

# COMMERCE, JUSTICE, SCIENCE, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

U.S. SENATE,  
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,  
*Washington, DC.*

## NONDEPARTMENTAL WITNESSES

[The following testimonies were received by the Subcommittee on Commerce, Justice, Science, and Related Agencies for inclusion in the record. The submitted materials relate to the fiscal year 2006 budget request for programs within the subcommittee's jurisdiction.]

### PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM) appreciates the opportunity to submit testimony on the fiscal year 2006 appropriation for the National Science Foundation (NSF). The ASM is the largest single life science organization in the world with more than 43,000 members. The ASM mission is to enhance the science of microbiology, to gain a better understanding of life processes, and to promote the application of this knowledge for improved health and for economic and environmental well-being.

The NSF is the premier source of Federal support for scientific, mathematic, and engineering research and education across many disciplines. NSF plays a critical role in supporting the health of the Nation's research and education system, which is a principal source of new ideas and human resources in science and engineering. Although NSF represents less than 4 percent of the total Federal funding for research and development, it accounts for approximately 13 percent of all Federal support for basic research and 40 percent of non-life-science basic research at U.S. academic institutions. NSF's broad support for basic research, particularly at U.S. academic institutions, provides not only a key source of funds for discovery in many fields, but also unique stewardship in developing the next generation of scientists and engineers. NSF is also the primary Federal agency charged with promoting science and engineering education at all levels and in all settings, from pre-kindergarten through career development. This educational effort helps to ensure that the United States has world-class scientists, mathematicians, and engineers, as well as, educated and prepared citizens.

ASM appreciates the support that both the Congress and the administration have demonstrated for the National Science Foundation through enactment of the NSF Authorization Act of 2002 (Public Law 107-368). Public Law 107-368 authorizes a 5-year period of 15 percent annual budget increases for the NSF. Recognizing the current fiscal climate, we encourage Congress to increase the funding for NSF in fiscal year 2006 to \$6 billion, approximately 6 percent above the fiscal year 2004 funding level and 9 percent over fiscal year 2005. Increasing NSF's budget to \$6 billion will allow for additional investments in grants, fellowships, and in crosscutting research priorities such as Microbial Biology, Nanoscale Science and Engineering, the National Ecological Observatory Network (NEON), and meet biological infrastructure needs.

## RESEARCH GRANT FUNDING

Fundamental research in the biosciences has laid the foundation for exploring the human genome and now offers new possibilities for understanding the living world from molecules to organisms to ecosystems, providing discoveries applicable to meeting national health, environmental, agricultural, and energy needs. The fiscal year 2006 budget request for NSF is \$5.61 billion, a 2.4 percent or \$132 million increase over fiscal year 2005. However, because NSF received a 3.1 percent cut in fiscal year 2005, the overall request for fiscal year 2006 would still fall approximately 1 percent below the fiscal year 2004 level. Moreover, because NSF is being asked to pay for the upkeep of ships used for icebreaking, an expense that formerly was borne by the Coast Guard, the net increase for agency programs in fiscal year 2006 amounts to only 1.5 percent.

The success rate for grant proposals submitted to NSF has dropped from a level of about 33 percent to below 20 percent, while the number of proposals submitted to the agency has increased to more than 45,000 per year. The projected number of grants funded for fiscal year 2006 is expected to remain steady, while the average annual award size will also remain level at an estimated \$137,000. Increasing NSF's budget to \$6 billion would allow NSF to increase the size of individual awards and also the number of grants awarded.

The NSF Directorate for Biological Sciences (BIO) provides support for research that advances understanding of the underlying principles and mechanisms governing life. The fiscal year 2006 budget request for the BIO directorate is \$581.8 million, an increase of 0.9 percent over the fiscal year 2005 level. Research programs range from the study of the structure and dynamics of biological molecules, such as proteins and nucleic acids, through cells, organs, and intact organisms to studies of populations and ecosystems. It encompasses processes that are internal to particular organisms as well as those that are external, and includes temporal frameworks ranging from immediate measurements through life spans of mere minutes for some microorganisms to the full scope of evolutionary time. Within the BIO and other Directorates at the NSF, programs and priorities of particular interest to the ASM include:

## MOLECULAR AND CELLULAR BIOSCIENCES

The Molecular and Cellular Biosciences (MCB) Division within NSF included several research activities in microbiology that are being transferred to the Emerging Frontiers Subactivity for a new emphasis in Microbial Biology in fiscal year 2006. The request for MCB core research for fiscal year 2006 is \$109.8 million, which is a decrease of \$8.4 million from fiscal year 2005. Although some of this decrease is due to activities being transferred, overall decreases in core funding will lead to fewer MCB awards in fiscal year 2006.

## BIOCOMPLEXITY IN THE ENVIRONMENT

The fiscal year 2006 budget request for Biocomplexity in the Environment (BE) is for \$30.43 million, which is nearly a 24 percent decrease from the previous level. This priority area provides support for the Ecology of Infectious Disease, Microbial Genome Sequencing, and Assembling the Tree of Life programs, and will help to support a new program emphasizing environmental genomics in fiscal year 2006, each of which will be managed under the Emerging Frontiers Subactivity. This effort to expand multidisciplinary research will result in our developing a more complete understanding of natural processes and better ways to use new technology effectively to sustain life on earth. Increasing NSF's budget would allow NSF to increase its investment in the BE effort.

## NANOSCALE SCIENCE AND ENGINEERING

The Nanoscale Science and Engineering effort within the BIO Directorate faces a decrease of \$2 million, or 34 percent, to a total of \$3.85 million for fiscal year 2006. This effort encompasses the systematic organization, manipulation, and control of matter at the atomic, molecular, and supramolecular levels. With the capacity to manipulate matter at the nanometer scale (one-billionth of a meter), science, engineering, and technology are realizing revolutionary advances in areas, such as, individualized pharmaceuticals, new drug delivery systems, more resilient materials and fabrics, catalysts for industry, and computer chips. NSF has been a pioneer among Federal agencies in fostering the development of nanoscale science. The President's request of \$127.8 million in fiscal year 2006 for the overall Nanoscale Science and Engineering effort remains unchanged from the fiscal year 2005 plan.

## DIVISION OF ENVIRONMENTAL BIOLOGY

The budget request for the Division of Environmental Biology (DEB) for fiscal year 2006 is \$107.1 million, an increase of about 1.1 percent over the fiscal year 2005 plan. DEB priorities for fiscal year 2006 are to support research on complex ecological systems, including aquatic or watershed systems, systematic biology, microbial ecology, and invasive species, with particular emphasis on the quantitative understanding of complex interrelationships. These efforts will depend on biological infrastructure such as advanced instrumentation and research collections. Also within DEB, the National Center for Ecological Analysis and Synthesis budget is to be increased by \$350,000.

## BIOLOGICAL INFRASTRUCTURE

The budget request for the Division of Biological Infrastructure for fiscal year 2006 is for \$82.9 million, an increase of about 2.9 percent over the fiscal year 2005 plan. The fiscal year 2006 budget request for the National Ecological Observatory Network (NEON) within this program is for \$6 million, which is less than a 1 percent increase from the previous year and is allocated for planning this program. NEON has the potential to transform ecological research. The program calls for developing a continental-scale research instrument consisting of geographically distributed infrastructure that will be networked via state-of-the-art communications to obtain a predictive understanding of the Nation's environment. A very large number of scientists, students, resource managers, and decision makers could make use of NEON data, both directly and indirectly, through the network capabilities and the Internet. Increasing NSF's budget to \$6 billion would allow NSF to increase its investment in NEON.

## EMERGING FRONTIERS

The budget request for the Emerging Frontiers (EF) Subactivity for fiscal year 2006 is for \$85.9 million, an increase of about 16 percent over the fiscal year 2005 plan. This increase is partly the result of several programs being transferred from the Division of Molecular and Cellular Biosciences, including programs that support microbial genome sequencing, microbial observatories, research on interactions and processes, and training activities. The EF Subactivity includes a priority in Microbial Biology for fiscal year 2006, emphasizing all levels from the molecular to the ecological. Several programs are being transferred from the Division of Molecular and Cellular Biosciences, including programs that support microbial genome sequencing, microbial observatories, research on interactions and processes, and training activities.

The Microbial Genome Sequencing Program is to be conducted jointly with a competitive grants program in the U.S. Department of Agriculture. The fiscal year 2006 funding request is for \$12.2 million for the Microbial Observatories and Microbial Interactions and Processes Program to support researchers who are analyzing microbial genomic sequence and other data.

The Ecology of Infectious Diseases is an interagency partnership with the National Institutes of Health to support the development of predictive models and discovery of principles for relationships between environmental factors and transmission of infectious agents. Potential benefits include the development of disease transmission models, understanding unintended health effects of environmental change, and improved prediction of disease outbreaks, including the emergence or reemergence of disease agents. Examples of environmental factors include habitat transformation, biological invasion, biodiversity loss, and contamination.

## BIOENGINEERING AND ENVIRONMENTAL SYSTEMS

The Bioengineering and Environmental Systems (BES) Division, within the Engineering Directorate, supports research that: expands the knowledge base of bioengineering at scales ranging from proteins and cells to organ systems, including mathematical models, devices and instrumentation systems; applies engineering principles to the understanding of living systems, development of new and improved devices, and products for human health care; improves our ability to apply engineering principles to avoid and/or correct problems that impair the usefulness of land, air and water, and advances fundamental engineering knowledge of the ocean environment and develops technological innovation related to conservation, development, and use of the oceans and their resources.

In fiscal year 2004, BES was funded at \$51 million, in fiscal year 2005, it was funded at \$48.2 million. The budget request for BES in fiscal year 2006 is \$50.7 million, 0.6 percent below fiscal year 2004. BES plays a vital role in supporting re-

search, innovation, and education in the rapidly evolving fields of bioengineering and environmental engineering. Increasing NSF's budget to \$6 billion would allow NSF to increase its investment in BES, supporting technological innovations that will advance the global competitiveness of our industries and the health of our environment.

#### CONCLUSION

In addition to adverse impacts on the pace of new scientific discoveries, constrained funding has equally important consequences for the vitality of the Nation's scientific workforce. Constrained funding decreases job opportunities for current and future scientists, and reduces the attractiveness of science as a career choice.

The NSF plays a key role in support of basic science and scientists in the United States, and knowledge gained from NSF studies directly benefits industry and contributes to the economy and U.S. international competitiveness. The NSF is in a singular position among all the Federal research and development agencies to support fundamental research in a wide range of important areas, including microbiology and molecular biology. ASM urges Congress to protect ongoing and future U.S. scientific and technological advancements by supporting an increase to \$6 billion for the fiscal year 2006 budget for the NSF. The ASM believes NSF should continue to emphasize fundamental, investigator-initiated research, research training, and science education as its highest priorities.

The ASM appreciates the opportunity to provide written testimony and would be pleased to assist the subcommittee as it considers its appropriation for NSF for fiscal year 2006.

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JOINT PREPARED STATEMENT OF THE ASSOCIATION OF NATIONAL ESTUARY PROGRAMS; THE COASTAL STATES ORGANIZATION; THE CONSERVATION FUND; THE INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES; THE LAND TRUST ALLIANCE; THE NATIONAL ESTUARINE RESEARCH RESERVE ASSOCIATION; THE NATURE CONSERVANCY; AND THE TRUST FOR PUBLIC LAND

On behalf of the organizations listed below, we would like to thank you for your long-standing support of coastal zone management and coastal land conservation. We are writing today in support of the Coastal and Estuarine Land Conservation Program. This subcommittee created CELCP in fiscal year 2002 in order to "protect those coastal and estuarine areas with significant conservation, recreation, ecological, historical or aesthetic values, or that are threatened by conversion from their natural or recreational states to other uses." Thus far, this program has invested nearly \$145 million towards 90 conservation projects in 23 States. All Federal funding has been leveraged by at least an equal amount at the local level. We hope to continue this Federal-State partnership and encourage you to fund CELCP at \$60 million for fiscal year 2006.

Our Nation's coastal zone is under significant pressures from unplanned development. In fact, it is estimated that by 2025, nearly 75 percent of the Nation's population will live within 50 miles of the coast, in addition to millions more who enjoy America's storied coastlines. From Maine to Washington State, beaches and waterfronts have always been the destination of choice for Americans. Billions of dollars of the Nation's GDP are generated by coast-based economic activities, inexorably linking our coastal zone with the economic health of the Nation.

As a result of this economic boom, rapid, unplanned development has marred the once-pristine viewsheds and substantially reduced public access to the coast. The resulting increase in impervious surfaces has correspondingly increased non-point source pollution and seriously degraded coastal and estuarine waters. The loss of coastal wetlands has drastically impaired estuaries, some of the most productive habitat on earth. The U.S. Commission on Ocean Policy has also stressed the importance of land conservation as part of its broader recommendations to Congress and the Nation.

From our work at the local level, we know from first-hand experience that this program will significantly leverage ongoing community-based conservation, and will provide a much needed boost to local efforts. Given the importance of healthy, productive and accessible coastal areas, a Federal commitment to State and local coastal protection is a sound investment.

We urge you to fund the Coastal and Estuarine Land Conservation Program at \$60 million in fiscal year 2006. We look forward to working with you as this program evolves, and stand ready to assist you.

## PREPARED STATEMENT OF THE AMERICAN GEOLOGICAL INSTITUTE

To the Chairman and members of the subcommittee, the American Geological Institute (AGI) supports fundamental Earth science research sustained by the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology (NIST) and the National Aeronautics and Space Administration (NASA). This frontier research has fueled economic growth, mitigated losses and sustained our quality of life. The subcommittee's leadership in expanding the Federal investment in basic research is even more critical as our Nation competes with rapidly developing countries, such as China and India, for energy, mineral, air and water resources. Our nation needs skilled geoscientists to help explore, assess and develop Earth's resources in a strategic, sustainable, economic and environmentally-sound manner. AGI supports full funding as authorized for NSF's EarthScope project and Research and Related Activities; full funding for NOAA's Tsunami Warning Network; authorized support for NIST's and NSF's responsibilities in the National Earthquake Hazards Reduction Program (NEHRP) and continued support for NASA's Earth observing campaigns.

AGI supports the Coalition for National Science Funding, which encourages increases in total funding for NSF and the NEHRP Coalition, which encourages full funding for NEHRP within NSF and NIST. In addition, AGI supports funding for Earth science education through NSF's Math and Science Partnership (MSP) program. Earth science education helped to save lives during the tragic Indian Ocean tsunami and will be important for future hazard mitigation in the United States and elsewhere.

AGI is a nonprofit federation of 42 geoscientific and professional societies representing more than 100,000 geologists, geophysicists, and other Earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources and interaction with the environment.

## NSF

We applaud the NSF's emphasis on funding the long-neglected and critically underfunded physical sciences and hope that the subcommittee shares this commitment to the physical sciences, including the geosciences. Enhanced and essential funding should remain broad enough to ensure the multidisciplinary nature of today's science, mathematics, engineering, and technology research. Congress wisely authorized increased funding for NSF in Public Law 107-368, such that the total NSF budget would increase to \$7.378 billion and the Research and Related Activities budget would grow to \$5.543 billion in 2005. NSF only received \$5.473 billion in 2005 and remains underfunded. AGI would strongly support an increase of NSF's total budget to \$6 billion in fiscal year 2006 and we believe that such a wise and forward-looking investment in tight fiscal times will pay important dividends in future development and innovation that drives economic growth.

*NSF Geosciences Directorate.*—The Geosciences Directorate is the principal source of Federal support for academic Earth scientists and their students who are seeking to understand the processes that ultimately sustain and transform life on this planet. The President's budget proposal requests a small increase of 2.2 percent (\$14.9 million) for a total budget of \$709.1 million. Within this directorate the Earth Sciences Division's budget would increase 3.4 percent or \$5.1 million from \$149.0 million to \$154.1 million. AGI fully supports this increase to fund EarthScope's operation and maintenance budget. We would encourage increases in funding to the authorized level for the Research and Related Activities account, to allow NSF to strengthen core research by increasing the number and duration of grants. The NEHRP Coalition also requests that Congress appropriate the full funding level contained in the reauthorization for fiscal year 2006 of \$39.1 million dollars for NEHRP responsibilities at the NSF.

*NSF Major Research Equipment Account.*—EarthScope AGI urges the subcommittee to support the Major Research Equipment, Facilities and Construction budget request of \$50.62 million for EarthScope. Taking advantage of new technology in sensors and data distribution, this multi-pronged initiative will systematically survey the structure of Earth's crust beneath North America, imaging faults at depth, hidden faults and other structures that may be hazardous or economically-valuable. The fiscal year 2006 request includes continued support for deployment of three components: a dense array of digital seismometers that will be deployed in stages across the country; a 4-km deep borehole through the San Andreas Fault, housing a variety of instruments that can continuously monitor the conditions within the fault zone; and a network of state-of-the-art Global Positioning System (GPS)

stations and sensitive strain meters to measure the deformation of the constantly shifting boundary between the Pacific and North American tectonic plates in an area susceptible to large earthquakes and tsunamis.

EarthScope has very broad support from the Earth science community and received a very favorable review from the National Research Council, which released a report in 2001 entitled "Review of EarthScope Integrated Science". All data from this project will be available in real time to both scientists and students, providing a tremendous opportunity for both research and learning about Earth. Involving the public in Earth science research will increase appreciation of how such research can lead to improvements in understanding the environment, utilizing natural resources and mitigating natural hazards. EarthScope can also provide a mechanism to integrate a broad array of Earth science research data in a unified system to promote cross-disciplinary research and avoid duplication of effort.

*NSF Support for Earth Science Education.*—Congress can improve the Nation's scientific literacy by supporting the full integration of Earth science information into mainstream science education at the K–12 and college levels. AGI strongly supports the Math and Science Partnership (MSP) program as it has existed at NSF. This is a competitive peer-reviewed grant program and funds are only awarded to the highest quality proposals. Shifting the MSP program entirely to the Department of Education would mean that all MSP funds would be distributed to states on a formula basis. This would provide no incentive for top researchers to continue to participate in this important program and would limit the flexibility of States to target areas of greatest need. The NSF's MSP program focuses on modeling, testing and identification of high-quality math-science activities whereas the Department of Education program does not. The NSF and Department of Education MSP programs are complementary and are both necessary to continue to reach the common goal of providing world-class science and mathematics education to elementary and secondary school students. AGI opposes the transfer of the MSP from NSF to the Department of Education.

Improving geoscience education to levels of recognition similar to other scientific disciplines is important because:

- Geoscience offers students subject matter that has direct application to their lives and the world around them, including energy, minerals, and water.
- Geoscience exposes students to a diverse range of interrelated scientific disciplines. It is an excellent vehicle for integrating the theories and methods of chemistry, physics, biology, and mathematics.
- Geoscience awareness is a key element in reducing the impact of natural hazards on citizens—hazards that include earthquakes, volcanic eruptions, hurricanes, tornadoes, and floods. For example, lives were saved in the tragic Indian Ocean tsunami by a 12-year-old girl who understood the warning signs of an approaching tsunami because of her Earth science class and warned others to seek higher ground.
- Geoscience provides the foundation for tomorrow's leaders in research, education, utilization and policy making for Earth's resources and our Nation's strategic, economic, sustainable and environmentally-sound natural resources development.

#### NOAA

Within NOAA's National Weather Service, some of the proposed increases are for improving the U.S. Tsunami Warning Network. President Bush requested \$24 million over 2 fiscal years (\$14.5 million in fiscal year 2005 and \$9.5 million in fiscal year 2006) to add 32 detection buoys (7 for the Atlantic Ocean, Caribbean Basin and Gulf of Mexico and 25 for the Pacific Ocean), procure 38 new sea level monitoring/tide gauge stations, and to provide comprehensive warning coverage. AGI supports full funding for this program. AGI also supports the proposed increased funding for the development of the geostationary operational environmental satellite (GOES-R) and the National Polar-Orbiting Operational Environmental Satellite System (NPOESS). Both satellite systems will maintain a global view of the planet to continuously watch for atmospheric triggers of severe weather conditions such as tornadoes, flash floods, hailstorms, and hurricanes.

#### NIST

In 2004 President Bush signed the National Earthquake Hazards Reduction Program (NEHRP) reauthorization (Public Law 108–360). This legislation reauthorized NEHRP for another 5 years and authorized \$176.5 million in spending spread over four agencies (NIST, FEMA, USGS and NSF). As the lead agency, the law says NIST is eligible to receive up to \$11 million for NEHRP in fiscal year 2006. No

funds were requested for this program in the President's fiscal year 2006 budget. AGI strongly supports \$11 million for NIST to carry out its NEHRP responsibilities and we further support adequate funding for core laboratory functions at NIST to ensure that NEHRP funds are protected.

NASA

AGI supports the Earth observing programs within NASA. NASA has a unique capability to provide observations of our planet. Currently the topography of Mars has been measured at a more comprehensive and higher resolution than Earth's surface. While AGI is excited about space exploration and values aeronautics research to help build better aircraft, we firmly believe that NASA's Earth observing program is effective and vital to solving global to regional puzzles about Earth systems, such as how much and at what rate is the climate changing. Among Earth science programs, the Earth Systematic Missions program is slated for a \$118 million (40 percent) cut, stalling the Glory Mission, which was planned to address climate change. We hope this subcommittee will be committed to full funding of the Earth Systematic Missions program.

I appreciate this opportunity to provide testimony to the subcommittee and would be pleased to answer any questions or to provide additional information for the record.

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PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other State and locally owned utilities in 49 of the 50 States (all but Hawaii). Collectively, public power utilities deliver electricity to one of every seven electric consumers (approximately 43 million people), serving some of the Nation's largest cities. However, the vast majority of APPA's members serve communities with populations of 10,000 people or less.

The Department of Justice's Antitrust Division (DOJ) and the Federal Trade Commission (FTC) play critical roles in monitoring and enforcing antitrust laws affecting the electric utility industry. With the continuing uncertainty created by wholesale electricity restructuring, this oversight is more crucial than ever.

APPA supports adequate funding for staffing antitrust enforcement and oversight at the FTC and DOJ. Specifically, we support the administration's request of \$212 million for fiscal year 2006 for the FTC. However, we urge the subcommittee to carefully consider allocating the full \$144.5 million requested by the administration for fiscal year 2006 to provide the U.S. Antitrust Division with the necessary resources to enforce U.S. antitrust laws to help APPA's members adapt to the ever changing wholesale electricity market.

We appreciate the opportunity to submit this statement outlining our fiscal year 2006 funding priorities within the Commerce-Justice-Science Subcommittee's jurisdiction.

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PREPARED STATEMENT OF OCEANA

Chairman Shelby, Ranking Member Mikulski and other subcommittee members, on behalf of the more than 250,000 supporters of Oceana, an international, non-profit conservation organization devoted to protecting ocean waters and wildlife, I submit the following testimony on the fiscal year 2006 budget for the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce. I request that this testimony be submitted for the official record. Oceana urges the subcommittee, as it has done in previous years, to significantly increase funding for NOAA overall and specifically recommends the following for critical ocean research and conservation programs:

- \$42.4 million for fishery observer programs;
- \$4.8 million for the reducing bycatch initiative;
- \$12.5 million for the national undersea research program (NURP);
- \$82.0 million for marine mammal research and management;
- \$15.0 million for sea turtle research and management;
- \$30.0 million for expanding fish stock assessments;
- \$20.0 million for fishery cooperative research;
- \$54.2 million for fishery enforcement, including \$9.3 million for vessel monitoring systems; and

—\$8.0 million for National Environmental Policy Act activities in fishery management.

We are greatly concerned about the impact of the administration's request for a \$333 million cut (–8.5 percent) to NOAA below existing funding levels. The National Marine Fisheries Service is targeted for a \$95 million cut (–12.0 percent) and the National Ocean Service is targeted for a \$255 million cut (–38.0 percent). These steep reductions do not match the recommendations of the Presidentially-appointed United States Commission on Ocean Policy's final report issued last fall. The Commission emphasized the importance of taking immediate action to conserve ocean and coastal waters, wildlife, and habitats and called for substantial increases in our Nation's investments for ocean research, conservation, and management. We hope you will follow the Commission's advice and strengthen our Nation's commitment to sustainable oceans and coasts by increasing funding for the important NOAA programs and activities described below.

*Fishery Observer Programs—\$42.4 million.*—Oceana recommends that the fiscal year 2006 budget provide \$42.4 million for more effective national and regional observer programs. The information gathered by observers helps track how many fish, marine mammals, sea turtles, sea birds, and other ocean wildlife are caught directly and as bycatch, thereby improving management of our fish populations. According to NMFS, observers are currently deployed to collect fishery dependent data in less than 40 of the Nation's 300 fisheries. Existing coverage levels for many of the fisheries with observers are inadequate. In its final report, the U.S. Commission on Ocean Policy concluded that "accurate, reliable science is critical to the successful management of fisheries" and endorsed the use of observers as key to bycatch reduction efforts. More specifically, Oceana recommends \$9.0 million for the national observer program; \$11.0 million for the New England groundfish observer program; \$7.8 million for the Atlantic Coast observer program; \$2.0 million to establish a Gulf of Mexico/South Atlantic reef fish observer program; \$350,000 for the East Coast observer program; \$3.979 million for Hawaii longline observer program; \$1.835 million for North Pacific marine resources observer program; \$650,000 for North Pacific observer program; \$800,000 for the South Atlantic/Gulf of Mexico shrimp observer program; and \$5.0 million for the West Coast groundfish observer program. The administration's request seeks slightly more than the current funding level of \$24.5 million.

*Bycatch Reduction—\$4.8 million.*—One of the primary issues threatening the future of our fisheries is the catch and subsequent injury or death or unwanted fish and ocean life. For the past few years, Congress has provided additional Federal support to help address the challenges of bycatch. This initiative supports enhanced technical solutions and outreach to reduce bycatch, improved cooperative research activities with fishermen, and international transfer of technology, gear modifications, and fishing practices that benefit domestic fisheries that target highly migratory fish species. We would strongly encourage the subcommittee to consider funding this new initiative at \$4.8 million to accelerate bycatch reduction efforts. Current funding for this initiative is \$3.745 million.

*National Undersea Research Program—\$12.5 million.*—Oceana supports a slight increase above current enacted levels for NOAA's National Undersea Research Program. This program can help managers locate and map areas of ancient, deep sea corals and other vital undersea habitats that are important for healthy fish and marine mammal populations.

*Marine Mammal Protection—\$82.0 million.*—Oceana recommends sustaining the level of funding provided to support marine mammal research and management activities in the fiscal year 2005 budget (\$82.0 million). These funds will help the National Marine Fisheries Service more fully assess and adopt measures to recover depleted and strategic marine mammal species, such as bottlenose dolphins, pilot whales, and common dolphins. It will also help the agency improve the knowledge of marine mammal populations; currently, the status of more than 200 protected and at-risk marine species is unknown. Activities that will be supported by these funds include funding top priority studies identified by the take reduction teams; designing and implementing take reduction plans for certain depleted marine mammal populations; conducting research on population trends; working on recovery plans; and conducting critical research on health and respond to marine mammal die-offs.

*Sea Turtle Conservation—\$15.0 million.*—Oceana urges the subcommittee to sustain work currently underway on sea turtle research and conservation by providing \$15.0 million to NMFS programs dedicated to protecting sea turtles. Current funding levels for sea turtle work are \$14.943 million. All sea turtles found in U.S. waters are officially protected as endangered or threatened. Additional funding will enhance research, recovery, and protection activities for imperiled sea turtle species.

We also encourage additional funding to support the agency's Atlantic sea turtle by-catch reduction strategy that will examine needed gear modifications for conservation.

*Expanding Stock Assessments of our Nation's Fisheries—\$30.0 million.*—Due to a lack of funding for basic research, we do not have adequate information about the status of many commercial fish stocks. Almost two-thirds of the Nation's fish populations lack basic information to determine their status; there are 85 "major" stocks where the information about their status is classified as "unknown." Oceana encourages the subcommittee to provide \$30.0 million so that NMFS can hire additional biologists to produce annual stock assessments, fund necessary charter days at sea to collect data, and ultimately significantly reduce the number of fish stocks with unknown status. Accelerating this information gathering will help rebuild overfished stocks and improve fish management decisions. Current funding levels for fish stock assessment are \$20.5 million.

*Fishery Cooperative Research—\$20.0 million.*—Oceana recommends the subcommittee provide \$20.0 million to support research partnerships between NMFS, scientists, and individual fishermen. Current funding levels for this research are \$19.173 million.

*Fishery Enforcement—\$54.2 million.*—Oceana strongly supports the administration's request of \$54.2 million for fishery enforcement, which includes \$9.3 million for the Vessel Monitoring System (VMS). This increase supports expansion of VMS, which helps to improve monitoring and enforcement of areas closed for protection of endangered species, critical habitat, and rebuilding sustainable fisheries.

*National Environmental Policy Act (NEPA) Implementation—\$8.0 million.*—Oceana supports the administration's request of \$8.0 million to enhance NMFS work in satisfying NEPA requirements. These funds will support NEPA specialists within the agency and in the eight regional fishery management councils and will help build the analytical capability needed to move toward ecosystem-based approaches to management.

Thank you for your consideration of these recommendations.

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PREPARED STATEMENT OF THE NATIONAL FISH AND WILDLIFE FOUNDATION

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to submit testimony for the record regarding the fiscal year 2006 funding request for the National Fish and Wildlife Foundation (Foundation). The Foundation respectfully requests that this subcommittee fund the Foundation at \$4 million (\$2 million from both National Ocean Services and National Marine Fisheries Services) through the National Oceanic and Atmospheric Administration (NOAA) appropriation. This request would allow the Foundation as the official Foundation to NOAA to continue to leverage scarce Federal dollars and expand its highly successful grant program to better assist NOAA in forwarding their mission for coastal and marine conservation, as well as species recovery. This request lies well within the authorized amount for the Foundation.

Federal dollars appropriated by this subcommittee allow us to leverage State, local, and private dollars for on-the-ground conservation. Since our founding in 1984, the Foundation has supported over 7,273 conservation grants and leveraged over \$305.1 million in Federal funds into more than \$918.8 million for on the ground conservation. This has resulted in more than 17.4 million acres of restored and managed wildlife habitat; new hope for countless species under stress; new models of private land stewardship; and, stronger conservation education programs in schools and local communities. We recognize that without the seed money this committee provides, many conservation benefits would not be realized. None of our federally appropriated funds are used for lobbying or litigation, or for the Foundation's administrative expenses. All of our federally appropriated funds go to on-the-ground projects. Furthermore, our general administrative expenses, including fund-raising, public relations, and finance and administration is below 8 percent.

In 1999, Congress expanded the Foundation's mandate to expressly include the National Oceanic and Atmospheric Administration (NOAA) and its mission. For nearly a decade, NOAA and the Foundation have jointly supported projects in marine conservation through public-private partnerships. By the end of fiscal year 2004, over \$34 million in NOAA and Foundation funds had been leveraged to produce \$94 million for on-the-water conservation.

In fiscal year 2004, we were appropriated \$2.497 million in NOAA funds which we were able to leverage with over \$6 million in additional Foundation and partner dollars for a total conservation of \$8.8 million. We achieved this leveraging of the Federal dollar by cultivating partnerships. In fiscal year 2004, the Foundation

partnered these funds with seven other foundations and several private sector corporations like Shell Oil, Pacific Life Insurance, Bass Pro Co., and ConocoPhillips.

In the fiscal year 2005 Omnibus Bill, we only received \$1.7 million of our historical \$2.5 million mark for our NOAA partnership. In addition to this lower allocation, 3 rescissions totaling 1.44 percent were also assigned by Congress which further impacts our level of funding. This brings the total for our NOAA program down to \$1,675,600. This number could be further impacted by NOAA "Administrative Fees" before the money comes to the Foundation and can be up to 5 percent of the total.

Although we have not received our fiscal year 2005 funds yet, we have already received over \$5 million in good project proposals competing for these dollars and expect more good proposals than we are able to fund as the fiscal year progresses. A 30 percent decrease will greatly impact funding available for our NOAA program, one of NOAA's largest leveraging vehicles and broadest brush for general marine and coastal conservation projects. The fiscal year 2005 budget cuts will only compound this need and compromise NOAA's ability to support desired quality projects. Projects often directly assist NOAA in achieving under funded management objectives and come to the Foundation with strong support from regional and program offices. In addition to supplementing these NOAA priorities through our appropriation, the Foundation leverages NOAA's dollar for an even greater impact than what they could achieve on their own.

Six special issue programs that we administer will also be impacted by the reduction in funds as they are also supported through the appropriation. Many of these programs were created at the request of NOAA to help focus more funds and attention to key priorities within the agency. The fiscal year 2005 cuts will obviously impact some or all of these programs in the number of projects they can support, and may have additional impacts if NOAA is the main or only partner. An even bigger concern may be in the need to have Federal monies to leverage the private funds that NOAA has asked us to raise to grow these special programs. Our fiscal year 2006 appropriations request will put us back on track to continue leveraging scarce Federal resources, and allow us to leverage even more and increase the resulting conservation benefits.

Although NOAA and the Foundation have partnered together in the conservation of specific priorities from great whales to the Chesapeake Bay, the heart of the partnership is the general conservation grant program. This general challenge grant program has allowed the Foundation to be highly successful in assisting NOAA in accomplishing its mission to help people conserve, maintain and improve our natural resources and environment and provide flexible response to achieving short and long-term objectives. In fiscal year 2004 the general call program supported partnerships that restored 70 acres of coastal, estuarine and nearshore habitat and helped rivers and streams that support anadromous fish habitat across the nation to be restored or managed more effectively.

*Working Watersheds.*—The Foundation awarded 7 projects to aid coastal and marine habitats in 2004 with \$521,300 in NOAA dollars that was successfully leveraged with other Federal (this includes Environmental Protection Agency and U.S. Fish and Wildlife Service partnerships) and non-Federal dollars to apply more than \$1.5 million to conservation. Our grant program was uniquely able to provide expertise by engaging local aquariums and community groups, fishermen, conservancies, universities, and local government to undertake on-the-ground hands-on restoration and replanting activities to off-set the tide of habitat loss in many of our coastal and nearshore systems. Areas of focus include:

—*Restoring Estuarine and Coastal Habitats.*—The steady rate of coastal development and damaging up-stream activities are causing our estuarine and coastal habitats to be lost at an alarming rate. The Foundation has had tremendous success in countering these problems by partnering NOAA funds with other agencies like the Environmental Protection Agency to address these issues from a whole watershed perspective as in the case of our Chesapeake Bay Small Watershed Grants Program and Delaware Estuary Grants Program. This model has proved so successful that in fiscal year 2004, we expanded our coastal habitat portfolio with a new program in Long Island Sound. The Long Island Sound Futures Fund partners NOAA, FWS, NRCS, and EPA and draws from State and Federal planning documents for priorities. In its launch year, the new program will be awarding 25–30 projects using approximately \$1 million in Federal and non-Federal funds, resulting in \$2.7 million to the region through leveraging. In addition to these monetary partnerships, these Foundation programs are tapping into local community resources. For example, one project allowed a community to complete and expand a wetland restoration near a former

industrial area enhancing the biological value and visual appeal of the site located near a shoreline nature trail.

In fiscal year 2006, we plan to build on this success by launching a similar program in the Great Lakes region, as well as investigate future programs in other priority areas in the San Francisco Bay area and the Puget Sound region.

—*Protecting Coral Reefs.*—In the marine environment, \$1 million in NOAA dollars were leveraged in fiscal year 2004 to apply more than double that amount, \$2.4 million, to 26 projects to conserve coral reefs. Project examples include protecting coral reefs and fish nurseries in Hawaii, quantifying the impact of sport divers on the reefs in the Florida Keys, evaluating management activities, implementing a volunteer fisheries data collection program, and building stakeholder support for reef management in Belize. Fiscal year 2005 priorities for the Fund consist of reducing nutrient run-off and sedimentation to coastal reefs, as well as supporting community leadership to improve the management and effectiveness of existing marine protected areas. This year will also build off of a new partnership with the White Water to Blue Water Initiative—Anchors Away! Program to establish mooring buoys programs to reduce the damage from anchoring on coral reefs.

—*Conserving Fish, Wildlife, and Plants.*—With our NOAA dollars, the Foundation funds projects that directly benefit diverse fish and wildlife species including albatross in the waters off the Pacific, manatees and sea turtles in the Gulf and Southern Atlantic and right whales in the Northern Atlantic.

—*Threatened and Endangered Species Solutions.*—We measure our success by preventing the listing of species under the Endangered Species Act and by stabilizing and (hopefully) moving others off the list. We invest in common sense and innovative cooperative approaches to endangered species, building bridges between the government and the private sector. In fiscal year 2004, the Foundation used \$584,460 in NOAA funds to support marine species conservation and recovery from Maine to Latin America. We leveraged this investment with an additional \$1.6 million in Federal and non-Federal match funding, and expanded our coordination of this work with Federal, State, and local entities.

—*Expanding Conservation Education Opportunities.*—The Foundation made great strides in diversifying our education and outreach activities with NOAA funds, in fiscal year 2004. All told, the Foundation awarded over \$400,000 last year in NOAA funds for marine education—three times the support under this category than last year! This commitment was leveraged to more than \$1.6 million in other Federal and non-Federal partnership dollars. Examples included a “Look, Don’t Touch” billboard campaign to protect coral reefs in the Pacific, support for marine education spots on national public radio, and sponsorship of over 10 student scholarships in marine sciences. Other grants awarded will enhance or expand conservation education and training for students, teachers, private landowners, community groups and others.

Through these and other efforts, the Foundation remains committed to the conservation goals of our partners—Federal, State, local and private. In fiscal year 2006, we will continue to multiply our efforts to foster public-private partnerships. We also recognize that there are many unmet challenges, and we stand ready to help local communities and other conservation stakeholders to achieve success.

—*Accountability and Grantsmanship.*—All potential grants are subject to a peer review process involving State and Federal agency staff, academics, community and environmental interests, corporations, and others. The review process examines the project’s conservation need, technical merit, the support of the local community, the variety of partners, and the amount of proposed non-Federal cost share. We also provide a 30-day notification to the member of Congress for the congressional district in which a grant will be funded, prior to making the grant. In addition, the Foundation requires strict financial reporting by grantees and is subject to an annual audit.

—*Basic Facts About the Foundation.*—The Foundation promotes conservation solutions by awarding matching grants using its federally appropriated funds to match private sector funds. We have a statutory requirement to match Federal funds with at least an equal amount of non-Federal funds, which we consistently exceed. No Federal appropriations are used to meet our administrative expenses.

The Foundation is governed by a 25-member Board of Directors, appointed by the Secretary of the Interior and in consultation with the Secretary of Commerce, and operates on a nonpartisan basis. Directors do not receive any financial compensation for service on the Board; in fact, all of our directors make financial contributions to the Foundation. It is a diverse Board, representing the corporate, philanthropic, and conservation communities; all with a tenacious commitment to fish and wildlife conservation.

The National Fish and Wildlife Foundation continues to be one of, if not the, most cost-effective conservation program funded in part by the Federal Government. By implementing real-world solutions with the private sector while avoiding regulatory or advocacy activity, we serve as a model for bringing private sector leadership to Federal agencies and for developing cooperative solutions to environmental issues. We are confident that the money you appropriate to the Foundation is making a positive difference.

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PREPARED STATEMENT OF THE AMERICAN ASTRONOMICAL SOCIETY

I submit this testimony on behalf of the American Astronomical Society and have attached a disclosure statement of the Society's various Federal grants by agency and program received during the previous 2 fiscal years.

INTRODUCTION

The American Astronomical Society (AAS) is the largest professional organization for research astronomers in the United States. With approximately 6,500 members, the AAS publishes the major astronomical research journals and also organizes meetings to highlight recent results and discoveries. The organization was founded in 1899 and has helped the profession grow to its present robust state.

Government support has been essential to the stunning achievements of astronomy research in the United States. Within just the past 15 years, U.S. astronomers supported by NASA, the NSF and the DOE have led the way in discovering the first planets around other stars and in determining that we live in a Universe whose expansion is speeding up, driven by a previously undetected component of the Universe, the dark energy. These discoveries appeal to the imagination of a wide segment of the public and confront our most basic understanding of the physical world. Discoveries made with government-funded telescopes, both on the ground and in space, appear daily on the front pages of the Nation's newspapers. The American public values astronomy and endorses government support for astronomy research. Although only a small portion of the Federal investment in basic research goes to astronomy, astronomy plays a vital role for all of physical science by drawing interested students into careers in physical science, engineering, and mathematics. Statistics show that fewer than 20 percent of undergraduate astronomy students ultimately work in basic astronomy research, but nearly all of them find work in technical fields, bolstering our Nation's economy, and improving our quality of life.

THE DECADAL SURVEY OF ASTRONOMY AND ASTROPHYSICS

The Astronomy community has a long history of setting priorities within the field. Each decade, supported by NASA and NSF as well as the AAS, astronomers meet over a 2-year period to decide what physical resources are needed for the coming decade. Through a National Research Council committee, the state of the science is reviewed, the areas of research most likely to produce significant results are ranked, and the facilities needed to carry out this path breaking work are assessed. The result is a prioritized, consensus list with realistic costs for astronomical facilities on the ground and in space to be built in the coming decade. Dubbed the Decadal Survey, the reports are available from the National Research Council's Space Studies Board and Committee on Physics and Astronomy. By reaching consensus on the telescopes, space missions and other needs necessary for the coming decade, astronomers aim to help policy makers as they decide what projects to fund. Because the Decadal Survey represents a carefully constructed consensus among the astronomy research community, legislators can be sure that the community will endorse funding projects that are on this list. Missions or projects not on the list may still be of great importance, but unless they are included in the survey or the mid-course review of the survey (also prepared by the NRC and representing community consensus as each decade progresses), additional projects deserve careful scrutiny prior to being funded.

Astronomers are proud of this process and we are happy to see that our close colleagues, the planetary science community and the solar and space physics community have initiated similar efforts, publishing their first decadal survey reports in just the past 4 years. The AAS has formally endorsed all three reports and actively works to educate policy makers about their importance for our discipline. Because we have seen how effective a well-ordered list of priorities can be in helping with the policy making process, we hope that other fields will attempt to undertake their own priority-setting efforts.

Another recent report, *Quarks to the Cosmos*, has been published by the National Research Council to highlight the growing synergy between basic physics and astronomy. This report provides 11 basic questions and outlines a way toward answering them through partnerships among the three basic funding agencies that support astronomy, NASA, NSF and the DOE. The AAS has endorsed this report and supports its recommendations. One recent development is the establishment by Congress of a FACA committee: the Astronomy and Astrophysics Advisory Committee (AAAC). This committee is charged with assessing and making recommendations concerning the astronomy and astrophysics activities of NASA, NSF, and DOE and in monitoring their progress in fulfilling the outlines of the Decadal report and its sequels. Their report is sent each March 15 to the appropriate Congressional committees, the NASA Administrator, the NSF Director, and widely distributed within OMB, OSTP, and to agency personnel.

#### THE HUBBLE SPACE TELESCOPE

As all U.S. citizens are aware, the Hubble Space Telescope (HST) is in danger of failing on orbit due to declining battery performance and fine guidance gyroscope failure. The former administrator of NASA, Sean O'Keefe, decided to cancel long-planned astronaut servicing of the telescope. A National Research Council committee was ultimately formed to investigate alternatives for the future of the HST. Chaired by Lou Lanzerotti and composed of experts from a variety of backgrounds including engineering, aerospace and safety, the committee recommended that NASA service the telescope using astronauts on the Shuttle. The AAS has formally endorsed this report and its recommendations. We are delighted to see that the new NASA Administrator, Mike Griffin, promises to undertake an internal review of a possible Shuttle servicing mission immediately after the first flight of the Shuttle. Further, the AAS endorsement points out that a serviced HST will continue to produce excellent science results. If, in a departure from past practice and understandings, the cost of servicing the telescope were funded completely from NASA's science budget, this would have a serious impact on the entire range of science that NASA supports. A creative funding solution is necessary to both service HST and retain the vitality of NASA's existing science programs. The present budget, even without costs attributed to Hubble servicing, has caused many useful science programs to be curtailed at NASA, disrupting productive research by AAS members. We recommend that Congress find a way to meet both of these important needs.

#### LARGE FACILITIES FUNDED BY NSF

Astronomers require large telescopes to collect faint light from the furthest reaches of the Universe. The National Science Foundation plays a critical role in astronomy research through its construction, operation and enhancement of ground-based telescopes that are available to all U.S. astronomers and through support of instrumentation at telescopes run by universities or by private organizations. The National Optical Astronomy Observatories, National Radio Astronomy Observatory, National Astronomy and Ionospheric Center, and the National Solar Observatory all provide access to large telescopes with cutting-edge technology to astronomers from both large and small colleges and universities. The Gemini Observatories: two 8-meter telescopes, one located in the Northern hemisphere and one in the Southern, have recently been completed. The Atacama Large Millimeter Array: a radio wavelength interferometer that will allow a wide range of studies ranging from the furthest reaches of the Universe to the formation of nearby stars and planets is now under construction. The Advanced Technology Solar Telescope: a telescope that will provide the best images of the nearest star's surface and allow new insight into the complex role of magnetic fields and the impact of solar variability on our Earth.

These large facilities are expensive to build and expensive to operate, but they are of fundamental importance. A new generation of telescopes seems within our technical reach, much larger and more powerful than any that have gone before. The Giant Segmented Mirror Telescope is a top priority in the Decadal Report, and it seems likely to come to fruition as a public-private partnership. A forward-looking approach to developing the technologies for the giant telescopes of the not-too-distant future will require creative thinking at the NSF to plan ahead for these large facilities. Similarly, the potential for developing a new kind of astronomy based on frequent surveys of the sky will harness the revolution in electronic detectors and in data processing to astronomical ends. These synoptic surveys promise to find everything from rogue objects in the solar system to exploding stars at the edge of the Universe.

The AAS strongly supports the construction and operation of the Nation's large research facilities, especially the telescopes supported by the NSF. We recommend

that Congress continue to support these facilities adequately. One important part of any effective plan is provision of adequate operations support for the lifetime of any new facility. This needs to include funds for upgrading the instrumentation as new technology becomes available. Old telescopes can provide new insight when adequate development support is provided to the engineers and scientists who build new instruments for these large telescopes. This recommendation is also one of the high priority items in the most recent Decadal Survey and is strongly supported by the astronomy community.

#### THE VISION FOR EXPLORATION AT NASA

NASA's space science program is returning excellent results on a very broad range of topics. Their work is visible to the public worldwide. There are excellent programs in progress, following the precepts of the Decadal Survey, including the highest ranked large project in space: the James Webb Space Telescope. However, the challenges for NASA are very substantial. Within the current budget constraints, NASA is being asked to complete the International Space Station and ramp down the Space Shuttle while initiating the Exploration Vision. We expect that NASA will find a way to integrate its broad and vigorous space science program into the stated strategic goals of the agency in a way that strengthens the Exploration Vision. NASA should do this for the scientific returns, the inspirational value to the Nation, and as a continuing demonstration of NASA's value to the Nation and to the world. Exploration without science is tourism.

#### CONCLUSION

The Congress continues to support a vital and energetic research program in the astronomical sciences. The AAS thanks Congress for this support on behalf of the U.S. astronomy community. The budgets of NASA, NSF and the DOE are all important for astronomy research. Astronomy makes a direct connection to the U.S. public: we know they support the use of public funds to support astronomy research. The AAS understands that there are many pressures on the Federal budget, but we know that investment in astronomy is important and wise use of public funds. People want to know what the Universe is and how it works. Many students are drawn to science through astronomy. They very often end up helping our economy in other areas, especially in technology development, the physical sciences, or engineering. Astronomy is good for the United States and a valuable investment for the Congress.

#### STATEMENT ON GRANTS

The American Astronomical Society has held in the past 2 fiscal years the following grants.

##### NASA

*NAG5-4537 Astronomical Research Projects.*—\$341,000 (fiscal year 2005-fiscal year 2008).

*NAG5-12126 Astronomical Research Projects.*—\$294,737 (fiscal year 2002-fiscal year 2004).

##### NSF

*AST002-28004 International Travel Grant Program.*—\$325,500 (fiscal year 2002-fiscal year 2005).

*AST004-31452 Request for the Annual ISEF Bok and Lines Awards.*—\$77,880 (fiscal year 2004-fiscal year 2007).

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#### PREPARED STATEMENT OF THE GREAT LAKES INDIAN FISH AND WILDLIFE COMMISSION

*Agency Involved.*—Department of Justice.

*Program Involved.*—COPS Tribal Resources Grant Program.

*Summary of GLIFWC's Fiscal Year 2006 Testimony.*—The Commission requests that Congress support the administration's proposal to fund this program at \$51,600,000 in fiscal year 2006, an increase of \$31,867,000 above last year's Congressional appropriation.

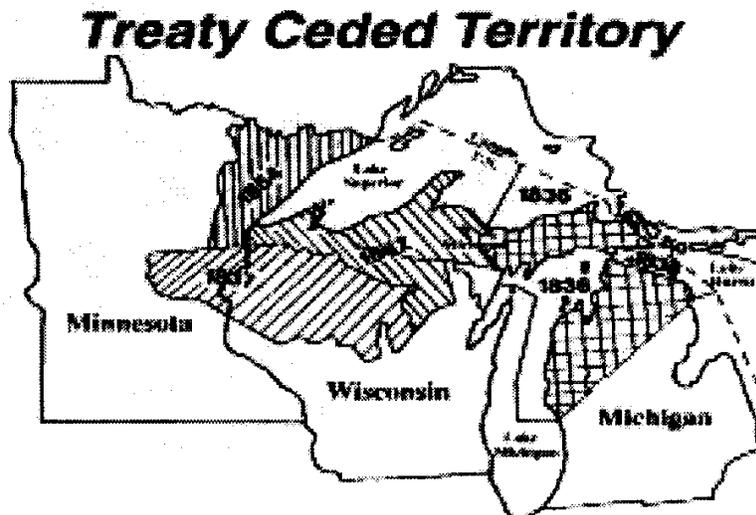
*Disclosure of DOJ Grants Contracted.*—The Commission is an intertribal organization which, under the direction of its member tribes, implements Federal court orders governing tribal harvests of off-reservation natural resources and the formation of conservation partnerships to protect and enhance natural resources within

the 1836, 1837, and 1842 ceded territories (See map). Under COPS Tribal Resources Grant Program, the Commission contracted:

- \$172,924 in fiscal year 2000 for the purposes of replacing obsolete radio equipment and to improve the capacity of GLIFWC's officers to provide emergency services throughout the Chippewa ceded territories;
- \$292,190 in fiscal year 2001 for the purposes of replacing obsolete patrol vehicles (boats, ATVs, and snowmobiles), purchasing portable defibrillators, and training GLIFWC officers;
- \$302,488 in fiscal year 2002 for the purposes of replacing obsolete patrol vehicles (ATVs and snowmobiles), improving officer safety (in-car video cameras), increasing computer capabilities, and expanding training of GLIFWC officers in interagency emergency response;
- \$280,164 in fiscal year 2003 for the purposes of hiring three additional officers, providing basic recruit training, and supplying standard issue items; and
- \$108,034 in fiscal year 2004 for the purposes of purchasing patrol vehicles (three patrol trucks, an ATV and snowmobile), digital cameras, and providing instructor development and basic recruit training.

*Ceded Territory Treaty Rights and GLIFWC's Role.*—GLIFWC was established in 1984 as a "tribal organization" within the meaning of the Indian Self-Determination Act (Public Law 93-638). It exercises authority delegated by its member tribes to implement Federal court orders and various interjurisdictional agreements related to their treaty rights. GLIFWC assists its member tribes in:

- securing and implementing treaty guaranteed rights to hunt, fish, and gather in Chippewa treaty ceded territories; and
- cooperatively managing and protecting ceded territory natural resources and their habitats.



For the past 20 years, Congress and administrations have funded GLIFWC through the BIA, Department of Justice and other agencies to meet specific Federal obligations under: (a) a number of U.S./Chippewa treaties; (b) the Federal trust responsibility; (c) the Indian Self-Determination Act, the Clean Water Act, and other legislation; and (d) various court decisions, including a 1999 U.S. Supreme Court case, affirming the treaty rights of GLIFWC's member Tribes. GLIFWC serves as a cost efficient agency to conserve natural resources, to effectively regulate harvests of natural resources shared among treaty signatory tribes, to develop cooperative partnerships with other government agencies, educational institutions, and non-governmental organizations, and to work with its member tribes to protect and conserve ceded territory natural resources.

Under the direction of its member tribes, GLIFWC operates a ceded territory hunting, fishing, and gathering rights protection/implementation program through its staff of biologists, scientists, technicians, conservation enforcement officers, and public information specialists.

*Community Based Policing.*—GLIFWC's officers carry out their duties through a community-based policing program. The underlying premise is that effective detection and deterrence of illegal activities, as well as education of the regulated constituents, are best accomplished if the officers live and work within tribal communities that they primarily serve. The officers are based in 10 satellite offices located on the reservations of the following member tribes: In Wisconsin—Bad River, Lac Courte Oreilles, Lac du Flambeau, Red Cliff, Sokaogon Chippewa (Mole Lake) and St. Croix; in Minnesota—Mille Lacs; and in Michigan—Bay Mills, Keweenaw Bay and Lac Vieux Desert.

*Interaction with Law Enforcement Agencies.*—GLIFWC's officers are integral members of regional emergency services networks in Minnesota, Michigan and Wisconsin. They not only enforce the tribes' conservation codes, but are fully certified officers who work cooperatively with surrounding authorities when they detect violations of State or Federal criminal and conservation laws. These partnerships evolved from the inter-governmental cooperation required to combat the violence experienced during the early implementation of treaty rights in Wisconsin. As time passed, GLIFWC's professional officers continued to provide a bridge between local law enforcement and many rural Indian communities. GLIFWC remains at this forefront, using DOJ funding, to develop inter-jurisdictional legal training attended by GLIFWC officers, tribal police and conservation officers, tribal judges, tribal and county prosecutors, and State and Federal agency law enforcement staff. DOJ funding has also enabled GLIFWC to certify its officers as medical emergency first responders, including CPR, and in the use of defibrillators, and train them in search and rescue, particularly in cold water rescue techniques. When a crime is in progress or emergencies occur, local, State, and Federal law enforcement agencies look to GLIFWC's officers as part of the mutual assistance networks of the ceded territories. This network includes the Wisconsin Department of Natural Resources, Minnesota Department of Natural Resources, Michigan Department of Natural Resources, U.S. Coast Guard, USDA-Forest Service, State Patrol and Police, county sheriffs departments, municipal police forces, fire departments and emergency medical services.

*GLIFWC Programs Currently Funded by DOJ.*—GLIFWC recognizes that adequate communications, training, and equipment are essential both for the safety of its officers and for the role that GLIFWC's officers play in the proper functioning of interjurisdictional emergency mutual assistance networks in the ceded territories. GLIFWC's COPS grants for the past 4 years have provided a critical foundation for achieving these goals. Significant accomplishments with Tribal Resources Grant Program funds include:

—*Improved Radio Communications and Increased Officer Safety.*—GLIFWC replaced obsolete radio equipment to improve the capacity of officers to provide emergency services throughout the Chippewa ceded territories. GLIFWC also used COPS funding to provide each officer a bullet-proof vest, night vision equipment, and in-car videos to increase officer safety.

—*Emergency Response Equipment and Training.*—Each GLIFWC officer has completed certification as a First Responder and in the use of life saving portable defibrillators. In 2003, GLIFWC officers carried First Responder kits and portable defibrillators during their patrol of 275,257 miles throughout the ceded territories. In remote, rural areas the ability of GLIFWC officers to respond to emergencies provides critical support of mutual aid agreements with Federal, State, and local law enforcement agencies.

—*Ice Rescue Capabilities.*—Each GLIFWC officer was certified in ice rescue techniques and provided a Coast Guard approved ice rescue suit. In addition, each of GLIFWC's 10 reservation satellite offices was provided a snowmobile and an ice rescue sled to participate in interagency ice rescue operations with county sheriffs departments and local fire departments.

—*Wilderness Search and Rescue Capabilities.*—Each GLIFWC officer completed Wilderness Search and Rescue training. The COPS Tribal Resources Grant Program also enabled GLIFWC to replace many vehicles that were purchased over a decade ago including 10 ATVs and 16 patrol boats and the GPS navigation system on its 31 foot Lake Superior Patrol Boat. These vehicles are used for field patrol, cooperative law enforcement activities, and emergency response in the 1837 and 1842 Chippewa Ceded Territories. GLIFWC officers also utilize these vehicles for boater, ATV, and snowmobile safety classes taught on Reservations as part of the Commission's Community Policing Strategy.

—*Hire, Train, Supply, and Equip Three Additional Officers.*—Funding has been contracted to provide three additional officers to ensure tribes are able to meet obligations to both enforce off-reservation conservation codes and effectively participate in the myriad of mutual assistance networks located throughout a vast region covering 60,000 square miles.

Consistent with numerous other Federal court rulings on the Chippewa treaties, the United States Supreme Court recently affirmed the existence of the Chippewa's treaty-guaranteed usufructuary rights *Minnesota v. Mille Lacs Band*, 526 U.S. 172 (1999). As tribes have re-affirmed rights to harvest resources in the 1837 ceded territory of Minnesota, workloads have increased. This expanded workload, combined with staff shortages would have limited GLIFWC's effective participation in regional emergency services networks in Minnesota, Michigan and Wisconsin. The effectiveness of these mutual assistance networks is more critical than ever given: (1) National homeland security concerns, (2) State and local governmental fiscal shortfalls, and (3) staffing shortages experienced by local police, fire, and ambulance departments due to the call up of National Guard and military reserve units.

Examples of the types of assistance provided by GLIFWC officers are provided below:

- as trained first responders, GLIFWC officers routinely respond to, and often are the first to arrive at, snowmobile accidents, heart attacks, hunting accidents, and automobile accidents (throughout the ceded territories) and provide sheriffs' departments valuable assistance with natural disasters (e.g. floods in Ashland County and a tornado in Siren, Wisconsin).
- search and rescue for lost hunters, fishermen, hikers, children, and elderly (Sawyer, Ashland, Bayfield, Burnett, and Forest counties in Wisconsin and Baraga, Chippewa, and Gogebic counties in Michigan).
- being among the first to arrive on the scene where officers from other agencies have been shot (Bayfield, Burnett, and Polk counties in Wisconsin) and responding to weapons incidents (Ashland, Burnett, Sawyer, and Vilas counties in Wisconsin).
- organize and participate in search and rescues of: (1) ice fishermen on Lake Superior (Ashland and Bayfield counties in Wisconsin), (2) Lake Superior boats (Baraga county in Michigan and with the U.S. Coast Guard in other parts of western Lake Superior), (3) lost airplanes (Ashland, Forest and Washburn counties in Wisconsin), and (4) drowning incidents (St. Croix River on the Minnesota/Wisconsin border, Sawyer county in Wisconsin, Gogebic county in Michigan).

Simply put, supporting GLIFWC's officers will not only assist GLIFWC in meeting its obligations to enforce tribal off-reservation codes, but it will enhance intergovernmental efforts to protect public safety and welfare throughout the region by the states of Wisconsin, Minnesota, and Michigan. The COPS Tribal Resources Grant Program provides essential funding for equipment and training to support GLIFWC's cooperative conservation, law enforcement, and emergency response activities. We ask Congress to support increased funding for this program.

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#### PREPARED STATEMENT OF THE AMERICAN PSYCHOLOGICAL SOCIETY

##### SUMMARY OF RECOMMENDATIONS

APS supports the Coalition for National Science Funding recommendation of \$6 billion for the National Science Foundation in fiscal year 2006.

We ask that the Social, Behavioral and Economic Sciences (SBE) Directorate be funded at the 10.3 percent increase the President proposed in last year's NSF budget request.

Mr. Chairman, members of the committee, thank you for this opportunity to present the views of the American Psychological Society (APS) on the fiscal year 2006 appropriations of the National Science Foundation (NSF). APS is a nonprofit organization dedicated to the promotion, protection, and advancement of the interests of scientifically oriented psychology in research, application, teaching, and the improvement of human welfare. Our 16,000 members are scientists and academics at the Nation's universities and colleges. The NSF supports many members of APS, and a great deal of basic research in our field simply could not exist without NSF funding.

##### THE NATION'S PREMIERE BASIC RESEARCH ENTERPRISE

When the administration requested a mere 2.47 percent (\$132 million) increase for the National Science Foundation in fiscal year 2006, it placed the progress of

scientific research on hold. We are extremely disappointed as the request will barely maintain the costs of inflation, and will not sustain and advance the Nation's investment in scientific research.

In the spirit of the NSF Authorization Act of 2002 (H.R. 4664) passed by the 107th Congress and signed by the President (Public Law 107-368), we join with the Coalition for National Science Funding (CNSF) in recommending \$6 billion for the National Science Foundation. Matching the reauthorization would lead us toward a much-needed doubling of the Nation's premiere basic research enterprise—bringing NSF from \$4.8 billion to \$9.8 billion over 5 years. The basic science community asks the committee to make the underlying intent of this authorization a reality. The increases Congress has provided for NSF in the past, and the increase we are recommending today, are important steps in offsetting the under-funding that is a chronic condition for NSF. We hope you will continue to expand NSF's budget.

#### THE SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES (SBE) DIRECTORATE

On June 1, David W. Lightfoot, Ph.D. will become NSF Assistant Director for Social, Behavioral and Economic Sciences. We ask the committee to join us in welcoming Dr. Lightfoot.

The Directorate for the Social, Behavioral and Economic Sciences (SBE) supports funding for basic behavioral research. Under the administration's budget plan, SBE would receive \$198.8 million, 1 percent over fiscal year 2005. This comes on the heels of a series of below-average increases in previous years.

Over the years, many initiatives of the SBE Directorate have been encouraged. But this is not what has occurred recently. Although the President proposed a 10.3 percent increase for SBE in fiscal year 2005, SBE received an increase of only 6.8 percent over fiscal year 2004. A similar process occurred the previous fiscal year. We are concerned about this shortfall, given the enormous potential of behavioral science to address many critical issues facing the Nation. To offset previous years' under-funding, we ask the committee to fund SBE at the 10.3 percent increase the President proposed in last year's NSF budget request. At the very least, we ask that the SBE Directorate share proportionately in any such increases ultimately received by NSF.

*An Overview of Basic Psychological Research.*—NSF programs and initiatives that involve psychological science are our best chance to solve the enigma that has perplexed us for so long: How does the human mind work and develop? APS members include many scientists who conduct basic research in areas such as learning, cognition, and memory, and the linked mechanisms of how we process information through visual and auditory perception. Others study judgment and decision-making (the focus of a Nobel prize recently awarded to APS Fellow and NSF grantee Daniel Kahneman); mathematical reasoning (the focus of the most recent President's Medal of Science awarded to APS Fellow and NSF Grantee R. Duncan Luce); language development; the developmental origins of behavior; and the impact of individual, environmental and social factors in behavior.

What's more, basic psychological research supported by NSF and conducted by APS members ultimately has had a wide range of applications, including designing technology that incorporates the perceptual and cognitive functioning of humans; teaching math to children; improving learning through the use of technology; developing more effective hearing aids and speech recognition machines; increasing workforce productivity; and ameliorating social problems such as prejudice or violence. While this is a diverse range of topics, all these areas of research are bound together by a simple notion: that understanding the human mind, brain, and behavior is crucial to maximizing human potential. That places these pursuits squarely at the forefront of several of the most pressing issues facing the Nation, this Congress, and the administration.

We also believe that progress in psychological science will lead to advances in our powers to predict, detect, and prevent terrorism, in support of the basic science related to Homeland Security. In this time of uncertainty, where we can come to rely so heavily on technology to keep us safe and confident, we must turn to social behavior and cognition in order to maximize this technology. An understanding of how people process information will enable us to design technology that fits our needs and make us comfortable when using them. The potential for advances are limitless.

#### SBE HIGHLIGHTS

Research supported by the SBE Directorate has the potential to increase employee productivity, improve decision making in critical military or civilian emergency situations, and inform the public policymaking processes across a range of areas. To give just a few examples:

*Perception, Action, and Cognition.*—The perception, action, and cognition program at NSF supports research on these three functions, and the development of these capacities. Topics include vision, audition, attention, memory, reasoning, written and spoken discourse, motor control, and developmental issues in all topic areas. The program encompasses a range of theoretical perspectives such as symbolic computation, complex systems, and a variety of methodologies including experimental studies and modeling. By studying high-level cognitive activities, we can discover the core of cognition and what cognition qualities are universal.

*Cognitive Neuroscience Initiative.*—Cognitive neuroscience, within the last decade, has become an active and influential discipline, relying on the interaction of a number of sciences, including psychology, cognitive science, neurology, neuroimaging, physiology and others. The cross-disciplinary aspects of this field have spurred a rapid growth in significant scientific advances. Cognitive neuroscientists are able to clarify their findings by examining developmental and transformational aspects of these phenomena across the lifespan. With brain imaging and other non-invasive techniques, we are poised to confirm and extend these theories through studies of the living brain. The Cognitive Neuroscience program solicits innovative proposals aimed at advancing an understanding of how the human brain supports thought, perception, emotion, action, social processes, and other aspects of cognition and behavior. Scientists from a range of areas test theories about normal brain functioning; assess the behavioral consequences of brain damage; and reach new levels of understanding of how the brain develops and matures.

*NSF's Children's Research Initiative.*—Recognizing that a combination of perspectives—cognitive, psychological, social, and neural—is needed to fully understand how children develop and how they acquire and use knowledge and skills, the SBE Directorate supports interdisciplinary research centers that focus primarily on integrating traditionally disparate research disciplines concerned with child development. Known as the Children's Research Initiative (CRI), this program brings together such areas as cognitive development, broader cognitive science and broader developmental psychology, linguistics, neuroscience, anthropology, social psychology, sociology, family studies, cross-cultural research, and environmental psychology to name a few disciplines.

And at a broader level, SBE's Social and Economic Sciences (SES) Division supports research and related activities aimed at better understanding, both nationally and internationally, political, economic and social systems and how individuals and organizations function within them. Further, it supports research activities related to risk assessment and decision making by individuals and groups, methods and statistics applicable across the behavioral sciences and broadening participation in the social, behavioral and economic sciences.

Finally, NSF's ever-important Behavioral and Cognitive Sciences (BCS) Division supports research activities to advance the fundamental understanding of behavioral and cognitive sciences by developing and advancing scientific knowledge and methods focused on human cognition and behavior, including perception, social behavior and learning.

In fiscal year 2006, for example, \$1.27 million will support core research in behavioral and cognitive sciences to enable additional research on human origins, documenting endangered languages, the neural substrates of cognition, children's development and fundamental human social processes. Additional dollars will also support important research-related activities focusing on human diversity, including those designed to more effectively broaden participation of underrepresented groups in behavioral and cognitive science activities.

#### CROSS-CUTTING BEHAVIORAL INITIATIVES AT NSF

*Human and Social Dynamics.*—Human and Social Dynamics (HSD) fosters breakthroughs in understanding human action and development by multi-disciplinary approaches to the causes and impact of social change. As it seeks to explore the convergence of biology, engineering, technology, and cognition, we will continue to learn more about decision-making and risk taking. For example, in fiscal year 2006 NSF is looking to advance understanding by exploring the interplay of neurological, sensory-motor, psychological, informational and social and organizational systems that produce coordinated efforts between individuals.

As technology and engineering continue to develop at breakneck speed, it is essential that we study the human dynamics of such advances. One of the biggest challenges facing behavioral scientists is the understanding of everyday human performance and action, and how that is influenced by rapid change. HSD will support research that examines this challenge. The initiative seeks to refine our knowledge about decision-making, risk, and uncertainty, and then take this new knowledge

and translate it into improved decision-making techniques. We live in a world where science such as this cannot be allowed to lag behind.

An overlapping area is decision-making under uncertainty. Decision-making under normal circumstances is complex enough; that complexity is compounded in a crisis. It is necessary to study such factors as distributed versus centralized decision making systems, new approaches to risk analyses, and the development of new tools and approaches to facilitate effective decision making and risk analysis under difficult or unique circumstances, including behavioral research in response to extreme events, such as terrorist attacks or natural disasters.

*The Science of Learning.*—How people think, learn and remember are core NSF areas, drawing from topics across psychology: brain and behavior, learning, memory, perception, social psychology, and development. The challenge is: how can we apply and extend our knowledge of how people think, learn and remember to improve education?

The Science of Learning Centers, launched in fiscal year 2003, will advance our understanding of the learning process and learning technologies. The Centers will strengthen the ties between education research and the education workforce. They will build collaborative research communities to respond to new challenges as they arise.

In the administration's request, the Science of Learning Centers program is slated for \$23 million, a welcome 15.9 percent increase over fiscal year 2005. The Centers will extend the frontiers of learning knowledge through investigations in human-computer interactions, cognitive psychology, cognitive neuroscience, and child learning and cognitive development.

In closing, I want to note that building and sustaining the capacity for innovation and discovery in the behavioral sciences is a goal of the National Science Foundation. We ask that you encourage NSF's efforts in these areas, not just those activities described here, but the full range of activities supported by the SBE directorate and by NSF at large. Your support will help NSF lay the groundwork for this long-overdue emphasis on these sciences. Thank you.

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PREPARED STATEMENT OF THE ECOLOGICAL SOCIETY OF AMERICA

As President of the Ecological Society of America, I am pleased to provide written testimony for the National Oceanic & Atmospheric Administration, National Aeronautics and Space Administration, and the National Science Foundation. The Ecological Society of America has been the Nation's premier professional society of ecological scientists for 90 years, with a current membership of 9,000 researchers, educators, and managers.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Of particular interest to our community are NOAA's offices of the National Ocean Service (budget request is \$414.7 million), the National Marine Fisheries Service (proposed budget is \$727.9 million), and the Oceans and Atmospheric Research (budget request is \$372.2 million). These offices support intramural and extramural research critical to NOAA's mission of managing marine and coastal resources to meet the Nation's environmental, economic, and social needs.

NOAA is the only institution that collects and utilizes nationwide atmospheric and oceanic data. Its research on fisheries and coastal processes has become increasingly important as pressures on coastal areas and on fish populations grow. In-house NOAA research is an essential element of ecological research and provides stock assessments, basic research on fish species and marine mammals, as well as marine habitats. Without this research, NOAA could not meet its obligations under the Marine Mammal Protection Act, the Endangered Species Act or the Magnuson-Stevens Fisheries Conservation and Management Act and our scientific understanding of these topics would be greatly diminished. In addition to its intramural research programs, NOAA is a major funder of many important external research endeavors including research focused on harmful algal blooms, toxic contamination of estuaries, coastal habitat loss, non-point source pollution, and fishing gear impacts.

The National Marine Fisheries Service (NMFS) provides the science necessary for revitalization of the Nation's fisheries resources and for the sustainability of the Nation's marine resources. The administration is proposing cutting NMFS by \$95.8 million, although funding for stock assessments and protected species research and management would increase. While these are worthy areas of research, they should not come at the expense of other important programs such as habitat conservation and restoration.

Within the National Ocean Service, two programs fund coastal ecological assessment or research. The Ocean Assessment Program, which funds critical monitoring projects such as coastal observing systems, would receive \$55.2 million for fiscal year 2006. This represents a dramatic drop from the \$146.9 million approved by Congress in fiscal year 2005. ESA appreciates past congressional support of this monitoring program and encourages support beyond the administration's request.

The National Ocean Service also requests \$48 million for the National Centers for Coastal Ocean Science (NCCOS), which joins NOAA's five coastal research centers. This request is \$11.6 million below the amount appropriated for fiscal year 2005. ESA urges that funding for this program be restored to fiscal year 2005 levels, as NCCOS activities focus on five areas of ecosystem research that are national in scope and crucial to the Nation's research needs: climate change, extreme natural events, pollution, invasive species and land and resource use.

The administration's fiscal year 2006 budget request for ocean, coastal, and Great Lakes research through the Oceans and Atmospheric Research (OAR) office is \$118.6 million, a 19.2 percent decrease from fiscal year 2005 enacted levels. ESA appreciates past congressional support of this monitoring program and encourages support beyond the administration's request. Of particular importance to ESA is the National Sea Grant Program, administered by OAR, which supports research, education, and extension projects to help the United States better manage its coastal resources. The administration requests stable funding (\$61.2 million) for the National Sea Grant Program for fiscal year 2006. The Ecological Society of America appreciates the recognition by Congress and the administration that this highly successful program is an important component of our coastal policy. We acknowledge the current budget constraints but would like to see this program's funding grow in the future.

In addition, the National Undersea Research Program, which places scientists under the sea to conduct research, would fall by \$1 million under the President's proposal. If this decrease were to go into effect, it would cut underwater ecosystem science projects—which support coastal and ocean resource management—by 20 percent. ESA urges that funding for this program be restored to the fiscal year 2005 level.

NOAA's research programs provide the Nation with valuable understanding of the workings of the oceans and atmosphere. NOAA has greatly advanced the field of ecological science through both its in-house science programs and its commitment to funding external research. The Ecological Society of America thanks Congress for its past strong support of these programs and asks for its support in ensuring that NOAA retains its ability to wisely manage the Nation's coastal and marine resources using the best scientific information.

#### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The Ecological Society of America is disappointed that earth science research is not a priority in the President's budget request for NASA in fiscal year 2006. Although NASA's total Research and Development would grow to \$11.5 billion, research in the earth sciences (down 4 percent to \$2.1 billion), and biological and physical research (down 22 percent to \$807 million), would face steep cuts in research on our home planet in order to fund space exploration.

ESA urges that funding for this program be restored to the fiscal year 2005 level and that NASA increase its in-house research on environmental science. Currently, NASA is the leading Federal sponsor of the environmental sciences (oceanography, atmospheric sciences, geological sciences). The environmental sciences are a quarter of NASA's portfolio, but NASA accounts for a third of total Federal support for environmental sciences research. NASA has played a vital role in developing the Nation's capability to observe and understand earth systems, including research on climate change, remote sensing technology, ecosystem monitoring, and energy cycling. At a time when the Nation and the globe face increasing environmental and natural resource challenges, we believe it is critical to continue to support NASA's earth systems research.

#### NATIONAL SCIENCE FOUNDATION

In order to ensure the Nation's future prosperity and security, the Ecological Society of America requests that the committee fund the National Science Foundation (NSF) at \$6 billion. We recognize the current fiscal climate, but Federal investment in this agency—the only one to fund science and education across all disciplines—has yielded tremendous national benefits.

One indicator of the need to support NSF is the agency's low grant proposal success rate—in 2004, 5,400 proposals rated "very good" or "excellent" by NSF's peer

review process were passed over due to lack of funds. The grant proposal success rate for the Biology Directorate is among the lowest of all the NSF directorates. We are concerned that the low grant success rate will eventually affect the choices of U.S. students as to whether or not they will choose to enter the field of ecology, a science that is crucial to meeting emerging environmental challenges.

We ask for Congress's support in recognizing the unique role NSF plays in supporting non-medical biology. NSF is the principal Federal supporter of academic, non-medical research in biology and ecology; over 60 percent of the extramural funding for this type of research comes from the NSF. Research made possible by funding from NSF has shed much light on key environmental processes, the interactions among organisms, and the complex responses of ecosystems to stresses such as air and water pollutants. The knowledge gained from this research is critical input to the wise management of the environment for the benefit of humankind.

Within the Biology Directorate, the Division of Environmental Biology (DEB) supports fundamental research on the evolutionary history of species and on the interactions of biological communities and ecosystems, ranging from the relatively undisturbed to heavily human-impacted systems. DEB-supported researchers address a range of issues important to all of us—the consequences of excess nitrogen in the environment; the costly effects of invasive plants and animals; and the potential impacts of climate change on the Nation's ecosystems and biodiversity.

In addition to supporting core biology funding, the Biology Directorate includes other programs important to the ecological community, such as the Long Term Ecological Research (LTER) Program and the agency's National Center for Ecological Analysis and Synthesis (NCEAS). We ask that the subcommittee support the budget request of \$17.5 million (no change from last year's enacted amount) for LTER and \$3.8 million (a 10 percent increase) for NCEAS.

Finally, we encourage support of the agency's request for \$6 million for the National Ecological Observatory Network (NEON) within Biology's Research and Related Activities Account. This request would continue development of the NEON execution plan and of related cyberstructure, which is a key component of the NEON program. NEON has the potential to integrate existing environmental monitoring efforts by standardizing the way in which data are collected and thereby improving the Nation's overall ability to track environmental changes.

ESA thanks Congress for its strong support of the National Science Foundation. As the only Federal agency to support science and education across all disciplines, NSF's contributions have been extremely valuable to the U.S. research enterprise. We hope that Congress will ensure the agency continues on this path, with support across all science disciplines and recognition of the vital role NSF plays in supporting non-medical biology.

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JOINT PREPARED STATEMENT OF THE BIOLOGICAL SCIENCE CURRICULUM STUDY (BSCS); THE NATIONAL SCIENCE TEACHERS ASSOCIATION; THE CONCORD CONSORTIUM; THE EDUCATION DEVELOPMENT CENTER, INC.; TERC; EXPLORATORIUM, SAN FRANCISCO; AND THE NATIONAL SCIENCE EDUCATION LEADERSHIP ASSOCIATION

On behalf of the groups listed above which provide research and development to build the STEM infrastructure, and the instructional materials, professional development, and innovations in technology utilized by thousands of schools and students nationwide, we urge you to fund fiscal year 2006 K–12 programs at the National Science Foundation Education and Human Resources Directorate (EHR) at the fiscal year 2004 level of \$944 million and provide \$206 million in funding (the fiscal year 2004 level) for NSF's Elementary, Secondary and Informal Education (ESIE) programs.

Strengthening science and math education is a core mission of the NSF. NSF is the only Federal agency with both science and scientific education in its charter. It has the mandate, depth of experience, and well-established relationships to build the partnerships for excellence in K–12 STEM education. The programs in the NSF Education and Human Resources (EHR) directorate are designed to support and improve U.S. STEM education at all levels and in all settings (both formal and informal). These programs are unique in their capacity to move promising ideas from research to practice, to develop new and improved materials and assessments, to explore new uses of technology to enhance K–12 instruction, and to create better teacher training techniques. NSF's highly-regarded peer review system that enlists leading scientists, mathematicians, engineers, and academicians to improve K–12 STEM education programs is at the center of this education improvement infrastructure.

The fiscal year 2006 administration budget request recommends major cuts to the Education and Human Resources Directorate, largely to elementary and secondary education programs. It appears these reductions are part of a policy decision to significantly pare the NSF role in program implementation, allowing work in this area to migrate to the Department of Education.

Research, education, the technical workforce, scientific discovery, innovation and economic growth are intertwined. To remain competitive on the global stage, we must ensure that each remains vigorous and healthy. That requires sustained investments and informed policies. If NSF ceases to fulfill its educational mission of stimulating innovations and building capacity in our education systems, then that withdrawal would leave a critical gap in applied research and development and the infrastructure necessary to effect changes to K–12 STEM education that could not easily be rebuilt.

Unlike the NSF, the National Institutes of Health, or NASA, the U.S. Department of Education is not a research or development institution. The NSF has the capacity to incorporate the best from both the science and education R&D communities and can enlist scientists, academicians and researchers in a peer review process that generates and tests innovations in science-related disciplines for education. Unlike the Department of Education, the NSF has the ability to tap into basic cognitive research, fold in new content and new ways of teaching this content from the disciplines, and explore new technologies for the delivery of professional development and for assessing teachers and their students.

Science education is unique because it is concerned with the special character of science and its related disciplines—it is at once a body of knowledge and a dynamic questioning activity. Because of the nature of science it is important to have scientists involved in critical questions of science education. It was the recognition of this interdependence between scientists and the science education enterprise that drove the identification of science education as a key part of the NSF agenda when the agency was founded. This connection will be lost if funding for the NSF Education and Human Services Directorate is reduced or if the responsibility for science education migrates to the U.S. Department of Education.

Here is a small sample of the many K–12 science education programs funded by the National Science Foundation. These K–12 programs—and many similar science education innovations yet to come from the NSF—will be crippled or lost without sustained funding to the NSF Education and Human Resources Directorate.

- NSF supported the development of the Centers for Learning and Teaching, which has resulted in partnerships between 15 major universities and non-profit research organizations. The CLTs are currently creating new knowledge for science education and developing new leadership for science and mathematics by producing 400 new Ph.D.s in science and mathematics education. One of these centers, the Center for Informal Learning and Schools, has worked with over 100 museum educators from 50 museums to create stronger partnerships between museums and schools and represents the first serious examination of the opportunities to better coordinate these two educational systems. These centers, which study critical issues in mathematics and science such as equity, assessment, curriculum and teacher development, demonstrate the power of using the NSF approach of field initiated research centers.
- NSF supported a number of technology-based innovations such as Microcomputer Based Labs, Molecular Workbench, and Handhelds in Education.
  - Microcomputer Based Labs.*—The idea of attaching electronic sensors to computers for real time data collection and analysis in education was invented in an NSF-funded project called Microcomputer Based Labs (MBL). This idea was directly inspired by the use of such sensors in science research, and NSF understood the importance of applying these ideas to education. This project spawned a small industry that now has seven vendors that offer MBL products to education in grades 3–14; an estimated 10 percent of all science teaching labs in grades 9–14 use some MBL.
  - Molecular Workbench.*—This is a sophisticated modeling package developed under several NSF grants that makes the atomic and molecular world easily accessible to students in grades 7–14. This is now built into hundreds of educational activities and is use nationwide. Based on software used in scientific research, the Molecular Workbench would not have been developed without the kind of bridge between science and science education that the NSF provides.
  - Handhelds in education.*—The idea of using handheld computers in the classroom was a novel idea to Palm when a team of educators who were leaders of an NSF-funded center visited them in 1995. The subsequent development of educational applications and real-time data collection for handhelds was

- seeded by grants and a contest sponsored by this center. Handhelds are now one of the hottest ideas in educational technology.
- NSF supported the creation of an elementary school science support infrastructure through the creation of 5 national centers focused on improved teacher development in science. One of these centers, the Exploratorium Institute for Inquiry, has worked with improving the skills of science teacher development staff in over 200 districts in 39 States. These centers represented a critical partnership of scientists, science educators and educational researchers and demonstrate a quality that could only have been produced through the rigorous NSF peer review process.
  - NSF supported the development of eight national Science and Mathematics Implementation and Dissemination Centers. Two of these centers, the EDC K–12 Science Curriculum Dissemination Center and the EDC K–12 Mathematics Curriculum Center, have provided high-quality instructional materials to school districts nationwide, including those that are rural and isolated, serve high populations of poor students, or have limited access to research-based mathematics and science education efforts. The Centers have worked in all 50 States, reaching more than 1,000 districts. The combination of services-seminars, resource materials, technical assistance, and outreach-offered by the Centers has been found to contribute significantly to districts' efforts to improve their mathematics and science programs.
  - NSF supported the creation of Insights: An Elementary Hands-on Inquiry Science Curriculum, one of three NSF-funded research-based elementary programs that have reached more than 15 percent of the elementary school population. For example, Insights is in use in more than 1,000 school districts nationwide and has been translated into both French and Spanish for use in France, Colombia, and several other countries. The Insights materials have been favorably reviewed by Expert Panels assembled by NSF, as well as by the U.S. Department of Education (ED). Insights are an example of the kinds of high quality instructional materials that result from cross-pollination between scientists and educators encouraged by NSF.
  - NSF supported the Using Data Project, which draws on a decade's worth of development of validated data-collection instruments from prior NSF-funded projects, allowing a rigorous process for school or district level data analysis and a step-by-step plan for making decisions and taking action based on those data for instructional improvements in mathematics and science education. Canton City middle schools have doubled their proficiency in mathematics on the Ohio State test from 2003–2004 by using a unique approach to data-driven decision-making pioneered by TERC.
  - NSF supported the establishment of the Center for Urban Science Education Reform (CUSER), which focused on providing professional development and technical assistance for 22 school districts across the country that were implementing standards-based science programs for the first time. CUSER responded to a national need to address science education in urban schools and served more than 30 of the Nation's largest and poorest urban school districts. NSF's support served as a catalyst for directing resources and attention to a nationally neglected equity issue-bringing high quality science instruction to inner-city students.
  - NSF supported Investigations in Data, Number and Space K–5 mathematics curriculum, developed by TERC and published by Scott-Foresman, and now in classroom sets in 14 percent of elementary schools nationwide. Students using reformed-based elementary curriculum, including Investigations, consistently scored higher than students in matched comparison groups using more conventional curriculum in a tri-State study on State-mandated standardized tests. An ARC Center study included outcomes on more than 100,000 students and all statistically significant differences favored the reform students, including the Iowa Test of Basic Skills. The superior results hold across all student racial and income groups.
  - NSF supported the development of the first subject specific (science) new teacher mentor program at the Exploratorium Teacher Institute that has resulted in an increase in the first 5-year retention rate for new teachers from the traditional 50 percent to 90 percent. This required the developmental funding of innovative ideas that is only available from an agency like NSF.
  - NSF supported the creation of the on-line Masters Degree Program in Science Education jointly developed by TERC and Lesley University. Teachers enrolled in the online courses outperformed teachers taking the same courses on-campus—in terms of science learning, understanding of scientific inquiry, and les-

son planning. In addition, the online students spent on average about 2 hours per week more on the course than the on-campus students.

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#### PREPARED STATEMENT OF THE AMERICAN SPORTFISHING ASSOCIATION

The American Sportfishing Association (ASA) recommends the following as the subcommittee considers appropriations for NOAA-Fisheries for fiscal year 2006. The American Sportfishing Association is a non-profit trade association whose 700 members include fishing tackle manufacturers, sport fishing retailers, boat builders, State fish and wildlife agencies, and the outdoor media.

The ASA makes these recommendations on the basis of briefings with agency staff and from years of experience with fisheries management in this Nation. It is important to note that sportfishing provides \$116 billion in economic output to the economy of the United States each year.

An important but often under-represented NOAA constituency is the Nation's 44 million sportfishing anglers, who collectively provide \$116 billion in economic impact each year to the U.S. economy. The importance of adequately including this group and their activities in management decisions cannot be overstated. Sportfishing in marine waters alone provides a \$31 billion economic impact to the Nation's economy.

#### HABITAT PROGRAMS

Federal resource agencies are dependent on the assistance of volunteers and matching funds from the private sector to accomplish habitat restoration goals. NOAA's Restoration Center Community-based Restoration Program is a premier example of a Federal agency providing funds that are matched by non-Federal monies to accomplish habitat restoration that would otherwise be accomplished at a greatly diminished scale. For example, the FishAmerica Foundation, one of the NOAA Community-based Restoration Center program partners matches NOAA funds up to five times with its funds, funds of others, and in-kind matching from others at project sites. The President's request of \$15.2 million is appreciated, but we request the committee increase funding for this valuable program to \$20 million for fiscal year 2006.

#### RECREATIONAL FISHERIES

With 10 million participants and 91 million fishing days, saltwater recreational fishing is the fastest growing segment of sportfishing in the United States. The Association remains disappointed in the inadequate attention that NOAA-Fisheries invests in recreational angling. Sportfishing in marine waters alone provides \$8.1 billion in salaries and wages to nearly 300,000 wage earners in coastal areas.

Good socio-economic information is critical for effective marine resources management efforts, and the ASA applauds the administration's requested increase of \$5.5 million (for a total of \$9.6 million) for additional economic and social science research, data collection and analysis. The ASA asks Congress to assure that NOAA-Fisheries utilizes this money for assessment of impacts associated with recreational as well as commercial fishing activity and provides adequate data for sportfishing in marine waters.

The ASA proposes a nationwide stewardship program designed to enhance sustainable marine recreational fishing through cooperative research, public awareness, and development of technology and techniques. A partnership between government, the sportfishing industry and recreational anglers, the program will direct and fund research aimed at reducing unintended mortality from recreational fishing. The primary purpose of such a project is to fund research on ways to reduce mortality in catch-and-release recreational fishing. A secondary purpose of the project is to fund outreach programs aimed at promoting smart fishing techniques and gear. Based on the long history of conservation by anglers and the sportfishing industry, the ASA feels it is necessary to give anglers additional opportunities to help preserve their long-treasured marine resources. The ASA asks the committee to provide \$500,000 for the initial organization of this project and direct these funds to NOAA's recreational fishing office.

The ASA urges Congress to remind NOAA-Fisheries of the opportunities associated with the increasing popularity of saltwater recreational fisheries, and NOAA-Fisheries should direct suitable resources to their conservation partners to better manage these resources.

## STOCK ASSESSMENT AND MONITORING

NOAA-Fisheries has not fully demonstrated an ongoing and comprehensive commitment to modernization and improvement of fisheries stock assessment and management of marine systems. It will take a sustained commitment on the part of the administration, Congress and partner agencies to ensure that new these initiatives are in place, sustained and effective over the long-term.

The ASA recognizes and supports the fiscal year 2006 President's budget request to increase funds for fisheries stock assessments and management by \$4.5 million to a total of \$25.397 million, but the NOAA-Fisheries stock assessment program needs to build to the \$100 million level over the next 5 years if it is to be effective in providing data for proper management of marine stocks. The ASA recommends a total increase of an additional \$10 million dollars to begin building this program to its needed level. Funds for stock assessments could be allocated by the marine sanctuaries program. This program is at times in conflict with proven management measures and the ASA believes it is more important to first establish a solid stock assessment program before experimenting with the theoretical concept of marine sanctuaries.

## ANADROMOUS FISHERIES ACT

The ASA remains perplexed and troubled over the continuing low level of funding for implementation of the Anadromous Fisheries Act. The Anadromous Fisheries Act budget line has traditionally been used to fund activities that cannot be supported through other Federal and State funds, and the fisheries management community has been unable to address the needs of most anadromous fish stocks due to a severe lack of resources. Therefore, the ASA urges Congress to fund the Anadromous Fisheries Act grants to States at \$8 million.

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 PREPARED STATEMENT OF THE SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS (STEM) EDUCATION COALITION

On behalf of the science, technology, engineering, mathematics, higher education and business groups listed below, we urge you to continue the Federal commitment to K-12 science, technology, engineering, and mathematics (STEM) education. In particular, we urge you to increase spending for the National Science Foundation (NSF) to a level that would permit \$200 million in funding for the NSF Math and Science Partnership (MSP) program, and restoration of funding for the NSF Education and Human Resources Directorate to fiscal year 2004 levels.

The current fiscal year 2006 budget proposes to cut education programs at the NSF by 12 percent (\$737 million, down from \$841 million in fiscal year 2005). Programs under the Elementary, Secondary and Informal Education Division would be cut 22.6 percent (\$140 million, down from \$181 million in fiscal year 2005), and the Research, Evaluation, and Communication (REC) budget would be cut by more than 43 percent (\$33 million, down from \$59 million in fiscal year 2005). The fiscal year 2006 NSF Math and Science Partnerships (MSPs) would see a 24 percent cut to \$60 million.

In this tight budget environment, we understand that difficult choices must be made. Increased and continued investment in these programs is critical, however, if we want to ensure that our students—the future scientists, technologists, engineers, mathematicians, workers, and others responsible for our Nation's future innovations, our national security, our economy, and our quality of life—receive a world class education in the sciences and mathematics, and that we have the research base essential to improving it.

The NSF MSPs are working to develop scientifically sound, model reform initiatives that will improve teacher quality, develop rigorous curricula, and increase student achievement in these areas. These programs are not duplicative of the U.S. Department of Education Math and Science Partnerships; in fact, without one program, the other program is significantly weakened. The State-based ED MSPs are not capable of producing the needed research in these areas and look to the NSF MSPs to develop proven models and tools necessary to enhance teacher quality and student achievement.

Other programs in the NSF Education and Human Resources (EHR) directorate, such as Instructional Materials Development, the Teacher Professional Continuum, and the Centers for Learning and Teaching, are designed to support and improve both formal and informal STEM education at all levels. These programs are unique in their capacity to move promising ideas from research to practice, to develop new

and improved materials and assessments, to explore new uses of technology to enhance K–12 instruction, and to create better teacher training techniques.

NSF's peer review system that enlists leading scientists, mathematicians, engineers, and academicians to improve K–12 STEM education programs is at the center of this education improvement infrastructure. The NSF peer review model is highly regarded in the scientific community and the programs produced under this approach are developed, tested, and evaluated to insure their efficacy.

American Association of Physicists in Medicine; American Association of Physics Teachers; American Astronomical Society; American Chemical Society; American Educational Research Association; American Geological Institute; American Geophysical Union; American Institute of Aeronautics and Astronautics; American Institute of Biological Sciences; American Institute of Physics; American Meteorological Society; American Physical Society; American Physiological Society; American Society of Agronomy; American Society of Civil Engineers; American Society of Mechanical Engineers; American Sociological Association; ASEE Engineering Deans Council; Association of State Supervisors of Mathematics; Biological Sciences Curriculum Study (BSCS); Center for Educational Outreach, Whiting School of Engineering, Johns Hopkins University; Chabot Space & Science Center; Crop Science Society of America; Delta Education; Education Development Center, Inc.; Exploratorium; Institute of Electrical & Electronics Engineers-USA; Institute of Food Technologists; International Technology Education Association; Mathematical Association of America; Michigan State University; Museum of Science, Boston; National Association of Biology Teachers; National Council of Teachers of Mathematics; National Education Knowledge Industry Association; National Science Teachers Association; Optical Society of America; Project Lead the Way; Society of Automotive Engineers; Society of Women Engineers; Soil Science Society of America; SPIE—The International Society for Optical Engineering; Technology Student Association; TERC; The Association of American Geographers; The Federation of Behavioral, Psychological, & Cognitive Sciences; Triangle Coalition.

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#### PREPARED STATEMENT OF THE MARINE FISH CONSERVATION NETWORK

The Marine Fish Conservation Network (MFCN) is pleased to share its views regarding certain National Marine Fisheries Service (NMFS) programs in the National Oceanic and Atmospheric Administration's (NOAA) fiscal year 2006 budget request. We ask that this statement be included in the hearing record for the fiscal year 2006 Commerce, Justice, State, and the Judiciary Appropriations Bill. We are requesting a budget increase of \$51 million from the administration's requested \$77.7 million for NMFS programs in the fiscal year 2006 budget to be allocated for stock assessments, fishery observer programs, essential fish habitat, vessel monitoring systems, bycatch reduction, cooperative research and ecosystem-based management as described below.

MFCN is a national coalition of more than 170 environmental organizations, aquariums, commercial and recreational fishing associations, and marine science groups dedicated to conserving marine fish and promoting their long-term sustainability. We greatly appreciate the funding this subcommittee has provided for marine fish conservation programs within NMFS in the past and we look forward to working with the subcommittee to enact adequate levels of funding for the coming fiscal year.

In 2004, the presidentially appointed U.S. Commission on Ocean Policy (USCOP) released a report, which outlined a series of recommendations designed to enhance and reform the current Federal fisheries management system. The congressional response to this call-to-action to protect the health and long term sustainability of our ocean resources has been heartening, and a bipartisan effort is currently underway to address the most critical issues identified by the USCOP. Unfortunately, the President's fiscal year 2006 NOAA budget request does not provide adequate new funding for many of the priority program areas identified by the USCOP. The NMFS funding request for fiscal year 2006 amounts to a 12 percent reduction (almost \$100 million) in funding for NMFS. There are seven areas of the NMFS budget where we believe the requested funding levels need to be increased to help the agency fulfill its obligations as the Federal Government's fishery management agency.

#### STOCK ASSESSMENTS

*President's Request.*—Total of \$25.4 million.

*MFCN Request.*—Total of \$30 million.

The USCOP noted that "accurate, reliable science is critical to the successful management of fisheries." While we are pleased that the administration requested an

almost \$5 million increase in the expanding stock assessments line item, we are concerned that funding in this area is insufficient. The NOAA Office of Science & Technology estimates that the funds needed to fully assess all commercially important stocks total more than \$300 million. The administration's line item request for a \$2 million increase to strengthen living marine resource monitoring would provide for an estimated 250 additional charter-vessel days at sea (DAS)—an increase of approximately 10 percent over the fiscal year 2005 level of 2,500 days. Still, NOAA estimates that 7,566 DAS are needed to fully modernize and expand its stock assessment capabilities. At the current level of funding (\$20.5 million), there is a deficit of 5,066 days at sea, many of which are used to conduct stock assessments. The impact of this deficit is demonstrated by the fact that the status of only 33 percent of the 909 ocean fish populations managed by NMFS is currently known. This information void is due in large part to a lack of funding for basic research and stock assessments. An additional \$4.6 million to the administration's request for \$25.4 million to expand stock assessments, would further this essential work.

#### FISHERY OBSERVER PROGRAMS

*President's Request.*—Total of \$26.0 million.

*MFCN Request.*—Total of \$43.4 million.

Observer programs are vital to the sustainable management of our Nation's fisheries because they provide critical data on the amount and type of ocean wildlife killed due to fishing. While we commend the administration's efforts to expand and increase funding for Federal fishery observer and enforcement programs, the proposed level of funding of \$26 million is not sufficient to address current management needs. The President's fiscal year 2006 budget request amounts to a \$1.5 million increase overall from fiscal year 2005 funding levels, but funding for certain critical regions would be cut. In New England, a region plagued by chronic overfishing and mismanagement, the funding level for observers would be cut by \$3.5 million from the fiscal year 2005 enacted level. We recommend that funding for the national observer program be increased but not at the expense of important regional programs such as New England. The \$1.5 million requested increase for the Observers/Training line item will enable NOAA to employ observers in 41 fisheries. NMFS estimates that an additional 22 fisheries outside of the 41 with observers currently do not have observer coverage or have very low levels of coverage. The estimated total cost to implement a small "baseline" or "pilot-level" program to observe these 22 additional fisheries is approximately \$17.4 million. Recognizing that a comprehensive nationwide observer program would demand a significant increase in funding, we recommend that Congress provide funding to initiate pilot programs in those fisheries currently without observer programs. We request that Congress appropriate \$43.4 million to expand observer programs into all 63 managed fisheries and provide enhanced coverage for priority fisheries.

#### ESSENTIAL FISH HABITAT

*President's Request.*—Total of \$4.7 million.

*MFCN Request.*—Total of \$15 million.

Essential fish habitats (EFH) are those waters and substrate upon which fish depend for reproduction and growth. Land-based activities and destructive fishing practices threaten the viability of these habitats and the sustainability of the fish populations that depend on them. While the Sustainable Fisheries Act of 1996 gave NMFS a clear mandate to identify and protect EFH, too little has been done to protect these habitats. The President's budget request for fiscal year 2006 continues this trend of under-funding this critical element of sustainable fisheries management. While we support efforts to reduce fishing impacts on essential fish habitat, the President's fiscal year 2006 budget request of \$500,000 to address this issue is inadequate. This level of funding is not sufficient for protecting the EFH for 909 federally managed fish stocks. The administration has also requested \$999,000 to refine EFH designations. While this represents an increase from fiscal year 2005 enacted levels, this request does not provide the level of funding necessary to support the research and analysis needed to more accurately identify and define areas to be designated as EFH.

#### VESSEL MONITORING SYSTEMS

*President's Request.*—Total of \$9.3 million.

*MFCN Request.*—Total of \$18.3 million.

We commend the administration's commitment to establishing vessel-monitoring systems (VMS) to better manage our Nation's fishery resources. VMS are integral to enhancing data collection, improving enforcement capabilities and ensuring great-

er safety at sea. VMS programs assist fishery managers and enforcement officials by providing information when a vessel unlawfully enters a closed area or is fishing beyond the end of a regulated fishing season. The USCOP highlighted the importance of VMS in its final report and recommended that fishery managers and enforcement officials “maximize the use of the Vessel Monitoring System (VMS) for fishery-related activities by requiring that VMS with two-way communication capability be phased in for all commercial fishing vessels receiving permits under federal fishery plans, including party and charter boats that carry recreational fishermen, incorporating VMS features that assist personnel in monitoring and responding to potential violations, and identifying state fisheries that could significantly benefit from VMS implementation.” Of the \$9.3 million requested by the administration, \$4.8 million is needed to support and maintain the existing infrastructure of the system. The remaining \$4.5 million is to cover the costs of purchasing and installing units on approximately 2,000 additional vessels. There are an estimated 10,000 commercial fishing vessels in the United States, therefore to ensure more widespread implementation of VMS programs, we recommend funding be increased \$18.3 million.

#### BYCATCH REDUCTION

*President’s Request.*—Total of \$2.8 million.

*MFCN Request.*—Total of \$13 million.

Bycatch is the incidental catch of non-target species and represents a significant portion of overall fish mortality. In order to ensure the long-term sustainability of our Nation’s fish populations, marine mammals and other protected species, it is crucial that programs aimed at reducing wasteful bycatch receive adequate funding. The President’s budget request for fiscal year 2006 for the Reducing Bycatch Initiative is \$2.8 million, almost \$1 million less than the current funding level of \$3.7 million and \$2 million less than fiscal year 2004 funding levels. Greater funding is needed to develop and test bycatch reduction technologies, to improve cooperative research activities and coordination with fishermen, to disseminate information and to hire additional observers. We recommend that Congress provide \$13 million in fiscal year 2006 for the Bycatch Reduction Initiative to ensure that measurable progress is made towards decreasing bycatch and bycatch mortality.

#### COOPERATIVE RESEARCH

*President’s Request.*—Total of \$9.5 million.

*MFCN Request.*—Total of \$20 million.

Cooperative research programs provide an important opportunity for fishermen and scientists to work together to investigate and develop new fishery technologies, to assess the status of fish stocks and their associated habitats, and to share their individual expertise. Involving fishermen in the scientific process also reduces industry skepticism regarding the integrity and veracity of the science upon which management measures are based. The USCOP recommended that Congress increase support for an expanded, regionally based cooperative research program in NOAA that coordinates and funds collaborative projects among scientists and commercial and recreational fishermen. (USCOP Recommendation 19–9) The administration’s requested budget for fiscal year 2006 cuts funding for cooperative research by almost \$10 million. Investing in cooperative research programs will bolster the credibility of science and enhance the rapport between scientists and fishermen. As such, funding for cooperative research should be maintained at \$20 million for fiscal year 2006.

#### ECOSYSTEM-BASED MANAGEMENT

*President’s Request.*—Total of \$0.

*MFCN Request.*—Total of \$4 million.

In 2004, the USCOP noted that “[t]o be effective, U.S. ocean policy should be grounded in an understanding of ecosystems, and our management approach should be able to account for and address the complex interrelationships among the ocean, land, air, and all living creatures, including humans and consider the interactions among multiple activities that affect entire ecosystems.” To ensure the long-term health and productivity of marine ecosystems, the Commission also advised fishery managers to move away from the traditional single-species management strategy and towards an ecosystem-based approach to management. (USCOP Recommendation 19–21) This commitment to ecosystem-based management was echoed in the U.S. Ocean Action Plan, the Bush administration’s response to the USCOP report. Despite pledges from the administration to initiate efforts to transition to a more

ecosystem-based approach to marine resource management, the requested budget for fiscal year 2006 contains no funding for ecosystem-based management.

In fiscal year 2004, Congress allocated approximately \$2 million for NMFS to conduct ecosystem pilot projects in four regions including the South Atlantic, the Mid-Atlantic, New England and the Gulf of Mexico. Each of the four regions received a grant of \$225,000 to address ecosystem governance at the fishery management council level. Remaining funds were used to conduct technical workshops and develop quantitative decision support tools. While the ecosystem pilot projects are a step in the right direction, additional funding is needed to build upon existing projects and expand the pilot programs into other regions. Increasing funding for ecosystem-based management to \$4 million would ensure that the financial resources necessary to develop programs and initiatives that are consistent with the goal of ecosystem-based management are available to the eight designated Federal fishery management regions.

Thank you for considering our request for increasing funding for these important fishery management programs. These increases will go a long way toward ensuring that NMFS can better manage and protect our Nation's fish resources now and for the future.

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## PREPARED STATEMENT OF THE NAVAJO NATION

### INTRODUCTION

Chairman Shelby, Ranking Member Murkowski and members of the subcommittee, thank you for this opportunity to provide comments on behalf of the Navajo Nation with regard to the President's proposed fiscal year 2006 Budget for funding Indian public safety programs. My name is Hope MacDonald-Lone Tree.<sup>1</sup> I am an elected delegate to the Navajo Nation Council and serve as the Chairperson of the Public Safety Committee of the Navajo Nation Council. I also serve as the Navajo Nation representative to the joint Bureau of Indian Affairs/Tribal Budget Advisory Council's Workgroup on Indian Law Enforcement, a national workgroup that advocates for Indian law enforcement budgetary needs.

As described in detail below, the public safety situation in Indian Country in general, and on the Navajo Nation in particular, is dire. We are happy to see that the President's proposed budget provides some additional funding to address this situation. However, we are concerned that the funding is still insufficient, once it trickles down to the Navajo Nation, to even begin to achieve an acceptable level of public safety on our vast reservation.

### APPROPRIATIONS NEEDS

*Immediate and Urgent Navajo Nation Need (\$3,133,280).*—In the late 1950's and early 1960's, the Navajo Nation constructed six detention facilities. The Tuba City detention facility suspended its operation in Winter 2004 due to crumbling ceilings and walls, exposed conduits and weakening foundations. In January of this year, the facility suffered an electrical fire and has subsequently been condemned. Other facilities in Chinle, Kayenta and Dilkon are in similar shape, overcrowded or non-existent. The Navajo Nation seeks funding for four modular bunkhouse buildings at a cost of \$783,320 each, or a total cost of \$3,133,280, to address an urgent need to provide adequate and decent inmate housing.

*Permanent Navajo Facilities Funding—Planning and Design (\$1 Million Per Facility for Seven Facilities).*—The Navajo Nation is planning to construct seven permanent detention facilities in three phases. Phase I involves Tuba City, Chinle and Crownpoint; Phase II involves Shiprock and Dilkon; and Phase III involves Kayenta and Fort Defiance. The estimated cost for planning and design of each facility is approximately \$1 million, for a total planning and design cost of all facilities of \$7 million.

### PUBLIC SAFETY—A GOVERNMENT'S FIRST OBLIGATION

The first thing that a people demand of their government is that it act to ensure the public safety. A crime-free and safe environment is essential to the vitality of any community. It is also critical to the development of an economic base, including attracting investment as well as retaining skilled workers who have the option of living where they please. In his 2005 State of the Union Address, President Bush

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<sup>1</sup> Hope MacDonald-Lonetree, Chairperson, Public Safety Committee, Navajo Nation Council, Window Rock, AZ.

proclaimed, "Our third responsibility to future generations is to leave them an America that is safe from danger, and protected by peace. We will pass along to our children all the freedoms we enjoy—and chief among them is freedom from fear." We agree with the President, but because of the Federal Government's failure to provide adequate resources for public safety on the Navajo Reservation, too many Navajo families do not enjoy freedom from fear.

The Navajo Nation government takes its responsibility to address the public safety needs of its citizenry very seriously. Unfortunately, we face great challenges that principally arise out of the poor economic conditions on the Navajo Nation. Some of these conditions can be directly traced to actions by the Federal Government in violation of its trust responsibility to the Navajo Nation. Many of them can be corrected if the Federal Government fully lived up to its trust responsibility, which includes funding a basic level of public safety services within our reservation boundaries.

The Navajo Nation Public Safety Division is responsible for an area the size of West Virginia, with a resident population of approximately 200,000 and, with tourism, a transient population of hundreds of thousands of non-Indians every year. The Navajo Nation polices this area with a small force of officers (see discussion below). In addition to responding to community incidents, the Navajo police force also provides protection to major dams and power plants, as well as hundreds of miles of interstate highways, high voltage transmission lines and gas pipelines. On 9/11, Navajo police officers moved quickly to secure as many of these high-value facilities as our limited resources would allow.

#### THE HIGH INCIDENCE OF VIOLENT CRIME IN INDIAN COUNTRY

Although violent crime has declined throughout the United States in recent years, tragically there is no evidence of a decline in Indian Country. According to DOJ statistics, Native men and women are still more than twice as likely to be a victim of a violent crime—whether you are talking about child abuse, sexual assault, homicide, or assault—than any other racial or ethnic group. Native youth are significantly more likely to be the victims of rapes, assaults, shootings, beatings and related crimes than their counterparts. Nearly a third of all American Indian and Alaska Native women will be the victim of sexual assault in their lifetime, the highest rate of any racial or ethnic group. It takes no imagination whatsoever to understand the scarring impact of these high crime rates not only on the victims, but also on their communities. In the Native way, when one person is harmed, everyone is harmed. Adequate funding for the provision of basic public safety services is an essential part of any strategy to reduce the Indian Country crime rate and provide the same safe and secure environment for Native peoples that is enjoyed by most other Americans.

The U.S. Attorney's Office in Flagstaff estimates that violent crime on the Navajo reservation is six times higher than the national average. Increased crime includes alcohol and drug abuse, domestic violence and child sexual abuse.

We cannot address domestic violence on Navajo because we cannot separate the abuser from the victim due to lack of detention facilities—and the abusers know that.

We cannot protect our children from sexual predators. Just in one community, there were 100 reported cases of child sexual abuse in 1 month. We cannot protect our families without somewhere to put the perpetrators threatening our communities.

Navajo Nation averages one officer for every 4,000 people, compared to the national average of three officers per 1,000 people.

Our officers often perform alone, without partners, and without radio communication for backup. In one incident I'd like to share, an officer responded to a call and found a man beating his wife and family. The wife did not want him arrested. She knew that he would not be detained long due to the lack of facilities, and feared that he would return even more violent. Because she did not want him arrested, she attacked the officer herself and tried to get his gun. The officer managed to get away, leaving the abuser with his family.

In another sad incident, a young boy was arrested for attacking his brother. After a short hour in jail, he was let out. A week later, he was arrested for attacking his sibling. He was again released after a short time in jail. He was later arrested for stabbing his mother.

Criminal incidents of recidivism such as that one are very high on the reservation all due to the factors I have described: criminals are allowed to return to their community without incarceration; we cannot incarcerate criminals without putting them at significant physical and health risk; in many instances, tribal court is just a re-

volving door for many criminals; and criminals and their victims have a complete disregard for our criminal justice system. Communities across the reservation and neighboring towns are at risk. Public safety officers are at risk.

#### THE SHOCKING STATE OF INDIAN DETENTION FACILITIES

This past September, the DOJ Office of Inspector General published its study of Indian detention facilities entitled “Neither Safe Nor Secure—An Assessment of Indian Detention Facilities” (Report No. 2004-I-0056). The Inspector General’s office was shocked by what it found. The Inspector General’s report was only the latest in a series of reports and testimony about the decrepit condition of Indian Country detention facilities.

In the late 1950’s and early 1960’s, the Navajo Nation constructed six detention facilities. Of our many urgent public safety needs, our highest priority is to replace or fully renovate these out-of-date and dilapidated facilities. For example, the Tuba City detention facility suspended its operation in Winter 2004 due to crumbling ceilings and walls, exposed conduits and weakening foundations. In January of this year, the facility caught fire due to an electrical short. Other facilities in Chinle and Shiprock are in roughly the same poor condition. Our remaining facilities at Kayenta, Crownpoint and Window Rock are only a few years away from joining Tuba City as facilities not fit to house animals, much less human beings. The BIA does not operate these facilities as the Navajo Nation, pursuant to the Indian Self Determination and Assistance Act, has contracted to carryout BIA law enforcement programs on the reservation. However, the same funding shortfalls that have led to problems in BIA-operated detention facilities have affected the Navajo Nation-operated detention facilities. Just to bring our detention facilities up to the national standard will require \$140 million for Navajo.

#### HISTORIC FUNDING LEVELS FOR INDIAN COUNTRY PUBLIC SAFETY PROGRAMS—A QUIET CRISIS?

In July 2003, the U.S. Commission on Civil Rights released a detailed report on Federal funding and unmet needs in Indian Country entitled “A Quiet Crisis”. The Commission engaged in a comprehensive analysis of Federal funding of Native programs across all departments, concluding that the Federal Government was not meeting its trust obligation to Indian tribes. Among the report’s many findings, was that “. . . per capita federal spending on Native Americans was higher than spending for the general population between 1975 and 1980. Between 1980 and 1985, however, Native American expenditures declined while those for the general population increased, until approximate equivalency. After 1985, per capita Native American and general population spending did not increase at the same rates, resulting in a wide gap.”

The Commission found that “[p]erhaps one of the most urgent needs in Indian Country is access to basic law enforcement . . .”. The Commission noted that the level of police coverage in Indian Country is much lower than for other areas of the United States.

The Commission commented at length on the sporadic and minimal levels of funding for tribal courts, as well as on the substandard conditions at over-crowded tribal detention facilities, where funding also has been scarce. Despite some increases in funding between 1998–2003, the Commission noted a downward trend ever since. The Commission concluded: “Funding for criminal justice systems in Indian Country remains insufficient to meet the immediate needs of these communities, much less establish a framework for eventual self-sufficiency. The potential for even modest progress will be undone if funding cutbacks continue as they have in recent years.”

#### DEPARTMENT OF JUSTICE

The President has proposed consolidating a number of Indian programs in the Justice budget into one flexible COPS/OJP Indian Grant program funded at \$51.6 million. In fiscal year 2005, for example, Indian programs were funded as follows: Tribal courts, \$7.9 million; Alcohol and substance abuse, \$4.9 million; Indian Prison Grants, \$5 million; and Indian Alcohol & Crime Demonstration Program, \$5.4 million. Based on discussions with DOJ budget personnel, historical funding for Indian programs at DOJ is as follows:

## FUNDING FOR DOJ INDIAN PROGRAMS

[In millions of dollars]

	Amount
2004 Actual .....	49.4
2005 Enacted .....	47.4
2006 Request .....	51.6

The increase from 2004 to 2006 is 4.5 percent or about 2.25 percent on a yearly basis. This increase barely keeps pace with inflation. The President has proposed to nearly eliminate the COPS program, as well as several other programs that tribes have accessed. It is not clear from the budget documents to what extent these cuts would impact Indian tribes.

WORKING TOGETHER THE CRISIS IN INDIAN COUNTRY PUBLIC SAFETY CAN BE  
ADDRESSED

Thank you for this opportunity to share the concerns of the Navajo Nation. The Navajo Nation looks forward to working closely with the committee to address public safety concerns in Indian Country. Together we can assure a better life for America's first peoples. Please do not hesitate to contact me if you have any questions or if we can be of any assistance.

## PREPARED STATEMENT OF THE NATURE CONSERVANCY

Mr. Chairman, thank you for the opportunity to offer the recommendations of The Nature Conservancy on the fiscal year 2005 budget for the National Oceanic and Atmospheric Administration (NOAA).

The Conservancy recommends the following funding levels for programs with which we work closely and that make important and substantive contributions to effective and lasting conservation of coastal and marine biological diversity:

	TNC Recommends	Change From Fiscal Year 2005
NOAA Oceans and Coasts (NOS):		
Coastal Zone Management—Grants to States .....	\$90,000,000	+ \$23,000,000
Coastal Services Center .....	23,000,000	+ 328,000
Pacific Services Center .....	2,300,000	+ 50,000
Coastal Change Analysis .....	500,000	( <sup>1</sup> )
Coastal Storms <sup>2</sup> .....	2,903,000	+ 403,000
NERRS—Operation .....	22,000,000	+ 5,600,000
NERRS—Acquisition/Construction .....	15,000,000	+ 6,000,000
Coastal and Estuarine Land Conservation Program .....	60,000,000	+ 17,700,000
National Marine Sanctuaries Program—Operation .....	51,000,000	( <sup>1</sup> )
National Marine Sanctuaries Program—Acquisition/Construction .....	10,000,000	+ 144,000
Coral Reef Conservation .....	30,500,000	+ 2,500,000
NOAA Fisheries (NMFS):		
Fisheries Habitat Restoration/Community-based Restoration .....	20,000,000	+ 1,000,000
Pacific Salmon Recovery Program <sup>2</sup> .....	90,000,000	( <sup>1</sup> )
Cooperation with States (ESA §6 grants to States) .....	5,000,000	+ 4,100,000
NOAA Satellites (NESDIS): Coral Reef Monitoring <sup>2</sup> .....	737,000	+ 37,000
NOAA Research (OAR)—Global Change Program:		
Sector Applications Research Program (SARP) <sup>2</sup> .....	2,600,000	( <sup>2</sup> )
Regional Integrated Science and Assessment (RISA) <sup>2</sup> .....	4,800,000	+ 800,000

<sup>1</sup> No change.

<sup>2</sup> Requested level equal to the President's fiscal year 2006 budget request.

The Nature Conservancy implements a growing number of site specific marine conservation programs in all U.S. coastal and Great Lakes States as well as in 28 other nations. A science-based, nonprofit organization, the Conservancy works in collaboration with local residents, partner organizations, government agencies and other stakeholders to identify, protect and manage significant habitats and natural systems. We employ pragmatic, non-confrontational strategies to reduce threats to biodiversity and ensure the long-term health and function of ecosystems.

The Conservancy works to identify priorities for coastal and marine conservation through marine ecoregional plans. We identify present and likely future threats to

marine biological diversity before attempting to identify appropriate strategies for conservation. At over a hundred marine sites around the world, the Nature Conservancy has used a variety of strategies for marine conservation including habitat restoration of important nursery and spawning areas, removal of invasive species, coastal land acquisition, private conservation of submerged lands, elimination of destructive practices, establishment of protected areas, management of extractive marine resources activities, and reduction of nutrient and toxic inputs to coastal systems. No single strategy works everywhere and at every site, multiple conservation approaches are needed. The selection of appropriate approaches depends on the biological, socioeconomic, and political circumstances at each site.

The National Oceanic and Atmospheric Administration (NOAA) is an important partner to the Conservancy in many aspects of our approach to conservation:

- We rely upon NOAA's data as well as their research and monitoring of coastal and marine systems and have several shared priorities on which we collaborate.
- We rely on their programs that support site-based conservation—those that fund activities such as conservation and restoration and those that provide for management of coastal and marine systems.
- Finally, their support for State and local implementation and educational programs help to ensure that human capacity exists to address environmental management issues at the scale at which they are best managed.

#### RESEARCH, MONITORING, AND OBSERVATIONS

Federal investments in marine science have decreased over the past decade and information that is collected is often not available to ocean and coastal resource managers grappling with the difficult task of balancing competing uses of marine resources. The highest priority in national ocean and coastal research programs should be the science and information needs of resource managers including national, State and local coastal agencies. There is an urgent need for better information that is readily available to guide the management decisions affecting nearshore ecosystems where habitat loss and intensive use now threaten the survival of living marine resources. The Conservancy has worked closely with Coastal Service Center and NOAA's Coral Reef program on a number of shared interests. It is our experience that both programs support research and monitoring that directly addresses the needs of managers on the ground.

By supporting a wide variety of scientific work and partnering with a multitude of stakeholders, The Coastal Services Center (CSC) and the Pacific Services Center (PSC) have helped to forge new partnerships and increase our overall understanding of how the coasts work. For example, CSC has worked with the Conservancy to:

- fund regional planning in the Pacific Northwest to identify important habitats and design effective conservation strategies for biological diversity; and
- provide data, analysis, and mapping support for the Northwest Florida Greenway Partnership—a partnership between the Air Force, State of Florida, U.S. Fish and Wildlife Service, the Conservancy, and many others to manage development encroaching on the USAF training area and to protect vast forests and natural areas in Northwest Florida.

By maintaining a strong service orientation and working with partners like The Nature Conservancy, CSC and PSC consistently use Federal dollars for highest leverage results. The Coastal Storms program—which is led by CSC—is one of the first research programs to be fully integrated across NOAA and yields information that is valuable for understanding and predicting the impacts of coastal storms such as flooding and storm surges. The Coastal Change Analysis program looks at developing topographic/bathymetric maps of coastal areas and analyzing changes in coastal vegetation. This information will be invaluable for managing for disasters (such as tsunamis and hurricanes), regional and global climate changes, siting infrastructure development, understanding sediment budgets, and undertaking risk assessment and vulnerability assessments for coastal communities.

NOAA's Coral Reef Program seeks to support research and mapping oriented toward the needs of coastal managers. The Conservancy strongly supports maintaining the coral program's base budget at \$28 million. A portion of the increase recommended, \$500,000 would allow the program to continue to map U.S. coral reefs—a task that, astonishingly, has not yet been completed. Funding requested for NOAA's Satellite Service also is important for improving our understanding and predictions of how corals will respond under stress. This information will help managers focus their efforts on areas where it will do the most good.

Additionally, the Conservancy supports the work of NOAA's Global Change program, particularly the Sector Applications Research Program and Regional Integrated Science and Assessment. These programs support work to understand and

project the impacts of climate variability and change on ecosystems at various spatial and temporal scales; develop local, national and international strategies for adapting to climate change related to the management of natural resources and the ecosystems and functions supported by these systems; and, to assess and apply existing, state-of-the-art climate science to improve the management and conservation of natural resources, both today and in the future.

#### SUPPORTING SITE-BASED CONSERVATION

Marine and coastal ecosystems with the highest biodiversity value must be protected and restored. Marine ecosystems in our coastal zone face greater pressure from population growth and intensive land use than any other natural resource in the United States. These ecosystems provide significant benefits, protecting shorelines from erosion, serving as spawning and nursery grounds for commercial and recreational fisheries, cycling nutrients and removing pollutants. Yet, only small portions of the most productive ocean and coastal ecosystem have been protected in parks, preserves and sanctuaries.

The Conservancy believes that government and the private sector should devote substantially more resources to the permanent preservation of ocean and coastal ecosystems with the greatest biodiversity value. Federal and State governments should be encouraged to use the best available science to identify sites where ecosystem protection and restoration will have the greatest potential to protect biodiversity—and should be provided the resources to take action.

Specifically, the Conservancy would like to call to your attention two important programs. First, through NOAA's Coral Reef program and the U.S. Coral Reef Task Force, NOAA has undertaken a unique partnership with States and territories to develop locally based strategies to address threats to coral reefs at the local level. The administration has included the "Local Action Strategies" in the President's Ocean Action Plan and has requested funding for both NOAA (\$1.5 million) and the Department of Interior (\$1.2 million) in the fiscal year 2006 budget request to implement these plans. The program requires a 1:1 match, which will likely be waived for projects in the territories. However, one of the purposes of this program is to raise the profile of these needs to attract other non-Federal resources. The Conservancy recommends that NOAA's portion of this funding be provided in addition to their base funding.

The Nature Conservancy strongly supports the President's request for \$90 million for the Pacific Salmon Recovery Fund which has gone to fund activities to protect and restore salmon habitat in western States. Generally, in most areas of the country, resources to undertake science and management to recover listed species are scarce. To address that need, the Conservancy requests \$5 million for NMFS Protected Resources for Cooperation with the States to implement the Endangered Species Act. The \$1 million provide each of the last 2 years has been extremely well received and additional funds would be similarly well-spent.

Finally, we would like to thank the committee for its support for the Community-based Restoration program. This program has an unparalleled record of getting funding to good projects on the ground, raising non-Federal contributions, and engaging communities in stewardship of their local resources.

#### PARTNERSHIPS, CAPACITY AND EDUCATION

The U.S. Commission on Ocean Policy included numerous recommendations for improving the way government manages numerous competing uses and conservation of coastal and marine resources. They also recognized that a shift to the governance that they envisioned would require new partnerships, enhanced human capacity, and education—not only to inform the public, but also to train the next generation of resource managers. The Conservancy is committed to working in partnership with NOAA, States, local governments, and our fellow stakeholders to take conservation actions that provide the most impact for the limited dollars that are available. Funding the people and programs that make this work happen is no less important than the money that accomplishes a restoration project, creates a refuge, or mitigates a threat on the ground. Investing in that infrastructure is a critical component of effective coastal and ocean management. The Nature Conservancy has a Memorandum of Agreement with NOAA and we work closely with a number of their programs to identify shared priorities, so that scarce resources are used in the most efficient and complementary way possible. Programs that support partnerships include:

—*NOAA's Coral Reef Program.*—\$500,000 of the increase requested for this program would support coral conservation in the Western Pacific, including Palau and the Federated States of Micronesia. Many of the management strategies

being developed in Palau will have direct benefit and application in U.S. States in territories. For example, a coral reef protection model developed in Palau is now being used in Florida Keys National Marine Sanctuary.

—*Coastal Zone Management Act—Grants to States.*—State CZM programs are important to the management of coastal resources. The Conservancy works closely with States to set joint priorities for conservation and to protect and restore important coastal areas.

Thank you for this opportunity to inform the committee of the Conservancy's priorities in NOAA's fiscal year 2006 budget. I would be pleased to provide the committee with additional information on any of the Conservancy's activities described here or elsewhere.

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PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

On behalf of the American Society for Engineering Education Engineering Deans Council (EDC), I would like to express appreciation for the opportunity to present testimony for the record on fiscal year 2006 appropriations for the National Science Foundation. I request that my testimony be made part of the record of the hearings on the fiscal year 2006 NSF budget. I want to begin by thanking the Chairman Richard Shelby and Ranking Minority Member Barbara Mikulski and all the other members of this subcommittee for their strong and continuing support for a robust budget for the National Science Foundation and for supporting the doubling of the NSF budget over 5 years. The NSF plays a vital role in supporting and advancing basic research in science and engineering and in developing the human capital needed to advance science and technology. Funding levels for the agency greatly impact engineering educators, as well as the Nation as a whole.

The Engineering Deans Council thanks the Congress and the administration for recognizing the importance of the National Science Foundation by enacting the NSF Authorization Act of 2002, which provides for doubling the budget of the National Science Foundation over a 5 year period. This Act represents a major milestone for the NSF and for the scientific community, because it authorizes raising the budget of the NSF from its fiscal year 2002 level of approximately \$4.8 billion to the level of \$9.8 billion in fiscal year 2007.

For fiscal year 2006 the EDC advocates raising the NSF budget above the fiscal year 2005 request of \$5.75 billion, to \$6.1 billion. Even in tough budget years, this kind of investment is critical to developing the human and technical infrastructure that will continue to be the basis of economic growth and security for the country.

The EDC encourages Congress to provide a strong appropriation for the NSF Math and Science Partnership program in fiscal year 2006, to improve teacher and student quality in science, technology, engineering, and mathematics education.

The NSF occupies a unique position, with the ability to influence the economic strength of the Nation through research and innovation. Basic research funded through the NSF opens the doors for further discoveries that can advance medical care, improve communication equipment, and contribute to creating better civilian and military security systems. In the current climate of global economic competition and a heightened need to protect our citizens and infrastructure, strong support of the NSF serves a vital national interest.

Science and technology have become a core component of economic strength and competitiveness. The NSF brings special expertise to the task of identifying and promoting the basic science and engineering research that underlies the United States' world economic leadership. Research sponsored by the NSF is vital to the Nation's investment across the scientific disciplines, and yields short term benefits and future advances for our national and homeland security, economic prosperity, quality of life, and educational growth. A growing chorus touts the importance of this kind of Federal engagement with science and technology, including Federal Reserve Chairman Alan Greenspan, the Council on Competitiveness, and Business Week, among many others. As the Council on Competitiveness stated in its December 2004 Innovate America report, "America must champion and lead a new era of openness and competition—fueled by agility and constant motion, and enabled by lifelong learning, technological prowess and the infinite creativity of the innovation process itself."

NSF is the sole Federal agency charged with the important task of funding a broad range of research, spanning a wide variety of disciplines including basic science, engineering, mathematics, and computing. It provides necessary financial and intellectual support for scientists working on groundbreaking research, much of which will lead to innovations that could impact any number of emerging technologies. While NSF accounts for less than 4 percent of total Federal research and

development spending, the agency supports almost half of the non-medical basic research at American colleges and universities. In the field of engineering, NSF provides nearly one-third of all Federal support for basic research and has contributed to important developments such as computer-aided design, fiber optics, biotechnology, advanced composite materials, and magnetic resonance imaging (MRI). Renewing support for research and equipment will allow the Nation to take advantage of the opportunities presented by these new technologies, creating further economic opportunities and improving overall quality of life.

NSF-sponsored research has led to many of the current developments in the area of homeland security. Recent NSF projects ranging from improving bomb detection to preventing an attack on our water supply help bolster our Nation's ability to prevent and respond to terrorist attacks.

The benefits of a strong science investment are evident as the men and women of our armed forces respond to unprecedented threats to U.S. national security. Because of its superiority, much of it brought about by investments in S&T, this Nation's military is successfully waging war against terrorism. In this new environment, characterized by unforeseen and unpredictable threats, maintaining and enhancing technological superiority will become even more imperative.

Across all fields, NSF support for research produces first-rate results on modest levels of investment. NSF-supported work is exceptionally well managed, and regularly attracts additional funding from outside sources. The agency has a diverse, responsive, results-oriented staff, efficient business processes that take advantage of staff knowledge and technology resources, and state-of-the-art business tools and technology. NSF has exceptional business practices, as it demonstrated by earning three "green lights" on the scorecard that tracks the President's Management Agenda. Former OMB Director Mitchell Daniels said that the NSF deserves to be strengthened, noting, "NSF is one of the true centers of excellence in the government where 95 percent of the funds that taxpayers provide goes out on a competitive basis directly to researchers pursuing the frontiers of science at a very low overhead cost." NSF's management successes include doubling its budget between 1990 and 2000 while simultaneously decreasing the number of employees at the agency.

Much of NSF's work looks beyond technological innovation by engaging new generations of students to aid in discoveries while gaining valuable skills that help prepare them for the cutting-edge research of the future. Many NSF grants require undergraduate students to be involved in performing federally funded research. The NSF's Math and Science Partnership Program extends improved science education into classrooms by uniting local school districts with the faculties of nearby colleges and universities.

Engaging students in science from their pre-kindergarten education through college will help endow growing generations of Americans with the skills and interests necessary both to maintain U.S. leadership in economic, health, and military fields, as well as to function as citizens in an increasingly technology-driven society. A vibrant engineering education enterprise benefits civic, economic, and intellectual activity in the country. Engineering graduates learn to integrate scientific and engineering principles to develop products and processes that contribute to economic growth, advances in medical care, enhanced national security systems, and ecologically sound resource management. As a result, students who graduate with engineering degrees bring highly prized skills into a wide spectrum of sectors in the American workforce. Some conduct research that results in socially or economically valuable technological applications. Others produce and manage the technological innovations said to account for one-third to one-half of growth in the American economy. Still more bring advanced analytical abilities and knowledge of high technology to fields as diverse as health care, financial services, law, and government. Within all of these groups, the diversity of engineering graduates' backgrounds and viewpoints enables them to achieve the advances in innovation, productivity, and effectiveness that make them valuable contributors to the American workplace.

In the Addendum immediately following my testimony, I have included additional documentation of the many ways NSF support is promoting engineering education and research at U.S. colleges and universities. This wealth of human capital owes much of its capacity to strategic NSF support for engineering education.

A succession of predictable, sizable increases to the NSF budget will permit even greater development of human resources. In addition to the Math and Science Partnership initiative, NSF programs have become important vehicles for broadening the participation of under-represented groups such as minorities and women in the fields of science, math, and engineering. Through programs like the Experimental Program to Stimulate Competitive Research (EPSCoR), NSF works to strengthen the research and development infrastructure of many rural and low-population States. Consistent growth in the NSF budget will permit the allocation and coordi-

nation of the activities needed to promote the broadest possible development of science, mathematics, and technology skills among all Americans.

A \$6.1 billion budget for NSF will enhance the value of the agency's other cross-cutting initiatives. New funding for multidisciplinary mathematics research will enhance the transfer of results and applications from mathematics and statistics research to science and engineering disciplines, expanding the cadre of researchers trained in both mathematics and science. Dynamic interdisciplinary work across engineering and science disciplines promises startling advances in, for example, medicine, manufacturing, and communications. The assurance of steady resources over extended periods of time for high-risk, high-reward endeavors—such as research in nanotechnology, biocomplexity, and high-speed computing—would greatly enhance their prospects for success. As Harold Varmus, former Director of the National Institutes of Health and currently President of the Memorial Sloan-Kettering Cancer Center, has said, "it is crucial that leaders of science agencies be able to anticipate several years of steady growth during periods of expansion. These agencies make multi-year awards and are responsible for training and research infrastructure, as well as the operational costs of doing research." In an increasingly interdependent research system, the NSF is uniquely situated to initiate and promote productive exchanges across the full range of scientific and engineering disciplines.

Thank you for the opportunity to present this testimony to the subcommittee. The Engineering Deans Council would be pleased to respond to any questions from you and your staff.

The Engineering Deans Council of the American Society for Engineering Education (ASEE) is the leadership organization of more than 300 deans of engineering in the United States. Founded in 1893, ASEE is a non-profit association dedicated to the improvement of engineering and engineering technology education.

#### ADDENDUM.—EXAMPLES OF NSF-FUNDED PROGRAMS AT ENGINEERING SCHOOLS

*Quickly Identifying Deadly Viruses.*—A portable pathogen detector is currently being developed by scientists at the Center for Biophotonics at the University of California-Davis to identify potentially deadly viruses and other biological agents in an unknown sample within 15 minutes. Originally developed at Lawrence Livermore National Laboratory with industry partners, the unit aims to help paramedics, emergency room specialists, police, and other first-responders who may unknowingly be exposed to bioterrorism or other infectious agents.

*Developing Smaller, More Mobile, Power Sources.*—Vanderbilt University robotics engineers are working to develop a power source for autonomous robots that stores significantly more energy per unit mass than batteries and weighs a fraction of the weight of a comparable battery/motor system. This power source can be used to run a "lower extremity enhancer" (also known as an "exoskeleton") to enable war fighters to easily carry 120 lbs over rough terrain for up to 24 hours. Vanderbilt researchers are developing the power system for this device, replacing batteries with rocket propellant in motors with pneumatic actuators. The Defense Advanced Research Projects Agency (DARPA) and the National Science Foundation (NSF) fund this research.

*Realistic Facial Recognition.*—Driven by applications in human-computer-interaction, security, entertainment and psychological research, facial analysis is a research topic in both the scientific community and industry. The Watson School of Engineering at Binghamton University is carrying out research on high definition face modeling representation. It is anticipated that this pilot research will lead to the development of a humanized system for recognizing human faces and their expressions (even emotions) as well as an automatic system for generating life-like facial expressions, which is crucial to the next generation of the human-computer interface.

*Removing Organic Waste from a Wide Variety of Water.*—Researchers at the University of Arkansas are developing a device that uses a new technology to clean water more efficiently and effectively. Currently, the most common treatment of organic wastewater is biological—bacteria digest organic material through their respiration cycle. Efficient and effective biological wastewater treatment occurs under conditions that include oxygen. The micro-bubble oxygenation system they have developed operates at approximately one-tenth of the cost of more typical surface agitator aeration and one-fifth the cost of bubble aeration methods for cleaning water.

*Creating Earthquake-proof Structures.*—As we all now know, earthquakes cause significant damage to structures and loss of lives. One way to prevent structural failures is to build them on strong, earthquake-resistant foundation systems. However, the current methods are inadequate to design such a foundation system. Researchers at Johns Hopkins University developed a new field-testing method to help

design a pile foundation system for buildings and bridges that can withstand even the strongest earthquake and prevent the collapse of such structures. The research is funded by the National Science Foundation and the Federal Highway Administration.

*Securing the Nation's Power Grid.*—The Nation's electric power grid was designed decades ago when computer networks were much less advanced and a single power company had complete control in each geographic region. As a result, the grid's communication infrastructure is inadequate, increasing the grid's vulnerability to massive accidental failures (such as in August 2003 on the East Coast, and in 1996 on the West Coast) and to cyber-attacks. Washington State University researchers are developing a new software system, called GridStat, which is more versatile than the grid's existing communication infrastructure and is able to handle the scaling-up of data that is imperative for the reliability and security of a deregulated power grid. GridStat has received funding from the Critical Infrastructure Protection program of the National Institute of Standards and Technology (NIST) and from the National Science Foundation (NSF).

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PREPARED STATEMENT OF THE ASSOCIATION OF SMALL BUSINESS DEVELOPMENT  
CENTERS (ASBDC)

The Association of Small Business Development Centers (ASBDC) urges the Subcommittee on Commerce, Justice, Science and Related Agencies to provide an appropriation of \$109 million for the Small Business Administration's Small Business Development Center (SBDC) grant program in the fiscal year 2006 appropriations bill.

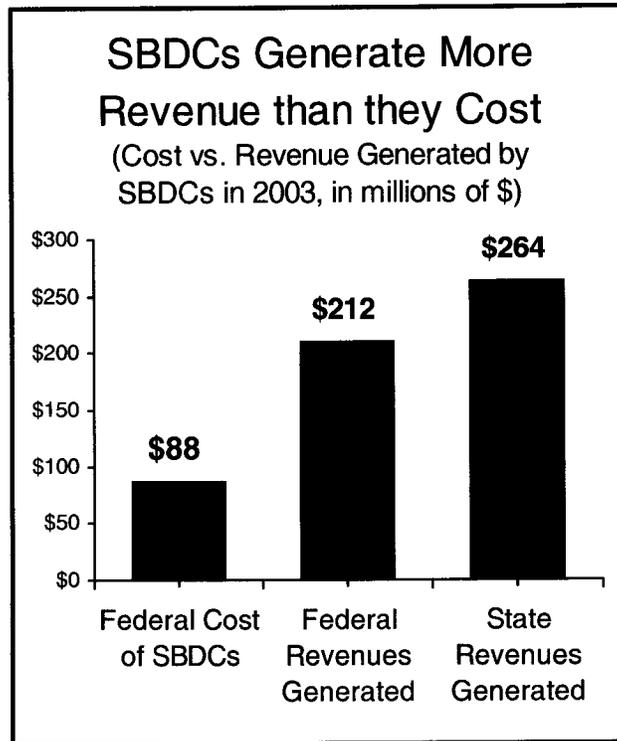
An appropriation of \$109 million is the level of funding required to restore Federal resources lost to all State and regional SBDC networks in recent years. It is the funding level recommended by the Chair and Ranking Member of the Senate Small Business Committee in their Budget Views and Estimates letters; the funding level provided for in the Snowe-Kerry amendment to the Senate Budget Resolution; and the funding level recommended by every member of the Small Business Committee in their letter of April 22 to Chairman Shelby and Ranking Member Mikulski.

Federal funding for the nationwide SBDC network today is lower than it was in fiscal year 2001, even without accounting for inflation or population growth. If one accounts for the effects of inflation, the loss of Federal SBDC resources is clear and dramatic. If the national SBDC network is funded at \$88 million in fiscal year 2006, as proposed by the SBA, State SBDC networks will receive significantly less Federal funding (in inflation-adjusted dollars) than they received in fiscal year 2001. For example: Alabama will receive \$192,010 less; Alaska will receive \$61,827 less; Hawaii will receive \$61,827 less; Iowa will receive \$197,561 less; Kansas will receive \$169,564 less; Kentucky will receive \$176,740 less; Maryland will receive \$214,554 less; Mississippi will receive \$157,298 less; Missouri will receive \$250,778 less; New Hampshire will receive \$61,827 less; New Mexico will receive \$109,916 less; North Dakota will receive \$61,827 less; Texas will receive \$197,532 less; Vermont will receive \$61,827 less; Washington will receive \$79,029 less; West Virginia will receive \$200,769 less; and Wisconsin will receive \$233,910 less.

For small-population States, such as Alaska, Hawaii, New Hampshire, North Dakota and Vermont, which receive the statutory minimum funding for their SBDCs, the decline in Federal funding has been even more severe. Small-population States have not had an increase in Federal SBDC funding since 1998. These States will receive \$103,210 (17 percent) less Federal funding for their SBDC networks in fiscal year 2006 (in inflation-adjusted dollars) than they received in fiscal year 1998, if the national SBDC network is funded at \$88 million as proposed by the SBA.

The 24 States (including Alabama, Iowa, Kansas, Kentucky, Maryland, Mississippi, Missouri, New Mexico, West Virginia and Wisconsin) that suffered Federal SBDC grant reductions after the 2000 Census, have been particularly hard-hit by declining Federal funding for the nationwide SBDC network. Although the populations of these States grew during the 1990's, their populations did not grow as fast as the national average, and their share of Federal SBDC funding was reduced even further after the 2000 Census.

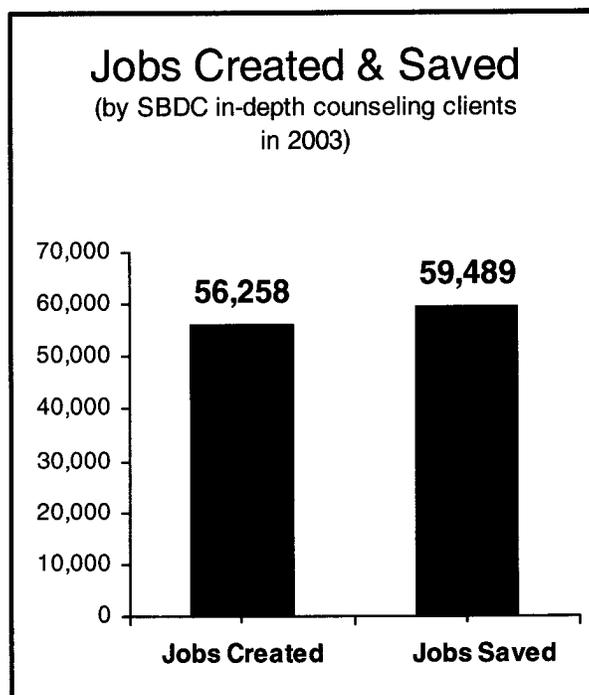
I realize the tight budget constraints facing the Congress this year, and the SBDC network appreciates the small increase in Federal funding proposed in the President's budget (from \$87.8 million in fiscal year 2005 to \$88 million in fiscal year 2006). However, as custodians of the SBDC program, we feel it is our responsibility to let Congress know about the impact of declining Federal resources on SBDC services to the small business community, and to urge Congress to alter that trend if possible.



As a result of declining Federal resources, SBDC services to small businesses owners and aspiring entrepreneurs have been curtailed, and the economic impact of SBDC assistance has been diminished. Last year, for example, due to the laying off of SBDC counselors and the closing of centers, the number of hours of business counseling provided by the nationwide SBDC network declined by 93,826 compared to the year before—despite growing demand for SBDC services.

I urge you to consider that Federal funding for the SBDC program is an investment, not a loss for the Federal Treasury. Federal SBDC funding actually generates more revenues than it costs the taxpayer. In 2003, the Federal SBDC appropriation of \$88 million helped SBDC in-depth clients generate an estimated \$211.6 million in Federal revenue—a return of \$2.40 in new tax revenues for every Federal dollar spent on the SBDC program. And every dollar appropriated by the Federal Government for the SBDC national program—to assist small businesses to survive, grow and create jobs—leverages at least one additional, non-Federal dollar in small business assistance. That is so because, to secure a Federal dollar, SBDCs must raise a non-Federal matching dollar.

The SBDC network has a proven record of creating jobs and generating growth for America's small businesses.



- In the sluggish economy of 2003, as larger businesses downsized, SBDC in-depth counseling for small businesses generated 56,258 new full time jobs and helped save an additional 59,489 jobs.
  - SBDC counseling clients create more jobs than average businesses. Businesses that received in-depth SBDC counseling experienced 25 times the job growth of average businesses (10.2 percent compared to 0.4 percent for U.S. businesses in general) in 2003.
  - SBDCs help small businesses increase sales. SBDC in-depth counseling helped small businesses generate \$5.9 billion in new sales and save an additional \$7 billion in sales in 2003.
  - SBDC clients' sales grow faster than other businesses' sales. Established businesses that received in-depth SBDC counseling experienced sales growth of 17 percent in 2003—compared to 2 percent for businesses in general.
  - SBDC clients create new businesses. More than 50 percent of all pre-venture SBDC in-depth counseling clients start new businesses. Between 2002 and 2003, SBDC in-depth counseling clients started 15,157 new businesses.
  - SBDC clients make investments in our economy. SBDCs helped in-depth clients obtain an estimated \$2 billion in financing in 2003. Every dollar spent on the SBDC network helped small businesses to access \$10.32 in new capital.
- With an appropriation of \$109 million, the nationwide SBDC network would be able to help small businesses create an estimated 78,000 new jobs and \$270 million in new Federal revenues.
- Nationwide, SBDCs provided management and technical assistance to more than 1.3 million small business owners and aspiring entrepreneurs last year. In 2004, SBDC services included face-to-face counseling of an hour or more for 279,905 clients; 1.5 million total hours of counseling; 27,193 group training sessions; and more than 2.1 million total hours of training for small businesses and aspiring entrepreneurs. In 2004, 39 percent of SBDC counseling clients nationwide were women, 27 percent were minorities and 9 percent were veterans. Forty-four percent of SBDC training clients were women, 24 percent were minorities and 7 percent were veterans.

America's SBDC network is a unique partnership that includes Congress, the SBA and the private sector, as well as the colleges, universities and State governments

that receive SBDC grants and manage the SBDC network. Outstanding institutions of higher education such as the University of Alabama at Birmingham, the University of Alaska at Anchorage, the University of Hawaii at Hilo, Iowa State University, Fort Hays State University, the University of Kentucky, the University of Maryland, the University of Mississippi, the University of Missouri Extension, the University of New Hampshire, Santa Fe Community College, the University of North Dakota, Texas Tech University, the University of Houston, the University of Texas at San Antonio, the Dallas County Community College District, the Vermont State Colleges, Washington State University, and the University of Wisconsin Extension, to name a few, are hosts of the SBDC program. SBDC hosts also include State government agencies, such as the West Virginia Development Office. These agencies, like the institutions of higher learning that host SBDC programs, bring to the SBDCs resources, relationships and unparalleled leadership in their respective States.

I appreciate the subcommittee's consideration of the ASBDC's views. The Federal investment in America's SBDC Network is a proven, cost-effective way to grow the small business community, create jobs and develop the economy of the future. As such, the ASBDC urges the subcommittee to provide an increase in funding for the SBDC program in the fiscal year 2006 Commerce, Justice, Science and Related Agencies appropriations bill, sufficient to restore Federal resources lost to all State and regional SBDC networks in recent years as a result of declining Federal funding, inflation and Census-related grant reductions.

The ASBDC also urges the subcommittee to reject non-SBDC related earmarks in the appropriation for SBDC grants. The SBDC appropriation has for several years included earmarks for SBDC related programs (for example, the SBDC defense transition program), and the ASBDC does not oppose this funding. However, in fiscal year 2004 and fiscal year 2005, the appropriations bills included earmarks for a program (the South Carolina Women's Business Center) that is unrelated to the SBDC program. The ASBDC opposes such non-SBDC related earmarks to the SBDC appropriation and urges the subcommittee to reject such earmarks.

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PREPARED STATEMENT OF THE NATIONAL COUNCIL FOR SCIENCE AND THE ENVIRONMENT

SUMMARY

The National Council for Science and the Environment (NCSE) urges Congress to appropriate \$6.29 billion for the National Science Foundation (NSF) in fiscal year 2006, an increase of 15 percent over fiscal year 2005. NCSE supports a 15 percent increase for NSF in order to put the agency on the doubling track that Congress and the administration deemed necessary when they enacted the National Science Foundation Authorization Act of 2002 (Public Law 107-368). Under the fiscal year 2006 budget request, funding for NSF would decline by approximately 0.5 percent in constant dollars, after accounting for a proposed transfer of existing funding from another agency.

The United States leads the world in scientific discovery and innovation, but other nations are on a fast track to pass the United States. The long-term prosperity of the Nation, our quality of life, as well as our national and homeland security require a strong and steady commitment of Federal resources to science and technology. Environmental R&D is a critical component of the overall Federal investment in research and development. Federal investments in environmental R&D must keep pace with the growing need to improve the scientific basis for environmental decisionmaking.

As a result of the recent reorganization of the Senate Appropriations Committee, the Subcommittee on Commerce, Justice, and Science now has broader jurisdiction over environmental research and education. NCSE commends the subcommittee for its past bipartisan leadership in support of science to improve environmental decisionmaking. The subcommittee has an historic opportunity to address pressing national challenges by appropriating strong and growing funding for environmental research and education at NSF, NOAA, and other science agencies under the subcommittee's expanded jurisdiction.

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

*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 5 years. It authorizes a budget increase of 105 percent for NSF, from \$4.8 billion in fiscal year 2002 to \$9.8 billion in fiscal year 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 \$6.29 billion for the National Science Foundation in fiscal year 2006, which would increase its budget by 15 percent over fiscal year 2005. NCSE supports a 15 percent increase for NSF in order to place the agency on the doubling track that Congress deemed necessary. Although the authorized funding level is \$8.52 billion for fiscal year 2006, we understand that this may be beyond reach in the current fiscal environment.

The President's budget request would increase funding for NSF by 2.4 percent to \$5.60 billion in fiscal year 2006. Of the \$132 million in new funding, \$48 million represents a transfer in existing funds from the U.S. Coast Guard for operation and maintenance of three polar icebreakers. After accounting for this transfer and adjusting for the effects of inflation, the NSF budget would decline by approximately 0.5 percent.

*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. NSF recognizes this and encourages multidisciplinary environmental activities across the entire agency, as well as with other Federal agencies. NSF has established a "virtual directorate" 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.

Although the National Science Board said environmental research and education should be one of NSF's "highest priorities" (see below), the growth of the ERE budget has lagged behind the growth of the overall NSF budget in recent years (Table 1). 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.

*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. The Biocomplexity in the Environment priority area includes research in microbial genome sequencing and ecology of infectious diseases, which improves our understanding of disease transmission and potential agents of bioterrorism.

The Biocomplexity in the Environment priority area was reviewed by a Committee of Visitors in 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."

After several years of rapid growth, the fiscal year 2006 budget request would cut funding for Biocomplexity in the Environment by 15.5 percent from \$99.2 million in fiscal year 2005 to \$83.8 million in fiscal year 2006. NCSE urges Congress to support increased funding for this critical priority area and its integration into NSF's permanent Environmental Research and Education portfolio.

**TABLE 1.—NATIONAL SCIENCE FOUNDATION: ENVIRONMENTAL RESEARCH AND EDUCATION (ERE)**  
 [Budget authority dollars in millions]

	Environmental R&D					Change 2004 to 2005			
	Fiscal Year 1999 Actual	Fiscal Year 2000 Actual	Fiscal Year 2001 Actual	Fiscal Year 2002 Actual	Fiscal Year 2003 Actual	Fiscal Year 2004 Plan	Fiscal Year 2005 Request	Amount	Percent
<b>Research and Related Activities (R&amp;RA):</b>									
Biological Sciences .....	\$117.9	\$125.3	\$167.0	\$174.5	\$188.3	\$214.1	\$214.1		
Comp. & Info. Sci. & Eng. ....	4.0	7.0	15.1	15.1	22.1	23.9	23.9		
Engineering .....	38.0	50.0	62.7	63.7	76.0	76.0	74.0	-\$2.0	-2.6
Geosciences .....	320.9	327.9	409.4	442.8	499.1	513.1	513.1		
Math. and Physical Sci. ....	44.3	48.3	56.4	56.4	46.5	32.2	32.2		
Soc., Behav. & Econ. Sci. ....	17.8	17.3	20.1	21.7	21.5	22.4	22.4		
Office of Polar Programs .....	45.3	45.3	47.5	49.8	50.9	50.9	50.9		
Integrative Activities <sup>1</sup> .....	7.0	50.0	.....	.....	.....	.....	.....		
Subtotal, R&RA .....	595.2	671.2	778.1	824.0	904.4	932.6	930.7	-1.9	-0.2
Edu. and Human Res. <sup>2</sup> .....	.....	.....	.....	.....	2.0	2.0	2.0		
<b>TOTAL ERE Budget .....</b>	<b>595.2</b>	<b>671.2</b>	<b>778.1</b>	<b>824.0</b>	<b>906.4</b>	<b>934.6</b>	<b>932.7</b>	<b>-1.9</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>

<sup>1</sup> In Fiscal Year 1999 and Fiscal Year 2000, funding for the Biocomplexity and the Environment (BE) Priority Area was included in the Integrative Activities account. Beginning in Fiscal Year 2001, BE funds were distributed across the directorates.  
<sup>2</sup> Figures for environmental funding in the Education and Human Resources account are not available prior to Fiscal Year 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 Fiscal Year 2003 to 2005 (request).  
 Source: NSF. ERE funding levels for Fiscal Year 2005 Actual and Fiscal Year 2006 Request are unavailable as of May 2, 2005.

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

The National Science Board report sets out an ambitious set of recommendations that could dramatically improve the scientific basis for environmental decision-making. 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 fiscal year 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 (Table 1). From fiscal year 2002 to fiscal year 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 as one of 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 5 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.

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 PREPARED STATEMENT OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

Thank you, Mr. Chairman for the opportunity to present this testimony on behalf of the American Society of Plant Biologists (ASPB). My name is Roger Hangarter and I am President of ASPB and professor of biology at Indiana University. ASPB joins with other members of the Coalition for National Science Funding in recommending at least \$6 billion in fiscal year 2006 appropriations for the National Science Foundation.

This level of funding will enable NSF to continue to play its key role in establishing a leadership position for the United States in science and technology. U.S. leadership in a wide range of science disciplines is needed to compete and survive in the increasingly challenging global market.

Support for NSF contributes to new job-creating discoveries while at the same time, training the highly skilled work force essential for business and industry in the Nation. Despite the attractions of lower wages and benefits costs to companies considering moving jobs offshore, it is the highly skilled workforce in the United States that plays a major role in contributing to job starts and business expansions here at home. The business magazine, *Forbes*, looked at the best places of the 150 largest cities/regions to start a business in the United States in its May 24, 2004 issue. The business magazine turned to an economic and financial research firm, *Economy.com*, to conduct the analysis. One of the major criteria mentioned in the survey assessing the best places for businesses was an educated workforce. “To assess the qualifications of the work force, we took into account the concentration of college graduates and Ph.D.s in an area,” *Forbes* said. NSF, with its grant support of university-based research and education plays a key role in the training of future and current college graduates and Ph.D.s in the United States.

Other criteria in the business survey index included weighing of business expenses, job and income growth, migration patterns, crime rates. Culture and leisure were also taken into account.

At the top of its list was Madison, Wisconsin, largely because of research and education at the University of Wisconsin and its educated workforce. In Madison, 41 percent of the population has a college degree—almost twice the national average. That helps create a tight labor market where unemployment is the lowest of any of the 150 largest metro areas, the article noted.

“Brains power the Madison economy: The university, which employs 17,000 souls but has helped create 70,000 jobs in Madison, generates \$4.7 billion a year in direct and indirect output, reports NorthStar Economics,” Forbes noted. “Outsourcing may be all the rage these days, but many companies are still looking homeward—with good reason: low business costs and an educated workforce.” Contributions of NSF and other federally supported research to universities and local economies are also found in many cities across the Nation in addition to Madison.

Huntsville, Alabama captured a top ten position in the business-appeal rankings. The Forbes article reported, “What Huntsville lacks in size, it makes up for in brains: 31 percent of the population has a college degree (U.S. average: 24 percent).” Huntsville also benefits from government investment by the Department of Defense, NASA and large private employers, who make use of its educated workforce.

Lexington, Kentucky, among the top ten cities in the survey to start a business or career, benefits from large employers University of Kentucky, Toyota Motor, Lexmark International and other employers. In addition to educated workers, low business costs also contribute to Lexington’s appeal to employers, according to Forbes.

Baltimore, Maryland with its base of major university and other employers was in the top half of the Forbes listing of best cities to start a business or career. Kansas City, Missouri was in the top half of the survey listing, aided by contributions of NSF-supported institutions in the State to its educated workforce.

An educated work force including graduates of universities in New Mexico contribute to Albuquerque being ranked high at 12 in the business appeal index.

Austin, Texas, with the University of Texas, was selected as one of the three most appealing cities for new business by Forbes and its research firm that compiled the business index. Also highly ranked in Texas for appealing to business are Houston, Fort Worth, Dallas and San Antonio.

States that did not have one of the 150 largest cities were not included in the business index rankings. However, NSF-sponsored research and education at universities of less populated States and in smaller cities make significant contributions to training of an educated workforce and related local business development.

New technologies resulting from basic research findings supported by NSF help create new industries and many new jobs. Often new companies spring up as a result of NSF-sponsored research.

Strong contributions by universities conducting NSF-supported research to local economies also lead to a stronger national economy. With the higher labor, housing, transportation, commercial and industrial property and related costs found in the United States compared to a number of world nation competitors, Federal investment in science and education through support of NSF helps keep the Nation’s businesses afloat in a global sea of keen competition.

NSF support for basic plant research contributes to the local economies nationwide, including rural areas, while helping to secure the food supply of all Americans. As the first step of every food chain, plants and research on plants plays an essential role in meeting the nutritional needs of people here and abroad. The NSF Directorate for Biological Sciences sponsors examination of basic research questions on plants and other organisms. A number of plant research discoveries were cited by NSF among its most significant advances in science over the first 50 years of the agency’s existence.

NSF supports world leading plant genomic research as part of the Plant Genome Research Program. The National Plant Genome Initiative Progress Report was published January 2005 by the National Science and Technology Council Committee on Science Interagency Working Group on Plant Genomes. The report noted, “Plant genome research holds enormous promise for solving global problems in agriculture, health, energy and environmental protection. Much still remains to realize this potential and the U.S. scientific community is clearly working toward that goal.”

The report cited the importance of research on economically important crops and on the model plant, *Arabidopsis thaliana*—a plant with a small and simple genome. Knowledge gained from the *Arabidopsis* genome facilitates understanding of other economically important plants through use of comparative genomics.

Advances in plant genome and other basic plant research combined with modern biotechnology will lead to superior food and energy crops, more nutritious foods, more environmentally benign plant production practices and new plant-produced lifesaving medicines. These advances will significantly benefit America's farmers and consumers.

U.S. leadership in science and technology plays an important role in the Nation's war on terrorism at home and abroad. Security related enhancements in airports, passenger plane cockpits, landmine sensing plants, modern armored vehicles, night-vision equipment and other critical areas represent applications of technology that can be traced back to basic science.

ASPB, founded in 1924, represents nearly 6,000 plant scientists. The largest segment of ASPB members conducts research at universities in each of the 50 States. ASPB membership also includes scientists at government and commercial laboratories. We appreciate the strong efforts of the committee in support of NSF. Please let us know if we can provide any further information.

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PREPARED STATEMENT OF THE OCEAN CONSERVANCY

The Ocean Conservancy on behalf of the American Society for the Prevention of Cruelty to Animals, Cetacean Society International, Defenders of Wildlife, Humane Society of the United States, International Fund for Animal Welfare, International Wildlife Coalition, National Environmental Trust, Natural Resources Defense Council, The Marine Mammal Center, The Whale and Dolphin Conservation Society is pleased to share our views regarding the marine conservation programs in the budgets of the National Oceanic and Atmospheric Administration (NOAA), the Department of State's Bureau of Oceans and International Environmental and Scientific Affairs and the Marine Mammal Commission and requests that this statement be included in the official record for the fiscal year 2006 Science, State, Justice, Commerce, and Related Agencies bill.

We cannot overstate the importance of this subcommittee in advancing marine conservation and appreciate the funding provided in fiscal year 2005. We are deeply troubled by the severe cuts for the National Marine Fisheries Service proposed in the administration's fiscal year 2006 budget request. If enacted, these cuts will cripple the agency's ability to properly manage our oceans and conserve protected and highly vulnerable marine species such as sea turtles and marine mammals. We recognize the constraints this subcommittee faces, but with the recognized threats that these species face, as highlighted in the U.S. Commission on Ocean Policy's Report, we urge you to make ocean conservation a top priority by restoring reduced appropriations to fiscal year 2005 levels.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

*National Marine Fisheries Service*

*Marine Mammal Protection*

A lack of adequate resources has severely hampered NMFS's ability to effectively implement the Marine Mammal Protection Act (MMPA). We are deeply disappointed that the President's budget cut funding for this line item in fiscal year 2006 from \$81.504 million to \$38.023 million and strongly urge the subcommittee to restore funding for this program to the fiscal year 2005 levels. This will allow the National Marine Fisheries Services (NMFS) to fund top priority studies identified by the take reduction teams; design and implement take reduction plans; conduct research on population trends; undertake research and status reviews on threatened and endangered whales; further investigate the stock structure and abundance of Atlantic bottlenose dolphins; conduct critical research on health and respond to marine mammal die-offs; undertake research and implement effective mitigation measures related to acoustic impacts on marine mammals; and carry out monitoring, education, and enforcement programs.

*Protected Species Research and Management-Protected Resources Stock Assessment Improvement Plans*

The MMPA and ESA require NMFS to regularly evaluate the status of more than 200 stocks of marine mammals and other listed species. Accurate and precise biological information is necessary to carry out effective conservation programs, promote recovery, evaluate listing status, and authorize scientifically defensible take reduction plans and incidental take permits. Unfortunately, over 200 marine mammal stocks and all U.S. sea turtle populations lack the necessary data required under MMPA and the ESA. In order to address this problem, we urge the sub-

committee to consider providing \$15 million in fiscal year 2006, an increase of \$13 million from the President's request.

*Endangered Species*

NMFS bears significant responsibility for administering the Endangered Species Act with respect to listed marine and anadromous species such as North Atlantic right whales, Steller sea lions, and all species of sea turtles found in U.S. waters. With only approximately 300 North Atlantic right whales still alive, funding is needed to improve our understanding of right whales, to develop fishing technologies to reduce entanglements, and to undertake studies and measures to reduce ship strikes. The President's request of \$5.8 million is woefully inadequate for endangered species as a whole and is significantly less than what was provided in fiscal year 2005 for Right Whale Conservation. We thank the subcommittee for its past support and request continued funding of \$15 million in fiscal year 2006 for North Atlantic Right Whale conservation efforts. In addition, we request that the subcommittee provide \$10 million for implementation of the ESA.

*Sea Turtles*

The apparent decline of the southern Florida loggerhead turtle nesting population and continuing Pacific sea turtle declines underscore the need to restore Marine Turtle funding to fiscal year 2005 levels. The President's request of \$9.7 million for marine turtles is insufficient. We respectfully request that the subcommittee restore funding to fiscal year 2005 levels and provide \$14.93 million for sea turtle conservation efforts in fiscal year 2006. In particular, we support restoration of \$1.858 million for Sea Turtle Supplemental Funding and \$.955 million for the National Fish and Wildlife Foundation Species Management program, both of which have been completely eliminated in fiscal year 2006. These programs leverage valuable funds for sea turtle conservation and foster important private and government partnerships.

*Enforcement and Observers/Training*

In addition to better data collection, enforcement of our marine mammal and sea turtle protection regulations is critical. Unfortunately, lack of funding has hampered NMFS's ability to keep pace with the need. We urge \$75 million in fiscal year 2006, \$20.8 million above the administration's request, to address this shortfall so that more officers can be hired to better enforce our marine conservation laws. Along with stock assessments, reliable, objective information must be collected about how many marine mammals and sea turtles are being caught, as bycatch is crucial to the conservation of these vulnerable species. Observers are a key means of collecting such information, yet the coverage for many of the fisheries is less than 5 percent—completely inadequate to obtain any statistically reliable information. We recommend the subcommittee provide an additional \$32.5 million for observers in fiscal year 2006 over the administration request of \$25.992 million.

*Northeast Observers.*—We urge the Appropriations Subcommittee to authorize \$20 million to support and expand the efforts of the Northeast Fisheries Observer Program in fiscal year 2006. These funds are critically needed to increase existing levels of observer coverage in several Northeast fisheries, to expand the observer-training program, and to improve the data management system currently in place. This increase of \$15.5 million over the administration's request is needed to: (1) provide sufficient levels of observer coverage to evaluate selective fishing practices, especially through Special Access Programs, B-day programs, and real-world testing of innovative gear technologies; (2) quantify actual bycatch rates in various regional fisheries; (3) assure that total catch (both landings and discards) are accurately quantified; (4) develop standardized reporting methodology to help assure that fishery managers receive the data collected by at-sea observers in a timely manner.

*Atlantic Coast Observers.*—We believe that a minimum of 20 percent observer coverage should be required throughout the Atlantic, with 100 percent coverage for any further gear research. Monitoring programs in the Atlantic longline fleet exemplify low levels of observer coverage. Since 2001, Atlantic longline observer coverage has not met even the 5 percent level required by NMFS in order to comply with the ESA. As a result, NMFS estimates that several hundred endangered sea turtles were captured in excess of authorized levels before the agency took action to require further protections. As NMFS implements various marine mammal take reduction plans and its Comprehensive Strategy for Sea Turtle Conservation in the Atlantic, observer coverage in a variety of fisheries will be a key element. We respectfully request that the subcommittee fund Atlantic Coast Observers at \$13.348 million in fiscal year 2006, \$10 million above the administration request.

*Hawaii Longline Observers.*—We strongly support \$3.979 million in funding for Hawaii pelagic longline fisheries observers. High interaction rates with endangered

sea turtles have resulted in partial closures in the fishery in recent years to avoid jeopardizing the continued existence of these species. In 2004, fishermen returned to the closed areas with gear and bait modifications expected to reduce the number and severity of sea turtle interactions. Rates of capture, however, have been higher than previously estimated, demonstrating the need for continued high levels of observer coverage to determine the effectiveness of these modifications in each fishery. We respectfully request that the subcommittee fund Hawaii Longline Observers at \$8.979 million in fiscal year 2006, \$5 million above the administration request.

*West Coast Observers.*—We respectfully requests that the subcommittee fund West coast observers at \$7 million in fiscal year 2006, \$2 million above the administration request.

*National Environmental Policy Act (NEPA) Implementation*

We support the administration's \$8.0 million request for implementing NEPA. This funding is critical, as NMFS is required by law to consider and document potential environmental impacts of agency actions, ranging from complex rulemakings to controversial research permits. Of these funds, we urge the committee to dedicate \$2 million to ensure robust NEPA analyses for marine mammal permitting.

DEPARTMENT OF STATE

*Bureau of Oceans and International Environmental and Scientific Affairs*

*International Fisheries Commission Account*

We request \$300,000 for the State Department to support the Inter-American Convention for the Protection and Conservation of Sea Turtles and the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South East Asia. Continued U.S. leadership and support will ensure that the initial excellent work of these conventions continues. In the aftermath of the Asian tsunami, the Indian Ocean agreement has become increasingly important for organizing and generating restoration and conservation initiatives in the region.

MARINE MAMMAL COMMISSION

We request that the subcommittee support the Marine Mammal Commission's base program at \$4.25 million in fiscal year 2006. The Marine Mammal Commission plays a vital oversight role to Federal agencies charged with implementing the Marine Mammal Protection Act. The Commission continues to use wisely the funds that have been appropriated, funding innovative research and providing seed money for non-governmental researchers, convening workshops on killer whale predation on marine mammals, commissioning population viability analyses of threatened and endangered marine mammals, hosting a workshop and preparing a report identifying research needs in marine mammal conservation and science, and convening a stakeholder process to evaluate the research and mitigation strategies related to the impacts of sound on marine mammals. The Commission's scientific credibility, research, and advice are critical components to our Nation's ability to conserve marine mammals and evaluate emerging threats to these animals.

These programs and issues are of the utmost importance to the stewardship of the Nation's living marine resources. We greatly appreciate your support for these programs in the past and look forward to continued, responsible funding for these programs in fiscal year 2006. Thank you for considering our requests.