agement actions for preventing, controlling, and
14 mitigating hypoxia;

15 "(C) evaluate progress made by, and the needs
16 of, Federal research programs on the causes, charac-
17 teristics, and impacts of hypoxia, including rec-
18 ommendations of how to eliminate significant gaps
19 in hypoxia modeling and monitoring data; and

20 "(D) identify ways to improve coordination and
21 to prevent unnecessary duplication of effort among
22 Federal agencies and departments with respect to
23 research on hypoxia.

24 "(f) LOCAL AND REGIONAL SCIENTIFIC ASSESS-
25 MENTS.—(1) The Secretary of Commerce, in coordination

1 with the Task Force and appropriate State, Indian tribe,
2 and local governments, shall provide for local and regional
3 scientific assessments of hypoxia or harmful algal blooms,
4 as requested by State, Indian tribe, or local governments,
5 or for affected areas as identified by the Secretary. If the
6 Secretary receives multiple requests, the Secretary shall
7 ensure, to the extent practicable, that assessments under
8 this subsection cover geographically and ecologically di-
9 verse locations with significant ecological and economic
10 impacts from hypoxia or harmful algal blooms. The Sec-
11 retary shall establish a procedure for reviewing requests
12 for local and regional assessments. The Secretary shall en-
13 sure, through consultation with Sea Grant Programs, that
14 the findings of the assessments are communicated to the
15 appropriate State, Indian tribe, and local governments,
16 and to the general public.
17 "(2) The scientific assessments under this subsection
18 shall examine—
19 "(A) the causes and ecological consequences,
20 and the economic costs, of hypoxia or harmful algal
21 blooms in that area;
22 "(B) methods to prevent, control, and mitigate
23 hypoxia or harmful algal blooms in that area and
24 the potential ecological and economic costs and bene-
25 fits of such methods; and

1 "(C) other topics the Task Force considers ap-
2 propriate.".

3 **SEC. 4. PREDICTION AND RESPONSE PLAN.**

4 Section 603 of such Act is further amended by adding
5 at the end the following new subsection:

6 "(g) PREDICTION AND RESPONSE PLAN.—

7 "(1) DEVELOPMENT OF PLAN.—Not later than
8 12 months after the date of enactment of the Harm-
9 ful Algal Bloom and Hypoxia Research Amendments
10 Act of 2003, the President, in conjunction with the
11 chief executive officers of the States, shall develop
12 and submit to the Congress a plan to protect the en-
13 vironment and public health from impacts of harm-
14 ful algal blooms. In developing the plan, the Presi-
15 dent shall consult with the Task Force, the coastal
16 States, Indian tribes, local governments, industry,
17 academic institutions, and nongovernmental organi-
18 zations with appropriate expertise.

19 "(2) PLAN REQUIREMENTS.—The plan shall—

20 "(A) review techniques for prediction of
21 the onset, course, and impacts of harmful algal
22 blooms, including an evaluation of their accu-
23 racy and utility in protecting the environment
24 and public health and an assessment of the re-
25 sources required for their implementation; and

1 "(B) identify innovative response measures
2 for the prevention, control, and mitigation of
3 harmful algal blooms and identify steps needed
4 for their development and implementation.
5 "(3) PUBLICATION AND OPPORTUNITY FOR
6 COMMENT.—At least 90 days before submitting the
7 plan to Congress, the President shall publish a sum-
8 mary of the proposed plan in the Federal Register
9 for a public comment period of not less than 60
10 days.".

11 **SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

12 Section 605 of such Act is amended to read as fol-
13 lows:

14 **"SEC. 605. AUTHORIZATION OF APPROPRIATIONS.**

15 "There are authorized to be appropriated to the Sec-
16 retary of Commerce for research, education, and moni-
17 toring activities related to the prevention, reduction, and
18 control of harmful algal blooms and hypoxia, $29,200,000
19 for fiscal year 2004, $30,700,000 for fiscal year 2005, and
20 $31,200,000 for fiscal year 2006, to remain available until
21 expended. The Secretary shall consult with the States on
22 a regular basis regarding the development and implemen-
23 tation of the activities authorized under this title. Of such
24 amounts for each fiscal year—

1 "(1) $3,000,000 for each of fiscal years 2004,
2 2005, and 2006 shall be used to enable the National
3 Oceanic and Atmospheric Administration to carry
4 out research and assessment activities, including
5 procurement of necessary research equipment, at re-
6 search laboratories of the National Ocean Service
7 and the National Marine Fisheries Service;
8 "(2) $10,200,000 for each of fiscal years 2004,
9 2005, and 2006 shall be used to carry out the Ecol-
10 ogy and Oceanography of Harmful Algal Blooms
11 (ECOHAB) project under the Coastal Ocean Science
12 Program established under section 201(c) of the Na-
13 tional Oceanic and Atmospheric Administration Au-
14 thorization Act of 1992, with $2,000,000 of such
15 amount used to carry out research on freshwater
16 harmful algal blooms;
17 "(3) $2,000,000 for fiscal year 2004,
18 $3,000,000 for fiscal year 2005, and $3,000,000 for
19 fiscal year 2006 shall be used to carry out the re-
20 search program described in section 603(d)(3);
21 "(4) $6,000,000 for each of fiscal years 2004,
22 2005, and 2006 shall be used to carry out the Moni-
23 toring and Event Response for Harmful Algal
24 Blooms (MERHAB) project under the Coastal
25 Ocean Science Program established under section

1 201(c) of the National Oceanic and Atmospheric Ad-
2 ministration Authorization Act of 1992;
3 "(5) $5,000,000 for fiscal year 2004,
4 $5,500,000 for fiscal year 2005, and $6,000,000 for
5 fiscal year 2006 shall be used for activities related
6 to research and monitoring on hypoxia through the
7 Coastal Ocean Science Program established under
8 section 201(c) of the National Oceanic and Atmos-
9 pheric Administration Authorization Act of 1992;
10 and
11 "(6) $3,000,000 for each of fiscal years 2004,
12 2005, and 2006 shall be used to carry out the activi-
13 ties described in section 603(f).".
14 **SEC. 6. COASTAL OCEAN SCIENCE PROGRAM.**
15 Section 201(c) of the National Oceanic and Atmos-
16 pheric Administration Authorization Act of 1992 is
17 amended to read as follows:
18 "(c) COASTAL OCEAN SCIENCE PROGRAM.—
19 "(1) IN GENERAL.—There shall be in the Na-
20 tional Oceanic and Atmospheric Administration a
21 Coastal Ocean Science Program that supports Great
22 Lakes, estuarine, and coastal ocean research and as-
23 sessment through competitive, peer-reviewed, and
24 merit-based research programs.

1 "(2) PROGRAM ELEMENTS.—The Coastal
2 Ocean Science Program shall augment and integrate
3 existing research capabilities of the National Oceanic
4 and Atmospheric Administration, other Federal
5 agencies, and the academic community. Research
6 shall be conducted to improve predictions of eco-
7 system trends in Great Lakes, estuarine, and coastal
8 ocean resources; to better conserve and manage liv-
9 ing marine resources; to improve predictions of ef-
10 fects of coastal and Great Lakes pollution to help
11 correct and prevent environmental degradation; to
12 improve understanding and characterization of the
13 role oceans play in global climate and environmental
14 analysis; and to improve predictions of coastal haz-
15 ards to protect human life, personal property, and
16 ecosystem function.
17 "(3) AUTHORIZATION OF APPROPRIATIONS.—
18 There are authorized to be appropriated to the Sec-
19 retary of Commerce for implementing the Coastal
20 Ocean Science Program $34,000,000 for fiscal year
21 2004, $36,000,000 for fiscal year 2005, and
22 $38,000,000 for fiscal year 2006.".

SECTION-BY-SECTION ANALYSIS OF
H.R. 1856, HARMFUL ALGAL BLOOM AND HYPOXIA
RESEARCH AMENDMENTS ACT OF 2003

Summary: This Act would amend the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA) (16 U.S.C. 1451 note). HABHRCA provided for a Task Force to develop two reports assessing harmful algal blooms and hypoxia at the national scale and two reports addressing hypoxia in the Gulf of Mexico. Additionally, HABHRCA authorized funding through the National Oceanic and Atmospheric Association (NOAA) for research on harmful algal blooms and hypoxia. The bill would retain the Task Force, reauthorize existing research programs, require an assessment of freshwater harmful algal blooms (HABs), and require NOAA to conduct regional assessments of HABs and hypoxia.

Sec. 1. Short Title.

"Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003".

Sec. 2. Retention of Task Force.

Amends HABHRCA by striking subsection 605(e), which provided for the disestablishment of the Task Force after the plans were submitted. Retaining the Task Force will facilitate following through on recommendations from the reports produced by it and is necessary for other activities in the legislation.

Sec. 3. Scientific Assessments and Research Plans.

Amends Sec. 603 of HABHRCA as described below:

Sec. 3(1). Task Force Activities.
Amends Sec. 603(a) of HABHRCA to require the Task Force to work with local resources managers and consult with academic researchers, industry and nongovernmental organizations in developing assessments and research plans.

Sec. 3(2). Amends Sec. 603(b) and (c) of HABHRCA by striking those sections and inserting the sections described below:

Sec. 3(2)(b). Scientific Assessments of Harmful Algal Blooms.
Requires a nationwide assessment of HABs once every five years. This first assessment would include only marine HABs and all subsequent assessments would include marine and freshwater (including the Great Lakes and upper reaches of estuaries) HABs. The timing of the first assessment coincides with a revision, already underway, of national research priorities for marine biotoxin and harmful algal bloom research.

Sec. 3(2)(c). Scientific Assessment of Freshwater Harmful Algal Blooms.
Requires a one-time assessment of freshwater HABs that in the future would be incorporated into the HAB assessment in Sec. 3(2)(b). Requires the development of a research plan for incorporating freshwater HAB research into the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) interagency grant program. Research on freshwater HABs lags behind efforts addressing marine blooms and there is no comprehensive source of information on the occurrence and effects of freshwater HABs in the United States. Additionally, the Great Lakes have recently exhibited an increase in the occurrence of HABs and more research is needed to understand this phenomenon.

Sec. 3(d). National Scientific Research Plan into Reducing Impacts from Harmful Algal Blooms.
Requires a research plan and establishment of a research program based on the plan to develop methods in the prevention, control, and mitigation of HABs. In the past, funding for research on such methods never was appropriated because there was no consensus plan for using such funding. There are two potential plans in previously issued NOAA reports that the Task Force could use to develop a research plan. Such a plan would help bridge the gap between basic research and management activities, which scientists believe is an important next step in HAB research.

Sec. 3(e). Scientific Assessments of Hypoxia.
Requires national hypoxia scientific assessments once every five years. Since hypoxia is one symptom of coastal eutrophication (nutrient pollution), the assessments would support part of a multi-agency effort, led by NOAA,

already underway to assess the scope and science of coastal eutrophication on a regular basis.

Sec. 3(f). Local and Regional Scientific Assessments.
Authorizes funding for local and regional scientific assessments of HABs and hypoxia, as requested by localities and coordinated through the Task Force and the National Ocean Service (NOS) at NOAA. Local and regional assessments would be more useful to the state and local resource managers because the causes of and potential mitigation methods for HAB or hypoxic events vary with regional water use, land use, and ecology. NOAA and the Task Force are in a good position to help coordinate such assessments since they are a central source of expertise about HABS and hypoxia.

Sec. 4. Prediction and Response Plan.
Requires the development of a plan to protect the environment and public health from impacts of harmful algal blooms. The plan will review HAB prediction techniques, identify innovative HAB response measures, and recommend steps needed for implementation of both of these topics.

Sec. 5. Authorization of Appropriations.
Amends Sec. 605 of HABHRCA by striking the original language and inserting authorizations for 2004, 2005, and 2006. Total authorizations for 2004 would be $29.2 million; for 2005, $30.7 million; and for 2006, $31.2 million. All authorizations for research programs (2, 3, 4, and 5) are placed under the Coastal Ocean Science Program so that the funds are used for competitive, peer-reviewed and merit-based research.

This total is divided among the following programs:

1. $3 million annually for research and assessment activities at National Ocean Service Laboratories.
2. $10.2 million far the ECOHAB program, of which $2 million should be used for research on freshwater HABs.
3. $2 million in 2004, $3 million in 2005 and 2006 for research in prevention, control and mitigation methods.
4. $6 million annually for the Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program.
5. $5 million in 2004, $5.5 million in 2005, and $6 million in 2006 for research and monitoring on hypoxia by the National Ocean Service and the Office of Oceanic and Atmospheric Research of NOAA.
6. $3 million annually for the local and regional assessments in Sec. 3(f).

Sec. 6. Coastal Ocean Science Program.
Amends the Coastal Ocean Program in the National Oceanic and Atmospheric Administration Authorization Act of 1992 so that the program supports Great Lakes, estuarine and coastal ocean research and assessment through competitive, peer-reviewed, and merit-based research programs. Sets authorization levels for the Coastal Ocean Science Program at $34,000,000 for fiscal year 2004, $36,000,000 for fiscal year 2005, and $38,000,000 for fiscal year 2006.

○