

# National Council for Science and the Environment

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**Testimony of the  
NATIONAL COUNCIL FOR SCIENCE AND THE ENVIRONMENT  
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**Regarding the  
ENVIRONMENTAL PROTECTION AGENCY and  
NATIONAL SCIENCE FOUNDATION  
FY 2005 Budget Request**

**To the  
U.S. SENATE  
Committee on Appropriations  
Subcommittee on VA, HUD and Independent Agencies  
April 30, 2004**

## **Summary**

The National Council for Science and the Environment (NCSE) commends the Senate Appropriations Subcommittee on VA, HUD and Independent Agencies for its bipartisan leadership in support of science to improve environmental decisionmaking. We ask for your continued leadership by appropriating strong and growing funding for environmental research and education to address pressing national challenges.

***Environmental Protection Agency.*** We urge Congress to reject drastic budget cuts proposed for competitive research grants and graduate fellowships administered by the Environmental Protection Agency's Science to Achieve Results (STAR) program. The FY 2005 budget request would cut the STAR research grants program by approximately 30 percent to \$65 million in the FY 2005 budget request. It would also cut the STAR graduate fellowship program by 33.5 percent to \$6.1 million in the FY 2005 budget request. We ask Congress to appropriate at least \$100 million for the STAR research grants program and at least \$10 million for the STAR graduate fellowship program in FY 2005.

***National Science Foundation.*** NCSE recommends a 15 percent increase in funding for the National Science Foundation (NSF), bringing the agency's budget to \$6.41 billion in FY 2005. This is consistent with the National Science Foundation Authorization Act of 2002 (Public Law 107-368), which authorizes a doubling of the NSF budget in five years. NCSE emphasizes the need for increased funding for NSF's Environmental Research and Education (ERE) portfolio. Although the National Science Board identified this area as one of NSF's "highest priorities," funding for the ERE research portfolio would decrease by 0.2 percent to \$930.2 million under the FY 2005 budget request. Moreover, funding for the priority area on Biocomplexity in the Environment—the flagship program of the ERE portfolio—would be flat at \$99.8 million in FY 2005. NCSE urges Congress to increase funding for NSF's Environmental Research and Education portfolio by at least the same percentage as the agency's overall growth rate.

***National Science Board Report.*** NCSE encourages Congress to strongly support full and effective implementation of the National Science Board (NSB) report, *Environmental Science and Engineering for the 21<sup>st</sup> Century*, within the context of efforts to double the budget of the National Science Foundation. The lagging growth of the NSF Environmental Research and Education budget relative to the total NSF budget in recent years raises serious concerns about its status of one of the agency's "highest priorities."

## **Federal Investments in Environmental R&D**

The National Council for Science and the Environment thanks the Senate Appropriations Subcommittee on VA, HUD, and Independent Agencies for the opportunity to testify before the panel in support of appropriations for the Environmental Protection Agency and the National Science Foundation.

NCSE 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 relationship with decisionmaking but does not take positions on environmental issues themselves.

Federal investments in R&D and science education are essential to the future well-being and prosperity of the nation and deserve the highest priority of Congress. The long-term prosperity of the nation and our quality of life are contingent upon a steady commitment of federal resources to science and technology, and especially environmental R&D.

The Appropriations Subcommittee on VA, HUD and Independent Agencies plays the largest role in setting funding levels for environmental R&D. It has jurisdiction over agencies that account for approximately 45 percent of federal funding for environmental R&D. Federal investments in environmental R&D must keep pace with the growing need to improve the scientific basis for environmental decisionmaking. In recent years, Congress has played a crucial role by supporting strong and growing federal investments in environmental R&D. We appreciate the subcommittee's leadership and encourage its continued support in this difficult fiscal environment.

## **EPA STAR Programs**

Extramural research grants and graduate fellowship programs administered by the U.S. Environmental Protection Agency would be severely cut under the President's budget request for FY 2005. Funding for EPA's Science to Achieve Results (STAR) research grants program would be cut by approximately 30 percent, from an estimated \$92 million in the FY 2004 enacted appropriations bill to \$65 million in the FY 2005 budget request. As a result of these cuts, approximately 93 fewer competitive research grants would be awarded to scientists at universities and nonprofit institutions across the nation, according to EPA's budget justification to Congress. Funding for EPA's STAR graduate fellowship program—the only federal program aimed specifically at students pursuing advanced degrees in environmental sciences—would be cut by 33.5 percent, from \$9.17 million in the FY 2004 enacted appropriations bill to \$6.1 million in the FY 2005 budget request. The National Council for Science and the Environment urges Congress to restore full funding for EPA's Science to Achieve Results (STAR) research grants and graduate fellowship programs.

Rep. Vernon Ehlers, Chairman of the House Science Subcommittee on Environment, Technology and Standards, convened a hearing on March 11, 2004 that examined the proposed cuts in EPA's STAR programs. At the conclusion of the hearing, he said, "I have not heard a convincing reason today for why the STAR program was cut so dramatically. By all accounts, it is a well-run, competitive, peer reviewed program that produces high quality research. These proposed reductions should not be allowed to take effect."

***EPA STAR Research Grants.*** NCSE urges Congress to appropriate at least \$100 million for the STAR Research Grants program in FY 2005. This is the funding level proposed in the President's budget

request for FY 2004. Deep budget cuts in EPA's STAR program have been proposed less than one year after the National Academies issued a laudatory report, *The Measure of STAR*, which concludes that the program supports excellent science that is directly relevant to the agency's mission. According to the report, the STAR program has "yielded significant new findings and knowledge critical for regulatory decision making." The report says, "The program has established and maintains a high degree of scientific excellence." It also concludes that the EPA STAR program complements research supported by other agencies and leverages its resources through partnerships, stating "The STAR program funds important research that is not conducted or funded by other agencies. The STAR program has also made commendable efforts to leverage funds through establishment of research partnerships with other agencies and organizations."

The EPA STAR research program compares favorably with programs at other science agencies. According to the National Academies report, "The STAR program has developed a grant-award process that compares favorably with and in some ways exceeds that in place at other agencies that have extramural research programs, such as the National Science Foundation and the National Institute of Environmental Health Sciences."

The STAR research grants program expands the scientific expertise available to EPA by awarding competitive grants to universities and independent institutions, to investigate scientific questions of particular relevance to the agency's mission. The National Academies report says, "The STAR program should continue to be an important part of EPA's research program." According to the FY 2005 budget request, funding for the following STAR grants would be cut.

- *Ecosystems Protection* (-\$22.2 million): Approximately 50 STAR grants for research on ecosystem stressors and effects would be eliminated. According to the agency's budget documents, "As a result of this reduction, STAR efforts designed to establish or improve the connection between ecosystem stressors and effects, serving as input to decisions at the regional, state, and local levels, will be discontinued."
- *Pollution Prevention* (-\$5 million): Over 20 research grants would not be funded under the Technology for the Sustainable Environment (TSE) program, which is a collaborative effort with the National Science Foundation.
- *Endocrine Disruptors* (-\$4.9 million): Approximately 18 STAR research grants for research on endocrine disrupting chemicals would be eliminated.
- *Mercury Research* (-\$2 million): The approximately 5 STAR grants that support mercury research would be eliminated.
- *Hazardous Substance Research Centers* (-\$2.3 million): A five-year program that awarded grants for hazardous substance research would not be funded in FY 2005. According to EPA, some multi-year grants would not be funded in their final year due to this cut.
- *Homeland Security Building Decontamination Research* (-\$8.3 million): Research on building decontamination for homeland security would be completely eliminated.
- *Environmental Technology Verification* (-\$1.0 million): One or two centers for testing the effectiveness of commercial environmental technologies would be closed.

***EPA STAR Graduate Fellowships.*** NCSE urges Congress to appropriate at least \$10 million for the STAR graduate fellowship program in FY 2005. This is the only federal program aimed specifically at students pursuing advanced degrees in environmental sciences. According to the National Academies report, "The STAR fellowship program is a valuable mechanism for enabling a continuing supply of graduate students in environmental sciences and engineering to help build a stronger scientific foundation for the nation's environmental research and management efforts." The STAR fellowship program is highly competitive, with only 7 percent of applicants being awarded fellowships.

The President's budget request has proposed deep cuts in the STAR graduate fellowship program in the past two years. The budget request would have cut funding for the STAR graduate fellowship program by 50 percent in FY 2004 and by 100 percent in FY 2003. Under the leadership of this subcommittee, Congress restored full funding for the EPA STAR graduate fellowship program in both years. NCSE encourages Congress to restore full funding for the program again in FY 2005.

***Science, Technology and Education at EPA.*** EPA's overall Science and Technology account faces serious reductions in the President's FY 2005 budget request. This account would be cut by 11.8 percent to \$689.2 million in FY 2005. We encourage Congress to provide at least \$790 million to fund this important function at EPA.

The FY 2005 budget request proposes no funding for the EPA Office of Environmental Education. NCSE strongly encourages Congress to restore full funding of at least \$10 million to support the congressionally mandated programs administered by this office. These programs provide national leadership for environmental education at the local, state, national and international levels, encourage careers related to the environment, and leverage non-federal investment in environmental education and training programs.

## **National Science Foundation**

***Implementing the NSF Doubling Act.*** The National Council for Science and the Environment urges Congress to appropriate the funds necessary to implement the National Science Foundation Authorization Act of 2002, which was passed by Congress on November 15, 2002 and signed into law by the President on December 19, 2002 (Public Law 107-368). A central goal of the Act is to double the budget of the National Science Foundation in five years. It authorizes a budget increase of 105 percent for the NSF, from \$4.8 billion in FY 2002 to \$9.8 billion in FY 2007. The NSF Authorization Act of 2002 is a major milestone for the NSF, the scientific community, and the nation. It recognizes the critical connection between science and the long-term economic strength of the nation. In order to achieve the outcomes envisioned by this bold legislation, Congress must appropriate the funding levels specified in the NSF Authorization Act.

The National Council for Science and the Environment urges Congress to appropriate \$6.41 billion for the National Science Foundation in FY 2005, which would be a 15 percent increase over FY 2004. NCSE supports an increase of 15 percent in FY 2005 in order to place NSF on the doubling track that Congress deemed necessary. Although the authorized funding level is \$7.38 billion for FY 2005, we understand that this may be beyond reach in the current fiscal environment.

The President's budget request would increase funding for NSF by 3.0 percent to \$5.75 billion in FY 2005. Of the \$167 million in new funding, 45 percent would be devoted to a management initiative that would provide more staff for NSF and improve the security of its computer systems. Under the FY 2005 budget request, funding for most of the disciplinary directorates, such as Biological Sciences and Geosciences, would increase by only 2.2 percent, only slightly more than the expected rate of inflation.

***Expanding NSF's Environmental Research and Education Portfolio.*** The National Science Foundation plays a crucial role in supporting environmental R&D. Environmental research often requires knowledge and discoveries that reach across disciplinary and institutional boundaries. The NSF recognizes this and encourages multidisciplinary environmental activities across the entire agency, as well as with other federal agencies. The NSF has established a "virtual directorate" for Environmental Research and

**Table 1. National Science Foundation: Environmental Research and Education (ERE)**  
(budget authority in millions of dollars)

	Environmental R&D (\$ Millions)							Change 2004 to 2005	
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Amount	Percent
	Actual	Actual	Actual	Actual	Actual	Plan	Request		
<b>Research and Related Activities (R&amp;RA)</b>									
<i>Biological Sciences</i>	117.9	125.3	167.0	174.5	188.3	214.1	214.1	0.0	0.0%
<i>Comp. &amp; Info. Sci. &amp; Eng.</i>	4.0	7.0	15.1	15.1	22.1	23.9	23.9	0.0	0.0%
<i>Engineering</i>	38.0	50.0	62.7	63.7	76.0	76.0	74.0	-2.0	-2.6%
<i>Geosciences</i>	320.9	327.9	409.4	442.8	499.1	513.1	513.1	0.0	0.0%
<i>Math. and Physical Sci.</i>	44.3	48.3	56.4	56.4	11.0	32.2	32.2	0.0	0.0%
<i>Soc., Behav. &amp; Econ. Sci.</i>	17.8	17.3	20.1	21.7	5.0	21.9	21.9	0.0	0.0%
<i>Office of Polar Programs</i>	45.3	45.3	47.5	49.8	50.9	50.9	50.9	0.0	0.0%
<i>Integrative Activities</i> <sup>1</sup>	7.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Subtotal, R&RA	595.2	671.2	778.1	824.0	852.4	932.1	930.2	-2.0	-0.2%
Edu. and Human Res. <sup>2</sup>					2.0	2.0	2.0	0.0	0.0%
<b>TOTAL ERE Budget</b>	<b>595.2</b>	<b>671.2</b>	<b>778.1</b>	<b>824.0</b>	<b>854.4</b>	<b>934.1</b>	<b>932.2</b>	<b>-2.0</b>	<b>-0.2%</b>
<b>TOTAL NSF Budget</b>	<b>3,690.3</b>	<b>3,923.4</b>	<b>4,459.9</b>	<b>4,774.1</b>	<b>5,369.3</b>	<b>5,577.8</b>	<b>5,745.0</b>	<b>167.2</b>	<b>3.0%</b>

Source: NSF

<sup>1</sup>In FY 1999 and FY 2000, funding for the Biocomplexity and the Environment (BE) Priority Area was included in the Integrative Activities account. Beginning in FY 2001, BE funds were distributed across the directorates. Funding for BE was \$54.88 in FY 2001; \$58.10 million in FY 2002; and \$79.20 million in the President's Request for FY 2003.

<sup>2</sup>Figures for environmental funding in the Education and Human Resources account are not available prior to FY 2003. Although education is not generally scored as R&D, \$2.0 million for Environmental Education was included in the Education and Human Resources Directorate in the ERE budget from FY 2003 to 2005 (request).

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

Although the National Science Board said environmental research and education should be one of NSF's "highest priorities" (see below), funding for the ERE research portfolio would decrease by 0.2 percent, from \$932.1 million in FY 2004 to \$930.2 million in the FY 2005 budget request (Table 1). This is the first time that ERE funding would decline since the National Science Board identified it as one of NSF's highest priorities in 2000. NCSE encourages Congress to support more investment in this important area of research. Given that the National Science Board has been 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.

***Biocomplexity in the Environment.*** NCSE is especially supportive of NSF's priority area on Biocomplexity in the Environment, which is the flagship of the ERE portfolio. This priority area provides a focal point for investigators from different disciplines to work together to understand complex environmental systems, including the roles of humans in shaping these systems. It includes research in microbial genome sequencing and ecology of infectious diseases—to help develop strategies to assess and manage the risks of infectious diseases, invasive species, and biological weapons crucial to homeland security.

The Biocomplexity in the Environment priority area was reviewed by a Committee of Visitors in February 2004. The Committee reported:

This program is highly responsive to a great need for integrative research to answer non-linear complex questions. The outcomes are helpful to establishing sound science evidence for use in policy decisions, in making science relevant to the community, in including the human dimension in consideration of environmental change, and in integrating these areas of science knowledge and discovery with the need for environmental literacy among our students in formal education and the education of the general public.”

We urge Congress to support this critical initiative and to consider funding it at a level of \$136 million, as proposed in FY 2000 budget request for NSF. After several years of rapid growth, the FY 2005 budget request would provide flat funding of \$99.8 million for Biocomplexity in the Environment.

### **National Science Board Report on Environmental Science and Engineering**

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 21<sup>st</sup> Century: The Role of the National Science Foundation*, within the context of a doubling of the budget for the NSF.

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 the Environmental Research and Education budget reflected its priority status: from FY 1999 to 2001, the ERE account grew more rapidly than the overall NSF budget. However, the ERE growth rate has trailed the total NSF growth rate since that time. From FY 2002 to FY 2005 (request), the ERE budget grew by only 13.1 percent while the total NSF budget grew by 20.3 percent. The lagging growth of the Environmental Research and Education budget relative to the total NSF budget in recent years raises serious concerns about its status of one NSF's “highest priorities.”

The National Science Board envisioned a 167 percent increase in funding for the ERE portfolio, from approximately \$600 million to \$1.6 billion, within the context of a doubling of the total NSF budget over five years. The doubling has not materialized. Nevertheless, if the Environmental Research and Education portfolio is one of NSF's highest priorities, then the growth rate of the ERE budget should not lag behind the growth rate of the total NSF budget.

The National Science Foundation has taken many steps to implement the recommendations of the NSB. 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.

The National Council for Science and the Environment appreciates the Subcommittee's sustained support for environmental research at the Environmental Protection Agency and the National Science Foundation. Investments in these agencies continue to pay enormous dividends to the nation. Thank you very much for your interest in improving the scientific basis for environmental decisionmaking.

### **Biographical Sketch of Witness**

**Dr. Craig M. Schiffries** is Director of Science Policy and Senior Scientist at the National Council for Science and the Environment. He previously served as a Congressional Science Fellow on the staff of the United States Senate Judiciary Committee; Director of Government Affairs for the American Geological Institute; Director of the Board on Earth Sciences and Resources of the National Academy of Sciences / National Research Council; visiting faculty member at Yale University; and consultant with Monitor Company. Dr. Schiffries simultaneously earned his B.S. and M.S. degrees from Yale University, where he was elected to *Phi Beta Kappa*, graduated *summa cum laude*, and double-majored in Geology and Geophysics and in Economics and Political Science. He was a Marshall Scholar at Oxford University, where he earned an honors B.A. in Philosophy, Politics, and Economics. He received a Ph.D. in Geology from Harvard University, where he held a fellowship from the Hertz Foundation.