

National Council for Science and the Environment

1707 H Street, N.W. • Suite 200 • Washington, DC 20006
202/530-5810 • Fax 202/628-4311 • policy@NCSEonline.org • www.NCSEonline.org

**Testimony of the
NATIONAL COUNCIL FOR SCIENCE AND THE ENVIRONMENT
Craig M. Schiffries, Ph.D., Senior Scientist**

**Regarding the
NATIONAL SCIENCE FOUNDATION and
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
FY 2008 Budget Request**

**To the
UNITED STATES SENATE
Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
April 26, 2007**

Summary

The National Council for Science and the Environment (NCSE) urges Congress to appropriate at least \$6.8 billion for the National Science Foundation (NSF) in FY 2008, an increase of \$892 million or 15.1 percent relative to FY 2007. NCSE supports this increase in order to put NSF on the five-year doubling track authorized in the America COMPETES Act (S. 761), which passed the United States Senate by a vote of 88-8 on April 25, 2007. The NSF funding level authorized in the America COMPETES Act would support the priorities established by both Congress and the President. NCSE recommends a budget of \$4.5 billion for the National Oceanic and Atmospheric Administration (NOAA) in FY 2008 – the same level recommended by the Senate for fiscal years 2006 and 2007 and the same amount recommended by the House Oceans Caucus.

The United States leads the world in scientific discovery and innovation, but we should not take this leadership for granted. The long-term prosperity of the nation, our quality of life, and the quality of our environment require a strong and steady commitment of federal resources to science and technology. Environmental science and education are critical components of the overall federal investment in research and development. Federal investments in environmental science and education must keep pace with the growing need to improve the scientific basis for environmental decisionmaking. The National Science Foundation and NOAA play crucial roles in supporting environmental R&D, which often requires knowledge and discoveries that reach across disciplinary and institutional boundaries.

The National Council for Science and the Environment is dedicated to *improving the scientific basis for environmental decisionmaking*. We are supported by over 500 organizations, including universities, scientific societies, government associations, businesses and chambers of commerce, and environmental and other civic organizations. NCSE promotes science and its essential role in decisionmaking but does not take positions on environmental issues themselves.

National Science Foundation

The National Council for Science and the Environment (NCSE) urges Congress to appropriate at least \$6.8 billion for the National Science Foundation (NSF) in FY 2008, an increase of \$892 million or 15.1 percent compared to FY 2007. NCSE supports this increase in order to put NSF on the five-year doubling track authorized in the America COMPETES Act (S. 761), which passed the United States Senate by a vote of 88-8 on April 25, 2007. The NSF funding level authorized in the America COMPETES Act would support the priorities established by both Congress and the President.

The President's budget request would increase funding for the National Science Foundation by \$513 million or 8.7 percent to \$6.43 billion in fiscal year 2008. This proposal is the second installment of the President's American Competitiveness Initiative, which would double the budgets of three science agencies over ten years. Under the President's budget proposal, some of NSF's disciplinary directorates are below the doubling trajectory. While the growth rates for mathematical and physical sciences (8.9 percent), computer science (9.0 percent), and engineering (8.7 percent) would be faster than the doubling trajectory, the growth rates for geosciences (6.3 percent), biological sciences (4.1 percent), and social sciences (3.9 percent) would be below the doubling trajectory. NCSE encourages Congress to boost funding for directorates that fall below the doubling trajectory.

The growth rates proposed for NSF's geosciences, biological sciences, and social sciences directorates are not sufficient to meet the nation's needs. For example, NSF provides 68 percent of federal support for basic research in non-medical biological sciences at academic institutions in the United States and this research is critical to environmental stewardship, human welfare, and economic competitiveness. Despite the increasing number of scientists who have sought research support from the NSF Biological Sciences Directorate (BIO) over the last five years, BIO research grant funding rates have decreased significantly from over 20 percent in FY 2003 to an estimated 13 percent in FY 2007. Over the past several years, the research grant funding rate for BIO has been lower than the NSF-wide funding rate. When adjusted for inflation, the proposed FY 2008 funding level for NSF's BIO directorate would be nearly equally to the FY 2003 level. Stagnant funding will not invigorate the nation's innovation enterprise.

NSF's Major Research Equipment and Facilities Construction (MFEFC) account includes critical funding for several transformational projects that will advance the environmental sciences. Under the FY 2008 budget request, NSF's MREFC account would provide funding for the National Ecological Observatory Network (NEON), the Ocean Observatories Initiative (OOI), the Alaska Region Research Vessel (ARRV), and the South Pole Station Modernization project (SPSM). These projects have the potential to generate scientific breakthroughs and transform the environmental sciences. NCSE urges Congress to provide full funding for all of these initiatives.

The National Science Foundation plays a crucial role in supporting environmental R&D, which often requires knowledge and discoveries that reach across disciplinary and institutional boundaries. NSF recognizes this and encourages multidisciplinary environmental activities across the entire agency, as well as with other federal agencies. NSF has established a "virtual

directorates” for Environmental Research and Education (ERE). Through this virtual directorate, NSF coordinates the environmental research and education activities supported by all the directorates and programs.

The National Council for Science and the Environment encourages Congress to support full and effective implementation of the 2000 National Science Board (NSB) report, *Environmental Science and Engineering for the 21st Century: The Role of the National Science Foundation*, within the context of doubling the NSF budget.

The National Science Board report sets out an ambitious set of recommendations that could dramatically improve the scientific basis for environmental decisionmaking. The first keystone recommendation is as follows:

Environmental research, education, and scientific assessment should be one of NSF’s highest priorities. The current environmental portfolio represents an expenditure of approximately \$600 million per year. In view of the overwhelming importance of, and exciting opportunities for, progress in the environmental arena, and because existing resources are fully and appropriately utilized, new funding will be required. We recommend that support for environmental research, education, and scientific assessment at NSF be increased by an additional \$1 billion, phased in over the next 5 years, to reach an annual expenditure of approximately \$1.6 billion.

The report says that the National Science Board expects NSF to develop budget requests that are consistent with this recommendation. At first, growth in NSF’s Environmental Research and Education (ERE) budget reflected its priority status. From FY 1999 to 2001, the ERE portfolio grew more rapidly than the overall NSF budget. However, the ERE growth rate began to lag behind the overall NSF growth rate after 2001. From FY 2002 to FY 2005, the ERE budget grew by approximately 13 percent while the total NSF budget grew by 20 percent.

Given that the National Science Board has identified environmental research and education as one of the agency’s highest priorities, funding for the ERE portfolio should grow at least as rapidly as the total NSF budget. In order to achieve the \$1.6 billion funding level recommended by the National Science Board, NCSE supports rapid growth in NSF’s Environmental Research and Education portfolio over the next several years.

The National Science Foundation has taken many steps to implement the recommendations of the NSB report on environmental research and education. Full implementation of the NSB report will require strong support from Congress and a significant increase in funding for NSF’s portfolio of environmental science, engineering and education.

National Oceanic and Atmospheric Administration

The National Council for Science and the Environment joins with other members of the Friends of NOAA coalition to strongly encourage Congress to appropriate \$4.5 billion for fiscal year 2008 – the same level recommended by the Senate for fiscal years 2006 and 2007 and the same amount recommended by the House Oceans Caucus. We urge Congress to appropriate sufficient

funds for NOAA to carry out its formal and informal educational activities at all levels, including development and implementation of the science education plan required under the America COMPETES Act.

NOAA provides important services to all Americans and it is time for Congress to demonstrate its commitment to NOAA for providing programs that are vital to our economy and to the health and well being of every resident. An investment of \$4.5 billion in NOAA averages out to \$15 per person annually. For that small amount, each American receives weather forecasting, hurricane tracking, tsunami warnings, navigational information, fisheries management, hazard mitigation, scientific research, and local community assistance. Weather and climate sensitive industries account for about one-third of the nation's gross domestic product.

NOAA is one of the nation's premier science agencies, providing decision makers with critically important data, products and services that promote and enhance our economy, security, environment, and quality of life. For example, it was NOAA – and its underlying science enterprise – that provided accurate and timely information regarding the impending landfall of Hurricane Katrina in 2005, a forecast that saved tens of thousands of lives. A better understanding of the oceans and atmosphere and improvements in forecasting would benefit all communities. For example, economists have estimated that altering agricultural planting decisions based on improved El Niño and La Niña forecasts would save U.S. farmers \$265-\$300 million.

The \$4.5 billion appropriation we are recommending for NOAA would fully fund the President's fiscal year 2008 budget request, including the priorities and initiatives contained in the interagency ocean research priorities plan and implementation strategy, restore funding for core programs, rebuild vital observation programs, and enable NOAA to address other germane issues that traditionally have been supported by Congress. It would allow enhancements in the development of an integrated ocean and atmospheric observing system; increased research and education activities; expansion of ocean conservation and management programs; and provide critical improvements in infrastructure (satellites, ships, high performance computers, facilities) and data management. This funding level would represent significant progress toward addressing recommendations contained in the reports of the U.S. Commission on Ocean Policy and the Pew Oceans Commission, the report card recently issued by the Joint Ocean Commission Initiative, and the interagency Ocean Research Priorities Plan and Implementation Strategy.

We appreciate the tight fiscal constraints facing the nation and the difficult decisions associated with allocating limited financial resources among federal agencies. Given NOAA's role as the lead federal agency for our oceans and atmosphere, and our increasing appreciation and understanding of the human health, national security, and economic impacts associated with the oceanic and atmospheric processes, we firmly believe that an increased investment in NOAA is needed now.